

2011 DETERMINATION OF  
SOLAR FEED-IN TARIFF  
PREMIUM  
DRAFT PRICE  
DETERMINATION

ELECTRICITY



## REQUEST FOR SUBMISSIONS

The Essential Services Commission of SA (the Commission) invites written submissions from interested parties in relation to the issues raised in this paper. Written comments should be provided by **7 December 2011**. It is highly desirable for an electronic copy of the submission to accompany any written submission.

It is Commission policy to make all submissions publicly available via its website ([www.escosa.sa.gov.au](http://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:

### **2011 Determination of Solar Feed-in Tariff Premium Draft Price Determination**

Essential Services Commission of SA

GPO Box 2605

Adelaide SA 5001

Telephone: (08) 8463 4444

E-mail: [escosa@escosa.sa.gov.au](mailto:escosa@escosa.sa.gov.au)

Facsimile: (08) 8463 4449

Contact Officer: Nathan Petrus

### ***Public Information about the Commission's activities***

Information about the role and activities of the Commission, including copies of latest reports and submissions, can be found on the Commission's website at [www.escosa.sa.gov.au](http://www.escosa.sa.gov.au).

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## GLOSSARY OF TERMS

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<b>AEMO</b>	Australian Energy Market Operator
<b>COMMISSION</b>	Essential Services Commission of South Australia
<b>ELECTRICITY ACT</b>	Electricity Act 1996
<b>ESC ACT</b>	Essential Services Commission Act 2002
<b>ESCOSA</b>	Essential Services Commission of South Australia
<b>FIT</b>	Feed-in Tariff
<b>FRC</b>	Full Retail Contestability
<b>kWh</b>	Kilowatt Hour
<b>LRET</b>	Large-scale Renewable Energy Target
<b>MW</b>	Megawatt
<b>MWh</b>	Megawatt Hour
<b>NEM</b>	National Electricity Market
<b>NSLP</b>	Net System Load Profile
<b>PV</b>	Photo-Voltaic
<b>REES</b>	Residential Energy Efficiency Scheme
<b>RRN</b>	Regional Reference Node
<b>SRES</b>	Small-scale Renewable Energy Scheme
<b>RET</b>	Renewable Energy Target

## SUMMARY

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This Draft Price Determination presents the draft conclusions of the Commission's 2011 Determination of Solar Feed-in Tariff Premium. The determination was triggered on 28 July 2011, when the Parliament of South Australia enacted further legislation to change elements of the feed-in tariff scheme set out in Division 3AB of the Electricity Act.<sup>1</sup>

The amended scheme changes the feed-in tariff that can be earned by future customers that install eligible solar PV generators. The tariff (which was initially set at 44c per kWh) is being phased out for new customers over the next two years.

Notwithstanding the phase out, all customers with eligible PV generators will be entitled to receive an additional amount (hereafter called the FiT premium), which is to be determined by the Essential Services Commission and payable by electricity retailers. The amount determined by the Commission is to reflect the fair and reasonable value to a retailer of electricity fed into the network, and all retailers selling electricity to customers eligible to receive the feed-in tariff would be required to pay the amount.

Accordingly, the Commission has been required to determine the appropriate FiT premium. This FiT premium determination made by the Commission will apply from 27 January 2012, the date on which the determination is scheduled to be published, to 30 June 2014. This report sets out the Commission's reasons for making the Draft Price Determination.

At the time of writing this Draft Determination, the Australian Government's Clean Energy Bill 2011 had not yet passed through the Senate. The Government aims for the bill to be passed by end of the year so that the carbon price can commence on 1 July 2012. Given this uncertainty, a 'carbon' and 'no carbon' scenario has been applied to forecast the FiT premium. The Solar Feed-in Tariff Final Decision will provide further information regarding the carbon price used to determine the FiT premium to apply from 1 July 2012.

Having considered submissions from interested parties and expert advice, the Commission's draft decision is to set the FiT premium as follows.

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<sup>1</sup> The new scheme was introduced via the Electricity (Miscellaneous) Amendment Act 2011, which came into force on 28 July 2011.

**Table 1: Feed-in Tariff Premium (nominal cents per kWh)**

	2011-12	2012-13		2013-14	
	Both Scenarios	Carbon Scenario	No Carbon Scenario	Carbon Scenario	No Carbon Scenario
<b>Reduced Wholesale Electricity Cost</b>	6.4	8.9	8.1	10.2	9.0
<b>Avoided Losses</b>	0.6	0.8	0.7	0.9	0.8
<b>Market and ancillary service fees</b>	0.1	0.1	0.1	0.1	0.1
<b>TOTAL</b>	<b>7.1</b>	<b>9.8</b>	<b>9.0</b>	<b>11.2</b>	<b>9.9</b>





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# **PART A**

## **- STATEMENT OF REASONS -**

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# 1 INTRODUCTION

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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 transition.

At the Commonwealth level, these programs include: the Renewable Energy Target scheme, Australian Greenhouse Information System, Solar Cities, Carbon Farming Initiative, Low Carbon Communities, Home Insulation Program and Solar Hot Water Rebate.<sup>2</sup>

On 12 October 2011, the Australian Government's Clean Energy Bill 2011 passed through the House of Representatives. At the time of writing this Draft Determination, the bill had not yet passed through the Senate. The Government aims for the bill to be passed by end of the year so that the carbon price can commence on 1 July 2012. The Government states the legislation:

*"will put a price on carbon pollution, promote investment in renewable and clean energy technologies and support action to reduce carbon pollution on the land."*<sup>3</sup>

South Australian programs include the Residential Energy Efficiency Scheme (REES) and the South Australian solar PV generation plant feed-in scheme.<sup>4</sup> The solar feed-in scheme was introduced in 2008 via amendments to the *Electricity Act 1996* (SA) (Electricity Act). Under the scheme, households are paid for electricity they feed into the distribution network from installed photo-voltaic (PV) generators. It aims to fill the gap left by declining Commonwealth Government support for residential PV generation units and to allow the South Australian Government to pursue its objective of leadership in solar power.<sup>5</sup>

The scheme is a means of promoting de-centralised renewable energy generation by providing payments to customers for energy exported to the network by small-scale network-connected PV generation units. The scheme applies to "small" customers only

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<sup>2</sup> A more complete list of the Commonwealth Government's current programs is available on the Department of Climate Change and Energy Efficiency website at <http://www.climatechange.gov.au/government/initiatives.aspx>.

<sup>3</sup> <http://www.cleanenergyfuture.gov.au/legislation-passes-house-of-representatives/>

<sup>4</sup> The South Australian Strategic Plan includes a target to achieve the Kyoto target by limiting the State's greenhouse gas emissions to 108% of 1990 levels during 2008-12, as a first step towards reducing emissions by 60% by 2050. On 7 December 2010, the South Australian Government released its Draft Climate Change Adaption Framework for consultation. A copy of the Draft Framework is available at <http://www.climatechange.sa.gov.au/uploads/Adaptation/Draft%20CC%20Adaptation%20Framework.pdf>. For details of the various South Australian Government programs and initiatives, refer <http://www.climatechange.sa.gov.au/> and <http://www.renewablessa.sa.gov.au/>.

<sup>5</sup> Government of South Australia, *South Australia's Feed-in Mechanism for Residential Small-Scale Solar Photovoltaic Installations*, Discussion Paper, February 2007, available [http://www.climatechange.sa.gov.au/uploads/pdf/Feed-in\\_Discussion\\_Paper\\_submissions\\_closed.pdf](http://www.climatechange.sa.gov.au/uploads/pdf/Feed-in_Discussion_Paper_submissions_closed.pdf)

(customers consuming less than 160MWh of electricity per annum). Similar schemes exist in other jurisdictions with customers receiving credit from 6 cents per kWh up to 60 cents per kWh.

Feed-in schemes can apply on either a “gross” basis, where payments are made for all energy produced by a PV generation unit, regardless of whether the energy is consumed in-house or is exported, or on a “net” basis, where payments are made only for energy exported to the network. Under a net feed-in tariff (FiT), energy produced by the PV generation unit that is consumed in-house displaces energy that would otherwise be drawn from the network, meaning that the customer avoids paying the retail price of electricity for those units produced and consumed. The South Australian FiT scheme operates on a net basis, and will continue until 30 June 2028.

On 28 July 2011, the Parliament of South Australia enacted further legislation to change elements of the FiT scheme set out in Division 3AB of the Electricity Act.<sup>6</sup>

The amended FiT scheme changes the feed-in tariff that can be earned by future customers that install eligible solar PV generators. The tariff (which was initially set at 44c per kWh) is being phased out for new customers over the next two years.

Notwithstanding the phase out, all customers with eligible PV generators will be entitled to receive an additional amount (hereafter called the FiT premium), which is to be determined by the Essential Services Commission (the Commission) and payable by electricity retailers. The amount determined by the Commission is to reflect the fair and reasonable value to a retailer of electricity fed into the network, and all retailers selling electricity to customers eligible to receive the feed-in tariff would be required to pay the amount. The Commission performs its price regulatory function using powers given to it under the Electricity Act, which requires it to make price determinations under the *Essential Services Commission Act 2002* (ESC Act). In conjunction with the changes made to the Electricity Act regarding various aspects of the feed-in scheme outlined above, the Commission was required to make a determination in respect of the feeding-in of electricity into a distribution network under Division 3AB of the Electricity Act. Accordingly, the Commission has been required to determine the appropriate FiT premium.

This FiT premium price determination made by the Commission will apply from the date on which the determination is published (27 January 2012) to 30 June 2014. The expiry of the determination coincides with the expiry of the Commission’s current electricity standing contract price determination. The Commission intends to review the FiT premium at the same time as reviewing the standing contract price to apply from 1 July 2014.

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<sup>6</sup> The new scheme was introduced via the Electricity (Miscellaneous) Amendment Act 2011, which came into force on 28 July 2011.

## **1.1 Process for review**

To commence the process for determining the FiT premium, an Issues Paper was released on the Commission's website for public consultation on 26 August 2011. Submissions to the Issues Paper closed on 23 September 2011.

Written submissions were received from:

- ▲ [AGL](#);
- ▲ [Alinta Energy](#);
- ▲ [Australian Democrats \(SA\)](#);
- ▲ [Clean Energy Council](#) (plus [SKM/MMA Report](#));
- ▲ [COTA](#);
- ▲ [Energy Retailers Association of Australia](#) (ERAA);
- ▲ [Energy Supply Association of Australia](#) (ESAA);
- ▲ [Origin Energy](#);
- ▲ [Private Individual 1](#);
- ▲ [Private Individual 2](#);
- ▲ [Simply Energy](#);
- ▲ [St Kitts Associates](#); and
- ▲ [TRUenergy](#).

The submissions can be accessed on the Commission's website<sup>7</sup>. The Commission has considered each of the submissions received in preparing this Draft Decision. Relevant aspects of the submissions are discussed in subsequent chapters.

In undertaking its Determination of Solar Feed-in Tariff Premium, the Commission engaged an independent consultant, ACIL Tasman, to assist it with various parts of this price determination. The ACIL Tasman report to the Commission is available on the Commission's website. The Commission also sought advice from AEMO in regard to the settlement of the National Electricity Market and how these procedures affect retailers with solar PV customers.

The Commission will consult publicly on this Draft Decision, with submissions due by 7 December 2011. All submissions will be placed on the Commission's website, subject to any confidential material being included.

The Commission intends to release a Final Decision on 27 January 2012, and the determination of the solar FiT premium will apply from that date.

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<sup>7</sup> <http://www.escosa.sa.gov.au/projects/167/2011-determination-of-solar-feed-in-tariff-premium.aspx>

## 2 REGULATORY FRAMEWORK

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### 2.1 *Power to determine the FiT Premium*

Section 35A of the Electricity Act grants the Commission specific pricing powers. In conjunction with the changes made to the feed-in scheme set out in Division 3AB of the Electricity Act as discussed below<sup>8</sup>, corresponding amendments were also made to section 35A of the Electricity Act by the insertion of section 35(1)(ba), which confers upon the Commission the power and duty to make a determination in respect of the FiT premium. Section 35(1)(ba) is reproduced below:

**35A—Price regulation by Commission**

*(1) The Commission may make a determination under the Essential Services Commission Act 2002 regulating prices, conditions relating to prices and price-fixing factors for—*

*....*

*(ba) the feeding-in of electricity into a distribution network under Division 3AB;*

In addition, section 35(2a) was inserted, which provides that:

*....*

*(2a) in addition to the requirements of section 25(4) of the ESC Act, the Commission must, in acting under subsection (1)(ba), have regard to the fair and reasonable value to a retailer of the electricity fed into the network by qualifying customers within the meaning of Division 3AB.*

Accordingly, the Commission has the power to make a determination under the Essential Services Commission Act 2002 (ESC Act) for the feeding in of electricity into a distribution network. Furthermore, it must have regard to the fair and reasonable value to a retailer of the electricity fed into the network by qualifying customers in making that determination.

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

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

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

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<sup>8</sup> The amendments to Division 3AB of the Electricity Act were made through the Electricity (Miscellaneous) Amendment Act 2011.

- ▲ 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 recent amendments to the feed-in scheme have changed the amounts that ETSA Utilities is required to pay to customers, depending on when they connected their PV generation units. Any customer that connected PV generation units prior to 1 October 2011, will continue to qualify for a payment from ETSA Utilities of 44c/kWh of electricity fed into the network. Those customers will receive that amount until 30 June 2028. Any customer that connected a PV generation unit after 1 October 2011 but before 30 September 2013 will receive a payment from ETSA Utilities of 16c/kWh of electricity fed into the network. Those customers will be entitled to that amount until 30 September 2016. Finally, PV generation units connected after 30 September 2013 will not attract any feed-in payment from ETSA Utilities.

In addition to the amendments to the amount to be paid by ETSA Utilities under the feed-in scheme, a new 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 Decision as the FiT premium).

### **2.2.1 New 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 payable to qualifying PV customers. 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.

The new obligation, which is set out in section 36AD(1) of the Electricity Act<sup>9</sup>, is to be imposed on electricity retailers as a condition of their South Australian retail licence. Section 36AD(1) has been reproduced below.

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

**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) 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 customer<sup>10</sup> who feeds electricity generated by a qualifying generator<sup>11</sup> into a distribution network<sup>12</sup>; and
- ▲ an existing customer starting to feed-in electricity 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 When the FiT determination takes effect**

The transitional provisions of the Electricity (Miscellaneous) Amendment Act 2011 provide additional instructions in respect of the FiT premium determination to be made by the Commission. In particular, section 4(2) of the transitional provisions provides that:

....

- (2) *Despite the amendments effected by section 6 of this Act and the provisions of the Essential Services Commission Act 2002, an initial determination-*

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<sup>10</sup> A qualifying customer is a customer who consumes less than 160MWh of electricity per annum.

<sup>11</sup> 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.

<sup>12</sup> Means a distribution network that supplies electricity to more than 10,000 domestic customers.



- (a) will be made after the Commission has adopted such processes as the Commission thinks fit; and*
- (b) may be based on such principles, policies and other factors as the Commission thinks appropriate; and*
- (c) will be made by the Commission by notice in the gazette; and*
- (d) will be binding on the electricity entities to which it is expressed to apply; and*
- (e) must be made within 6 months from the commencement of this clause.*

An important aspect of the new obligation placed on retailers under section 36AD is the date on which it will take effect. Ordinarily, 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.

However, in this case, the effect of sections 4(2)(c) and (e), is that the FiT premium determination will take effect at the time it is published in the South Australian Gazette (i.e., it cannot take effect at another time otherwise determined by the Commission). In light of the requirement for the determination to be made within 6 months of the commencement of the transitional provisions (being 28 July 2011), the determination must be gazetted by no later than 28 January 2012. Essentially, the transitional provisions displace section 26(8) of the ESC Act and the normal rules relating to when a price determination is to take effect do not apply.

Accordingly, the Commission's FiT premium determination, and the obligation on retailers to pay the FiT premium to qualifying customers, will take effect on and from Friday 27 January 2012, the date on which the Commission intends to publish a notice of the determination in the Government Gazette.

While the Commission has legal discretion in deciding the length of the price determination period, the Commission proposes that the term of the FiT premium determination will expire on 30 June 2014. This will align the FiT premium determination with the term of the current electricity standing contract price determination.

A final point to note is that, pursuant to section 26(8) of the ESC Act and section 35A of the Electricity Act, the Commission has the discretion to vary or revoke by subsequent determination the initial FiT premium determination at any time. However, to ensure greater certainty for all stakeholders, it would only be in very exceptional circumstances that the Commission would proceed to do this. At a minimum, it would need to be established that the relevant circumstances

fundamentally undermine the basis and principles on which the initial FiT premium determination was made.

### 2.2.3 Summary of amounts payable under the amended feed-in scheme

Table 2 below summarises the feed-in payment amounts that will be payable under the amended feed-in scheme.

**Table 2: 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.

## 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.*

Notwithstanding the requirements of the ESC Act, the transitional provisions of the Electricity Act (set out in section 2.2.2 above) provide that, in making the initial FiT premium determination, the Commission may apply any processes and principles that the Commission sees fit. Accordingly, the Commission may choose not to take into account any of the objectives listed in section 6 of the ESC Act, or apply any of the pricing-related factors specified in section 25(4) of the ESC Act, even though these objectives and factors ordinarily provide an overarching framework for the Commission when undertaking its pricing functions.

Despite the displacement of the requirements of the ESC Act by the transitional provisions, the Commission believes that the objectives and factors set out in the ESC Act are still relevant to the determination of the FiT premium, and should still be considered as guiding principles. In particular, the Commission's primary objective, which is to protect the long-term interests of South Australian consumers with respect to the price, quality and reliability of essential services, is as relevant to this determination as it is to the Commission's other price determination functions. The Commission therefore has had regard to the objectives and pricing related factors set out in sections 6 and 25(4) of the ESC Act in determining the FiT premium.

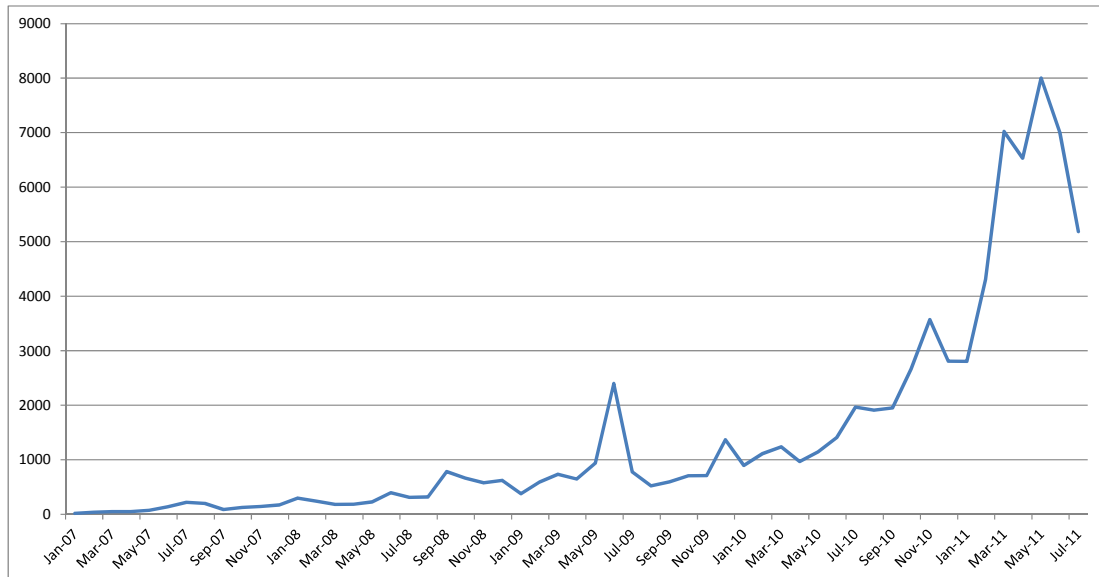
### 3 BACKGROUND TO THE CURRENT FEED-IN SCHEME

The Commission has obtained data from ETSA Utilities on the number, capacity and output from both installed PV generation units and units approved for installation.

ETSA Utilities advised the Commission that it does not know the installed capacity of each PV generation unit connected to its network, only the average capacity approved, as there is no link created in its systems from the approval to the actual installation of the PV system. Consequently, ETSA Utilities is only able to estimate the capacity of the units connected to its network. As at 30 June 2011, ETSA Utilities estimated that there were around 47,318 premises with solar PV cells with a total output of approximately 120 MW.

Figure 1 shows the rapid increase in customer approvals since around early 2010, off a low base in the early years of the scheme. The number of customer approvals peaked in May 2011, at around 8,000 for the month. Approvals have fallen in June and July 2011, which coincides with a reduction in the rebates available under the Commonwealth Small-scale Renewable Energy Scheme.

**Figure 1: Number of new PV systems connections approved monthly by ETSA Utilities**



Source: ETSA Utilities

### **3.1 *Billing, Metering and Settlement Arrangements***

In South Australia each electricity customer has two separate contracts in relation to the provision of electricity. A connection and supply contract with the operator of the distribution network (ETSA Utilities) and a sale contract with the retailer of the customer's choice. All matters relating to the provision of network services by ETSA Utilities, e.g. customer connections and network reliability, are dealt with through the connection and supply contract. The provision of retail services, including the sale of electricity that is consumed by a customer and the provision of associated services e.g. billing, are covered by the retailer's sale contract.

#### **3.1.1 Meter Types**

Meters that can be installed at a customer's premises to account for the import and export of electricity, broadly fall into two categories, interval meters and basic meters.

An interval meter records the amount of electricity imported or exported on a half hourly basis. This means that it is possible to tell how much electricity was used during each part of the day.

Basic meters only have the ability to measure the total amount of electricity used in a billing period and cannot distinguish between the times at which energy is consumed. These meters are also known as accumulation meters because they measure accumulated data.

In South Australia less than 2% of solar PV customers have interval metering installed at their premises. The remaining customers have basic meters that measure total electricity consumption and total electricity exports every three months or so.

#### **3.1.2 Net Metering**

As previously noted, feed-in tariff schemes can operate on either a net or a gross basis. Under a "net" arrangement, metering of the electricity generated by the solar PV system is configured so that electricity produced by the solar PV system is firstly directed into the house and used to meet the household electricity demand. Any surplus electricity, after consumption within the house, is exported to the electricity network. Feed-in payments only apply to the electricity exported by the PV system, not to any PV generation used within the house.

Under a "gross" arrangement, metering of electricity generated by the solar PV system is configured so that the total amount of electricity produced by the solar PV system flows directly to the electricity network. Electricity used within the house is imported from the grid and feed-in payments apply to the total amount of PV generation.

The South Australian FiT Scheme is a net metering scheme.

Customers may maximize their benefit by load-shifting. At peak generating times when the panel is producing the most electricity, customers can reduce their household usage by switching off non-essential appliances (e.g. washing machines, clothes dryers, televisions), and instead opting to use them at times when the panel isn't producing (e.g. early morning or at night). This behaviour increases the amount of electricity fed-into the network by the household for a net metering arrangement.

### 3.1.3 Settlement Arrangements

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. The manner in which PV generation affects the settlement of the wholesale electricity market is illustrated through the following examples.

#### **Customer without Solar PV Cells**

In this example, a small customer has an annual consumption of 5500kWh. If the customer did not have solar PV cells the customer would:

- ▲ Draw 5500 kWh from the distribution network each year to meet its needs.

The customer's distributor would:

- ▲ Supply 5500 kWh electricity from the network; and
- ▲ Send metering data to the market operator.

The market operator would:

- ▲ Calculate the wholesale electricity cost on 5500 kWh, payable by the retailer; and
- ▲ Forward metering data to the retailer for customer billing.

The customer's retailer would:

- ▲ Bill the customer for 5500 kWh under a retail tariff; and
- ▲ Pay the costs associated with purchasing 5500 kWh wholesale electricity.

*Note: This example ignores the effect of losses. Refer section 5.3.*

When a customer has solar PV cells the arrangement is more complex. When the solar PV cells are producing electricity the customer will either:

- ▲ Consume all electricity generated by the solar PV cells while drawing top-up electricity from the network; or will
- ▲ Consume part of the electricity produced by the solar PV cells while exporting surplus electricity to the network.

Therefore each year a customer is likely to:

- ▲ Consume electricity that they produce themselves;
- ▲ Consume electricity from the distribution network; and
- ▲ Supply electricity to the distribution network (provided their solar PV cells are of sufficient capacity).



### **Customer with Solar PV Cells & Feed-in Tariff**

In this example a small customer with solar PV cells also has an annual consumption of 5500 kWh. The customer:

- ▲ Generates 3000 kWh of solar electricity;
- ▲ Uses 2000 kWh solar electricity in their own home;
- ▲ Supplies 1000 kWh to the distribution network (3000 kWh solar generated less the 2000 kWh of solar used in their own home); and
- ▲ Draws 3500kWh from the distribution network each year (5500 kWh annual consumption less the 2000 kWh of solar used in their own home).

The customer's distributor will:

- ▲ Supply 3500 kWh electricity from the network;
- ▲ Receive 1000 kWh solar electricity into the network; and
- ▲ Send metering data to the market operator.

The market operator will:

- ▲ Calculate the wholesale electricity cost on 2500 kWh payable by the retailer (3500kWh drawn from the network less 1000 kWh supplied to network); and
- ▲ Forward metering data to the retailer for customer billing.

The customer's retailer will:

- ▲ Bill the customer under a retail tariff for 3500 kWh drawn from the network (which includes distribution costs);
- ▲ Pay FiT credits<sup>13</sup> for the 1000 kWh fed into the network; and
- ▲ Pay the costs associated with purchasing 2500 kWh wholesale electricity.

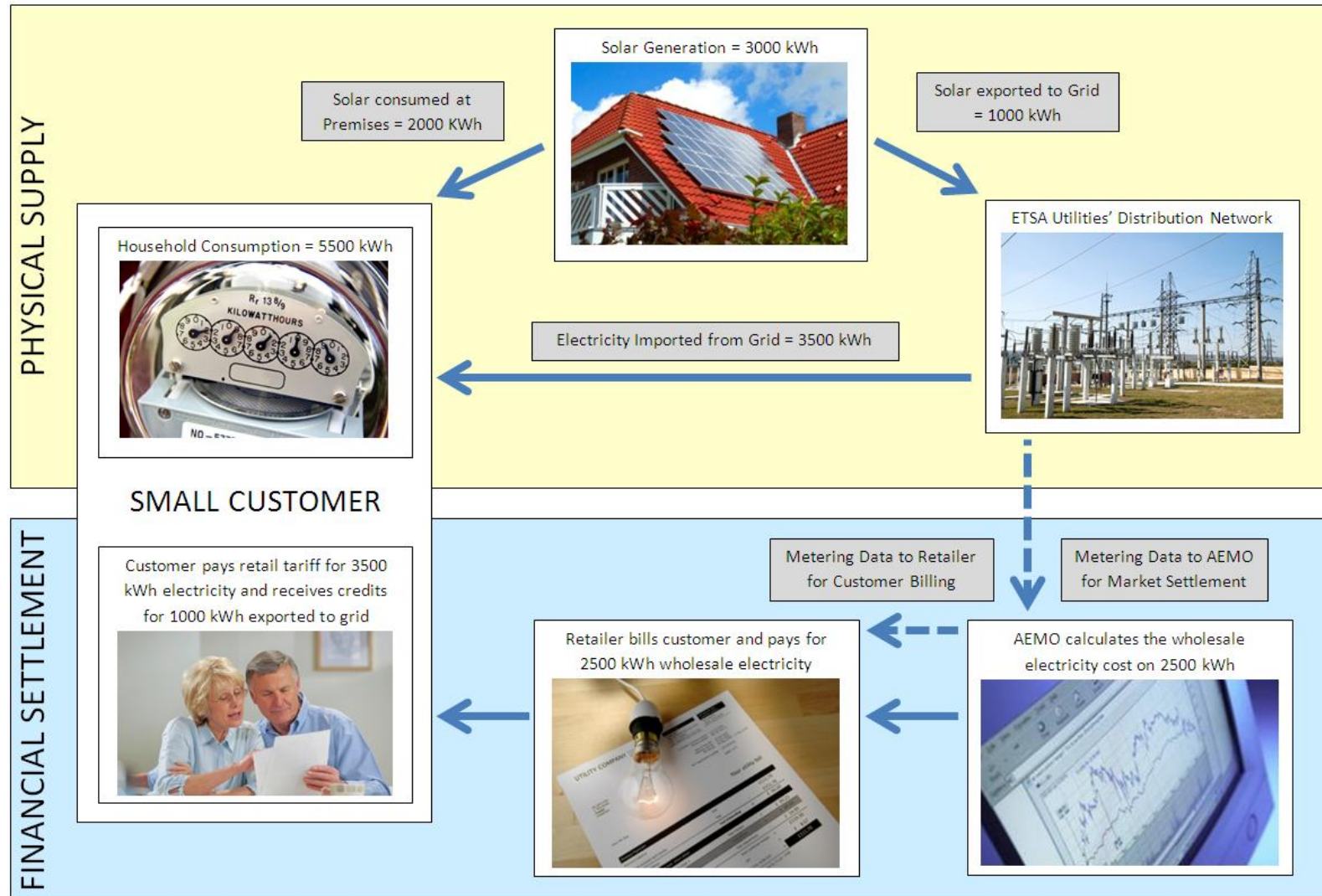
*Note: This example ignores the effect of losses. Refer section 5.3.*

Figure 2 on the following page shows diagrammatically how this arrangement applies to a customer with solar PV cells who received a feed-in tariff.

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<sup>13</sup> At present this comprises a 44c/kWh or 16c/kWh credit (paid by retailers on behalf of the distributor, ETSA Utilities) and any voluntary retailer payment.

**Figure 2: Solar PV Exports and Settlement Arrangements**



Where no FiT premium is present, retailers receive the benefit of electricity supplied into the network by solar PV cells. The retailer's wholesale electricity costs are reduced but the customer is billed for the total amount of electricity drawn from the network. In the above example this would mean that the retailer pays for 2500 kWh electricity but is able to charge the customer for 3500 kWh electricity. The introduction of a FiT premium means that customers receive compensation for the 1000 kWh electricity that they feed into the network which reduces the retailers wholesale electricity cost.

### **3.2 Cost Components of Price**

The electricity retail tariff is made up of four components:

- ▲ Transmission charges (paid to [ElectraNet](#));
- ▲ Distribution charges (paid to [ETSA Utilities](#));
- ▲ 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.

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 generators 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.

As the legislation requires the Commission to consider the fair and reasonable value of solar PV exports to retailers, any impact on transmission charges and distribution charges is not relevant. The Commission's task is to assess whether solar PV generation provides a benefit to retailers in terms of wholesale electricity costs and retailer costs only.

## 4 SUBMISSIONS

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The Commission released an Issues Paper for public consultation on 26 August 2011. Submissions to the Issues Paper closed on 23 September 2011. The Commission received 13 written submissions to the Issues Paper. In making its Draft Determination, the Commission has considered all submissions received. Issues raised in the submissions have been dealt with in the Commission's analysis contained in Section 5 of this report. A summary of the key themes raised in the submissions, by issue raised in the Issues Paper, is provided below.

***What is the most appropriate method to calculate the fair and reasonable value to a retailer of electricity fed into the network by solar PV systems?***

Key themes:

- ▲ Fed-in electricity is of value to retailers;
- ▲ Competitive forces should be allowed to determine the FiT premium;
- ▲ The value of the FiT premium should be based on avoided direct costs;
- ▲ A light-handed approach that sets a floor or benchmark price is preferable;
- ▲ FiT schemes should be designed to minimise administration costs; and
- ▲ Changes in price should be equitably applied to the customer base.

***How should the variability in the value of energy be reflected in the approach that the Commission takes in determining a FiT premium?***

***Should the value be linked to wholesale electricity prices? If so, how?***

***Are there any other approaches to determining the value of energy exported from solar PV systems?***

Key themes:

- ▲ Solar PV generation has a limited impact in mitigating peak electricity demand;
- ▲ Limited interval data presents a challenge in valuing solar PV exports; and
- ▲ The wholesale value of electricity is key in determining the FiT premium.

***Are there any other potential costs or benefits to retailers from solar PV exports?***

***How should the Commission quantify these costs or benefits in the derivation of a FiT premium?***

Key themes:

- ▲ Retailers are unable to rely on solar PV generation for hedging against volatile spot prices;
- ▲ Direct benefits such as reduction in market fees or renewable obligations could be included in the calculation of the FiT premium;
- ▲ Retailers incur additional costs in servicing customers with solar PV cells;
- ▲ A reduction in demand and therefore the wholesale electricity spot price benefits all retailers; and
- ▲ It is difficult to quantify indirect costs and benefits.

***Should the FiT premium incorporate the benefits of any avoided loss factors?***

***Are there any extra costs and benefits that retailers may incur as a result of increased uptake of solar PV systems?***

Key themes:

- ▲ The benefit to retailers should be based on avoided direct costs;
- ▲ It would be difficult to determine the benefits of avoided loss factors and there is a risk of forecast error; and
- ▲ Any change in loss factors will flow through to market offers and be shared with electricity users over time.

***Should some of the benefits to retailers be shared with all electricity customers or just those customers with a solar PV system?***

Key themes:

- ▲ The sharing of benefits should be guided by Government policy objectives;
- ▲ Indirect benefits that are difficult to quantify should be allowed to flow through to all electricity consumers over time;
- ▲ The subsidisation in the current scheme penalises those electricity customers who do not have solar PV cells through choice or circumstance; and
- ▲ Benefits should accrue to Solar PV customers only.

***Does the level of the current voluntary FiT premium on offer from some retailers in SA accurately represent the value of the energy to that retailer?***

Key themes:

- ▲ The voluntary FiT offered by retailers includes the value of electricity and competitive premiums;
- ▲ There is no market failure as some retailers currently offer a voluntary FiT; and
- ▲ Some analysis suggests that the value of exported electricity is significantly higher than what is being paid voluntarily.

***Should residential customers have a different FiT premium to business customers?***

***How should the feed in tariff be updated over time?***

***What are the implications of setting the FiT premium too high or too low? How would this impact on competition in the retail market, particularly competition for solar PV customers?***

Key themes:

- ▲ Overstating the value of the FiT could make solar PV customers unattractive and therefore restrict competition;
- ▲ Understating the value of the FiT could benefit the market, allowing competition to determine the appropriate value;
- ▲ Understating the FiT could negatively influence investment in solar PV cells which in turn could lead to a drop in employment;
- ▲ The FiT premium should be adjusted to reflect market conditions;
- ▲ Support was received for a single FiT premium to apply across all small customers, a FiT premium that differentiates between customer types (eg. residential and small business) and a FiT premium that differentiates between seasons;
- ▲ The FiT should be implemented when the Commission next adjusts the Standing Contract Price; and
- ▲ Any subsequent determination of FiT premium should be brought in line with the Commission's Electricity Standing Contract Price Determination.

## 5 “FAIR AND REASONABLE” VALUE OF PV EXPORTS

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The Electricity Act requires the Commission to determine a “fair and reasonable” value to retailers of the electricity fed into the network. The Commission’s methodology therefore needs to quantify the net benefits to retailers of the electricity exported from eligible PV generators. These benefits include the value of electricity as well as other costs and benefits. Both need to be considered to determine a fair and reasonable FiT premium.

### 5.1 *Methodology*

The key issue that the Commission must consider is the methodology used for determining the FiT premium. Submissions to the Issues Paper provided a range of views on an appropriate methodology, with retailers generally advocating a “light handed” approach possibly involving a floor or benchmark prices, and some other stakeholders supporting more “heavy handed” approaches, involving a determination of the avoided costs to retailers.

When considering the fair and reasonable value to a retailer, the Commission has focused on avoided direct costs. Sources of value to a retailer must 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.

Over time, the number of customers choosing to install solar PV systems has increased and retailers have developed market contracts that account for the feeding-in of electricity into the network. Some retailers currently offer a voluntary FiT premium under their market contracts (in the order of 6 to 8 cents per kWh of electricity exported).

Retailers submitted to the Commission that the voluntary FiT offered by retailers includes the value of electricity and competitive premiums. AGL stated that retailers use this solar tariff premium as a marketing tool in order to increase the competitiveness of market contract offers for customers. It was also suggested that retailers consider branding and marketing benefits when setting the voluntary FiT amount.

Retail electricity prices are made up of three components: wholesale electricity costs; retail operating costs and retail margin. Assuming wholesale electricity costs remain constant, then for a retailer to be able to offer an extra amount (to increase the competitiveness of market contract offers) the retailer would either need to:

- ▲ reduce the amount of its retail margin;
- ▲ have reduced retail operating costs; or
- ▲ increase its revenue by increasing retail tariffs.

In a competitive market, a retailer has discretion regarding discounts and benefits applied to all market contracts it offers. This applies to both customers who have solar PV cells and those who do not. Many retailers offer discounted tariffs compared to the electricity standing contract price. In addition, retailers have offered benefits such as magazine subscriptions and sports club memberships. The inclusion of an additional benefit payable

to solar PV generators, as a method of attracting their business, simply represents innovation in this area.

These further discounts may still be paid to solar PV generators on top of the fair and reasonable value set by the Commission if the retailer sees fit. Retailers did not advise the value of the 'competitive premium' compared to the value of electricity in the 6 to 8 cents per kWh voluntary FiT currently offered in the market. However if a large value is included by way of a 'competitive premium' this may suggest that the value of electricity has been undervalued by some retailers.

It was also suggested to the Commission that solar PV customers provides a benefit in terms of 'branding and marketing' such that their retail operating cost is reduced in this area. The assertion is that this benefit is currently returned to solar PV customers as part of the voluntary FiT of around 6 to 8 cents.

Presumably branding and marketing benefits would be triggered by all customers with solar PV cells and not just those that feed electricity back into the network. Since the voluntary FiT premium is only paid on exported electricity, this notion suggests that large electricity exporters provide more of a branding and marketing benefit than those customers with lower exports or no exports at all. The Commission's view is that the presence of direct link between solar PV exports and a reduction in 'sales and marketing' expenses is uncertain.

Section 5.7 of this report further discusses retail operating costs in relation to solar PV customers. The Commission has not included adjustments to account for changes in retail operating costs in relation to solar PV customers as it believes these to be small and likely to be recovered from all customers nonetheless.

## **5.2 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. At present, electricity retailers are not required to compensate customers for solar PV fed into the network. A key component of the FiT premium is determining the fair and reasonable value for each kWh generated by solar PV cells.

Submissions to the Issues Paper discussed the use of wholesale electricity costs in determining the value to retailers of solar PV exports. Different options were suggested such as using an average wholesale price over a 3 months period or applying the values determined in the Commission's 2010 Electricity Standing Contract Price Path Inquiry. The following section details the Commission's methodology in calculating this value.

### **5.2.1 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 generators who feed it into the electricity network. At the same time retailer's 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 difference 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. The 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."*<sup>14</sup>

If customers have interval meters it is possible to calculate the exact amount of electricity used during each trading interval. AEMO is then 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.

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

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<sup>14</sup> ACIL Tasman, The fair and reasonable value of exported PV output, October 2011, p.6.

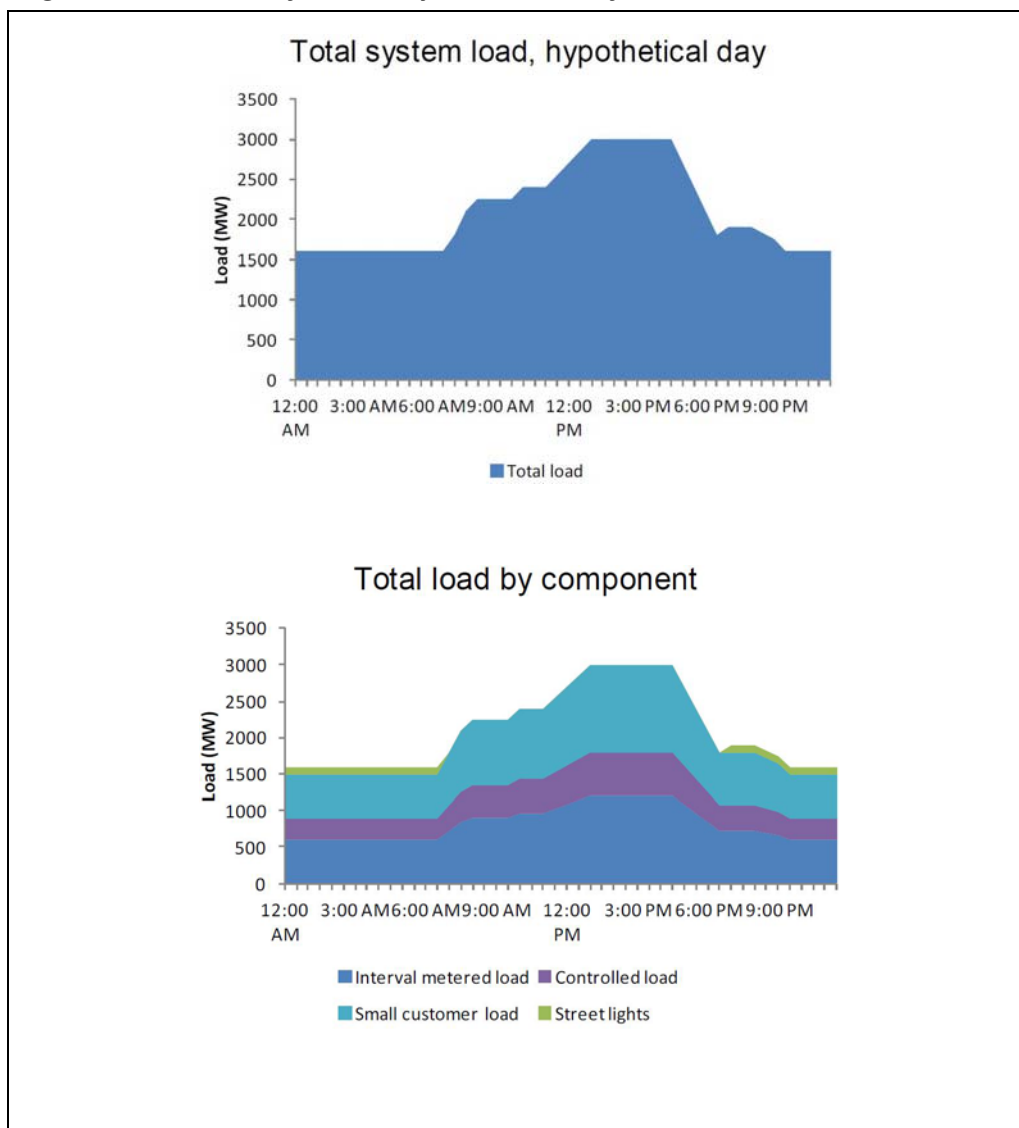
day it is possible to build up a half hourly profile which represents the electricity consumption of all customers with accumulation meters. This profile is called the Net System Load Profile (NSLP). The formula for calculating the NSLP is broadly:

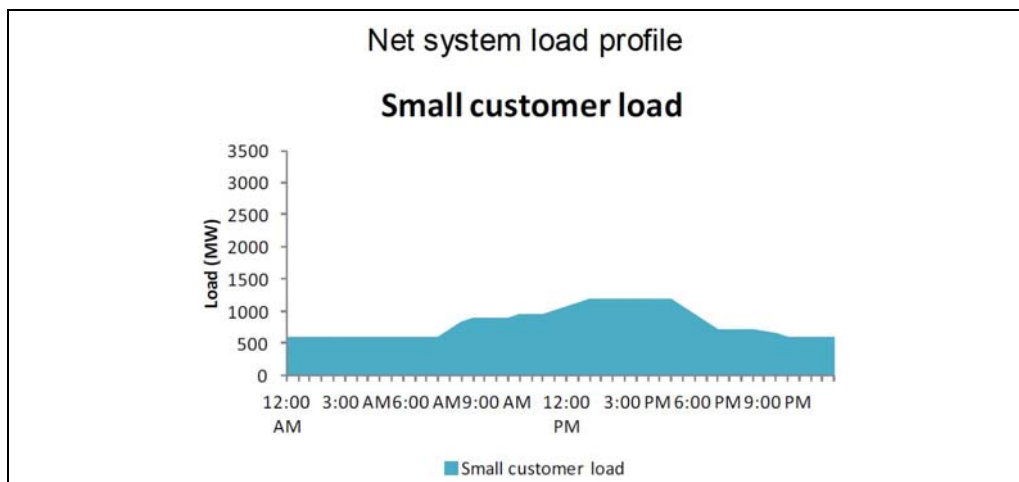
$$\text{Total Electricity} - \text{Loss Factors} - \text{Interval data} - \text{Controlled Load (Hot Water)} = \text{Net System Load Profile (NSLP)}$$

In its report to the Commission, ACIL Tasman presents a diagram of the NSLP for a hypothetical day.

Figure 3 below shows each layer of total system load and illustrates how the NSLP is derived by stripping out known consumption loads.

**Figure 3: Derivation of the Net System Load Profile**





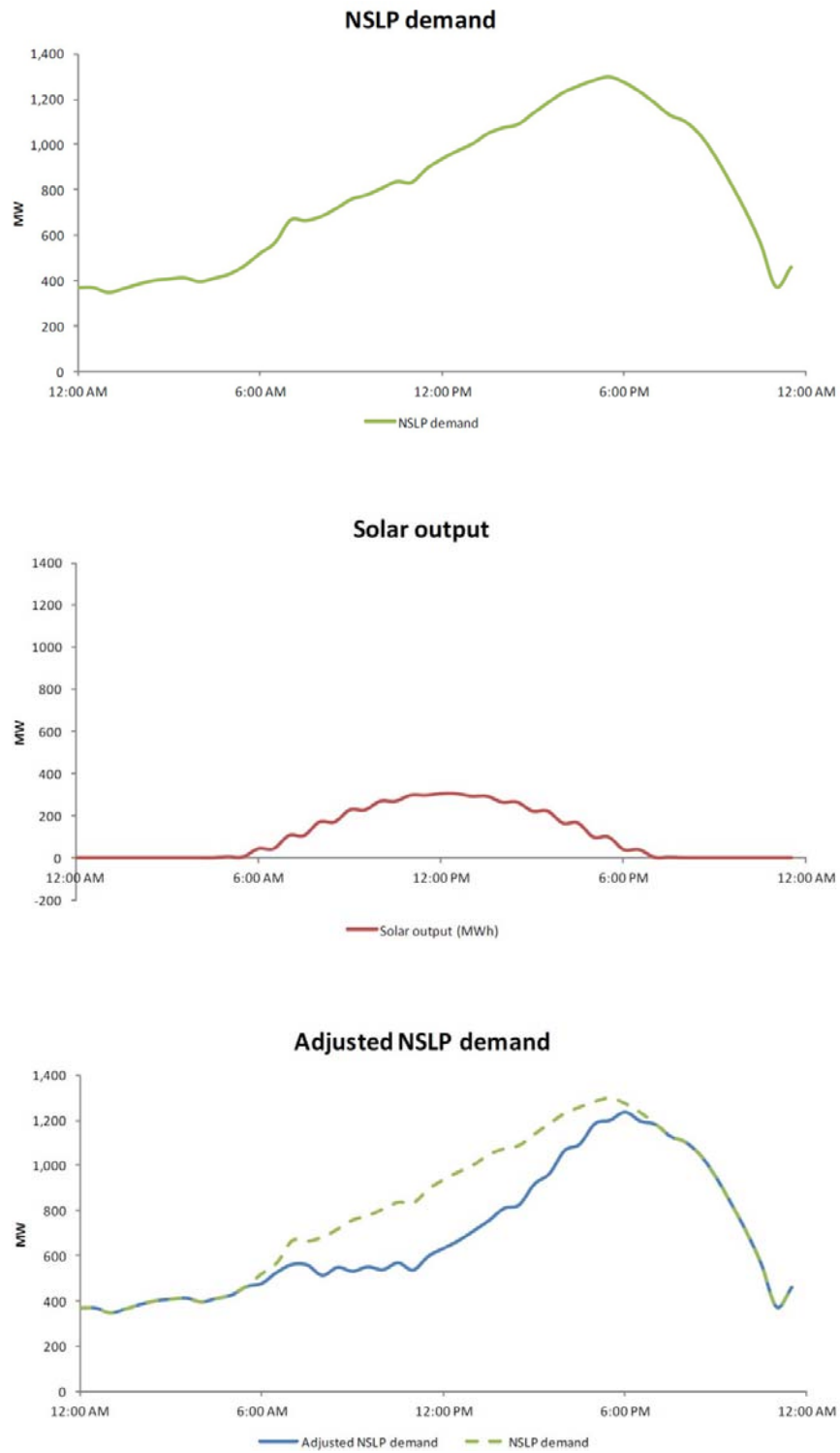
Once the NSLP has been derived, it is possible to calculate the wholesale electricity price payable by a retailer for its customers. All retailers in an area are subject to the same NSLP. The result is that retailers effectively pay an average wholesale electricity spot price for their customers with 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).

Solar PV cells 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 4 illustrates the effect that solar PV generation has on the NSLP.

**Figure 4: Adjusted NSLP Demand**



The flattening of the NSLP has two effects on the settlement of the wholesale electricity market. Firstly, because the NSLP “peak” is reduced retailers are generally subject to lower wholesale electricity prices overall. Secondly, the reduction in demand means that retailers need to purchase less electricity (volume) from the market.

### **5.2.2 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 flattening 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 inherent in the operation of the NEM. The approximately 70,000 solar PV cells that have been installed in South Australia to date (as at October 2011) would have already had an effect 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 fair and reasonable value to a retailer of PV exports the Commission must also consider 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 would involve complex forecasting 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 retailers cost) is due to in-home use and as such is excluded from this assessment<sup>15</sup>.

The link between electricity fed into the network and a reduction in retailers’ costs is therefore 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. The Commission has therefore decided to exclude this effect from its assessment of the fair and reasonable value of PV exports noting that any savings resulting from

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<sup>15</sup> ACIL Tasman, The fair and reasonable value of exported PV output, October 2011, p.17.

PV exports will be passed on to all consumers through the operation of the market.

### **5.2.3 Reduction in Overall Wholesale Electricity Price**

Section 5.2.2 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."

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 fair and reasonable value to a retailer the Commission must also consider 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. The Commission has therefore decided to exclude this effect from its assessment of the fair and reasonable value of PV exports.

### **5.2.4 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. As noted in ACIL Tasman's report this point is uncontroversial and was acknowledged by each retailer that made a submission to the Commission's Issues Paper.

To determine a fair and reasonable value for the electricity fed-back into the network in future years it is necessary to project;

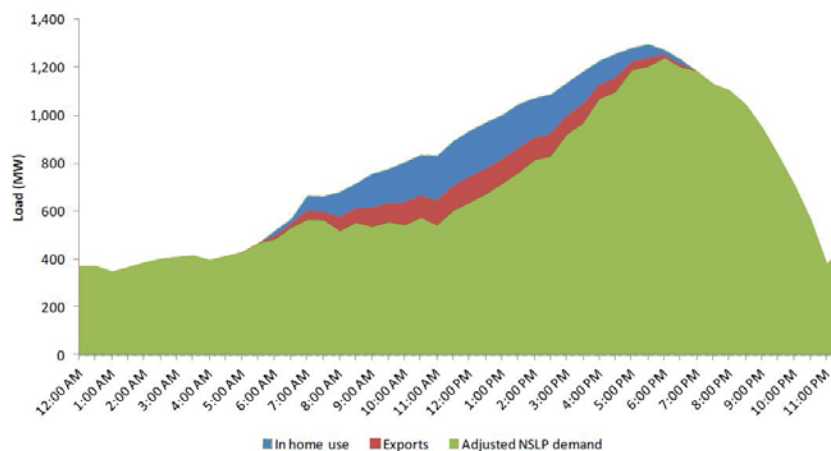
- the NSLP; and
- the wholesale spot price in the SA NEM region.

The Commission engaged ACIL Tasman to prepare these projections. The NSLP has been derived by ACIL Tasman using *“historic South Australian NSLPs to construct a projected NSLP for the years 2011-12, 2012-13 and 2013-14, and thereby to predict the NSLP-weighted price of energy in each of those years. In turn, this represents a forecast of the value of exported PV output to electricity retailers over this projection period.”* An adjustment was made to reflect the additional electricity consumption that occurred during the historic period which was supplied by solar PV cells. ACIL Tasman *“further analysed the historic load data measured by AEMO to reflect the fact that some additional electricity consumption occurred in the period, but was not metered and recorded in the observed data set as it was supplied by small-scale PV systems.”*

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. The report states *“a stylised estimate of solar PV output for each hour was developed using ETSA estimates of future PV penetration levels, and netted out of the underlying NSLP demand profile to derive the final synthetic NSLP used to estimate price outcomes.”*

The derivation of a NSLP for 2011-12, 2012-13 and 2013-14 combined with an estimate of solar PV output for those years means that it is possible to calculate the change in shape to the NSLP as a result of solar PV exports, refer Figure 5.

**Figure 5: Change in NSLP load shape due to solar PV exports**



A detailed explanation of this methodology can be found in ACIL Tasman’s Report *Appendix B – Methodology for projecting the NSLP*.

To calculate the value to a retailer of this electricity it is necessary to forecast the wholesale electricity spot price for 2011-12, 2012-13 and 2013-14. ACIL Tasman prepared a projection of the wholesale spot price of electricity in South Australia using *PowerMark* which is its proprietary 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.

On 12 October 2011, the Australian Government's Clean Energy Bill 2011 passed through the House of Representatives. At the time of writing this Draft Determination, the bill had not yet passed through the Senate. The Government aims for the bill to be passed by end of the year so that the carbon price can commence on 1 July 2012. The Government states the legislation:

*"will put a price on carbon pollution, promote investment in renewable and clean energy technologies and support action to reduce carbon pollution on the land."*<sup>16</sup>

Given this uncertainty, ACIL Tasman used two scenarios to forecast the NSLP-weighted price:

- ▲ *"a Carbon scenario involving the introduction of a carbon price from 1 July 2012 starting at \$23 per tonne of carbon dioxide equivalence for 2012-13; and*
- ▲ *a No carbon scenario, in which no carbon price is introduced over the projection period."*

In the event that the Bill has passed through the Senate there should be greater clarity regarding the price of carbon. The Commission will examine this issue in detail as part of its administration of the electricity and gas standing contract. The Solar Feed-in Tariff Final Decision will provide further information regarding the carbon price used to determine the FiT premium to apply from 1 July 2012.

ACIL Tasman's states "the projections of the wholesale spot price of electricity and the NSLP are each a series of half hourly values, price and demand respectively, for one year blocks. These were combined to produce the projection of the NSLP-weighted prices shown<sup>17</sup>." The resulting wholesale spot price is shown in Figure 6 below. These wholesale electricity spot prices represent the annual average rate payable for electricity consumed by customers with accumulation meters in South Australia if solar PV generation did not exist.

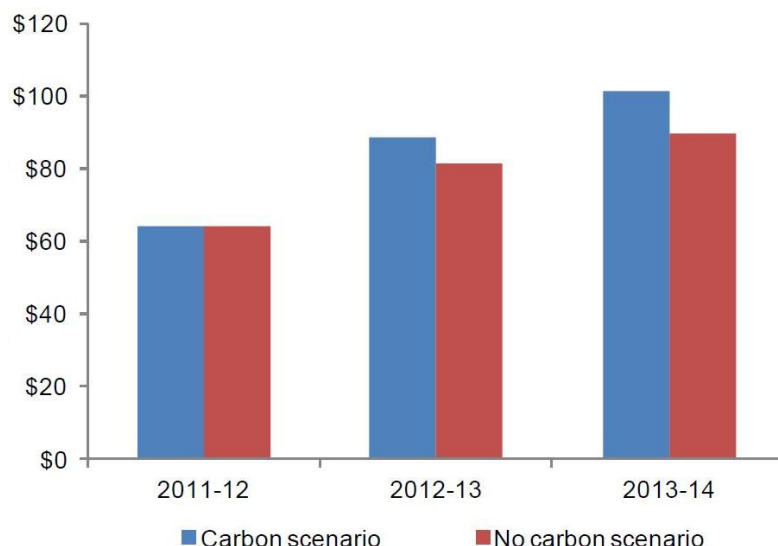
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<sup>16</sup> <http://www.cleanenergyfuture.gov.au/legislation-passes-house-of-representatives/>

<sup>17</sup> ACIL Tasman, The fair and reasonable value of exported PV output, October 2011, p.20. "The NSLP weighted price is the sum-product of the NSLP and the wholesale price, both on a half hourly basis, divided by the sum of the NSLP."



**Figure 6: NSLP-weighted price for South Australia (nominal \$ per MWh)**



ACIL Tasman's report explains that:

- ▲ *"The key drivers of increasing prices under the No carbon scenario are increasing gas prices and a general tightening of the supply-demand balance in response to growing demand; and*
- ▲ *The moderate increase due to carbon pricing on top of this underlying increase reflects the relatively low-emissions intensity of generation in the SA NEM region, which includes significant quantities of gas-fired and wind generation."*

A detailed explanation of this methodology can be found in ACIL Tasman's Report *Appendix C – Powermark*.

As explained in section 5.2.2, the introduction of solar PV flattens the shape of the NSLP. Applying the change in load shape to the forecast wholesale electricity spot price allows for the calculation of the fair and reasonable value to a retailer for reduced wholesale electricity cost. These wholesale electricity spot prices represent the rate payable for solar PV generation only. The result is shown in Table 3 below.

**Table 3: Value of Wholesale Electricity Cost (nominal cents per kWh)**

2011-12	2012-13		2013-14	
Both Scenarios	Carbon Scenario	No Carbon Scenario	Carbon Scenario	No Carbon Scenario
6.4	8.9	8.1	10.2	9.0

### 5.3 Losses

The Commission's Issues Paper asked the question 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.

#### 5.3.1 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 in section 5.2.4, 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 avoidance reduction of direct costs.

The avoidance of the cost of electricity was quantified in section 5.2.4. What this analysis did not take into account was 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, *"if wholesale electricity incurs 10% greater losses in reaching the point of consumption than exported PV output, 100 kWh of exported PV output would displace 110 kWh of wholesale electricity purchases."* 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 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%<sup>18</sup>.

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 doesn't have solar PV cells. The customer's retailer would need to purchase 100kWh wholesale electricity from the RRN. When purchasing at the

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<sup>18</sup> ACIL Tasman, The fair and reasonable value of exported PV output, October 2011, p.23.

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 4 below.

**Table 4: Avoided Losses as a result of solar PV exports**

	<b>Customer 1 No PV Cells</b>	<b>Customer 1 With PV Cells</b>
<b>Customer Consumption</b>	100kWh	100kWh
<b>PV Exports</b>	-	10kWh
<b>Retailer to Purchase from RRN</b>	100kWh	100kWh – 10kWh =90kWh
<b>Additional for Losses (8%)</b>	100kWh + 8% = 8kWh	90kWh + 8% = 7.2kWh
<b>Avoided Losses</b>	8kWh – 7.2kWh = <b>0.8kWh</b>	

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 in section 5.3.2 below.

In calculating the fair and reasonable benefit to retailers of avoided losses the published loss factor of 7.97% has been used for 2011-2012 and 8% has been used for 2012-2013 and 2013-2014. The additional benefit to retailers is shown in Table 5.

**Table 5: Value of Avoided Losses (nominal cents per kWh)**

2011-12	2012-13		2013-14	
Both Scenarios	Carbon Scenario	No Carbon Scenario	Carbon Scenario	No Carbon Scenario
0.6	0.8	0.7	0.9	0.8

### 5.3.2 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.

It is therefore 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.

## 5.4 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 \$12,500 per MWh is set which is significantly more than the average wholesale electricity price in the NEM. 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 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 ACIL Tasman’s Report *Appendix A*.

When considering the fair and reasonable 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.

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 discussion regarding wholesale spot prices in section 5.2.3, 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.

ACIL Tasman's analysis in *Appendix A – Relationship between pool prices and hedge contracts* demonstrates how this fixed contracting position delivers cost or benefit to the retailer equal to the spot price. ACIL Tasman notes in its report:

*“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. This means that where a retailer purchases a lower volume of electricity from the wholesale market due to exported PV output 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.”*

Given this outcome the Commission need not include an additional amount, specific to hedging, when determining the fair and reasonable value of PV exports.

## **5.5 Market & 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 2011-2012 market customers with a retail licence (retailers) must pay an additional \$0.39 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 fair and reasonable 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 in section

5.2.4, 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 5.3.1) 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 the fair and reasonable 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. Similar to the reduction in price described in section 5.2.3, 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, likely 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 fair and reasonable value of solar PV generation.

The benefit to retailers from solar PV generation, in regard to avoidance of fees, is therefore 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 Commission's consultant ACIL Tasman has assumed that both market fees and ancillary service fees will increase at 2.5% in nominal terms per year over the projection period. The fair and reasonable benefit to retailers from solar PV exports, over this period, is shown in Table 6 below.

**Table 6: Value of Market and Ancillary Service Fees (nominal dollar per MWh)**

	Scenario	2011-12	2012-13	2013-14
Market Fees	Both	\$0.39	\$0.40	\$0.41
Ancillary Service Fees	Both	\$0.49	\$0.50	\$0.51
Total Fees at RRN	Both	\$0.88	\$0.90	\$0.92
<b>Total Fees incl. Losses Adjustment</b>	<b>Both</b>	<b>\$0.96</b>	<b>\$0.98</b>	<b>\$1.00</b>

Electricity Costs after Losses	Carbon	\$69.60	\$96.64	\$110.57
	No Carbon	\$69.60	\$88.55	\$97.65
<b>Electricity Value after Losses and Fees</b>	<b>Carbon</b>	<b>\$70.56</b>	<b>\$97.62</b>	<b>\$111.58</b>
	<b>No Carbon</b>	<b>\$70.56</b>	<b>\$89.53</b>	<b>\$98.65</b>

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

## 5.6 Green Scheme obligations

As mentioned in Chapter 1, 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 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.
- ▲ 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<sup>19</sup> 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 Draft Price 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. The Commission has excluded this item from its assessment of the fair and reasonable value of solar PV exports to retailers.

## **5.7 Retail Operating Cost**

As explained in section 5.2.1, 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 retailers operating cost:

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

In determining the fair and reasonable value to a retailer of solar PV exports it is necessary for the Commission to consider whether the cost to serve a customer with a PV system is significantly higher or lower than serving a customer who does not have a PV system. Retailer's submitted to the Commission that servicing solar PV customers was more costly than other customer groups. This was due to various reasons including complexity with quoting and billing, ongoing meter data management requirements, and increased customer service contact time compared to other customer groups.

There are practical difficulties in identifying the retailer costs associated with solar PV customers, given that they are generally a small part of the retailer's integrated national business. In order to calculate the operating costs for solar PV customers, costs would

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<sup>19</sup> [http://www.comlaw.gov.au/Details/F2011C00810/Html/Text#\\_Toc305679053](http://www.comlaw.gov.au/Details/F2011C00810/Html/Text#_Toc305679053)

need to be allocated between various customer types. It is recognised that there are limitations in such an exercise, where allocation bases are often difficult to determine and can be somewhat arbitrary.

The Commission notes that in every customer group there are likely to be customers who require additional support when entering into or maintaining a retail electricity contract. The Commission's approach in its *2010 Electricity Standing Contract Price Path Determination* was to set an average retail operating cost allowance on a per customer basis. Vulnerable customers (such as the elderly or financially disadvantaged) are likely to require specialist support. In addition some small business customers may be supplied under tailored retail electricity contracts that account for special metering arrangements (such as interval meters or business 2-rate).

It is understood by the Commission that some solar PV customers have experienced difficulties concerning the billing of their consumption and exports. This in itself is not justification for an increased allowance for retail operating cost. Retailers already have established billing and customer management systems that allow them to bill solar PV customers for their usage and pay the credits due to them under the feed in tariff scheme. If deficiencies exist within these systems this is a separate issue that needs to be addressed such that retailers can continue to meet their regulatory obligations.

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. While retailers submitted that PV customers may be higher than average, the Commission has not been presented with clear evidence that shows how the feeding-in of electricity into the network specifically contributes to an increased retail operating cost for these customers.

In any event, the Commission's task is to determine the fair and reasonable value to retailers of solar PV exports from the time a determination is made and is not undertaking a cost recovery exercise for funds already spent. It would be expected that any increase in the retail operating costs, 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. The Commission consultant 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."*

Given that any incremental increase in retail operating costs is likely to be small and recovered from all customers, the Commission has decided to exclude this from its assessment of the fair and reasonable value of solar PV exports to retailers.

## **5.8 *Sharing of Benefits***

As considered in the Commission's Issues Paper, some of the benefits 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 due to the operation of the NEM. A summary of those benefits is presented below.

Direct benefits to retailers from PV generation:

- ▲ Reduced wholesale electricity cost (refer section 5.2.4);
- ▲ Avoided losses (refer section 5.3.1); and
- ▲ Avoided market and ancillary service fees (refer section 5.5).

Benefits shared with all electricity consumers:

- ▲ Reduced wholesale electricity cost due to flattening of the NSLP (refer section 5.2.2);
- ▲ Reduced wholesale electricity price due to overall reduction in demand (refer section 5.2.3);
- ▲ Avoided contracting and risk management costs (refer section 5.4); and
- ▲ Reduced network loss factors (refer section 5.3.2).

## 6 FEED-IN TARIFF PREMIUM

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The FiT premium can be set in a variety of ways. It may be paid as a flat rate or on a scale. It may change over time or prescribe different rates for different customer segments. In determining the FiT premium, the Commission has considered how the tariff will be applied now and into the future.

### 6.1 *FiT Premium Application*

A range of views were provided in submissions to the Issues Paper on the manner in which the FiT premium should be applied. Support was received for a:

- ▲ Single FiT premium to apply across all small customers;
- ▲ FiT premium that differentiates between customer types (e.g. residential and small business); and
- ▲ FiT premium that differentiates between seasons.

Under the Commission's methodology for assessing retailer benefits in relation to settlement against the NSLP, the benefit to retailers of PV exports is the same regardless of whether the customer is a household or small business and is not dependent on the location of the customer. The Commission has therefore decided to set a single FiT premium that will apply uniformly to all small customers that feed electricity into the network.

In terms of changing the FiT premium over time, the Commission notes that there is an argument for setting a single amount that will apply until June 2014, as it is simple to administer. However, the Commission has decided that the FiT Premium will increase each financial year in line with the amounts set out in Table 7 below, to ensure that energy prices, inclusive of the FiT premium, can remain cost-reflective. If a single amount were to apply until 30 June 2014, there would be a period where the premium is above the cost to retailers, followed by a period where the premium is below-cost. The Commission believes that it is important that prices are cost-reflective to ensure that the competitive retail market is not distorted. An increasing FiT premium each financial year will assist in achieving that objective.

The Commission notes that a further option for applying the FiT premium is to undertake an annual review of the benefits to retailers, such that a separate determination applies from 1 July each year. While this approach would have the benefit of ensuring that the latest wholesale cost information could be incorporated into the amounts set annually, it would also impose significant additional regulatory and administrative costs. The Commission considers that these costs are likely to outweigh the benefits of utilising the latest cost information. It is important to note, however, that if it becomes evident that the benefit to retailers has materially changed at any time during the price determination period, the Commission may vary the price determination through a separate review, pursuant to section 26(8) of the ESC Act. The Commission would prefer to rely on the power to vary the determination if required, rather than commit to annual reviews which may not be warranted if circumstances have not changed significantly since the previous review.

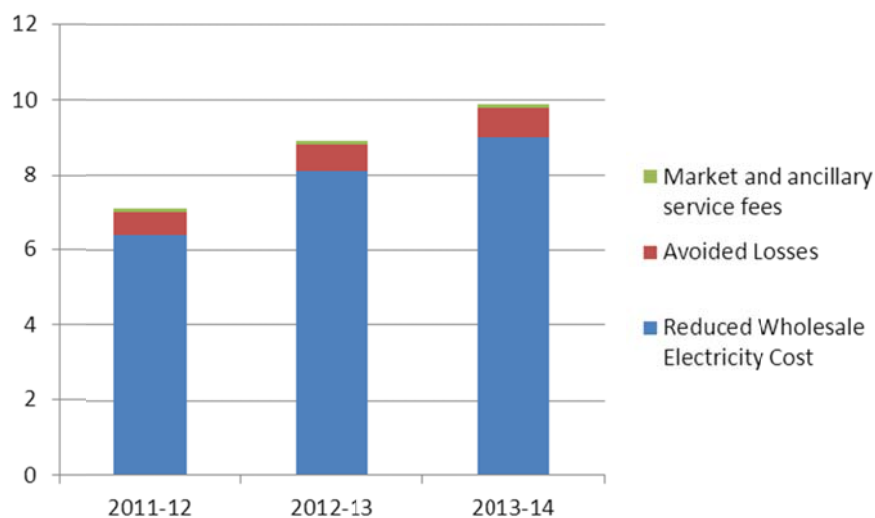
## 6.2 FiT Premium Amount

Having considered submissions from interested parties and expert advice, the Commission's draft decision is to set the FiT premium as follows, refer Table 7, Figure 7 and Figure 8.

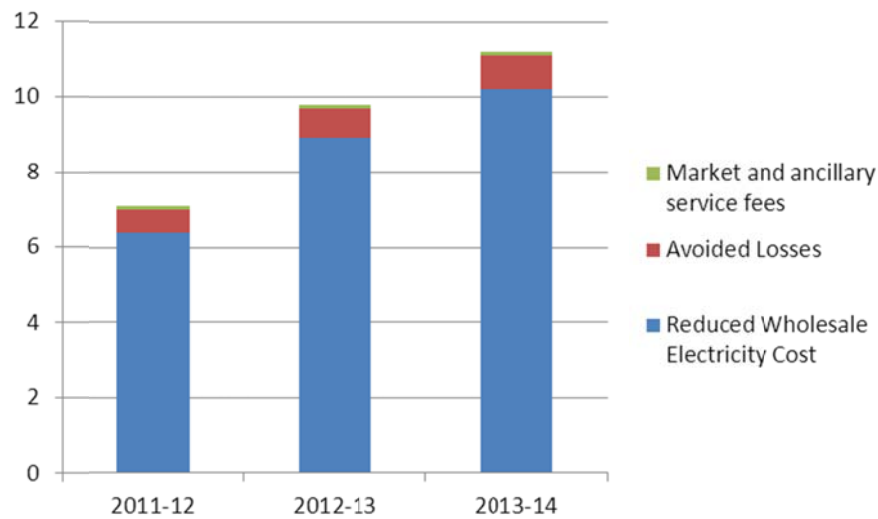
**Table 7: Feed-in Tariff Premium (nominal cents per kWh)**

	2011-12	2012-13		2013-14	
	Both Scenarios	Carbon Scenario	No Carbon Scenario	Carbon Scenario	No Carbon Scenario
<b>Reduced Wholesale Electricity Cost</b>	6.4	8.9	8.1	10.2	9.0
<b>Avoided Losses</b>	0.6	0.8	0.7	0.9	0.8
<b>Market and ancillary service fees</b>	0.1	0.1	0.1	0.1	0.1
<b>TOTAL</b>	<b>7.1</b>	<b>9.8</b>	<b>9.0</b>	<b>11.2</b>	<b>9.9</b>

**Figure 7: Feed-in Tariff Premium – No Carbon Scenario (nominal cents per kWh)**



**Figure 8: Feed-in Tariff Premium – Carbon Scenario (nominal cents per kWh)**



### **6.3 Implementation**

The Commission's FiT premium determination, and the obligation on retailers to pay the FiT premium to qualifying customers, will take effect on and from Friday 27 January 2012, the date on which the Commission intends to publish a notice of the determination in the Government Gazette (see section 2.2.2). The FiT premium will change thereafter on 1 July each year, in accordance with this price determination.



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# **PART B**

## **- PRESCRIBED AMOUNT -**

## **DRAFT DETERMINATION**

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**PART B – PRECRIBED AMOUNT DRAFT DETERMINATION**

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# 1 GENERAL

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## 1.1 *Application of the Determination*

- 1.1.1 For the purposes of sections 35A(1)(ba) and 36AD(1)(a) of the Electricity Act 1996, this Determination fixes the minimum *prescribed amount* which an *obliged retailer* must credit 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*.

## 1.2 *Authority*

- 1.2.1 This Determination is made by the *Commission* under Part 3 of the Essential Services Commission Act 2002, as authorised under Part 3 of the Electricity Act 1996.

## 1.3 *Term*

- 1.3.1 This Determination takes effect on the *commencement date* and ceases to have effect on 30 June 2014.
- 1.3.2 The term of this Determination may be varied in accordance with the provisions of Part 3 of the Essential Services Commission Act 2002.

## 1.4 *Definitions and interpretation*

- 1.4.1 Words and phrases in italics in this Determination are defined in accordance with clause 3.1.
- 1.4.2 This Determination must be interpreted according to the principles in clause 3.2.

## 1.5 *Prescribed amount GST exclusive*

- 1.5.1 In this Determination the *prescribed amount* is exclusive of *GST*.

## 1.6 *Publication of the prescribed amount*

- 1.6.1 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 the State setting out:
    - (i) the existence 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.

1.6.2 On and from the *commencement date*, 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*.

### **1.7 Collection and use of information**

1.7.1 Any information required to be provided by the *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.

## 2 PRESCRIBED AMOUNT

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### 2.1 *The prescribed amount*

- 2.1.1 The *prescribed amount* fixed by this Determination, as applicable from time to time, is specified in the Schedule.
- 2.1.2 Once the applicable *prescribed amount* is fixed by this Determination, that *prescribed amount* continues to apply until the earlier of the:
  - (a) date specified in this Determination; and
  - (b) at the discretion of the Commission, the date on which the Commission varies the *prescribed amount* pursuant to section 26(8) of the Essential Services Commission Act 2002 and section 35A(1) of the Electricity Act 1996.

### 2.2 *Application of the prescribed amount*

- 2.2.1 On and from the *commencement date*, 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*.

### 2.3 *Changes to the prescribed amount within a billing cycle*

- 2.3.1 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*.

## 3 DEFINITIONS AND INTERPRETATION

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### 3.1 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.

<b><i>billing cycle</i></b>	means the regular recurrent period for which a <i>qualifying customer</i> receives a bill from an <i>obliged retailer</i> .
<b><i>commencement date</i></b>	means the date on which the Determination is published in the <i>Gazette</i> by the <i>Commission</i> .
<b><i>Gazette</i></b>	means the South Australian Government Gazette.
<b><i>GST</i></b>	means the tax imposed under <i>GST Law</i> .
<b><i>GST Law</i></b>	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> .
<b><i>obliged retailer</i></b>	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> .
<b><i>prescribed amount</i></b>	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> .
<b><i>qualifying customer</i></b>	means a qualifying customer (as defined in the Electricity Act 1996) which consumes less than 160MWh of electricity per annum through their connection point.

## **3.2 Principles of interpretation**

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

- 3.2.1 Words denoting persons include corporations, unincorporated associations, firms, governments and governmental agencies.
- 3.2.2 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;
- 3.2.3 Headings are only included for convenience and do not affect the interpretation of this Determination.
- 3.2.4 A reference to a clause, Chapter, Part or Schedule is to a clause, Chapter or Part of or Schedule to this Determination.
- 3.2.5 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.
- 3.2.6 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.
- 3.2.7 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.

## SCHEDULE

Prescribed Amount (*nominal cents per kWh and GST exclusive*)\*

	<b>2011-12</b>	<b>2012-13</b>	<b>2013-14</b>
	<b>Applicable from 27 January 2012 to 30 June 2012</b>	<b>Applicable from 1 July 2012 to 30 June 2013</b>	<b>Applicable from 1 July 2013 to 30 June 2014</b>
<b>Prescribed Amount</b>	<b>7.1</b>	<b>9.0</b>	<b>9.9</b>

\* As discussed in the Statement of Reasons, in determining the prescribed amount, the Commission has considered both a carbon and a no carbon scenario. In light of the fact that the Australian Government's Clean Energy Bill has not passed through the Senate at the time of publication, for the purposes of the Commission's Draft Determination, the above figures represent a no carbon situation. If this position has changed by the time the Commission releases its Final Decision in January 2012, the above figures will be adjusted to reflect the inclusion of a carbon price.