

2013 DETERMINATION OF SOLAR FEED-IN TARIFF PREMIUM

Draft Price Determination

March 2013



REQUEST FOR SUBMISSIONS

The Essential Services Commission of SA (**the Commission**) invites written submissions from interested parties in relation to the conclusions raised in this Draft Report. Written comments should be provided by **Monday, 22 April 2013**. It is highly desirable for an electronic copy of the submission to accompany any written submission.

It is Commission's policy to make all submissions publicly available via its website (www.escosa.sa.gov.au), except where a submission either wholly or partly contains confidential or commercially sensitive information provided on a confidential basis and appropriate prior notice has been given.

The Commission may also exercise its discretion not to exhibit any submission based on their length or content (for example containing material that is defamatory, offensive or in breach of any law).

Responses to this paper should be directed to:

2013 Determination of Solar Feed-in Tariff Premium - Draft Price Determination

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The Essential Services Commission of South Australia is the independent economic regulator of the electricity, gas, ports, rail and water industries in South Australia. The Commission's primary objective is the *protection of the long-term interests of South Australian consumers with respect to the price, quality and reliability of essential services*. For more information, please visit www.escosa.sa.gov.au.

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GLOSSARY OF TERMS

AEMO	Australian Energy Market Operator
COMMISSION	Essential Services Commission of South Australia
c/kWh	The cost of a unit of electricity expressed in cents per kilowatt hour
ELECTRICITY ACT	Electricity Act 1996
ESC ACT	Essential Services Commission Act 2002
ESCOSA	Essential Services Commission of South Australia
FIT	Feed-in Tariff
FRC	Full Retail Contestability
kWh	Kilowatt Hour
LRET	Large-scale Renewable Energy Target
MW	Megawatt
MWh	Megawatt Hour
NEM	National Electricity Market
NSLP	Net System Load Profile
PV	Photovoltaic
REES	Residential Energy Efficiency Scheme
RRN	Regional Reference Node
SRES	Small-scale Renewable Energy Scheme
RET	Renewable Energy Target



SUMMARY

The Essential Services Commission of South Australia (the Commission) is proposing to issue a new 3½ year determination of the electricity solar feed-in tariff (FiT) premium, to apply from 1 July 2013. The new determination will replace the FiT premium determination made by the Commission in January 2012.

All small customers with eligible photovoltaic (PV) generators are entitled to receive an amount (the FiT premium) as determined by the Commission and payable by electricity retailers. The amount determined by the Commission will reflect the fair and reasonable value to a retailer of electricity fed into the network and all retailers selling electricity to small customers eligible to receive the FiT premium will be required to credit the amount.

The Commission's current FiT premium determination, which commenced on 27 January 2012, is scheduled to expire on 30 June 2014. The Commission proposes to revoke that determination and replace it with a new determination that will change the value of the FiT premium to apply from 1 July 2013 to 31 December 2013 to 9.8 cents per kWh in lieu of the previously determined 11.2 cents per kWh. This new determination reflects the reduction in the value of wholesale electricity relative to the value that was forecast under the Commission's 2012 FiT premium determination.

Under the Commission's proposed determination, the FiT premium will be reset on 1 January of each year. The re-set of the FiT premium will be determined using a similar methodology that is consistent with the methodology used by the Commission to determine the FiT premiums in January 2012.¹ In determining the FiT premium, the Commission will use forecasts updated to reflect the most recent information on electricity demand and projected wholesale electricity costs. In particular, it will involve:

- ▲ Forecasting the wholesale spot price of electricity; based on electricity demand forecasts (energy and peak demand) published by the Australian Energy Market Operator (AEMO) and using ACIL Tasman's *PowerMark* national electricity market model.
- ▲ Projecting the Net System Load Profile (NSLP) for South Australia; based on recent observations of the NSLP as published by AEMO, and estimating the relationship between the NSLP load and the regional (South Australian) load using regression analysis.

¹ The methodology is described in the report from ACIL Tasman, *The fair and reasonable value of exported PV output*, December 2011, available on the Commission's website at <http://www.escosa.sa.gov.au/library/120103-SolarFeedinTariff-SupplementaryReport-ACILTasman.pdf>.

- ▲ Projecting the total installed capacity and effective generation of PV systems in South Australia.
- ▲ Combining the wholesale spot price forecasts with the projected NSLP to determine an NSLP-weighted spot price forecast.
- ▲ Adding the value of avoided network losses; obtained by analysing historic distribution loss factors for South Australia as published by AEMO.
- ▲ Adding the cost of NEM market and ancillary service fees; based on the most recent actual fees published in AEMO's annual budget.

A full description of the methodology is contained in an ACIL Tasman report that accompanies this Draft Determination.² The first annual adjustment to the FiT premium, to be based on that methodology, will be determined in late 2013 and will apply in calendar year 2014.

The Commission considers that it is appropriate to fix the methodology for setting the FiT premium until 2016, but to determine the FiT premium amounts on an annual basis given the variability in electricity demand and wholesale electricity costs. It believes that this approach will support the Commission's objective of ensuring that, on an ongoing basis, the FiT premium is reflective of the value to a retailer of wholesale electricity produced by eligible PV generators. However, should the Commission determine that the methodology requires revision due to any circumstances during the forecast period it will separately advise and consult on the relevant matters – otherwise, no further consultation will be undertaken during the period of the determination. Stakeholders' comments are sought on the Commission's proposed approach.

Prior to the end of the 2016, the Commission will undertake a broad review of the methodology for setting the FiT premium before making a new Price Determination.

This report sets out the Commission's reasons for making the Draft Price Determination.

Having considered expert advice, the Commission's draft determination is to set the FiT premium as follows.

² ACIL Tasman, *The fair and reasonable value of exported PV output: Describing the methodology developed by ACIL Tasman for estimating the fair and reasonable value of exported PV output in South Australia*, March 2013 (available on the Commission's website at <http://www.escosa.sa.gov.au/projects/167/2012-determination-of-solar-feed-in-tariff-premium.aspx>).



***Draft Determination of Feed-in Tariff Premium
(nominal cents per kWh and GST exclusive)***

	APPLICABLE FROM 1 JULY 2013 TO 31 DECEMBER 2013	APPLICABLE FROM 1 JANUARY 2014 TO 31 DECEMBER 2014	APPLICABLE FROM 1 JANUARY 2015 TO 31 DECEMBER 2015	APPLICABLE FROM 1 JANUARY 2016 TO 31 DECEMBER 2016
Prescribed Amount	9.8	To be determined	To be determined	To be determined

The proposed FiT premium to apply for the 6 month period commencing 1 July 2013 is the same amount that has applied from 1 July 2012, but is lower than the 11.2c/kWh that is scheduled to apply from 1 July 2013 under the current FiT premium determination. The Commission's 2012 FiT premium determination was based on information that indicated that wholesale electricity costs would be higher than those currently available. Demand for electricity is lower than that forecast in 2012 and this has translated into lower wholesale electricity costs. The Commission's proposed FiT premium is around 12.5% lower than the amount that is to apply from 1 July 2013 under the existing determination.

The Commission's proposed amount represents the minimum FiT premium that must be made available to PV customers. Electricity retailers may voluntarily pass on a higher amount as part of their unregulated market offers. The amounts apply in addition to the 44 cents per kWh (for pre-October 2011 eligible PV installations) and 16 cents per kWh (for post-October 2011 eligible PV installations) payable by SA Power Networks under the FiT scheme.

PART A – STATEMENT OF REASONS



1. INTRODUCTION

1.1 Overview

The Essential Services Commission of South Australia (the Commission), using powers conferred to it under the Electricity Act 1996 and the *Essential Services Commission Act 2002* (ESC Act), has the role of setting the minimum amounts payable by energy retailers for the feeding in of electricity to the distribution network by eligible solar photovoltaic (PV) systems.³ In making such a determination, the Commission is required to have regard to the “fair and reasonable” value to retailers of the electricity fed in to the electricity network.⁴

The Commission made its initial determination of the feed-in tariff (FIT) premium in January 2012. That determination set the amount to apply from 27 January 2012, and the amounts to apply during the 2012/13 and 2013/14 financial years, as set out in Table 1.1.

Table 1.1: January 2012 Determination of Feed-in Tariff Premium (nominal cents per kWh and GST exclusive)

	2011/12	2012/13	2013/14
	APPLICABLE FROM 27 JANUARY 2012 TO 30 JUNE 2012	APPLICABLE FROM 1 JULY 2012 TO 30 JUNE 2013	APPLICABLE FROM 1 JULY 2013 TO 30 JUNE 2014
Prescribed Amount	7.1	9.8	11.2

The Commission’s determination was based on estimating the volume of energy that retailers did not need to purchase from the wholesale electricity market as a result of the energy being fed into the network by eligible PV systems. The wholesale electricity spot price (weighted by the Net System Load Profile (NSLP)) was used to determine the value of avoided wholesale market acquisitions.⁵

³ Pursuant to Division 3AB of the Electricity Act 1996 (Electricity Act).

⁴ The Commission notes that the FIT premium is distinct from the feed-in tariff that SA Power Networks is required to credit to customers who install eligible solar PV generators. This tariff (which was initially set at 44 cents per kWh for new installations and is currently set at 16 cents per kWh for new installations) is being phased out for new customers over the next two years.

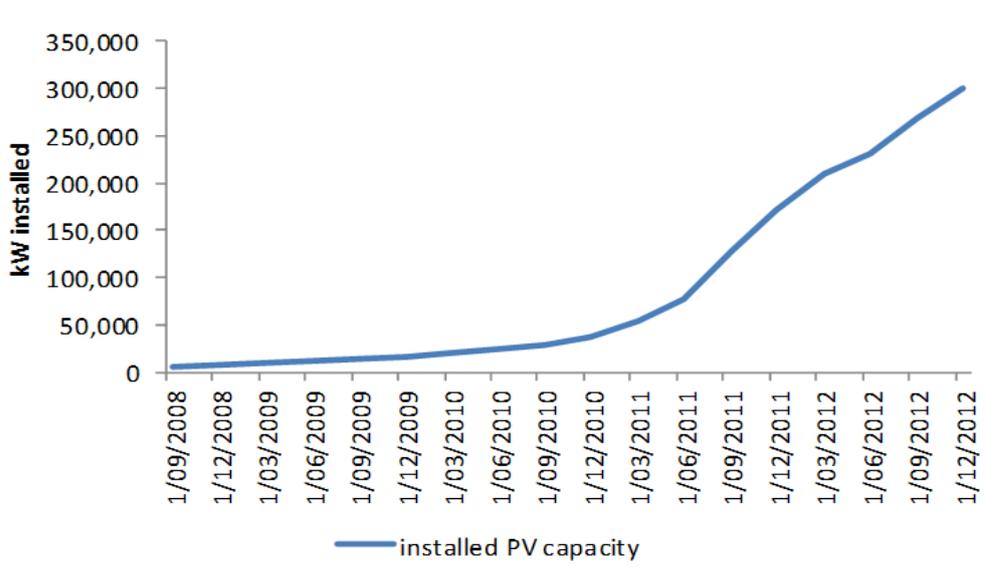
⁵ For a complete description of the methodology for setting the FIT premium, refer to the Commission’s 2012 Determination of Solar Feed-in Tariff Premium: Final Price Determination, January 2012 (available at <http://www.escosa.sa.gov.au/library/120125-SolarFeedinTariffPremium-FinalDecision.pdf>).

1.2 Background and key issues

Since the Commission’s January 2012 Final Determination of the FiT premium, the wholesale electricity price has not grown as predicted at the time of the 2012 determination; instead it has declined substantially. This fall in the wholesale electricity price is primarily due to electricity demand being lower than initially forecast (and as confirmed by the Australian Energy Market Operator (AEMO) in its latest demand forecasts⁶ published in mid-2012 subsequent to the Commission’s original determination).

Lower electricity demand can be explained partially through greater PV uptake and PV generation. The following figure, prepared by ACIL Tasman from data supplied by SA Power Networks, shows a rapid increase in customer PV connections since around early 2010, off a low base in the early years of the scheme. In particular, it should be noted that there was a substantial increase in the numbers of connections and the size of solar PV cells over the past 12 months, since the last FiT determination.

Figure 1: Installed Solar PV capacity in South Australia (Small Customers)



As at 31 January 2013, SA Power Networks estimated that there were around 131,307 premises with solar PV cells with a total effective capacity of approximately 308 MW. It should also be noted that there are a further 20,000 approvals pending.

Further, lower demand for electricity has direct implications for the fair and reasonable value to a retailer of exported PV output and the Commission’s determination of the minimum FiT premium. If not adjusted, the current FiT premium would materially overstate the value of wholesale electricity and energy retailers would be required to pay

⁶ AEMO, 2012, *National Electricity Forecasting Report*- Chapter 6, South Australia Forecasts, 29 June 2012, p. 6-1.



a minimum FiT premium that is higher than it ought to be. This would impose an unjustified cost on energy retailers, which they may seek to recover from energy consumers through electricity prices (which are no longer regulated in South Australia). Alternatively, in a truly competitive market, retailers may be forced to absorb this cost perhaps to the detriment of their profitability and, ultimately, to consumers. The Commission is of the view that it is in the long-term interests of consumers to ensure that the FiT premium is reflective of the value of wholesale energy to a retailer, and does not potentially lead to higher electricity prices for all consumers.

The Commission's review of the FiT premium was preceded by a 2012 review of the wholesale electricity cost component of the standing contract price of electricity.⁷ During that review, the Commission proposed a reduction in the electricity standing contract price to reflect lower wholesale electricity costs than forecast in 2010. During the latter stages of the development of the Final Determination of the WEC, ACIL Tasman was engaged to update its earlier advice on the FiT premium with a view that a revised FiT premium would take effect from 1 January 2013.

On 18 December 2012, the Government announced that electricity prices would be deregulated from 1 February 2013, rendering the WEC Review unnecessary. However, at the time of the announcement, it was not clear how, when, and in what manner, the change in policy would be effected. As a consequence, the Commission suspended work on the FiT premium pending any changes to be effected.

As of 1 February 2013, retail price deregulation in South Australia was introduced and it is now appropriate to re-commence the FiT review process.

At the outset, it should be noted that unless the Commission changes the current determination, or makes a new determination, the FiT premium will automatically change on 1 July 2013 from the current 9.8 cents per kWh to 11.2 cents per kWh for 2013/14. Accordingly, the Commission will now reconsider the FiT premium to apply for 2013/14 in light of the previously collected evidence that the wholesale cost of electricity has fallen.

While the Commission did not make a Final Determination on any variation to the standing contract price, it maintains the position that wholesale electricity prices have declined over the past 12 months. Those prices are materially lower than those forecast by the Commission when it set standing contract prices in 2010 and lower than those forecast by the Commission under its 2012 FiT premium Determination. The Commission's latest forecasts of wholesale electricity spot prices, the value of PV output and the reasons underlying the current proposal to roll forward the FiT premium amount of 9.8c/kWh until 31 December 2013 are discussed in Chapter 3.

⁷ All publications associated with the 2012 wholesale electricity cost review are available on the Commission's website at <http://www.escosa.sa.gov.au/projects/178/electricity-standing-contract-wholesale-electricity-costs.aspx>.

It is to be noted that for the following three calendar years, commencing 1 January 2014, the Commission proposes to adjust the FiT premium to reflect the latest available forecast demand data released by AEMO. It is understood that the earliest AEMO publishes its forecast demand data is late June of each year. The Commission considers that the most appropriate date to implement the annual adjustment of the FiT premium given: the timing of AEMO data; the time required to undertake modelling of the FiT premium; and the time needed for retailers to implement the decision, is 1 January of each year.

While the change in FiT premium was previously considered in the context of changes to the standing contract price, the advent of energy price deregulation creates greater flexibility for the date or timeframe to vary the FiT premium.

Under the Commission's proposed approach, no public consultation would be required for the annual update on 1 January of each year of the FiT premium during the period of the proposed determination. These annual updates will be based on the application of the existing methodology through an effectively "mechanical" process where the same model would be used to update wholesale electricity prices and the FiT premium using the latest data set.

1.3 Process for review

The Commission has released this Draft Price Determination for a 4-week period of public consultation. Submissions to the Draft Price Determination are due by **22 April 2013**. The Commission invites all interested parties to make submissions to this Draft Price Determination both in relation to the methodology to be applied in this instance and in future instances and the quantum of the FiT premium to apply from 1 July 2013 to 31 December 2013. The Commission's reasons are set out in this Part A of the Draft Determination. The proposed legal instrument, to give effect to the Price Determination, is set out in Part B.

All non-confidential submissions will be published on the Commission's website. The Commission will have regard to all submissions in making a Final Determination of the FiT premium, which will be released on 24 June 2013 for prices to apply from 1 July 2013.

To assist it in making this determination, the Commission has engaged an independent consultant, ACIL Tasman, to provide expert advice in relation to the value to retailers of solar PV exports. ACIL Tasman has provided two reports: a paper that details the proposed methodology and a paper that updates the value of the FiT premium for 2013/14. ACIL Tasman's reports are available on the Commission's website.⁸

⁸ <http://www.escosa.sa.gov.au>

2. REGULATORY FRAMEWORK

2.1 *Power to determine the FiT Premium*

Pursuant to section 35A(1)(ba) of the Electricity Act 1996, the Commission is given the power to make a price determination (under Part 3 of the Essential Services Commission Act 2002) regulating prices, conditions relating to prices and price-fixing factors for the feeding-in of electricity into a distribution network under Division 3AB of the Electricity Act. This section explains the detail of that regime.

2.2 *The feed-in scheme as set out in the Electricity Act*

The key provisions of the South Australian feed-in scheme are set out in Division 3AB of the Electricity Act.

As has been the case since the scheme was first introduced in 2008, SA Power Networks will continue to be obliged, as a condition of its electricity distribution licence, to:

- ▲ permit those of its customers who qualify under the terms of the feed-in scheme to feed electricity generated by those customers' PV generation units into its electricity distribution network; and
- ▲ credit against the charges payable by a qualifying customer for the supply of electricity the feed-in price for electricity fed into the network in excess of the electricity used by the qualifying customers.

The amounts that SA Power Networks is required to credit to customers are dependent upon the date on which a customer connected their PV generation unit to SA Power Networks' distribution network.

Any customer that connected their PV generation unit prior to 1 October 2011, will continue to qualify for a credit from SA Power Networks of 44 cents per kWh of electricity fed into the network. Those customers will receive that credited amount until 30 June 2028. Any customer that connected (or connects) a PV generation unit between 1 October 2011 and 30 September 2013 will receive a credit from SA Power Networks of 16 cents per kWh of electricity fed into the network. Those customers will be entitled to that credited amount until 30 September 2016. Finally, customers that connect PV generation units after 30 September 2013 will not be eligible for any feed-in credit from SA Power Networks.

In addition to the amount to be credited by SA Power Networks under the feed-in scheme, an obligation has been placed on electricity retailers to credit against the charges incurred by a PV customer for the sale of electricity a "prescribed amount" (defined in this Draft Determination as the **FiT premium**) for electricity fed into the distribution network. This obligation on retailers is discussed in more detail below.

2.2.1 *Obligation on electricity retailers*

The “prescribed amount” is defined in Division 3AB of the Electricity Act as the amount determined for the purposes of Division 3AB by the Commission. This requires that the Commission must determine the “amount” as a unit of currency to be credited to qualifying PV customers when relevant. In other words, the prescribed amount must be an amount that is ascertainable or absolute. The Commission cannot, for example, only determine a range of amounts.

It is important to note that the amount determined by the Commission as the “prescribed amount” is only a minimum amount to be credited to qualifying solar customers by retailers for electricity fed back into the distribution network. Retailers are in no way constrained from paying a greater amount to qualifying PV customers should they consider it appropriate to do so. Furthermore, the prescribed amount will be payable to all customers with eligible PV generation units, irrespective of the date of connection or the contract they may have entered into with an electricity retailer for the sale of electricity through their connection point.

The obligation, which is set out in section 36AD(1) of the Electricity Act⁹, is reproduced below.

36AD—Feeding electricity into networks – requirements on holder of licence authorising retailing

- (1) *It is a condition of the licence of the electricity entity that has the relevant contract to sell electricity as a retailer to a qualifying customer who feeds electricity generated by a qualifying generator into a distribution network, other than an excluded network, that the retailer will after taking into account any requirement prescribed by the regulations-*
- (a) *credit against the charges payable by the qualifying customer for the sale of electricity to the qualifying customer the prescribed amount, or an amount determined by the retailer, being an amount greater than the prescribed amount, for electricity fed into the network in excess of the electricity used by the qualifying customer....;*

The effect of section 36AD(1)(a), which applies to retailers under the new National Electricity Retail Law¹⁰, is that an electricity retailer will be obliged to pay the prescribed amount (or an amount greater than the prescribed amount) immediately upon:

- ▲ entering into a contract with a qualifying customer¹¹ who feeds electricity generated by a qualifying generator¹² into a distribution network¹³; and

⁹ Section 36AD will commence on the date that the Commission makes the FiT premium determination in accordance with the Electricity Act.

¹⁰ See section 14E(2) of the Electricity Act 1996.



- ▲ an existing customer starting to feed-in electricity generated by a qualifying generator into the distribution network (this will be the case even if the sale contract between the retailer and the existing customer does not deal with the issue of fed-in electricity).

2.2.2 Summary of amounts payable under the feed-in scheme

Table 2.1 below summarises the feed-in payment amounts that will be payable under the feed-in scheme set out in Division 3AB of the Electricity Act.

Table 2.1: Amounts payable under the amended feed-in scheme

SOLAR PV CELL INSTALLATION/ APPROVAL DATE	CREDIT AMOUNT	PERIOD PAYABLE
Before 1 October 2011	FiT premium* + 44c/kWh	FiT premium*: ongoing. 44c/kWh: until 30 June 2028
1 October 2011 to 30 September 2013	FiT premium* + 16c/kWh	FiT premium*: ongoing. 16c/kWh: until 30 September 2016
From 1 October 2013	FiT premium*	Ongoing

*as determined by the Commission.

¹¹ A qualifying customer is a customer who consumes less than 160MWh of electricity per annum.

¹² A qualifying generator is a small photovoltaic generator that is operated by a qualifying customer, complies with Australian Standard AS 4777, is connected to an electricity distribution network which supplies electricity to more than 10,000 customers, allows generated electricity to be fed into the distribution network and have installed appropriate metering so as to allow the separate recording of electricity imports and exports at the person's connection point.

¹³ A distribution network is defined in the Act as one which supplies electricity to more than 10,000 domestic customers.

2.3 The Commission and the Essential Services Commission Act

The Commission is a statutory authority, established under the ESC Act as a general economic regulator of essential services in South Australia, including the essential service of electricity supply. Section 5 of that Act provides the Commission with its statutory functions:

5—Functions

The Commission has the following functions:

- (a) to regulate prices and perform licensing and other functions under relevant industry regulation Acts;*
- (b) to monitor and enforce compliance with and promote improvement in standards and conditions of service and supply under relevant industry regulation Acts;*
- (c) to make, monitor the operation of, and review from time to time, codes and rules relating to the conduct or operations of a regulated industry or regulated entities;*
- (d) to provide and require consumer consultation processes in regulated industries and to assist consumers and others with information and other services;*
- (e) to advise the Minister on matters relating to the economic regulation of regulated industries, including reliability issues and service standards;*
- (f) to advise the Minister on any matter referred by the Minister;*
- (g) to administer this Act;*
- (h) to perform functions assigned to the Commission under this or any other Act;*
- (i) in appropriate cases, to prosecute offences against this Act or a relevant industry regulation Act.*

In the performance of those functions, the Commission is required to meet the statutory objectives set out for it at section 6 of the ESC Act, which includes a paramount statutory objective:

6—Objectives

In performing the Commission's functions, the Commission must—

- (a) have as its primary objective protection of the long term interests of South Australian consumers with respect to the price, quality and reliability of essential services; and*
- (b) at the same time, have regard to the need to—*
 - (i) promote competitive and fair market conduct; and*

- (ii) prevent misuse of monopoly or market power; and*
- (iii) facilitate entry into relevant markets; and*
- (iv) promote economic efficiency; and*
- (v) ensure consumers benefit from competition and efficiency; and*
- (vi) facilitate maintenance of the financial viability of regulated industries and the incentive for long term investment; and*
- (vii) promote consistency in regulation with other jurisdictions.*

In summary, section 5(a) of the ESC Act confers a price regulation role on the Commission and section 6 requires that, in undertaking that role, the Commission is to have, as its primary objective, the protection of the long term interests of South Australian consumers on the terms set out in section 6(a). The Commission is also required to have regard to the need to take into account the factors stipulated in section 6(b) of the ESC Act when making a determination. The ESC Act does not specify the weight which each of the factors stipulated in section 6(b) must be given as this is a matter left to the discretion of the Commission.

In addition, section 25(4) of the ESC Act provides that, in making a price determination, the Commission must, in addition to having regard to the general factors specified in section 6 of the ESC Act, have regard to:

- (a) the particular circumstances of the regulated industry and the goods and services for which the determination is being made;*
- (b) the costs of making, producing or supplying the goods or services;*
- (c) the costs of complying with laws or regulatory requirements;*
- (d) the return on assets in the regulated industry;*
- (e) any relevant interstate and international benchmarks for prices, costs and return on assets in comparable industries;*
- (f) the financial implications of the determination;*
- (g) any factors specified by a relevant industry regulation Act or by regulation under this Act;*
- (h) any other factors that the Commission considers relevant.*

These objectives and factors must guide the Commission's FiT premium determination.

3. VALUE OF PV EXPORTS

3.1 *Methodological issues*

As discussed in detail in the 2012 FiT Premium Determination, the Electricity Act requires the Commission to have regard to the “fair and reasonable” value to a retailer of the electricity fed into the electricity network. Accordingly, the Commission needs to quantify the net benefits to a retailer of the electricity exported from eligible PV generators.

The Commission considers that there are primarily three sources of value to a retailer of exported PV output. First, electricity retailers buy electricity at the wholesale level and sell it to small customers.¹⁴ When retailers receive exported PV energy output, the amount of electricity they must buy on the wholesale electricity market is reduced. This is the most significant impact that exported PV output has on retailers. Second, exported PV output also provides value to a retailer by avoiding network losses involved in delivering electricity from remote generation sources. Third, and finally, exported PV output allows retailers to avoid NEM fees and costs associated with the provision of ancillary services in the NEM.

In its 2012 Determination of the FiT premium, a number of other factors were considered by the Commission as possible contributors to the value to a retailer of exported PV output. Those other factors were:

- ▲ the impact of hedge contracts;
- ▲ changes in retailers contract position;
- ▲ retailer operating costs;
- ▲ ‘green schemes’;
- ▲ the impact on the wholesale price of electricity;
- ▲ the impact on network loss factors.

The Commission, after carefully considering each of those factors, formed the position that those factors may provide benefit to retailers collectively or to other parties but do not provide value to the PV customers’ ‘own’ retailer. Hence, the Commission decided to exclude those factors from its assessment of the fair and reasonable value to a retailer of exported PV output.

¹⁴ Retailers also supply large customers but they are not eligible for the feed-in payments which are limited to small customers and are thus not relevant to this analysis. However, large customers are free to negotiate with retailers a FiT premium specific to their circumstances.



The 2012 FIT Premium Determination also discussed the Commission's view that the value to a retailer of exported PV output consisted of:

- ▲ the wholesale spot price of electricity;
- ▲ *weighted by* the net system load profile;
- ▲ *adjusted for* distribution losses;
- ▲ *adjusted for* market and ancillary service fees.

Therefore, to derive the value to a retailer of exported PV output, projections of each of these parameters will be required.

3.2 Methodology

Details of the methodology used to determine the value of PV output is contained in the accompanying methodology report, prepared by ACIL Tasman on behalf of the Commission.¹⁵ In summary, that methodology involves:

- ▲ Forecasting the wholesale spot price of electricity; based on electricity demand forecasts (energy and peak demand) published by AEMO and using ACIL Tasman's *PowerMark* national electricity market model.
- ▲ Projecting the Net System Load Profile (NSLP) for South Australia; based on recent observations of the NSLP as published by AEMO, and estimating the relationship between the NSLP load and the regional (South Australian) load using regression analysis.
- ▲ Projecting the total installed capacity and effective generation of PV systems in South Australia.
- ▲ Combining the wholesale spot price forecasts with the projected NSLP to determine an NSLP-weighted spot price forecast.
- ▲ Adding the value of avoided network losses; obtained by analysing historic distribution loss factors for South Australia as published by AEMO.
- ▲ Adding the cost of NEM market and ancillary service fees; based on the most recent actual fees published in AEMO's annual budget.

¹⁵ ACIL Tasman, *The fair and reasonable value of exported PV output: Describing the methodology developed by ACIL Tasman for estimating the fair and reasonable value of exported PV output in South Australia*, March 2013 (available on the Commission's website at <http://www.escosa.sa.gov.au/library/130327-FairAndReasonableValueOfExportedPVOutput-ACILTasman.pdf>).

3.3 Implementation

The forecast value of exported PV output depends greatly on estimates of demand for electricity, in terms of both maximum demand (MW) and energy sales (GWh) as published by AEMO. The Commission has a strong preference for using AEMO demand forecasts, as they are independent and based on a robust methodology.

In 2012, AEMO published its demand forecasts in the National Electricity Forecasting Report (NEFR)¹⁶. The Commission expects AEMO to publish updated electricity demand projections in its 2013 NEFR towards the end of June 2013, and annual updates at a similar time in future years. As a consequence, the Commission intends to publish its revised updated estimates of the FiT premium using the methodology outlined above and based on the most up to date data as soon as possible after the AEMO forecasts are released. The Commission expects that retailers will be able to implement the Commission's revised FiT premium by 1 January 2014 and on 1 January of each year thereafter.

3.4 Commission's recent forecasts

The following table shows the differences between the Commission's latest forecasts of the SA NEM region time-weighted electricity spot prices and those established under the 2012 FiT Premium Determination. Both forecasts are based on expert advice received by the Commission from its consultant, ACIL Tasman.

ACIL Tasman employed a similar methodology to that adopted in January 2012, deriving an updated projection of the wholesale price of electricity taken from *PowerMark*, using the latest demand forecasts released by AEMO in June 2012¹⁷ (subsequent to the Commission's original determination) and the subsequent announcements of the mothballing of specific generating plant across the NEM and other adjustments.

The latest forecasts of the wholesale price of electricity for 2013/14 are approximately 24% below the 2013/14 forecasts established under the 2012 FiT Premium Determination.

It is noted that the projected electricity price used in the January 2012 determination is based on demand forecasts that were published by AEMO in August 2011.

¹⁶ AEMO, 2012, National Electricity Forecasting Report- Chapter 6, South Australia Forecasts, 29 June 2012, p. 6-1.

¹⁷ AEMO, 2012, National Electricity Forecasting Report - Chapter 6, South Australia Forecasts, 29 June 2012, p. 6-1.

Table 3.1: Projected SA NEM region time-weighted prices 2012/13 and 2013/14, \$ nominal per MWh at regional reference node

SCENARIO	2012/13	2013/14
2012 FiT Premium Determination	\$77.44	\$87.05
Current estimate	\$60.96	\$64.29

Given those lower estimates, the Commission engaged ACIL Tasman to update its forecasts of the value of exported PV output. Table 3.2 below summarises the projected values of exported PV output based on the above spot price forecasts. The forecast values of PV output take into account the projected spot prices and also include the value of avoided network losses and reduced market and ancillary service fees. The forecasts also incorporate updated information regarding the capacity of PV solar systems installed in South Australia as at 31 January 2013.

Table 3.2: Feed-in Tariff Premium (nominal cents per kWh and GST exclusive)

	2013/14 (CURRENT DETERMINATION)	2013/14 (LATEST MODELLING)
Wholesale Electricity Cost	10.2	8.53
Avoided Losses	0.9	0.68
Market and Ancillary Service Fees	0.1	0.10
TOTAL	11.2	9.31

The modelling of the forecast value of PV output, which forms the minimum forecast FiT premium, was determined using a similar methodology to that used by the Commission in making its 2012 FiT Premium Determination. At the time, the Commission undertook an extensive public consultation process and considers that despite the adjustments to that methodology, there is no substantive reason to depart from the basis of that methodology under current circumstances. However, stakeholders are welcome to comment on that view.

3.5 Draft determination

Under the current FiT premium determination, the value of the FiT premium is set to increase to 11.2c/kWh on 1 July 2013. Based on the above modelling, that amount materially overstates the current value of energy produced by eligible PV generators. If the Commission did not vary or revoke the current determination, electricity retailers would be required to pay a FiT premium that significantly exceeded the value of wholesale energy, and the resultant cost may lead to upward pressure on energy prices for all consumers. The Commission believes that such an outcome is not in the long-term interests of energy consumers.

In this Draft Determination, the Commission proposes to revoke the existing FiT premium determination and make a new determination that will roll forward the current FiT premium amount of 9.8c/kWh to continue until 31 December 2013. The Commission's proposal is based on the following reasons:

- ▲ The existing FiT premium amount of 9.8c/kWh is broadly consistent with the Commission's latest forecast FiT premium amount of 9.3c/kWh, noting that the latter value is based on demand projections that are around nine months old.
- ▲ Rolling forward of the existing FiT premium avoids another tariff change within the same financial year. This avoids any inconvenience to retailers and customers and seeks to minimise any administrative costs.
- ▲ The Commission will, in any event, update the FiT premium from 1 January using the latest available data from AEMO.

Stakeholders are welcome to comment on the Commission's proposal and reasons.

From 2014, the Commission proposes to set the FiT premium on a calendar year basis, which will be based on the current AEMO data. Achieving greater alignment with the release of AEMO's electricity demand forecasts is the key reason for the Commission's proposal to shift the setting of the FiT premium to a calendar year basis.

The process of updating the FiT premium on 1 January each year will be a mechanical one, as the Commission is unlikely to change any aspects of its price setting methodology. Therefore, the Commission will not need to consult publicly on a draft FiT premium each year. It will simply publish a report in the fourth quarter of each calendar year, setting out the FiT premium to apply in the forthcoming calendar year. Comments from stakeholders are sought on this proposal.

3.6 FiT premium amount

Table 3.3 details the total mandated FiT payments to apply from 1 July 2013 compared to the existing determination.

**Table 3.3: Feed-in Tariff Mandated Payments –
Retailer FiT Premium plus Distributor FiT Payment
(nominal cents per kWh and GST exclusive)**

		2013/14 (CURRENT DETERMINATION)	2013 APPLICABLE FROM 1 JULY 2013 TO 31 DECEMBER 2013 (DRAFT DETERMINATION)
SOLAR PV CELL INSTALLATION / APPROVAL DATE	BEFORE 1 OCTOBER 2011	11.2 + 44 = 55.2 c/kWh	9.8 + 44 = 53.8 c/kWh
	1 OCTOBER 2011 TO 30 SEPTEMBER 2013	11.2 + 16 = 27.2 c/kWh	9.8 + 16 = 25.8 c/kWh
	FROM 1 OCTOBER 2013	11.2 c/kWh	9.8c/kWh

Note: The 44 cents per kWh payment is payable until 30 June 2028. The 16 cents per kWh payment is payable until 30 September 2016.

The Draft Price Determination is based on AEMO's demand forecasts released in mid-2012 and also includes the impact of subsequent announcements to withdraw generating plant from the NEM by various generators as well as other matters.¹⁸

3.6.1 When the FiT determination takes effect

Pursuant to section 26(8) of the ESC Act, a price determination made by the Commission under section 35A of the Electricity Act takes effect on the date on which the notice of its making is published in the South Australian Gazette, or on a later date specified in the determination by the Commission. The Commission intends to issue a notice in June 2013, specifying that the determination will take effect from 1 July 2013.

3.6.2 Term of the FiT premium determination

The Commission's proposal to make a FiT premium determination until 31 December 2016 (albeit that only the methodology, not the values, are fixed in advance), is based on

¹⁸ Further details may be found in ACIL Tasman's Briefing Note, March 2013, <http://www.escosa.sa.gov.au/library/130327-ValueOfExportedSolarPVOutputBriefingNote-ACILTasman.pdf>

its desire to provide some certainty about the approach that will be adopted by the Commission in setting the FiT premium amounts.

Notwithstanding the above, it is important to note that if it becomes evident that the methodology should be replaced, the Commission does have the power to vary or revoke the FiT premium determination through a separate review, pursuant to section 26(8) of the ESC Act.

ANNEXURE A. THE VALUE OF FED-IN ELECTRICITY

A.1 Cost Components of Price

The electricity retail tariff is made up of four components:

- ▲ Transmission charges (paid to ElectraNet);
- ▲ Distribution charges (paid to SA Power Networks);
- ▲ Wholesale electricity costs; and
- ▲ Retailer costs.

Distribution and transmission charges comprise the costs associated with transporting electricity from generators to customers through the network. This includes the purchase and maintenance of network assets and ensuring the safety and reliability of the system. Generally, distribution and transmission charges make up around 40-45% of the retail electricity tariff paid by small electricity customers. These transport charges are set by ElectraNet and SA Power Networks and are regulated by the Australian Energy Regulator (AER)¹⁹. Retailers include these costs in their retail charges as a way to collect the amounts due to ElectraNet and SA Power Networks. Retailers have no ability to amend the amount that is charged.

Wholesale electricity costs and other retailer costs are the charges payable by a retailer as a result of supplying electricity to its customers. A retailer must pay for the amount of electricity consumed by its customers. In addition, other costs incurred by a retailer include: customer service; sales and marketing; revenue collection; management and support (including corporate functions); and performance of obligations under green schemes. Wholesale electricity costs and other retailer costs make up around 55-60% of the retail electricity tariff.

The Commission's task is to make a determination in relation to the credits payable by a retailer for the feeding in of electricity into a distribution network.²⁰ Given that retailers are unable to influence the amounts payable in terms of distribution or transmission charges, it is prudent for the Commission to assess whether solar PV generation provides a benefit in terms of a retailer's controllable costs only.

¹⁹ The manner in which these charges are determined may be found on the AER's web-site at www.aer.gov.au

²⁰ Refer section 4(1) of the transitional provisions of the *Electricity (Miscellaneous) Amendment Act 2011*.

Retailer controllable costs are:

- ▲ the price that the retailer pays for wholesale electricity; and
- ▲ the costs a retailer incurs in running its retail business.

Therefore, the Commission will determine the value of solar PV exports in relation to those controllable costs only. Accordingly, any impacts on transmission charges and distribution charges have been excluded.

In respect of the network, the Commission notes that solar PV cells may provide some benefits. However, there is also some evidence to suggest that PV systems actually increase network costs²¹. Theoretically, the introduction of solar PV could cause either an increase or decrease in network costs. The Commission notes that any network costs or benefits (distribution or transmission), will be assessed as part of the AER's price regulation function of those businesses and passed through to customers through amended distribution charges.

When considering the value to a retailer, the Commission has focused on avoided direct costs. Sources of value to a retailer should be measureable and ascribed to solar PV generation. The penetration of solar PV cells in South Australia may also provide indirect benefits to the market overall, but these indirect benefits cannot be easily or reliably attributed to solar PV.

A.2 Value of Fed-In Electricity

When PV customers generate electricity that is fed back into the network it means electricity retailers need to buy less electricity from other generation sources. A key component of the Commission's methodology in determining the FiT premium is the fair and reasonable value to retailers of each kWh generated by solar PV cells and fed back into the distribution network. The following section details the Commission's methodology in calculating this value.

A.2.1 Wholesale Electricity Cost

To supply electricity to homes and businesses retailers must purchase electricity from generators via the National Electricity Market (NEM). In a physical sense electricity is produced by a generator, transported via a transmission line, fed into a distribution network and is then used by electricity customers. Electricity retailers act as financial intermediaries between customers and generators and are not physically responsible for conveying electricity. Retailers purchase wholesale electricity from the NEM and

²¹ ACIL Tasman, *The fair and reasonable value of exported PV output: Describing the methodology developed by ACIL Tasman for estimating the fair and reasonable value of exported PV output in South Australia*, March 2013, Appendix A, p.5-6 (available on the Commission's website at <http://www.escosa.sa.gov.au/library/130327-ValueOfExportedSolarPVOutputBriefingNote-ACILTasman.pdf>)



generators who feed it into the NEM. At the same time retailers' bill customers for electricity consumed at each customer's premises.

The Australian Energy Market Operator (AEMO) facilitates the financial side of the wholesale electricity market. AEMO is responsible for calculating the wholesale electricity price in the NEM and also determines retailers' liability based on customer consumption. A daily settlement process is run by AEMO to enable the transfer of funds from retailers to generators.

There are five different regions in the NEM and each has a different wholesale spot price calculated at the "regional reference node" (RRN). The RRN is a designated spot in a region where the wholesale electricity price is set (in South Australia this is at Torrens Island Power Station). A RRN allows for the variation in demand and supply to be reflected in the wholesale price for each region. A retailer's liability for wholesale electricity (including losses) is calculated at the RRN rather than at the customer's meter box. This means that a retailer buys a quantity of electricity at the RRN which then flows through to customers. This quantity is equal to the amount of electricity its customers need plus an amount that allows for losses in the distribution system.

The spot price of wholesale electricity is calculated on a half hourly basis by AEMO and is based on an auction process that determines the value of electricity. This half hourly interval is known as a trading interval. To ensure a retailer pays for the electricity that is used by its customers the customer's demand for electricity needs to be matched to the spot price during each trading interval. A total wholesale electricity price can then be produced which will be paid for by the retailer. According to AEMO:

"the settlement price for both generators and market customers [retailers] is equal to the amount of energy produced or consumed multiplied by both the spot price that applies in the region of their operation and any loss factors that apply."²²

If customers have interval meters, it is possible to calculate the exact amount of electricity used during each trading interval. AEMO is able to calculate the actual wholesale electricity cost for that customer and bill the customer's retailer for that electricity.

Customers with basic meters do not have interval data so it is not possible to match actual consumption to trading intervals because this consumption information is not available. To ensure that each retailer pays for the right proportion of electricity used by its customers, AEMO must take the accumulated data and apportion the consumption into half hourly blocks so that the wholesale electricity cost can be calculated.

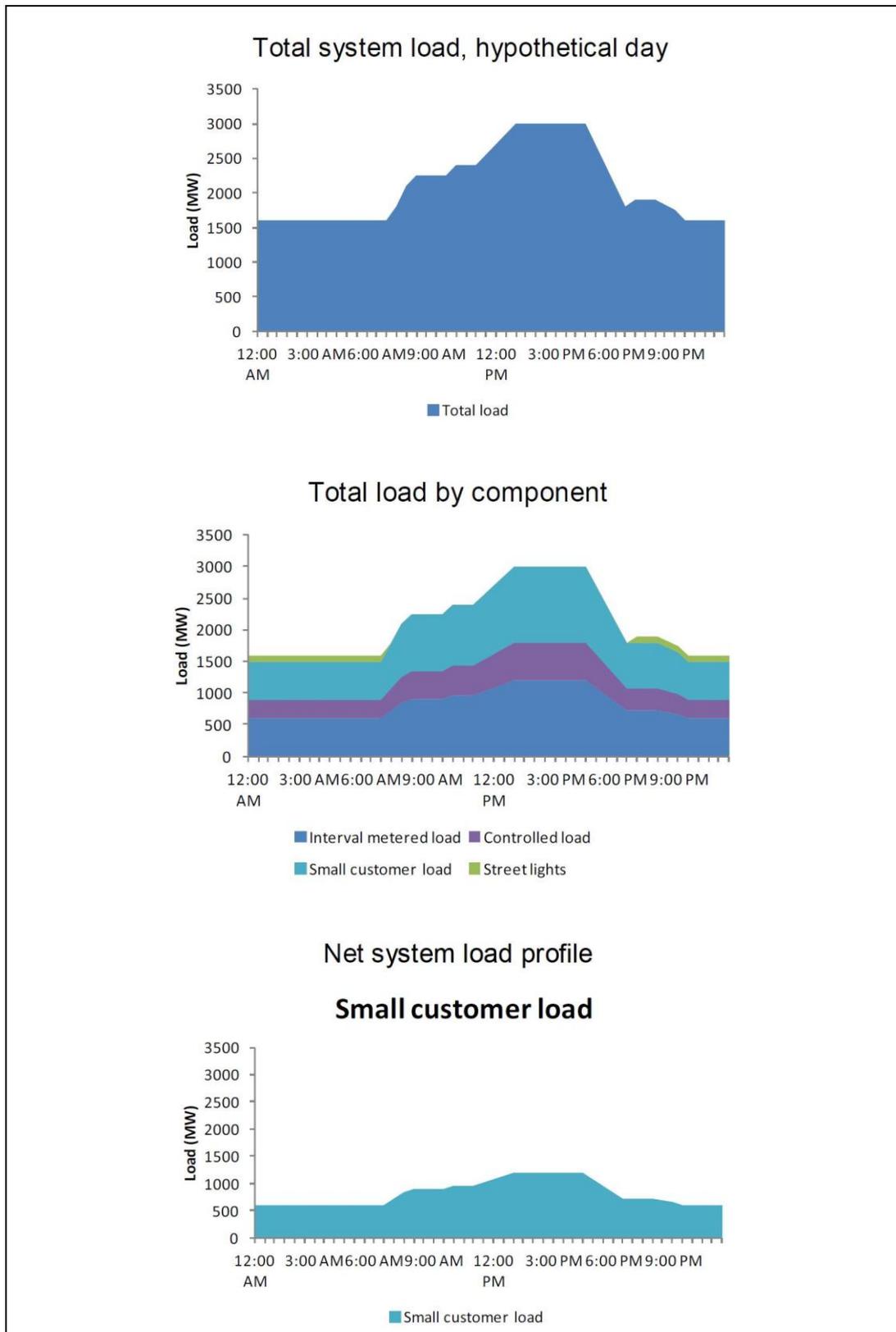
²² ACIL Tasman, *The fair and reasonable value of exported PV output: Describing the methodology developed by ACIL Tasman for estimating the fair and reasonable value of exported PV output in South Australia*, March 2013, p. 5 (available on the Commission's website at <http://www.escosa.sa.gov.au/library/130327-ValueOfExportedSolarPVOutputBriefingNote-ACILTasman.pdf>)

The total amount of electricity consumed in a trading interval less all known interval data is the consumption attributed to customers with accumulation meters. When this calculation is performed for each trading interval during the day it is possible to build up a half hourly profile which represents the electricity consumption of all customers with accumulation meters. This profile is called the Net System Load Profile (NSLP). The formula for calculating the NSLP is broadly:

$$\textit{Total Electricity} - \textit{Loss Factors} - \textit{Interval data} - \textit{Controlled Load (Hot Water)} = \textit{Net System Load Profile (NSLP)}$$

In its report to the Commission, ACIL Tasman presented a diagram of the NSLP for a hypothetical day. Figure A.1 below shows each layer of total system load and illustrates how the NSLP is derived by stripping out known consumption loads.

Figure A.1: Derivation of the Net System Load Profile



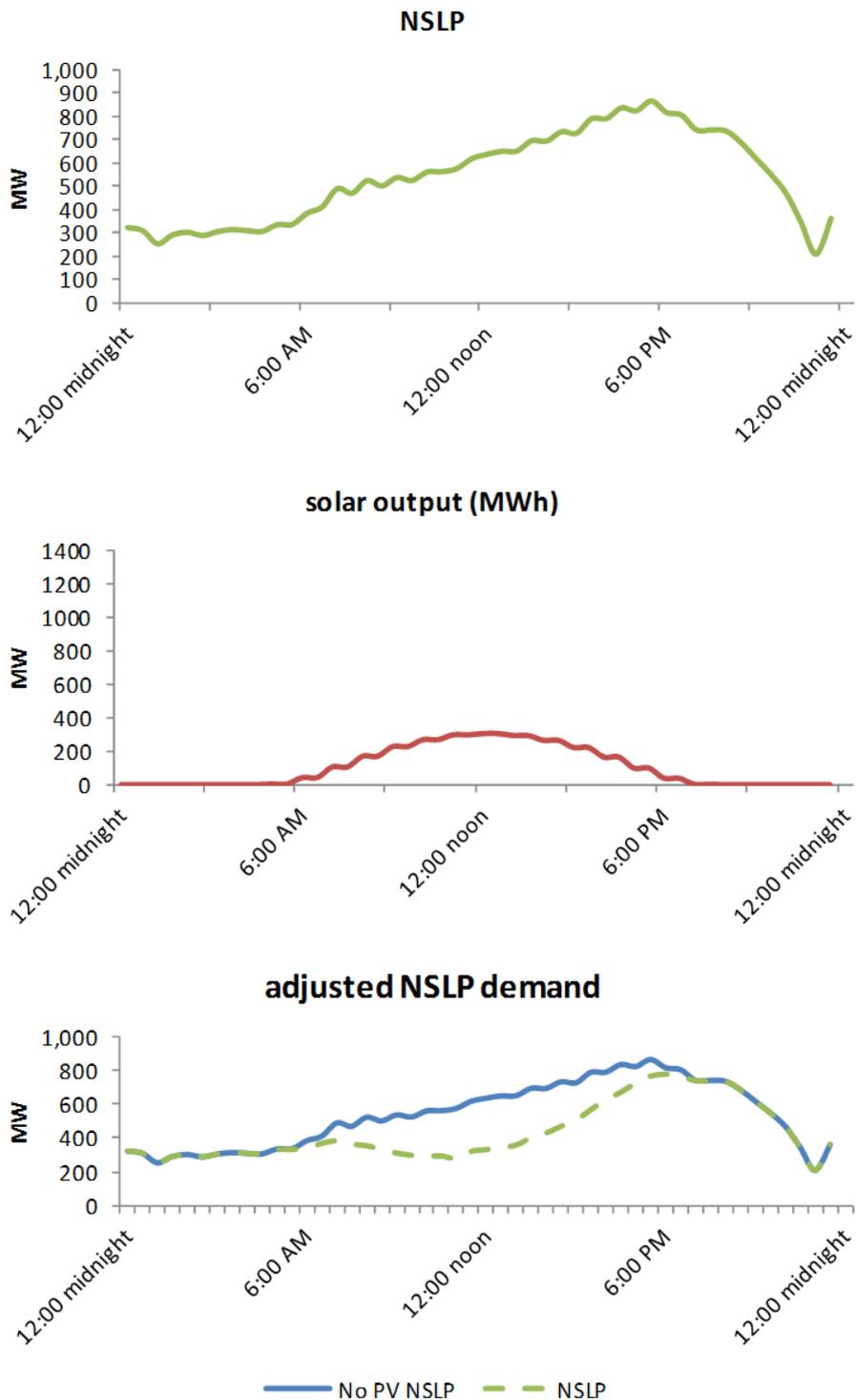
Once the NSLP has been derived, it is possible to calculate the wholesale electricity price payable by a retailer for its customers. All retailers in an area are subject to the same NSLP. The result is that retailers effectively pay an average wholesale electricity spot price for their customers with 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 changes 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. What this equates to is an overall reduction in demand from the network which means less electricity is required from other generators (e.g. coal, gas).

Of course solar PV cells only generate during daylight hours which means 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.

Figure A.2 illustrates the effect that solar PV generation has on the NSLP.

Figure A.2: Deriving the Adjusted NSLP Demand



The reduction in the NSLP has two effects on the settlement of the wholesale electricity market. Firstly, the resulting NSLP-weighted price will be lower than it would be if PV systems were not in place (the price effect). Secondly, the total amount of electricity sold is reduced (the volume effect).

A.2.2 Reduction in NSLP Weighted Electricity Price

As a general rule, a high demand for electricity is likely to result in a high electricity spot price. Conversely when the demand for electricity is low, wholesale spot prices are likely to be low. Electricity demand is typically higher during the day, peaking during the late afternoon before flattening off overnight. This means that on a normal day, wholesale electricity is more likely to be expensive during the day than at night.

The reduction of the NSLP effectively reduces a retailer's liability for expensive daytime power because this is the time that solar PV systems generate the most electricity. The lower daytime demand results in reduced costs for all retailers in the market due to the mechanics of the settlement process. All retailers, even those without PV customers, benefit from the reduction in demand for wholesale electricity during times when the spot price is high because the same NSLP is applied to all retailers.

It should be noted that this effect is already factored in the operation of the NEM. SA Power Networks advised that, as at 31 January 2013, approximately 131,307 solar PV generating units (representing between 300MW to 400MW in additional generating capacity) have been installed in South Australia. This PV generating capacity would have already had an effect in changing the weighting of the wholesale spot price. The lower price is already applied to all retailers and in a competitive environment these savings will be passed on to all electricity consumers through lower tariffs.

In considering the value to a retailer of PV exports, the Commission over-riding objective is the protection of the long term interests of South Australian consumers. In theory, the reduction in price could be returned to PV customers only but this would involve the employment of complex forecasting techniques and would be difficult (and, likely, costly) to administer. Furthermore, the Electricity Act requires that the Commission make an assessment of the value of electricity fed-into the network. Around two thirds of the electricity causing this reduction in demand (and, therefore, a retailer's cost) is due to in-home use and, as such, is excluded from this assessment²³.

The link between electricity fed into the network and a reduction in retailers' costs, therefore, is diluted such that it would be difficult to allocate a value to PV customers with any certainty. This is especially the case in South Australia since interval data showing in-home use compared to exports is largely unavailable. As a consequence, the Commission has decided to exclude this effect from its assessment of the value of PV exports noting that any savings resulting from PV exports will be passed on to all consumers through the normal operation of the market.

²³ ACIL Tasman, The fair and reasonable value of exported PV output, March 2013, p.15.

A.2.3 Reduction in Overall Wholesale Electricity Price

The section above discussed the effect that solar PV generation has on the NSLP-weighted wholesale spot price. Similarly, it is necessary to consider whether increased solar PV generation has influenced the spot price of wholesale electricity such that it would provide value to retailers whose solar PV customers feed back into the network.

It is likely that the reduction in demand, as a result of solar PV generation, will have influenced a reduction in the wholesale electricity spot price. ACIL Tasman's report notes that *"this is reflected in recent prices and therefore in projection based on demand growth from present levels."*²⁴

The reduction in wholesale electricity price is a shared benefit that affects all retailers. It would be extremely difficult to simulate the change in the spot price as a result of each kWh of solar PV generation. Attempting to return gains to PV customers would again be challenging, and likely costly, to administer. Consequently, the costs are likely to exceed the amount of any benefit.

Once again, in considering the value to a retailer the Commission has also considered the long term interests of South Australian consumers. The operation of the market means that reductions in the wholesale spot price will pass through to all retailers equally. Savings can then be passed on by retailers to their customers through the competitive market. Accordingly, the Commission has decided to exclude this effect from its assessment of the fair and reasonable value of PV exports.

A.2.4 Reduction in Volume

AEMO's settlement system identifies the retailer responsible for every electricity meter, including financial responsible for paying the wholesale electricity cost for any electricity that is drawn from the network through each meter. Likewise, when a customer has solar PV cells, any electricity that is fed-back into the network accrues as an "electricity credit" to that retailer. The nature of the metering arrangements means that the quantity of solar PV electricity generated by a retailer's own customers is captured by that retailer.

The "electricity credit" reduces the amount of electricity that the retailer needs to purchase at the RRN because it is available within the network to be used by another customer. In this simplified example, which excludes losses, if a retailer needs to supply 100kWh into the network and receives 10kWh of solar PV generation then it will only need to purchase 90kWh at the RRN. The 10kWh reduction in liability at the RRN translates to a reduction in direct costs.

²⁴ ACIL Tasman, *The fair and reasonable value of exported PV output: Describing the methodology developed by ACIL Tasman for estimating the fair and reasonable value of exported PV output in South Australia*, March 2013, Appendix A, p. 7 (available on the Commission's website at <http://www.escosa.sa.gov.au/library/130327-ValueOfExportedSolarPVOutputBriefingNote-ACILTasman.pdf>)

To determine a value for the electricity fed-back into the network in future years, it is necessary to project:

- ▲ the NSLP; and
- ▲ the wholesale spot price in the SA NEM region.

The Commission engaged ACIL Tasman to prepare these projections. The NSLP was derived by ACIL Tasman:

“... by estimating the relationship between the NSLP load and the regional (South Australian) load over the calendar years 2008 to 2010. That relationship was estimated using the multiple linear regression technique of ordinary least squares. A number of specifications were considered in the process. The specification that provided the best fit and most reasonable results was:

$$N_t = 863.42 - 428.8 * peak_t + (0.740 * peak_t - 0.938) * load_t + (0.000485 - 0.000257 * peak_t) * load_t^2 - 12.5 * Q2 + 44.5 * Q3 - 10.9 * Q4$$

Where: N is the sum of South Australian NSLP load and estimated (gross) PV output

$Peak$ is 1 from 7:00am until 11:00pm weekdays (excluding public holidays in all NEM states) and 0 otherwise

$Load$ is the sum of South Australian regional reference load and estimated (gross) PV output

$Q2$ is 1 during the second quarter of the calendar year, that is, April, May and June and 0 otherwise

$Q3$ is 1 during the third quarter of the calendar year, July August and September and 0 otherwise

$Q4$ is 1 during the fourth quarter of the calendar year, October, November and December and 0 otherwise

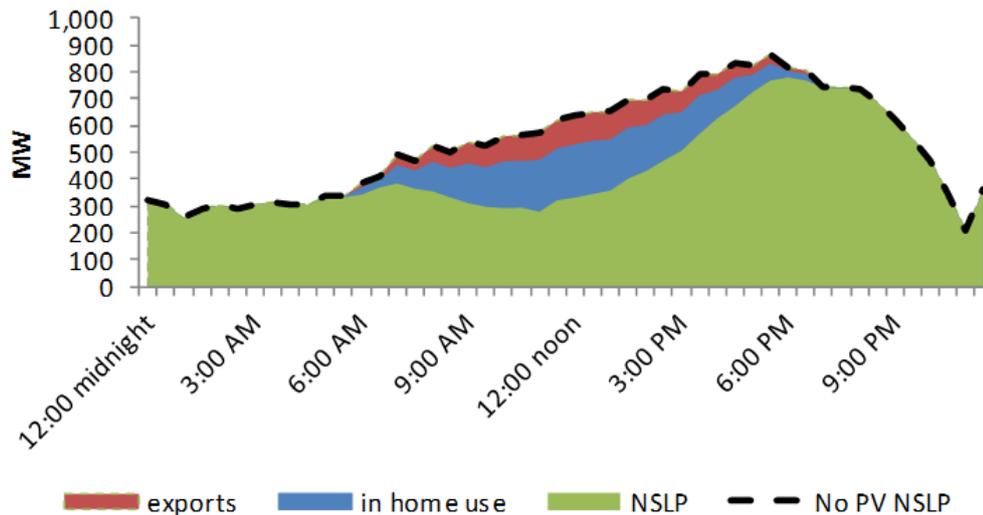
t is a half hourly time index²⁵

In addition, ACIL Tasman’s analysis incorporates estimates for growth in the number of solar PV systems and also the output from solar PV systems in South Australia over the period to 2013/14.

²⁵ ACIL Tasman, *The fair and reasonable value of exported PV output: Describing the methodology developed by ACIL Tasman for estimating the fair and reasonable value of exported PV output in South Australia*, March 2013, p. 21 (available on the Commission’s website at <http://www.escosa.sa.gov.au/library/130327-ValueOfExportedSolarPVOutputBriefingNote-ACILTasman.pdf>)

The derivation of a NSLP for 2013/14 combined with an estimate of solar PV output means that it is possible to calculate the change in shape to the NSLP as a result of solar PV exports, refer Figure A.3.

Figure A.3: Illustrative example of the NSLP adjusted by PV output showing in-home use and exports



A detailed explanation of this methodology can be found in ACIL Tasman's Report²⁶.

To calculate the value to a retailer of this electricity, it is necessary to forecast the wholesale electricity spot price for 2013/14. ACIL Tasman prepared a projection of the wholesale spot price of electricity in South Australia using *PowerMark*, its model of the NEM. Key inputs into the projection include:

- ▲ NEM regional peak demand and electricity;
- ▲ Environmental policy settings;
- ▲ Generator characteristics including capacity, thermal efficiency and marginal costs;
- ▲ Interconnector settings; and
- ▲ New entrant technology costs and availability.

As explained previously, the introduction of solar PV alters the shape of the NSLP. Applying the change in load shape to the forecast wholesale electricity spot price allows for the calculation of the value to a retailer for reduced wholesale electricity cost. These wholesale electricity spot prices represent the rate payable for solar PV generation only.

²⁶ ACIL Tasman, *The fair and reasonable value of exported PV output: Describing the methodology developed by ACIL Tasman for estimating the fair and reasonable value of exported PV output in South Australia*, March 2013, (available on the Commission's website at <http://www.escosa.sa.gov.au/library/130327-ValueOfExportedSolarPVOutputBriefingNote-ACILTasman.pdf>).

A.2.4.1 Losses

The Commission has considered the issue of whether the FiT premium should incorporate the benefits of any avoided loss factors. In analysing the effect that solar PV has on losses, the Commission has differentiated between the concepts of avoided losses and reduction in loss factors. The following sections discuss the effect that solar PV has in this regard.

A.2.4.2 Avoided Losses

Solar PV exports reduce the amount of electricity that a retailer has to buy at the RRN on a one for one basis. As noted previously, when a customer feeds electricity back into the network the customer's retailer receives an "electricity credit" that is attributed to that retailer. This reduces the amount of electricity that the retailer needs to purchase at the RRN because extra electricity is available within the network to be used by another customer. The simplified example given, which excludes losses, shows that if a retailer needs to supply 100kWh into the network and receives 10kWh of solar PV generation, then it will only need to purchase 90kWh from the RRN. The 10kWh reduction in liability at the RRN translates to a reduction of direct costs.

This analysis does not take into account the reduction in losses as a result of solar PV generation being used by customers in close proximity, thus avoiding distribution losses associated with purchasing electricity at the RRN. As noted by ACIL Tasman in its 2012 report to the Commission:

"If wholesale electricity incurs losses that are ten percentage points higher in reaching the point of consumption than exported PV output, 90 kWh of exported PV output would displace 100 kWh of wholesale electricity purchases."²⁷

This benefit to retailers is simple to demonstrate and is a result of the procedures used to settle the NEM.

In the NEM, all retailers buy electricity at the RRN and supply it to their customers. The NEM rules require that the retailer purchases an additional amount of electricity to account for losses that will occur while the electricity moves through the distribution network. The same rate of losses is applied to all wholesale electricity purchases by retailers regardless of their customer's proximity to the RRN. AEMO publishes the loss factor that will apply to all retailers on an annual basis. The Commission's consultant, ACIL

²⁷ ACIL Tasman, *The fair and reasonable value of exported PV output: Describing the methodology developed by ACIL Tasman for estimating the fair and reasonable value of exported PV output in South Australia*, March 2013, p. 16 (available on the Commission's website at <http://www.escosa.sa.gov.au/library/130327-ValueOfExportedSolarPVOutputBriefingNote-ACILTasman.pdf>).

Tasman, analysed historical transmission and distribution loss factors set for the SA region of the NEM published by AEMO and found the overall loss factor to be around 8%.²⁸

The following example considers a retailer’s liability when supplying two customers, one with solar PV cells and one without. Both customers require 100kWh of electricity over the period. For the purposes of this calculation a loss factor of 8% is assumed.

Customer 1 does not have solar PV cells. The customer’s retailer would need to purchase 100kWh wholesale electricity from the RRN. When purchasing at the RRN an additional 8% is added to account for losses, so the retailer would be billed for 108kWh electricity (an extra 8kWh).

Customer 2 has solar PV cells and during the period supplies 10kWh to the network. The customer’s retailer received the 10kWh as an “electricity credit” and, therefore, is only required to purchase 90kWh wholesale electricity from the RRN. As with Customer 1 an additional 8% is added to the purchase from the RRN so that the retailer must purchase 97.2kWh wholesale electricity (an extra 7.2kWh).

Both retailers bill their customer for the 100kWh consumed but for Customer 2 because 10kWh is received from solar PV generation the retailer avoids paying losses on the full 100kWh and only pays losses associated with 90kWh. This means in supplying electricity to Customer 2 the retailer avoids 0.8kWh of losses for which it would have to pay if it was supplying Customer 1. This comparison is shown in Table A.2 below.

Table A.2: Avoided Losses as a result of solar PV exports

	CUSTOMER 1 No PV CELLS	CUSTOMER 2 WITH PV CELLS
CUSTOMER CONSUMPTION	100 kWh	100 kWh
PV EXPORTS	-	10 kWh
RETAILER TO PURCHASE FROM RRN	100 kWh	100 kWh – 10 kWh =90 kWh
ADDITIONAL FOR LOSSES (8%)	100 kWh + 8% = 8 kWh	90 kWh + 8% = 7.2 kWh
AVOIDED LOSSES	8 kWh – 7.2 kWh = 0.8 kWh	

²⁸ ACIL Tasman, *The fair and reasonable value of exported PV output*, March 2013, p.25.

Therefore, the total wholesale electricity cost value to the retailer of exported PV output is the electricity that is fed back into the network plus the avoided losses. In this example the retailer avoids buying 10.8kWh of electricity on the wholesale market (10kWh solar PV export plus 8% loss factor). If the retailer did not have the benefit of 10kWh PV exports it would have been required to pay the NSLP weighted price for that electricity at the RRN, so the retailer avoids costs equal to 10.8 times the NSLP weighted price.

Since the same loss factor is applied to all wholesale electricity purchases it does not matter whether actual losses are higher or lower during the times that solar PV cells generate. The benefit to the retailer is based on the published loss factor that is applied in practice and as such this is the avoided direct cost.

It should be noted that the concept of avoided losses is separate from the notion that increased penetration of solar PV will influence a reduction of the loss factors experienced in the network. Loss factors are further discussed below.

In calculating the benefit to retailers of avoided losses the published loss factor of 8% has been used for 2013/14.

A.2.4.3 Reduction in Loss Factors

As a general proposition, a high penetration of solar PV cells would result in a reduction of losses in the network, as electricity is being consumed in close proximity to where it's generated. This is true for in-home use, where losses would be negligible. It also applies to exports that would be used in the local area thus displacing conventional generation that is produced remotely.

It is likely that the electricity market is already receiving a benefit from the reduction in loss factors due to solar PV generation. As more solar PV cells are installed it is to be expected that a greater reduction in losses will result. Submissions stated that it would be difficult to assess a change in loss factors and that any benefits would be passed back to all electricity consumers over time.

A reduction in losses is automatically accounted for by AEMO when setting the loss factor that will be applied to wholesale electricity purchases at the RRN. The benefit of reduced loss factors from PV generation accrues to all retailers in the market and not just to those who receive solar PV generation from their customers.

Therefore, it is unnecessary to include an adjustment for a reduction in network loss factors because a reduction in loss factors does not provide a specific financial benefit to retailers with PV customers. A change in the loss factor would affect all retailers equally and would therefore reduce costs for all electricity consumers.

A.2.5 Hedging

The wholesale electricity spot price payable by retailers fluctuates during the day based on the supply and demand for electricity. In the NEM, a maximum wholesale spot price of \$12,900²⁹ per MWh is set which is substantially higher than the average wholesale electricity price. Retailers limit their exposure to these high electricity prices by entering into financial arrangements commonly referred to as hedge contracts.

Hedge contracts essentially “insure” the retailer against paying high electricity prices. The Commission’s consultant, ACIL Tasman, in its earlier report of December 2011³⁰ describes the common arrangements preferred by electricity retailers in Australia.

“The most common form of contracts used by electricity retailers are ‘swaps’ and ‘caps’ which are traded on a futures exchange operated by the Australian Securities Exchange (ASX), or private ‘bilateral’ equivalents of these contracts. Other, more exotic, contractual arrangements are entered into in the bilateral market.

“In simple terms, these contracts operate in the following manner:

- ▲ *swaps institute a series of payments between the seller and buyer of the contract to effectively fix the price of a certain volume of electricity, irrespective of spot price movements;*
- ▲ *caps provide for payments from the seller of the contract to the buyer of the contract that effectively caps the price of electricity at a predetermined level, typically \$300 per MWh, in exchange for an upfront ‘premium’ to enter into the contract.”*

A detailed explanation of the financial flows under these “swap” and “cap” contracts can be found in Appendix A of ACIL Tasman’s December 2011 report.

When considering the value of solar PV generation to retailers, it is necessary to consider whether the reduction in demand provides a specific benefit to retailers in this context. Given that the vast majority of solar PV customers are settled against the NSLP, each retailer must therefore hedge against purchasing its share of the NSLP, rather than its customers’ actual usage.

The same NSLP, and therefore the same weighted wholesale spot price, applies to all retailers in the market for customers with basic meters. This means that if 10 customers transfer from Retailer A to Retailer B, both retailers will still pay the same wholesale spot price per unit of electricity. The only difference to the retailers will be their share of the total cost which is based on the volume of electricity consumed by their customers.

²⁹ This was the market cap price at the time of writing; however, it is indexed with inflation over time.

³⁰ Report available from <http://www.escosa.sa.gov.au/projects/167/2012-determination-of-solar-feed-in-tariff-premium.aspx>

A retailer's exposure to high prices will therefore increase in proportion to its share of the NSLP. Since hedging contracts generally work by limiting the amount paid per unit of electricity purchased from the NEM, the retailer's optimal contracting position will remain unchanged.

A retailer's optimal contracting position may be affected such that solar PV generation causes all retailers' exposure to the peak wholesale spot price to change through an overall lowering in the NEM spot price. Similar to the earlier discussion regarding wholesale spot prices, all retailers would be affected equally by this outcome.

Therefore, retailers with solar PV customers would not receive an individual benefit from avoided contracting and risk management costs. All retailers would benefit equally from any gains that are made and in a competitive environment these savings can be passed on to all customers by each retailer.

In its current report, ACIL Tasman's reiterates how a fixed contracting position may deliver a cost or benefit to the retailer equal to the spot price:

"A typical portfolio of contracts is designed to hedge against price risk. However, it would not limit retailers' exposure to volume risk. This means that, for a fixed contractual position, any variation in quantity of the electricity they purchase results in a cost (for an increase in consumption) or a saving (for a decrease in consumption) equal to the wholesale spot price. Where a retailer purchases less electricity from the wholesale market due to exported PV output it receives from its customers, it benefits by avoiding the wholesale spot price for each unit of reduced consumption.

It follows from this analysis that the fair and reasonable value of exported PV output to a retailer from avoided NSLP purchases will equal the NSLP weighted spot price, irrespective of its contractual position."³¹

Accordingly, the Commission has not included an additional amount, specific to hedging, when determining the value of PV exports.

A.2.6 Market and Ancillary Service Fees

To ensure the ongoing operation and reliability of the NEM, AEMO levies fees on market participants to cover its costs. Market fees cover AEMO's general operating costs. Ancillary service fees cover the costs associated with managing the power system safely, securely and reliably.

Market fees are charged on a per MWh basis and each year AEMO publishes the fees that will apply for the forthcoming year. For 2012/13, market customers with a retail licence

³¹ ACIL Tasman, *The fair and reasonable value of exported PV output: Describing the methodology developed by ACIL Tasman for estimating the fair and reasonable value of exported PV output in South Australia*, March 2013, Appendix A, p. 1 (available on the Commission's website at <http://www.escosa.sa.gov.au/library/130327-ValueOfExportedSolarPVOutputBriefingNote-ACILTasman.pdf>)

(retailers) must pay an additional \$0.40 per MWh (approximately) to cover AEMO's operational costs.

Ancillary service fees are set on a cost-recovery basis. Market participants bid to provide ancillary services in the NEM and each week a new ancillary service cost is calculated. The fee is generally around \$0.1 per MWh to \$0.2 per MWh but has been known to spike at much higher levels. In the SA region of the NEM during week 17 of 2010, the fee was \$35.79 and during week 41 of 2011 the fee was \$17.66. To account for this variability when calculating the value to retailers, a three year average of ancillary service fees was calculated by ACIL Tasman. The result is that retailers on average pay an additional \$0.49 per MWh to fund ancillary services in the SA region of the NEM.

The market and ancillary services fees payable by retailers are calculated based on the amount of wholesale electricity purchased at the RRN. As discussed earlier, when a retailer receives PV exports from its customers the amount of wholesale electricity that it needs to purchase at the RRN is reduced. This means that the retailer's liability for market fees and ancillary service fees is also reduced as it is calculated on a lower volume of wholesale electricity. In addition, the retailer also has the benefit of avoided losses (see section A.2.4.2) so the retailer's market fees and ancillary service fees will also be reduced by this amount. Every kWh of solar PV generation received into the network therefore directly reduces the market and ancillary service fees payable by the customer's retailer. This effect has been included in determining the value of solar PV generation.

Over time the reduction in revenue received by AEMO (due to the effect of solar PV generation) will likely mean an increase in the unit price for fees payable by retailers. The same amount needs to be recovered over a smaller volume of electricity. This effect is due to the operation of the market and is also influenced by the prevalence of in-home use of PV generation (which is outside the Commission's terms of reference). The unit price payable by retailers that do not have solar PV customers would therefore be higher than it would otherwise have been if solar PV did not exist.

In theory, the increase in price could be attributed to PV customers only but would involve complex forecasting and would be difficult (and likely costly) to administer, potentially outweighing the benefits of the endeavour. It should be noted that retailers of solar PV customers would also be subject to the higher rates but calculated on a lower volume of electricity. The Commission has decided to exclude this effect from its assessment of the value of solar PV generation.

The benefit to retailers from solar PV generation, in regard to avoidance of fees, is based on the reduction in the amount of electricity purchased at the RRN (including losses) and does not include an adjustment for changes in the unit price of fees that may occur over time.

The benefit to retailers from solar PV exports in relation to market and ancillary fees is shown in Table A.3 below.

**Table A.3: Value of Market and Ancillary Service Fees for 2013/14
(nominal, in dollars per MWh and cents per kWh)**

	2013/14	
	\$ per MWh	cents per kWh
Market Fees	\$0.40	0.0
Ancillary Service Fees	\$0.49	0.1
Total Fees at RRN	\$0.92	0.1
Total Fees (after adjustment for losses)	\$1.00	0.1

The benefit to retailers from solar PV exports, in regard to market and ancillary service fees is approximately 0.1 c/kWh each year.

A.2.7 Green Scheme obligations

Both State and Commonwealth Governments have made public commitments to prepare Australia for a low carbon future through various programs and initiatives, including carbon pricing, clean energy research and development, and measures to help households, businesses and communities to transition.

At a State level, the schemes that apply in respect of South Australian electricity consumers are the Large-scale Renewable Energy Target (LRET), the Small-scale Renewable Energy Scheme (SRES) and the Residential Energy Efficiency Scheme (REES). ACIL Tasman's description of these schemes (which can be found in its December 2011 report)³² is restated below.

- ▲ The Large-scale Renewable Energy Target (LRET) is a Commonwealth Government scheme that requires electricity retailers to support the development of large-scale renewable energy sources by purchasing certificates created by the generators in proportion to their electricity acquisitions on behalf of consumers.
- ▲ The Small-scale Renewable Energy Scheme (SRES) is a Commonwealth Government scheme that requires electricity retailers to support the development of small-scale renewable energy sources such as PV and solar water heaters by purchasing certificates created by these sources in proportion to their electricity acquisitions on behalf of consumers.

³² Report available from <http://www.escosa.sa.gov.au/projects/167/2012-determination-of-solar-feed-in-tariff-premium.aspx>

- ▲ The Residential Energy Efficiency Scheme (REES) is a South Australian Government scheme that requires electricity retailers to support uptake of energy efficiency opportunities by households by purchasing certificates that represent pre-specified energy efficiency actions, in proportion to their electricity sales.

Retailers are liable for the costs associated with the operation of these schemes and pay an amount based on the amount of electricity purchased or sold. If a retailer's customers consume a greater amount of electricity, then the retailer's contribution to the scheme increases (and vice versa).

The LRET and SRES schemes work on the principle of 'relevant acquisitions' of electricity. The Commission's understanding is that the *Renewable Energy (Electricity) Regulations 2001*³³ require retailers to pay fees associated with the electricity acquired on behalf of customers which includes both wholesale electricity and solar PV generation. On this basis, solar PV exports do not reduce a retailer's liability for LRET and SRES. For the purposes of this Determination, the Commission has not included a benefit to retailers for avoided green scheme costs as a result of solar PV generation.

The REES scheme operates slightly differently in that the retailer's liability is based on final sales. Despite this nuance the result is the same because the final amount of electricity sold to customers is the sum of the wholesale electricity bought and the solar PV exports acquired. Since the solar PV exports are essentially consumed at another customer's premises the retailer's liability for REES costs is the same as it would be if no solar PV existed.

The outcome is that the presence of solar PV exports does not change a retailer's liability for the applicable green schemes in South Australia. Therefore, in regard to green schemes, there is no benefit to retailers from solar PV output. Consequently, the Commission has excluded this item from its assessment of the value of solar PV exports to retailers.

A.2.8 Retail Operating Costs

Electricity retailers act as financial intermediaries between customers and generators and are not physically responsible for conveying electricity. Retailers purchase wholesale electricity from generators who feed it into the electricity network. At the same time retailers bill each customer for the electricity consumed at the customer's premises. The costs associated with performing these functions are known as retail operating costs. The Commission included the following items in its *2010 Electricity Standing Contract Price Path Determination* as contributing to a retailer's operating cost:

- ▲ Customer service;
- ▲ Sales and Marketing;

³³ http://www.comlaw.gov.au/Details/F2011C00810/Html/Text#_Toc305679053

- ▲ Revenue collection;
- ▲ Management and support (including corporate functions); and
- ▲ Performance of obligations under the Residential Energy Efficiency Scheme (REES).

In determining the FiT premium for solar PV exports, it is prudent for the Commission to consider whether the cost to serve a customer with a PV system is materially higher or lower than serving a customer who does not have a PV system. During the consultation process associated with the 2012 Determination, retailers submitted to the Commission that servicing solar PV customers was more costly than other customer groups. Retailers provided various reasons including: complexity with quoting and billing; ongoing meter data management requirements; and, increased customer service contact time compared to other customer groups. However, the Commission was not provided with any detailed data or evidence to support these positions.

Clearly, each customer group will have those customers who cost more than average to service and will have customers who cost less than average to service. Customers who have a greater awareness of electricity issues in general are likely to have a higher cost to serve regardless of whether they have solar PV cells or not. In any event, as the interface between customers and the electricity generation and supply industries, the key function of electricity retailers is customer service.

Finally, the Commission's task is to determine the FiT premium from the time a determination is made and is not undertaking a cost recovery exercise for funds already spent. It would be expected that an increase in the retail operating costs (if any) due to PV customers, would have already been accounted for and recovered via the retail tariffs of all customers.

Therefore the only assessment to be performed is that of any incremental cost that will apply from the date the determination is made. In its December 2011 report, ACIL Tasman, noted:

"... we have not attempted to estimate this incremental cost, our expectation is that it would be extremely small and within the reasonable error margin associated with the estimate of the energy value."³⁴

Given the above, the Commission has decided to exclude this from its assessment of the value of solar PV exports to retailers.

³⁴ ACIL Tasman, *The fair and reasonable value of exported PV output: Describing the methodology developed by ACIL Tasman for estimating the fair and reasonable value of exported PV output in South Australia*, December 2011, p. 27-28. Available on the Commission's website at <http://www.escosa.sa.gov.au/library/120103-SolarFeedinTariff-SupplementaryReport-ACILTasman.pdf> .



A.2.9 *Sharing of Benefits*

The Commission has previously noted that some of the benefit that accrues from the energy generated by solar PV systems may reduce a retailer's overall costs such that it becomes less costly for the retailer with solar PV customers to supply all of its customers, not just those customers with solar PV systems. Through its analysis, the Commission has identified benefits from solar PV generation that directly accrue to retailers (when customers feed electricity to the network), and benefits that are shared with all electricity consumers as a consequence of the operation of the NEM; as summarised below:

- ▲ Direct benefits to retailers from PV generation:
 - Reduced wholesale electricity cost;
 - Avoided losses; and
 - Avoided market and ancillary service fees.
- ▲ Benefits shared with all electricity consumers:
 - Reduced wholesale electricity cost due to flattening of the NSLP;
 - Reduced wholesale electricity price due to overall reduction in demand;
 - Avoided contracting and risk management costs; and
 - Reduced network loss factors.

PART B – PRESCRIBED AMOUNT – DRAFT DETERMINATION

4. GENERAL

4.1 *Application of the Determination*

4.1.1 For the purposes of Division 3AB of the Electricity Act 1996, this Determination fixes the minimum *prescribed amount* which an *obliged retailer* must credit in respect of electricity fed into the *distribution network* against the charges payable by a *qualifying customer* for the sale of electricity.

4.2 *Authority*

4.2.1 This Determination is made by the *Commission* pursuant to the Electricity Act 1996 and the Essential Services Commission Act 2002.

4.3 *Term*

4.3.1 This Determination takes effect on the 1 July 2013 and ceases to have effect on 31 December 2016.

4.4 *Definitions and interpretation*

4.4.1 Words and phrases in italics in this Determination are defined in accordance with clause 6.1.

4.4.2 This Determination must be interpreted according to the principles in clause 0.

4.5 *Prescribed amount GST exclusive*

4.5.1 In this Determination the prescribed amount is exclusive of GST.

4.6 *Publication of the prescribed amount*

4.6.1 Notice of the making of this Determination will be published by the Commission:

- (a) in the Gazette and on the *Commission's* website;
- (b) in a newspaper circulating generally in South Australia, setting out:
 - (i) the value of the *prescribed amount*;
 - (ii) a general description of the nature and applicability of this Determination; and



(iii) advice as to how this Determination may be accessed.

4.6.2 On and from 1 July 2013, an *obliged retailer* must at all times maintain on its website (in a prominent and readily accessible position) a notice setting out the *prescribed amount* (including any changes to the *prescribed amount* from time to time under clause **Error! Reference source not found.**).

4.7 *Collection and use of information*

4.7.1 Any information to be provided by an *obliged retailer* in accordance with this Determination is required by the *Commission* to be provided pursuant to Part 5 of the Essential Services Commission Act 2002.

5. PRESCRIBED AMOUNT

5.1 *The prescribed amount*

- 5.1.1 The initial *prescribed amount* for the purposes of this Determination is 9.8c/kWh (exclusive of GST).
- 5.1.2 Prior to the commencement of each calendar year to which this Determination applies, the Commission will, in respect of the subsequent calendar year:
- (a) determine the value of a forecast net system load profile-weighted spot price for South Australia based on:
 - (i) a forecast of the spot price of electricity, based on electricity demand forecasts (energy and peak demand) published by *AEMO* and utilising the *ACIL Tasman PowerMark* National Electricity Market Model (as in operation from time to time); and
 - (ii) a forecast of the net system load profile for South Australia, having regard to previous years' South Australian electricity consumption profiles for all customers;
 - (iii) a forecast of the total installed capacity of *qualifying generators* and total electricity to be generated by those *qualifying generators*;
 - (b) determine the value of avoided network losses, having regard to distribution loss factors published by *AEMO*;
 - (c) determine the value of National Electricity Market fees, based on the most recent actual fees published in *AEMO*'s annual budget, and ancillary services fees, having regard to previous actual fees;
 - (d) sum those values so determined under this clause to fix the *prescribed amount* which will apply for that subsequent calendar year; and
 - (e) publish on its website and by way of written notice in a newspaper circulating generally in South Australia the matters set out in clause 4.6.1(b) in respect of the *prescribed amount* fixed under this clause.



5.2 Application of the prescribed amount

5.2.1 An *obliged retailer* must credit the applicable *prescribed amount* against the charges payable by a *qualifying customer* for the sale of electricity, for electricity fed into the *distribution network* in excess of the electricity used by the *qualifying customer*.

5.3 Changes to the prescribed amount within a billing cycle

5.3.1 If, during a *billing cycle*, the applicable *prescribed amount* changes, the *obliged retailer* must calculate a *qualifying customer's* bill on a pro rata basis using the:

- (a) old *prescribed amount* up to and including the date of change; and
- (b) new *prescribed amount* from the date of the change to the end of the *billing cycle*.

6. DEFINITIONS AND INTERPRETATION

6.1 Definitions

For the purposes of this Determination, a word or phrase not defined below has the meaning given to it by the Electricity Act 1996.

ACIL TASMAN	means ACIL Tasman Pty Ltd (ABN: 68 102 652 148
AEMO	means the Australian Energy Market Operator Limited (ABN 94 072 010 327);
BILLING CYCLE	means the regular recurrent period for which a <i>qualifying customer</i> receives a bill from an <i>obliged retailer</i> .
GAZETTE	means the South Australian Government Gazette.
GST	means the tax imposed under <i>GST Law</i> .
GST LAW	has the meaning attributed in the A New Tax System (Goods and Services Tax) Act 1999, and terms related to <i>GST</i> such as “ABN”, “Input Tax Credit”, “Taxable Supply” and “Tax Invoice” have the meaning attributed in the <i>GST Law</i> .
OBLIGED RETAILER	means, the holder of a retail electricity licence issued by the <i>Commission</i> under Part 3 of the Electricity Act 1996, or the holder of a retailer authorisation issued by the Australian Energy Regulator under the National Energy Retail Law (as the case may be) and which sells electricity to a <i>qualifying customer</i> .
PRESCRIBED AMOUNT	means the minimum amount fixed by the <i>Commission</i> that an <i>obliged retailer</i> must credit against the charges payable by a <i>qualifying customer</i> for the sale of electricity, for electricity fed into the <i>distribution network</i> in excess of the electricity used by the <i>qualifying customer</i> .
QUALIFYING CUSTOMER	means a qualifying customer (as defined in the Electricity Act 1996) which consumes less than 160MWh of electricity per annum through their connection point.

QUALIFYING GENERATOR

means a small photovoltaic generator—

- (a) that is operated by a qualifying customer; and
- (b) that complies with Australian Standard—AS 4777 (as in force from time to time or as substituted from time to time); and
- (c) that is connected to a distribution network in a manner that allows electricity generated by the small photovoltaic generator to be fed into the network; and
- (d) that is used in conjunction with a meter that complies with a code relating to meters published by the Commission and that falls within a class of meters approved by the Commission by notice in the Gazette,

other than where the distribution network is an excluded network (as defined under the Electricity Act 1996).

6.2 Principles of interpretation

Unless the contrary intention appears, these principles of interpretation apply to this Determination:

- 6.2.1 Words denoting persons include corporations, unincorporated associations, firms, governments and governmental agencies.
- 6.2.2 A reference to a person includes that person's agents, successors and permitted assigns, persons who have control over any assets of a person and receivers, managers, trustees, administrators and liquidators and similar persons appointed over:
 - (a) a person; or
 - (b) any assets of a person;
- 6.2.3 Headings are only included for convenience and do not affect the interpretation of this Determination.
- 6.2.4 A reference to a clause, Chapter, Part or Schedule is to a clause, Chapter or Part of or Schedule to this Determination.
- 6.2.5 A reference to an agreement, document, regulatory instrument or part thereof is a reference to that agreement, document, regulatory instrument or part thereof as varied, replaced or substituted from time to time and includes any Schedules or attachments to the agreement, document or regulatory instrument.

- 6.2.6 A reference to legislation or regulatory instrument, or to a provision of the legislation or regulatory instrument, includes a modification, re-enactment or re-making of it, a provision substituted for it and a regulation or other statutory instrument issued under it.
- 6.2.7 The minimum *prescribed amount* fixed under this Determination must be rounded to the accuracy, in terms of the number of decimal places, required by the *obliged retailer's* charging and billing systems.



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