



Electricity

# Retailer feed-in tariff 2016

2 December 2015

DECISION PURSUANT TO CLAUSE 2.1 OF THE  
RETAILER FEED-IN TARIFF PRICE  
DETERMINATION OF DECEMBER 2014

**Enquiries concerning the currency of this decision should be addressed to:**

Essential Services Commission of South Australia  
GPO Box 2605  
Adelaide SA 5001

Telephone: (08) 8463 4444  
Freecall: 1800 633 592 (SA and mobiles only)  
E-mail: [escosa@escosa.sa.gov.au](mailto:escosa@escosa.sa.gov.au)  
Web: [www.escosa.sa.gov.au](http://www.escosa.sa.gov.au)

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## Glossary of terms

<b>ACIL Allen</b>	ACIL Allen Consulting.
<b>AEMO</b>	Australian Energy Market Operator
<b>Commission</b>	Essential Services Commission of South Australia
<b>D-FiT</b>	The mandatory FiT of either 44 cents per kWh or 16 cents per kWh for each kWh of electricity fed into the distribution network payable by SA Power Networks to PV Customers (based on the date of connection or connection approval of their PV Units) under Division 3AB of the Electricity Act.
<b>Electricity Act</b>	<i>Electricity Act 1996</i>
<b>ESC Act</b>	<i>Essential Services Commission Act 2002</i>
<b>FiT</b>	Feed-in Tariff
<b>kWh</b>	Kilo Watt Hour, the equivalent of 1,000 Wh.
<b>MWh</b>	Mega Watt hour – the equivalent of 1,000 kWh.
<b>NEM</b>	National Electricity Market
<b>NPS</b>	Northern Power Station
<b>NSLP</b>	Net System Load Profile – the profile of the electricity load through the electricity distribution network, which shows the estimated energy consumption over 30 minute intervals.
<b>PV Customer</b>	A residential or small business customer using less than 160 MWh of electricity per annum at a connection point which has a PV Unit and complies with the requirements of Division 3AB of the Electricity Act.
<b>PV Unit</b>	A PV customer's photo-voltaic electricity generating unit which has a maximum nameplate capacity of 10 kVA (single phase) or 30 kVA (at three phases), meets the requirements of Australian Standard AS 4777, is connected to the distribution network in a manner allowing the export of electricity and has appropriate metering arrangements in place.
<b>R-FiT</b>	The retailer-paid FiT amount as determined by the Commission payable to PV Customers for each kWh of electricity fed into the distribution network by electricity retailers, under Division 3AB of the Electricity Act.
<b>Watt</b>	A derived International System Unit of power, defined as one joule per second.
<b>Wh</b>	Watt hour – a unit of energy equal to 3.6 kilojoules.
<b>2015 Determination</b>	The 2015-2016 Retailer Feed-in Tariff Price Determination

# 1 Executive summary

1. The Commission may make price determinations from time to time setting the value of the minimum retailer feed-in tariff (**R-FiT**), using powers conferred to it under the *Electricity Act 1996* (**Electricity Act**), which requires it to make price Determinations under the *Essential Services Act 2002* (**ESC Act**). The R-FiT is paid by electricity retailers to customers with Photovoltaic solar panels, for the solar energy that is fed into the electricity network.
2. The basis of value for the minimum R-FiT is the wholesale cost of electricity. It therefore differs markedly from the retail price of electricity as it does not take into account transmission and distribution costs, retailer margins or operating costs.
3. The value of the R-FiT can, and does, vary over time, to take account of factors such as changes in the forecast wholesale cost of electricity. The R-FiT is not fixed in the long term.
4. The 2015-2016 R-FiT Price Determination (**2015 Determination**) specified that during 2015, the Commission would update the minimum R-FiT to apply in 2016, using the latest available forecast for the wholesale cost of electricity. Under the 2015 Determination, if the forecast value for 2016 lies within  $\pm 10$  per cent of the 2015 minimum R-FiT of 5.3 cents per kWh (i.e. 4.77 to 5.83 cents per kWh), the 2015 minimum R-FiT will remain unchanged for 2016. If the forecast is outside that range, the minimum R-FiT for 2016 will be set at the updated 2016 value.
5. As the forecast wholesale cost of electricity falls outside the range of  $\pm 10$  per cent of the 2015 value, the Commission has updated the value of the minimum R-FiT to apply from 1 January 2016. The Commission has determined that the value of the minimum R-FiT will be 6.8 cents per kWh (an increase of 28 per cent) from 1 January 2016 to 31 December 2016 – reflecting the forecast increase in the wholesale cost of electricity.
6. The calculation of the R-FiT has taken into account the latest available information, including the expected closure of the Northern Power Station (**NPS**) at Port Augusta in March 2016.

The Essential Services Commission of South Australia (**Commission**) is an independent statutory authority with functions in a range of essential services including water, sewerage, electricity, gas, rail and maritime services, and also has a general advisory function on economic matters.

One of the Commission's functions under the Electricity Act and the ESC Act is to determine whether or not to make R-FiT price determinations from time to time. If an R-FiT determination is made, it sets the *minimum* price which electricity retailers must, under the provisions of the Electricity Act, pay to residential and small business electricity customers (**PV Customers**) whose solar photovoltaic generators (**PV Units**) feed electricity into the distribution network.

The R-FiT recognises that there is an economic value to electricity retailers for any electricity fed into the distribution network by PV Customers, albeit that it may vary over time. The R-FiT provides a means by which PV Customers may realise that economic value through the receipt of payments (or credits) from retailers.

Consistent with past practice, the Commission continues to inform its R-FiT decision on the basis of independent modelling and advice received from ACIL Allen Consulting (**ACIL Allen**). This is based on:

- ▶ the projected wholesale spot price of electricity
- ▶ weighted by the net system load profile
- ▶ adjusted for avoided network losses, and
- ▶ adjusted for market and ancillary services fees.

To minimise the potential for modelling uncertainty in adopting a single point estimate, the Commission bases its R-FiT decision on a range of values, having regard to ACIL Allen's modelling and advice. ACIL Allen's October 2015 report was published on the Commission's website on 23 October 2015 to allow stakeholders the opportunity to scrutinise its recommendations prior to the release of the Commission's 2016 R-FiT decision. One submission, from Simply Energy, was received. This did not challenge the methodology or the suggested R-FiT value.

The Commission has set the minimum R-FiT at the lower end of the reasonable range. The rationale for this is that it is considered to be in the best long term interest of PV Customers to provide sufficient "headroom" for electricity retailers to compete above that floor and thus leave it to the market to determine the efficient price.

The provision of "headroom" helps to minimise the risk of possible upside forecasting errors (that is, the overestimation of the prudent and efficient wholesale price). This approach guards against unintended negative impacts on competition, such as retailers discontinuing the provision of services to PV Customers, or increasing electricity prices to compensate for having to pay too high a price for the R-FiT. In either case, customers may be disadvantaged if the R-FiT is set too high.

In December 2014, the Commission released its 2015 Determination that set the minimum R-FiT at 5.3 cents per kilo Watt hour (**kWh**), to apply from 1 January 2015 to 31 December 2015. This value represented a reduction of the minimum R-FiT from 6.0 cents per kWh, which applied over the latter six months of 2014, reflecting the reduction in the forecast wholesale cost of electricity to retailers over that time, as outlined in ACIL Allen's 2014 report.<sup>1</sup>

The 2015 Determination stated that, for 2016, the R-FiT would be reassessed using the same methodology as that used to set the previous R-FiT, based upon updated market conditions for the forecast wholesale cost of electricity. If the minimum R-FiT was expected to vary by more than 10 per cent from the 2015 R-FiT, it would be adjusted for 2016; otherwise it would remain unchanged.<sup>2</sup>

Following updated analysis set out in ACIL Allen's 2015 report<sup>3</sup>, for calendar year 2016, the Commission will set the minimum R-FiT at 6.8 cents per kWh. This is reflective of the higher projected wholesale spot price of electricity for 2016. Those forecasts reflect changes in the South Australian supply mix, including the announced closure of Northern Power Station (**NPS**) at Port. Augusta on or around 31 March 2016.

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<sup>1</sup> ACIL Allen Consulting, *The fair and reasonable value of exported PV*, 1 October 2014, available at [http://www.escosa.sa.gov.au/library/20141002-Electricity-SolarRetailerFiT-FairReasonableValueExportedPVReport-ACILAllen\\_0.pdf](http://www.escosa.sa.gov.au/library/20141002-Electricity-SolarRetailerFiT-FairReasonableValueExportedPVReport-ACILAllen_0.pdf)

<sup>2</sup> ESCOSA, *2015-2016 Retailer Feed-in Tariff: Final Price Determination, Statement of Reasons*, December 2014, page 1, available at <http://www.escosa.sa.gov.au/library/20141216-Electricity-RetailerFeed-inTariff-StatementofReasons.pdf>

<sup>3</sup> ACIL Allen Consulting, *Estimated value of PV exports – Calendar year 2016 estimate from market modelling*, 11 September 2015, available at <http://www.escosa.sa.gov.au/library/20151020-Elec-2016RetailerFeed-inTariff-ValuePVExports-ACILAllenReport.pdf>

There is, however, a moderating influence for SA prices provided by the upgrade to the Heywood interconnector, which is expected to be completed by mid-2016. It is assumed that, after the closure of the NPS, the Pelican Point power station, (which has effectively been mothballed since April 2015), will return to more active service.

## 2 Introduction

The Commission's 2015 Determination established a minimum R-FiT of 5.3 cents per kWh for 2015. It stated that this value would also apply in relation to calendar year 2016 unless updated analysis conducted in 2015 shows that it should be changed due to a material change in the wholesale cost of electricity forecast. The 2015 Determination stated that if such analysis showed that the minimum R-FiT for 2016 varies by less than 10 per cent from the 2015 value, (that is, it falls within the range of 4.77 to 5.83 cents per kWh), the R-FiT will remain unchanged; otherwise, the minimum R-FiT for 2016 will be set at the updated 2016 value.

**This paper should be read in conjunction with the 2015 Determination, which fully outlines the reasoning and process for setting the R-FiT.<sup>4</sup>**

In accordance with the provisions of the 2015 Determination,<sup>5</sup> in undertaking this 2016 decision, the Commission engaged the same consultants, using the same underlying models and methodologies, to inform the R-FiT for 2016 as it did for the 2015 Determination. Any resultant changes in the R-FiT are therefore solely attributable to market movements since the analysis underpinning the 2015 Determination was performed.

The Commission has examined ACIL Allen's analysis and has used it to inform its decision to revise the minimum R-FiT upwards in 2016 to reflect changes in the wholesale market for electricity. The logic for that change is outlined in the following sections, and in more detail in the ACIL Allen report.

As outlined in the 2015 Statement of Reasons, the Commission is favourably disposed towards deregulation of the R-FiT from 1 January 2017 unless it observes a marked deterioration in the effectiveness of electricity retail competition or sees evidence conclusively demonstrating that the PV market is not competitive in South Australia. The process the Commission will follow is outlined in section 4 below.

## 3 Setting the R-FiT

The R-FiT scheme is set out in division 3AB of the Electricity Act, and commenced in January 2012.

Under sections 35A and 36 AD of the Electricity Act, an R-FiT must be paid by electricity retailers to PV Customers at or above the minimum value (if any) set by the Commission from time to time. The minimum value was most recently set at 5.3 cents per kWh with effect from 1 January 2015.

The purpose of the R-FiT is to recognise that there is economic value to retailers for any electricity which is fed into the distribution network from PV Units, albeit that value may vary over time. The Electricity Act requires retailers to recognise that economic value through payments to PV Customers. The amount set by the Commission varies from time to time to reflect prevailing wholesale market conditions.

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<sup>4</sup> ESCOSA, *2015-2016 Retailer Feed-in Tariff: Final Price Determination, Statement of Reasons, December 2014*, page 1, available at <http://www.escosa.sa.gov.au/library/20141216-Electricity-RetailerFeed-inTariff-StatementofReasons.pdf>

<sup>5</sup> ESCOSA, *Retailer Feed-in Tariff – Price Determination, December 2014*, page 4, available at <http://www.escosa.sa.gov.au/library/20141216-Electricity-RetailerFeed-inTariff-PriceDetermination.pdf>

### 3.1 Qualification for the R-FiT scheme

To qualify for the R-FiT scheme, a PV customer must have installed a qualifying PV Unit. Unlike the distributor-paid feed in tariff (D-FiT) scheme, there is no time by which a qualifying PV Unit must be installed and the R-FiT scheme does not have a termination date – the R-FiT scheme continues in perpetuity or until repealed by Parliament. There is, however, the potential for the Commission to discontinue the setting of a minimum R-FiT value, and thereby leave the recognition of the economic value of electricity fed back into the grid to the market to determine.

### 3.2 The R-FiT for 2016

In the 2015 Determination, the Commission outlined that it would update the analysis supporting the minimum R-FiT prior to the beginning of calendar year 2016.<sup>6</sup> This decision paper summarises that analysis.

The calculation of the fair and reasonable value of the R-FiT is based on:

- ▶ the projected wholesale spot price of electricity;
- ▶ weighted by the net system load profile;
- ▶ adjusted for avoided network losses; and
- ▶ adjusted for market and ancillary fees.

#### 3.2.1 The projected wholesale spot price of electricity

The 2016 R-FiT decision is informed by a projection of the wholesale spot price of electricity using *PowerMark™*, ACIL Allen's proprietary model of the National Electricity Market (NEM). This is the same model that was used in each of the Commission's previous R-FiT determinations, has been used for several years and in multiple jurisdictions and has been widely accepted. While spot prices vary markedly over short time intervals, the average wholesale price provides a clearer picture of overall price changes from year to year. ACIL Allen's recent projected averages are set out in Table 3-1:

*Table 3-1: Projected load weighted average wholesale price of electricity (nominal)*

PROJECTION DATE	PROJECTED PRICE \$ PER MWH
October 2015 ( for calendar year 2016)	\$60.97
July 2014 (for calendar year 2015)	\$47.99
September 2013 (for calendar year 2014)	\$73.44
December 2012 (for financial year 2013/2014)	\$64.29
December 2011 (carbon scenario, for financial year 2013/2014)	\$87.05

*Source: ACIL Allen*

The projected load weighted wholesale electricity spot price for 2016 has increased since the projection for calendar year 2015 (underpinning the 2015 Determination) was made. This is due to changes in the South Australian supply mix including the effective mothballing of the Pelican Point power station since April 2015 and the reduction in capacity available at NPS. The direction of the expected wholesale price is in contrast to Victoria, where a different set of market conditions prevail, and a flat price scenario is expected.

This 2016 decision accounts for the expected closure of the NPS on or about 31 March 2016. On 7 October 2015 the owner of the NPS, Alinta Energy, announced the closure of NPS on or around March

<sup>6</sup> ESCOSA, *Statement of Reasons, 2014, page 42*



2016. The closure is expected to lead to increases in the wholesale price of electricity in South Australia. The effect of the NPS closure on the wholesale costs of electricity may be moderated, however, by changes to the operation of other electricity generators in South Australia, particularly the potential recommissioning of the Pelican Point power station.

### 3.2.2 The net system load profile

The main benefit to a retailer in receiving PV electricity is that it avoids need to purchase the corresponding amount of electricity from the NEM. The value to a retailer of avoided electricity purchases is determined with reference to the net system load profile (**NSLP**). The NSLP is the half-hourly profile of electricity load of small customers through the electricity distribution network. The formula for calculating the NSLP is broadly:

$$\text{Total electricity} - \text{loss factors} - \text{interval data} - \text{controlled load (hot water)} = \text{NSLP}$$

The NSLP projection is based on recent NEM observations of the NSLP as published by the Australian Energy Market Operator (**AEMO**).

Once the NSLP has been derived, it is possible to calculate the wholesale electricity price payable by a retailer. All retailers in an area are subject to the same NSLP. The result is that retailers effectively pay an average wholesale electricity spot price for their customers with accumulated metering data. Benefits and costs associated with variation in an individual retailer's consumption are spread across all retailers.

The introduction of solar PV generation changed the dynamics of the electricity market. When solar PV systems produce electricity, customers either draw no electricity from the network (when they export), or draw a reduced amount from the network because the customer first uses the electricity they generate themselves. This equates to an overall reduction in demand from the network which means less electricity is required from other generators (e.g. coal and gas).

Solar PV cells generate electricity during daylight hours which means that, in the absence of storage, the reduction in demand is confined to this time. Due to the way the NSLP is calculated on a half-hourly basis the reduction in demand flattens the shape of the NSLP. These effects are included in ACIL Allen's final R-FiT projection.

### 3.2.3 The value of avoided network losses

As electricity is transmitted and distributed through the network, a proportion of it is lost along the way. The further it is transmitted, the higher the total losses. Historic distribution loss factors for South Australia as published by AEMO are typically around 8 per cent, which is the value used in this and previous analyses. In simple terms, if average network losses are 8 per cent, a retailer needs to purchase approximately 1.09kWh of electricity to sell 1.0kWh to a customer. A retailer purchasing wholesale electricity on the NEM must pay for network losses. PV exports, however, are netted off against a retailer's electricity purchases on the NEM, thereby avoiding the need to pay for network losses for that electricity. The value of avoided network losses is a benefit to retailers and therefore included in the R-FiT.

### 3.2.4 Market and ancillary fees

Two sets of fees are levied by AEMO on market customers in the NEM:

1. market fees - to cover general operational costs
2. ancillary fees - to ensure the reliable operation of the system.

Market fees are charged in advance and are \$0.3177 per MWh for the current financial year. Ancillary fees (which can vary on a weekly basis depending on the costs of providing ancillary services) have averaged \$0.37 per MWh over the last two years. Assuming that these rates hold for calendar year 2016, a total of \$0.74 per MWh (0.07 cents per kWh) is incorporated into the 2016 R-FiT calculation. As retailers benefit from market and ancillary fees being avoided, they are also included in the R-FiT.

### 3.3 Value of exported PV output

After accounting for all the factors described above, ACIL Allen calculated the NSLP-weighted price from a base case (ACIL Allen's single best projection) and 483 simulated scenarios in *PowerMark™* to determine the possible distribution of R-FiT price outcomes with the following results.

*Table 3-2: Projected value of exported PV output in South Australia (482 simulations and reference case).*

VALUE	PROJECTION (CENTS/KWH)
Minimum)	6.53
90th percentile	6.78
50th percentile	8.04
Mean	9.05
10th percentile	12.99
Maximum	18.10

*Source: ACIL Allen*

The most likely range of reasonable values for PV output (covering 80 per cent of modelled outcomes) is 6.78 to 12.99cents per kWh. In line with recent practice and the 2015 Determination, the minimum R - FiT for 2016 is set at the 90<sup>th</sup> percentile, meaning there is a 90 per cent probability that this value will be less than the actual load weighted average adjusted value of PV output during 2016.

It is the Commission's final decision that the minimum R-FiT for calendar year 2016 is set at 6.8 cents per kWh (the 90<sup>th</sup> percentile value rounded to one decimal place). The implication of this decision is that 10 of the 12 electricity retailers that are actively marketing to solar PV Customers in South Australia will be required to raise their R-FiTs by 1 January 2016, as they are currently offering an R-FiT which is less than the 2016 minimum R-FiT.

## 4 Next steps

The 2015 Determination outlined that the Commission is favourably disposed to a deregulation of the R- FiT at the conclusion of calendar year 2016, unless it observes a marked deterioration in the effectiveness of the overall energy retail market or it becomes aware of evidence conclusively demonstrating that the PV market is not competitive in South Australia.<sup>7</sup>

The Commission is, therefore, closely observing the market and gathering data on indicators of competitiveness. This includes data on the R-FiTs offered to PV Customers, including the incidence of minimum R-FiT offers, the product range and the pricing of offers to PV Customers.

The Commission will publish an issues paper during 2016 on the matter of R-FiT deregulation, inviting submissions from interested parties as it gathers evidence on the competitiveness of the R-FiT market. A decision on whether or not to continue to regulate the R-FiT is expected to be made late in 2016.

If, at the end of the process, the Commission is not satisfied with the level of competitiveness of the R- FiT market, it will continue to set a minimum R-FiT for 2017 and beyond.

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<sup>7</sup> ESCOSA, 2015 Statement of Reasons, December 2014, page 44

