



ACT
Government
Environment and Planning

2014-15 Annual Feed in Tariff Report

Environment and Planning Directorate

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1. Introduction

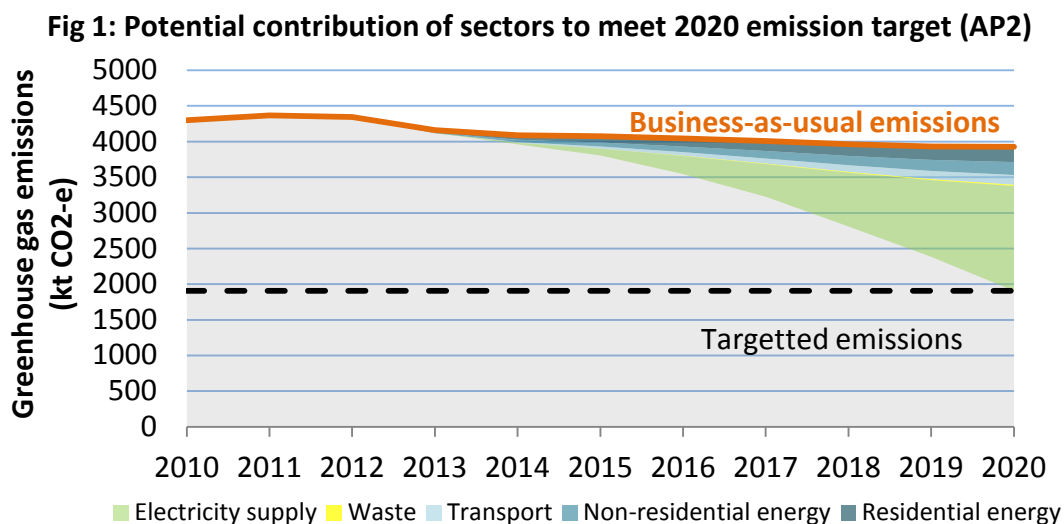
This report is the first annual report on the ACT's rooftop solar Feed-in Tariff (FiT) scheme required under section 11A of the *Electricity Feed-in (Renewable Energy Premium) Act 2008*, the legislation governing the scheme. The ACT Legislative Assembly passed amendments to this legislation in June 2015 requiring that a report be published annually on the costs, capacity and numbers of FiT supported rooftop solar systems.

While this report provides information on the rooftop solar FiT scheme, it also provides information on the ACT's large scale FiT scheme and progress towards the Territory's 90% renewable energy target. This has been included to provide the policy context for the ACT's FiT schemes which are driven by broader emissions reduction and renewable energy targets set by the Territory.

ACT's 90% by 2020 Renewable Energy Target

Action Plan 2 (AP2), the ACT's climate change strategy, committed the ACT to reduce greenhouse gas emissions to 40 per cent below 1990 levels by 2020 and carbon neutrality by 2060. To achieve these reductions, in November 2013 the ACT Government legislated a 90 per cent renewable energy by 2020 target, under the *Climate Change and Greenhouse Gas Reduction Act 2010*. The 2020 targets are the most ambitious legislated targets for any jurisdiction in Australia and are amongst the most progressive in the world.¹

Electricity continues to contribute the majority of the ACT's emissions, 56 per cent in 2014-15.² However, by 2020 renewable energy will account for around 70 per cent of the reduction in emissions, driven by support provided by the ACT's large scale FiT scheme.



In addition to reducing emissions, the ACT's 90% renewable energy target will also drive the transition to a high skilled, clean energy local economy, creating new jobs, local investment, and research opportunities contributing to economic growth and a better quality of life in the Territory. More information on the ACT's Renewable Energy Local Investment Framework is available on www.environment.act.gov.au.

¹ *Implementation Status Report*, Office of the Commissioner for Sustainability and the Environment, 2014.

² Based on tonnes of carbon dioxide equivalent (CO₂-e) produced; *ACT Greenhouse Gas Inventory for 2014-15*, pitt&sherry, October 2015.

2. ACT's FiT schemes

What is a feed-in tariff?

A premium feed-in tariff or FiT is a premium payment (higher than the market value) for electricity generated by a renewable energy system. The payments encourage the uptake and development of renewable energy.

In the ACT, renewable energy generators can receive premium FiT payments from an electricity retailer (under the rooftop solar FiT scheme) or the ACT electricity distributor (under the large scale FiT scheme). These costs are then recovered from everyone who uses the ACT electricity network, through network charges included in electricity bills. A description of the ACT's two premium FiT schemes is provided below.

Small and Medium Scale FiT scheme ('Rooftop Solar')

The *Electricity Feed-in (Renewable Energy Premium) Act 2008* established a scheme for payments to households and businesses generating renewable electricity. While this scheme was open to any form of small and medium sized renewable energy generation (with capacity below 200 kilowatts (kW)), only rooftop solar photovoltaic system applications were successful, so the scheme is also known as 'the rooftop solar scheme'.

The rooftop scheme opened on 1 March 2009 and was closed to new entrants on 13 July 2011. Successful applications receive FiT payments for 20 years from the date their system is connected to the electricity network, if this is before 31 December 2016. They are paid, by their electricity retailer, for the total kilowatt hours (kWh) their system generates. The FiT rate depends on the system's capacity and date of their application to the scheme (See Appendix A). Retailers pass on the cost of their FiT payments to the electricity distributor who incorporates these into its network charges.

While the ACT Government rooftop solar scheme is now closed, households can still access support schemes for solar electricity generation offered by electricity retailers on a voluntary basis.

Large Scale FiT scheme

The *Electricity Feed-in (Large-scale Renewable Energy Generation) Act 2011* (the large scale FiT Act) allows the ACT government to grant FiT entitlements for large scale renewable energy generating systems, like wind farms and large solar farms, with a generating capacity above 200kW. The large scale scheme allows entitlements for up to 550 megawatts (MW) of generating capacity. These large renewable energy generators can be located anywhere in the National Electricity Market. This ensures that ACT can source the cheapest renewable sources of energy nationally.

The ACT Government has held three auctions to award large scale FiT entitlements so far: one solar auction in 2012, followed by wind auctions in 2014 and 2015 (Appendix B). Successful proponents receive a 20 year FiT entitlement to receive FiT support payments from the ACT electricity distributor. Under the scheme, the FiT Payments are the difference between the wholesale price of electricity generated and the FiT price bid by the proponent (Appendix C).

One solar farm has commenced operation under the scheme in 2014. Two winning solar farms plan to start construction in 2016. The three winning wind farms under the 2014 auction are being constructed and are expected to be operational by 2017.

3. 2014-15 FiT Performance

The table below gives out the performance of the small and large scale schemes in 2014-15:

Table 1 – 2014-15 FiT Scheme Performance

| | Small and Medium FiT | Large Scale FiT |
|---|----------------------|-----------------|
| Number of generators | 9,950 | 1 |
| Installed Capacity (Megawatts) | 26.2 MW | 20 MW |
| Electricity Production (Megawatt Hours) | 34,613 MWh | 33,397 MWh |
| Total FiT Paid | \$13,704,878 | \$5,015,580 |
| Cost (\$/Megawatt Hours) | 5.52 \$/MWh | 3.11 \$/MWh |
| Cost in electricity bills ³ (\$/ Per week) | 78.9 cents | 44.5 cents |

2014-15 Small and Medium Scale Scheme performance (Table 1 – column 2)

Capacity and numbers – In 2014-15, there were 9,950 rooftop solar generators receiving a FiT under the schemes with a total capacity of approximately 26 MW according to the ACT electricity distributor. EPD notes that the number of generators is slightly lower than reported previously in the FiT Review⁴ (10,175). According to the distributor, data provided previously contained errors which have now been revised.

While the scheme has now closed, FiT entitlement holders have until 31 December 2016 to install and connect. According to the ACT electricity distributor, these number 172 in total. It is not known how many of these will be installed. Separately, there are three medium scale commercial solar providers who are expecting to commence and complete installation before the cut off date.

Generation – A total of 34,613 MWh was generated during the year. EPD notes this is slightly lower than the output reported previously in the FiT Review for the year and also a decline from 2013-14 (35.4 GWh). At the time of writing, the ACT electricity distributor indicated that it was looking into the reasons for this decline and it is possible that the data could be revised. EPD will publish any revision once it becomes available.

The ACT distributor has also provided a revised series for historical data (Appendix D). This historical data was previously included in the FiT review. The revisions do not appear to be significant.

Impact on electricity bills – According to the Independent Competition and Regulatory Commission’s (ICRC) regulated retail electricity price decision for 2014-15⁵, the small and medium scale FiT scheme contributed \$5.52 per MWh to regulated retail electricity tariffs.

³ See text on pages 5 and 6 discussing the impact on electricity bills.

⁴ Page 11 - http://www.environment.act.gov.au/__data/assets/pdf_file/0006/776427/FiT-Review-August-2015.pdf

⁵ <http://www.icrc.act.gov.au/wp-content/uploads/2013/10/Report-4-of-2014-Final-Report-Standing-offer-prices-for-the-supply-of-electricity-to-small-customers.pdf>

Based on a typical annual consumption of 7.441 MWh⁶ of a four person household in the ACT, the pass-through cost of the small and medium scale FiT scheme was \$41.07 to an average electricity bill of such a household during the year (excluding GST). This equates to approximately 78.9 cents a week. For smaller households, these costs would be lower.

2014-15 Large Scale Scheme performance (Table 1 – column 3)

In 2014-15, the first large scale renewable energy generator under the scheme came online.

Capacity - The 20 megawatts (MW) Royalla solar farm located in southern Canberra, commenced operation in August 2014. At the time of commissioning, it was the largest solar farm built in Australia.

Generation - In 2014-15, the Royalla solar farm had a total generation of 33,397 MWh in the months it was active during the year⁷.

Impact on electricity bills – According to the Independent Competition and Regulatory Commission's (ICRC) regulated retail electricity price decision for 2014-15⁸, the large scale FiT scheme was forecast to contribute \$3.11 per MWh to regulated retail electricity tariffs.

Based on a typical annual consumption of 7.441 MWh⁹ of a four person household in the ACT, the pass-through cost of the large scale FiT scheme was \$23.14 to an average electricity bill of such a household during the year (excluding GST). This equates to approximately 44.5 cents a week. These costs will be lower for smaller households.

However, EPD notes that these costs represent an over recovery during the year by the electricity distributor. These costs are set each year in advance based on estimates. Adjustment for this over recovery will mean lower adjusted pass-through costs in future years. Based on actual output and FiT paid, EPD estimates the pass-through cost should have been \$13.07 during the year for an average household described in the paragraph above.

⁶ Table 13, Electricity Bill Benchmarks for Residential Customers - A report to the Australian Energy Regulator by ACIL Allen Consulting (March 2015). This figure represents the annual typical electricity consumption of a four person household with a gas connection but no swimming pool.

⁷ <http://www.environment.act.gov.au/energy/act-large-scale-feed-in-tariff-cost-data>

⁸ <http://www.icrc.act.gov.au/wp-content/uploads/2013/10/Report-4-of-2014-Final-Report-Standing-offer-prices-for-the-supply-of-electricity-to-small-customers.pdf>

⁹ Table 13, Electricity Bill Benchmarks for Residential Customers - A report to the Australian Energy Regulator by ACIL Allen Consulting (March 2015). This figure represents the annual typical electricity consumption of a four person household with a gas connection but no swimming pool.

4. Progress towards ACT's 90% by 2020 Target

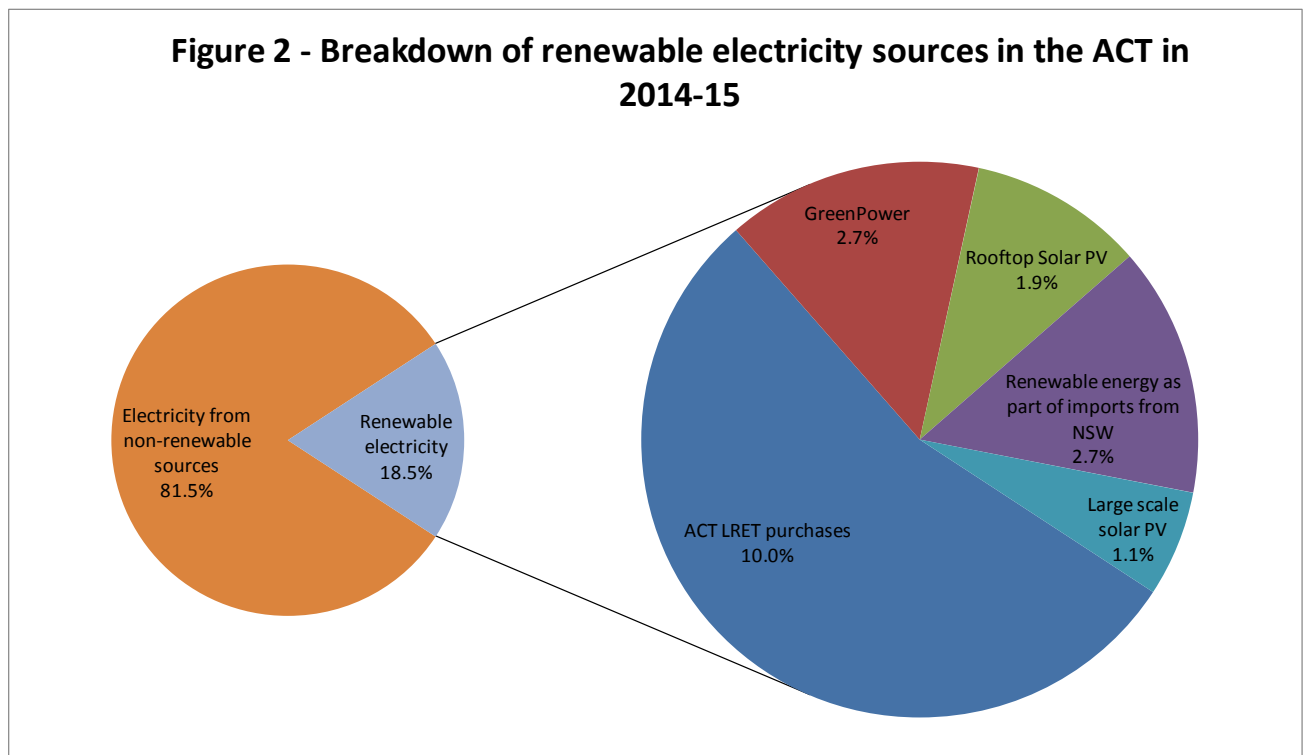
As mentioned, Action Plan 2, the ACT's climate change strategy sets out the approach to achieve the Territory's legislated greenhouse gas emission reduction target of 40% below 1990 levels by 2020. The most significant part of this strategy is a commitment to achieve 90% renewable energy by 2020.

The majority of the contribution to the ACT's 90% renewable electricity target is expected to be made by the large scale wind and solar generators under the large scale FiT scheme. The large scale scheme allows entitlements for up to 550 MW of generating capacity. Considerable progress has been made toward this target with the successful large-scale wind and solar auctions (Appendix B).

2014-15 - Contribution of Renewable Energy to ACT Electricity supply – 18.5 %

The ACT's Greenhouse Gas Inventory report was published in October 2015¹⁰. The report showed that renewable energy made up 18.5% of the ACT's electricity supply in 2014-15. This was a decline from 19.8% in 2013-14. According to the report, the reason for this decline was outside of the control of the ACT, due to a decision by Snow Hydro to drastically cut its generation in early 2014 to replenish its storages. Snowy Hydro, the largest supplier of renewable energy to the NSW/ACT National Electricity Market region, had previously increased its generation dramatically above its long term average output in 2012-13 and 2013-14 to economically benefit from the price of carbon that was in force at the time. If a rolling 5 year average had been applied to smooth out one off fluctuations in the output of the Snowy Hydro scheme, the share of renewable energy would have been 19.8% in 2014-15.

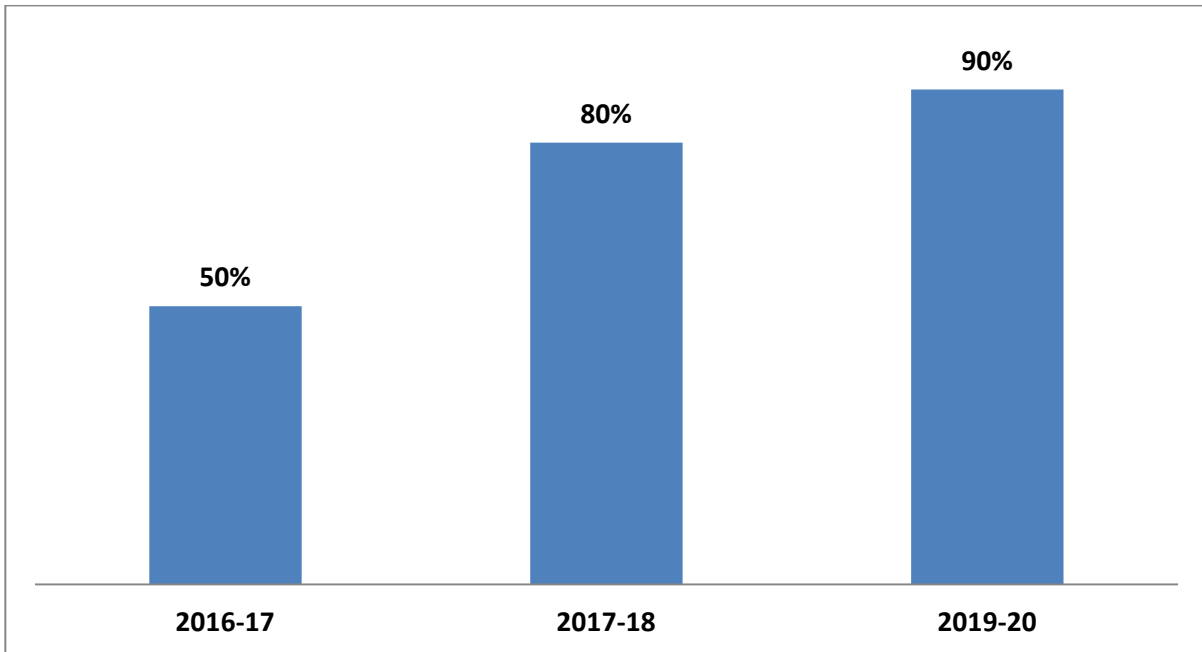
Figure 2 shows the breakdown of renewable energy sources in the ACT's electricity supply in 2014-15.



¹⁰ Pitt & Sherry Report: ACT Greenhouse Gas Inventory for 2014-15 (<http://www.environment.act.gov.au/cc/acts-greenhouse-gas-emissions>)

As can be seen in the figure 2, the contribution of the ACT's FiT schemes to the ACT's electricity supply is under 3% (the Rooftop solar component includes generation outside of the FiT schemes). While this contribution, and the overall renewable energy share of 18.5% may seem well below the 90% target, further generation from the ACT's large-scale wind and solar auctions will become available over the next few years and change this figure considerably. Figure 3 shows the expected progress towards the target from 2016-17 onwards.

Figure 3 - Future Progress towards 90% Target



It should be noted that while this escalation is based on latest data available, actual progress between different years may vary from the figure above.

Until this capacity comes online, the Federal Government's Large Scale Renewable Energy Target combined with GreenPower purchases and 'old renewables' mainly consisting of the Snowy Hydro scheme will continue to provide the majority of the ACT's renewable energy supply. GreenPower purchases refer to the voluntary purchase of renewable electricity that households and businesses can purchase directly through their electricity suppliers¹¹.

Future policies - 100% Renewable Energy by 2025

The ACT Government has recently announced that the Government will deliver a 100% by 2025 renewable energy target. This target will build upon the work already being undertaken to achieve the 90% target. The Government is still developing options to deliver on this commitment.

¹¹ According to the latest report available, 13,171 residential customers and 583 commercial customers purchased Green Power in the ACT (National GreenPower Quarterly Update: 1 January to 31 March 2015).

Appendices

Appendix A – FiT rates for Rooftop Solar Scheme

The following FiT tariffs were available to eligible renewable energy generators from the date the scheme opening on 1 March 2009 to its close on 13 July 2011:

| Gross FiT Rate | Eligible generation capacity and date of application |
|-----------------------|---|
| 50.05c/kWh | Generator capacity up to 10kW for applications approved 1 March 2009 to 30 June 2010. |
| 45.7c/kWh | Generator capacity up to 30kW, applications approved 1 July 2010 to 31 May 2011 |
| 40.04c/kWh | Generator capacity between 10 to 30kW, applications approved 1 March 2009 to 30 June 2010. |
| 34.27c/kWh | Generator capacity between 30 to 200kW for applications approved 7 March 2011 to 11 July 2011 |
| 30.16c/kWh | Generator capacity up to 200kW for applications approved 12 July 2011 to 13 July 2011 |

Source - Review of the *Electricity Feed-in (Renewable Energy Premium) Act 2008* (August 2015)

It is important to note that the ACT's rooftop solar FiT scheme was a 'gross' scheme. This means that the FiT was paid for all the electricity generated by a renewable energy generator, rather than only the net generation left after consumption.

Appendix B – Outcomes of the Large Scale FiT Auctions

Outcomes of the Large Scale Solar Auction (Proposals closed on 10 April 2012)

| Successful Proponents | FiT Rate | Capacity | Location |
|--|-----------------|-----------------|-----------------|
| FRV Royalla Solar Farm Pty Limited | \$186 /MWh | 20 MW | Royalla |
| Zhenfa Canberra Solar Farm One Pty Limited | \$178/MWh | 13 MW | Mugga Lane |
| OneSun Capital Solar Farm Pty Ltd | \$186 /MWh | 7 MW | Williamsdale |

Source – www.environment.gov.au/energy

Outcomes of the Large Scale Wind Auction (Proposals closed on 3 September 2014)

| Successful Proponents | FiT Rate | Capacity | Location |
|-----------------------------------|-----------------|-----------------|-------------------------------|
| Ararat Wind Farm Pty Ltd | \$87/MWh | 80.5 MW | Ballarat, Victoria |
| Coonooer Bridge Wind Farm Pty Ltd | \$81.50/MWh | 19.4 MW | Bendigo, Victoria |
| Hornsedale Wind Farm Pty Ltd | \$92.00/MWh | 100 MW | Port Augusta, South Australia |

Source – www.environment.gov.au/energy

Second Large Scale Wind Auction

Proposals for the Wind Auction closed on 14 October 2015, with 15 proposals received having a combined generation capacity of more than 1,155 megawatts. At the time of writing of this report, successful proponents were yet to be announced.

Source – ACT Government Media Release on 16 October 2015 - *Strong bids received in second ACT wind auction*

Appendix C – How does the Large Scale FiT – Contract for Difference work?

Under the Large Scale FiT scheme, renewable energy generators receive the difference between the wholesale market price of electricity at the time it is supplied into the National Electricity Market (NEM) and the fixed FiT rate bid by winning generators during the auction.

This provides revenue stability to generators by reducing their exposure to volatile wholesale prices which contributes to attracting lower FiT rates to ACT auctions. This has resulted in winning bids to the ACT's wind and solar auctions far lower than those expected by industry experts making some of the cheapest sources of renewable electricity in the NEM available to the ACT.

Additionally, this strategy also benefits ACT electricity users over the long term by protecting them from potentially higher wholesale prices in the future. This is because as wholesale market prices rise, due to carbon emission reduction policies in the future or due to other reasons, the difference between these prices and the FiT rate applicable to the generator will become smaller, reducing overall FiT payments. This will mean reduced FiT pass through costs to customers.

Appendix D – Revised generation data for small and medium scale FiT scheme

The table below compares the data provided previously for historical financial years by the ACT distributor at the time of the FiT Review to the revised data. The bottom row of the table also provides the variances between these two sets of data. The ACT distributor has advised that these primarily relate to data conversion and transfers associated with the implementation of a new billing system.

| <u>kWh</u> | 2008-09 | 2009-10 | 2010-11 | 2011-12 | 2012-13 | 2013-14 |
|------------|----------------|----------------|----------------|----------------|----------------|----------------|
| FiT Review | 202,655 | 2,409,847 | 7,673,985 | 20,959,042 | 33,739,358 | 35,424,393 |
| Revised | 202,375 | 2,409,289 | 7,670,699 | 20,947,351 | 33,717,938 | 35,342,888 |
| Difference | 280 | 558 | 3,286 | 11,691 | 21,420 | 81,505 |
| Variance | 0.14% | 0.02% | 0.04% | 0.06% | 0.06% | 0.23% |

Source – ActewAGL Distribution

Note 1000 kilowatt hours (kWh) is equal to 1 megawatt hour (MWh).