

# Integral Energy Australia Pass Through Application

## Introduction

In accordance with Schedule 4 of the *Review of regulated retail tariffs and charges for electricity 2010-2013 – Final Determination (March 2010)* (the Determination), Integral Energy applies to the Tribunal for an increase in the 2010-11 costs that it proposes to pass through to small retail customers on standard form contracts (regulated Customers). The increase is the result of changes made by the Commonwealth Government to the national Renewable Energy Target (RET) scheme that will take effect from 1 January 2011 (the pass through event).

Integral Energy notes the Commonwealth Government's announcement on 27 April 2010 that it would delay the introduction of the Carbon Pollution Reduction Scheme (CPRS). This will have the effect of delaying cessation of the NSW Government's Greenhouse Gas Abatement Scheme (GGAS). Integral Energy does not intend to apply for a pass through of changes to 2010-11 costs arising from this event. The reasons for this are explained further below.

In developing this pass through application Integral Energy sought advice from Ernst & Young on incremental costs associated with both the RET and CPRS pass through events discussed in this submission. While some aspects of the advice have not been used in this application due to their longer term impacts, Integral Energy submits that the Ernst & Young report provides a reasonable starting point for IPART's consideration of those costs as part of its annual review.

It is noted that as a result of the NSW Government's Energy Reform process that upon completion of the current transactions that all rights and responsibilities of Integral Energy as a *Standard Retailer* will transfer to Origin Energy. Therefore, irrespective of the current reform process the obligations, costs and rights of *Standard Retail Suppliers* under the Determination and the Terms of Reference issued to the Tribunal remain unchanged.

## Background

### ***Tribunal's annual review of total energy costs***

As noted in the Tribunal's letter to Integral Energy dated 18 August 2010, the Tribunal plans to conduct an annual review of the total energy cost allowances for 2011-12 and 2012-13 for each Standard Retailer, including Integral Energy. This will include a review of the energy purchase cost allowance and the cost of complying with "green schemes" such as GGAS and the RET. The annual review will commence in January 2011.

While the review will take into account the RET and CPRS events noted above, it will only do so with respect to energy costs for the 2011-12 and 2012-13 periods. It will not capture any additional costs incurred in 2010-11 as a result of those events.

This pass through application is therefore concerned only with the incremental costs expected to be incurred during 2010-11 to be passed through to customers from 1 July 2011, however Integral Energy notes the work undertaken by Ernst & Young in the attached report that provides guidance as to the future costs of the CPRS and RET events.

### **RET event**

The Determination includes an allowance for meeting the cost of the RET scheme but the allowance does not include the impact of the changes to the RET scheme made by the Commonwealth Government<sup>1</sup>.

The *Renewable Energy (Electricity) Amendment Act 2010* and related amending legislative instruments were passed by Federal Parliament on 24 June 2010 and proclaimed on 28 June 2010. Under that package of legislation, from 1 January 2011, the RET scheme will operate as two parts: the Small-scale Renewable Energy Scheme (SRES) and the Large-scale Renewable Energy Target (LRET).

Liabe entities will need to meet obligations under both the LRET and SRES by acquiring and surrendering Renewable Energy Certificates (RECs) created from both large and small-scale renewable energy technologies. RECs created from power generation under the LRET from 1 January 2011 will also be referred to as large-scale generation certificates (LGCs) while certificates created for installations of small-scale renewable energy systems under the SRES from 1 January 2011 will also be referred to as small-scale technology certificates (STCs).

The new SRES has been designed to deliver households, small business and community groups, \$40 for each REC created by small-scale technologies like solar panels and solar water heaters.

The LRET, covering large-scale renewable energy projects like wind farms, commercial solar and geothermal, will deliver the majority of the 2020 target. The LRET will include legislated annual targets and will operate much the same as the current RET, but as a separate scheme to the SRES. From 2011 to 2030, the annual targets for the LRET are set at 4,000 Gigawatt-hours (GWh) per year less than the previous RET targets, reaching 41,000 GWh by 2020. This is to take account of the separate mechanism to support small-scale renewable energy systems under the SRES.

---

<sup>1</sup> Determination, pp 104-5.

## **CPRS event**

The Commonwealth Government had originally planned to introduce the CPRS on 1 July 2011. The CPRS places a price on carbon emissions and sets a medium-term target for emissions reduction. Under the scheme, electricity generators will be required to purchase permits for each tonne of greenhouse gas they emit. This will raise the price of wholesale electricity and therefore Standard Retailers' costs.

In the Determination, the Tribunal set an energy purchase cost allowance for the Standard Retailers that included a component for the CPRS<sup>2</sup>. The Tribunal also calculated the allowance on the basis that the CPRS did not commence as planned<sup>3</sup>. As noted in the Determination<sup>4</sup>, the NSW Government has announced that GGAS will be discontinued once the CPRS commences.

## **Not included in pass through application**

For clarity, Integral Energy is not applying for a pass through for an increase in the NGAC allowance arising as the result of the CPRS delay event. The reasons for this are explained below.

## **LGC costs**

### *Two distinct events*

Integral Energy understands that the Tribunal intends to treat the RET and CPRS events as distinct from one another. Specifically, while the latter recognises the effects of the delay to the introduction of the CPRS, the RET event assumes that the CPRS will take effect from 1 July 2011 as originally planned.

This is an important assumption since, without the CPRS coming into effect within the short to medium term, the cost of meeting the revised RET would fall to be met largely via the LREC scheme. This would result in a sizeable upwards revaluation of the current REC/LGC allowance.

For the purpose of making this application, Integral Energy has adopted the Tribunal's position of treating the two events as distinct. However, should the Tribunal decide to treat the two events as impacting on each other, then Integral Energy would need to amend its pass through application to take this into account.

---

<sup>2</sup> Determination, p 5.

<sup>3</sup> Determination, p 97.

<sup>4</sup> Determination, p 105.

### *2010-11 costs*

Integral Energy notes the work undertaken by Ernst & Young to quantify the impacts of changes in the LREC scheme. There are two aspects to consider when examining this analysis.

Firstly, the LGC target is a reduction on the REC target recognised by the Tribunal in the Determination, i.e. a reduction in the benchmark costs of compliance per MWh of electricity sold.

Secondly however, the market price for LGCs has increased substantially over the current financial year, so much so that the impact of the higher market prices more than offset the reductions in the target. The net pass through impact of these two LGC outcomes that have arisen from the changes to the RET scheme are set out below.

### *2011-12 and 2012-13 costs*

One interpretation of the Determination's pass through mechanism is that, the RET event having occurred, Integral Energy should promptly make a pass through application that takes into account the likely changes in costs to the business over the entire remainder of regulatory period.

However, Integral Energy has chosen not to do so for 2011-12 or 2012-13, relying on the Tribunal's statements that the annual review will update the relevant cost allowances to ensure compliance with the RET changes. If the Tribunal believes Integral Energy's position in this regard is in error, then Integral Energy reserves the right to amend this application accordingly.

### **CPRS event**

Integral Energy considers that it has sufficient NGACs on hand to meet its GGAS obligations for the 2010-11 year. It therefore does not expect to be exposed to additional costs for the current financial year in this regard.

As with the RET event above, it is a virtual certainty that, at some point during 2011-12 and 2012-13, Integral Energy will need to purchase additional NGACs in order to meet its GGAS obligations with respect to those years. The number required is likely to depend on the revised CPRS start date (this also assumes that GGAS will cease on that date as per current NSW Government policy), not being before 1 July 2011.

Accordingly, Integral Energy has at this point chosen not to make a pass through application with respect to any additional NGAC costs for 2011-12 or 2012-13. Instead, it relies on the Tribunal's statements that the annual review will update the relevant cost allowances with respect to the CPRS delay event.

However, we do note that there is a zero NGAC allowance for 2010-11 year.

## STC 2010-11 cost pass through calculation

### Calculation of 2010-11 surrender value

The SRES is a new obligation on retailers commencing on 1 January 2011. Existing REC's and new LGC's are not eligible to meet SRES surrender obligations.

In December 2010, the Office of the Renewable Energy Regulator (ORER) set the Small scale Technology Percentage (STP) for calendar 2011 at 14.8%. It has yet to publish estimates of the STP for 2012 and 2013 (required by 31 March). Under the SRES, 60% of the annual liability is required to be surrendered in the first half of the calendar year<sup>5</sup>. STCs are available to be purchased from the ORER's Clearing House at a fixed price of \$40 per certificate (excluding GST).

The efficient STC cost is to use of the market clearing house with fixed price of \$40. This approach recognises the fact that there exists a fixed and published price which will ensure that market pricing will tend towards this figure. Although small opportunities for arbitrage may exist for short periods of time the market will self-adjust back to the deemed price.

As the 2011 STP and fixed STC prices are currently known, it is possible to determine with certainty the direct cash cost of STC obligations for every MWh of energy sold. This calculation is set out in table 1 below.

**Table 1 – Cost per MWh of sold energy**

Relevant Acquisitions (MWh)	STP	STCs*	\$Cost/MWh
1	14.8%	0.148	\$5.92

Based on the most recent view of the 2010 calendar year acquisitions which are used to set the STC requirements for 2011, Integral Energy estimates that it will require the following STCs and, incur the incremental costs for the 2010/11 financial year as per table 2 below. In addition, Integral Energy has estimated that an energy price increase of \$3.55 will be required over 2011/12 to recover the direct cash costs imposed on Integral Energy from the introduction of the SRES.<sup>6</sup>

<sup>5</sup> *Renewable Energy (Electricity) Act 2010*, s 38AE.

<sup>6</sup> \$3.55 over a full financial year is equivalent to the \$7.10 contained in table 3.4 of the Ernst & Young report which is calculated based on costs incurred per MWh delivered in the 6 month period of 1 January 2011 to 30 June 2011.

**Table 2 – Forecast 2010/11 STC costs for Integral Energy**

Relevant Acquisitions (MWh) <sup>^</sup>	STCs*	\$Cost (@ \$40/cert)
3,867,501	343,434	13,737,364

<sup>^</sup> Based on the full 2010 calendar year

\* Based on 60% liable to be redeemed in the first half of the calendar year and the balance during the last half at calendar year rate of 14.8%

### **Additional Considerations**

#### *Retail margin as a fixed percentage of costs*

The Tribunal amended its practice for setting the retail margin as part of the Determination. The Tribunal determined that it was appropriate to establish a margin that is both capped and collared at the regulated rate of 5.4% on total costs.

This change in approach ensures that if total costs reduced, such as a reduction in energy costs, the dollar margin accruing to the *Standard Retailer* would also decline and be passed back to customers whilst still providing the *Standard Retailer* with the same percentage return.

However, the reverse also holds in circumstances such as this where additional costs have been imposed on *Standard Retailers*.

As a consequence, when calculating the proposed pass through amount a margin of 5.4% needs to be added to the STC cost increases set out above increasing the cost per MWh to \$3.74.

#### *Time value of money /Holding Costs*

A further consideration is the need to preserve the matching in the time value of money of costs incurred and revenues received.

Failure to include adjustments to the STC expenses to recognise the “holding costs” associated with their payment in advance of revenues being receivable must necessarily prohibit the *Standard Retailers* from achieving the regulated margin on recognised costs over the course of the determination period.

The holding cost calculations need to incorporate the timing effect of holding the payment of costs without revenue recovery during 2010/11 as well as the delay in the recovery of these grossed up costs over the full 2011/12 financial year. Using a 2.5% assumption for CPI and the 9.1% pre-tax real WACC used by the Tribunal in the Determination and applying these to the costs above and the average period for which the costs are held Integral Energy estimates that the holding costs would increase the cost per MWh to \$3.96.<sup>7</sup>

<sup>7</sup> \$3.96 is the annualised cost equivalent to the incremental SRES cost plus time value of money calculation from table 3.4 of the Ernst & Young report adjusted to include the retail margin allowance discussed above.

### *Lower future volumes*

Finally, it should be noted that the forecast regulated volumes for 2011/12 are lower than those on which the costs were incurred. Specifically, the relevant acquisitions upon which the SRES obligations are based is 3,867,501 MWh compared to the most recent forecast prepared by Integral Energy of 2011/12 regulated volumes of 3,619,501 MWh.

Therefore to determine the appropriate future price that will allow recovery of the costs incurred above the price must be increased proportionally to counter the reduced volumes. If the relevant acquisition volumes are divided by the forecast 2011/12 a factor of 106.85% is calculated.

Multiplying the base cost of \$3.96 by the volume weighting factor of 106.85% results in a cost recovery price on forecast regulated sales of \$4.23 per MWh.

### **LGC 2010-11 cost pass through calculation**

#### *Calculation of 2010-11 surrender value*

The calculation of the costs borne by *Standard Retailers* in the 2010/11 financial year requires two offsetting matters to be considered.

As discussed earlier, with the separation of the RET scheme into the SRES and LRET components the overall scheme was expanded. However with the SRES being effectively an incremental new scheme (recognising that RECs under the RET can be used to offset LRET obligations) Integral Energy notes that the LRET RPP is materially lower than the RET RPP included in the Tribunal's Determination.

As highlighted in Table 3.5 of the Ernst & Young report, the RPP decreases by 0.30%. On a benchmark basis this represents an effective reduction in Integral Energy's obligations under the schemes in the order of 5% or \$0.11 per MWh when the current REC forward prices are used.

However, offsetting the reducing target obligations has been the significant increase in the market price for RECs. As identified by Ernst & Young the current REC forward price is in the order of \$37.50, which when reduced to a cost per MWh on the same basis as the allowance included in the Determination is a cost in the order of \$2.29.

When compared to the REC allowance included in the Determination of \$1.85 per MWh, the \$2.29 market price for RECs represents a benchmark incremental cost of \$0.44 per MWh above that allowed.

The incremental or net impact of these two aspects of the prevailing LRET costs is therefore in the order of \$0.33 per MWh.

## Materiality threshold

Schedule 4 of the Determination specifies that for an event to be a *positive pass through event* it must result in an increase in the costs of a Standard Retail Supplier that exceed 0.25% of the total revenue arising out of regulated retail tariffs.

For Integral Energy the Tribunal allowed regulated retail revenue of \$809m for the 2010/11 financial year. Based on this revenue target the materiality threshold for an event to be considered a *positive pass through event* is \$2.0225m.

Based on the information presented above it is clear that the Tribunal's materiality thresholds have been met by the incremental and efficient increases in costs borne by Integral Energy as a consequence of the introduction of the STC arrangements by the Federal Government<sup>8</sup>.

## Proposed pass through amount

The calculation of the proposed pass through amount for 2010/11 of \$4.56 is made up of the incremental LRET costs of \$0.33 per MWh and SRES costs of \$4.23 per MWh as set out below being:

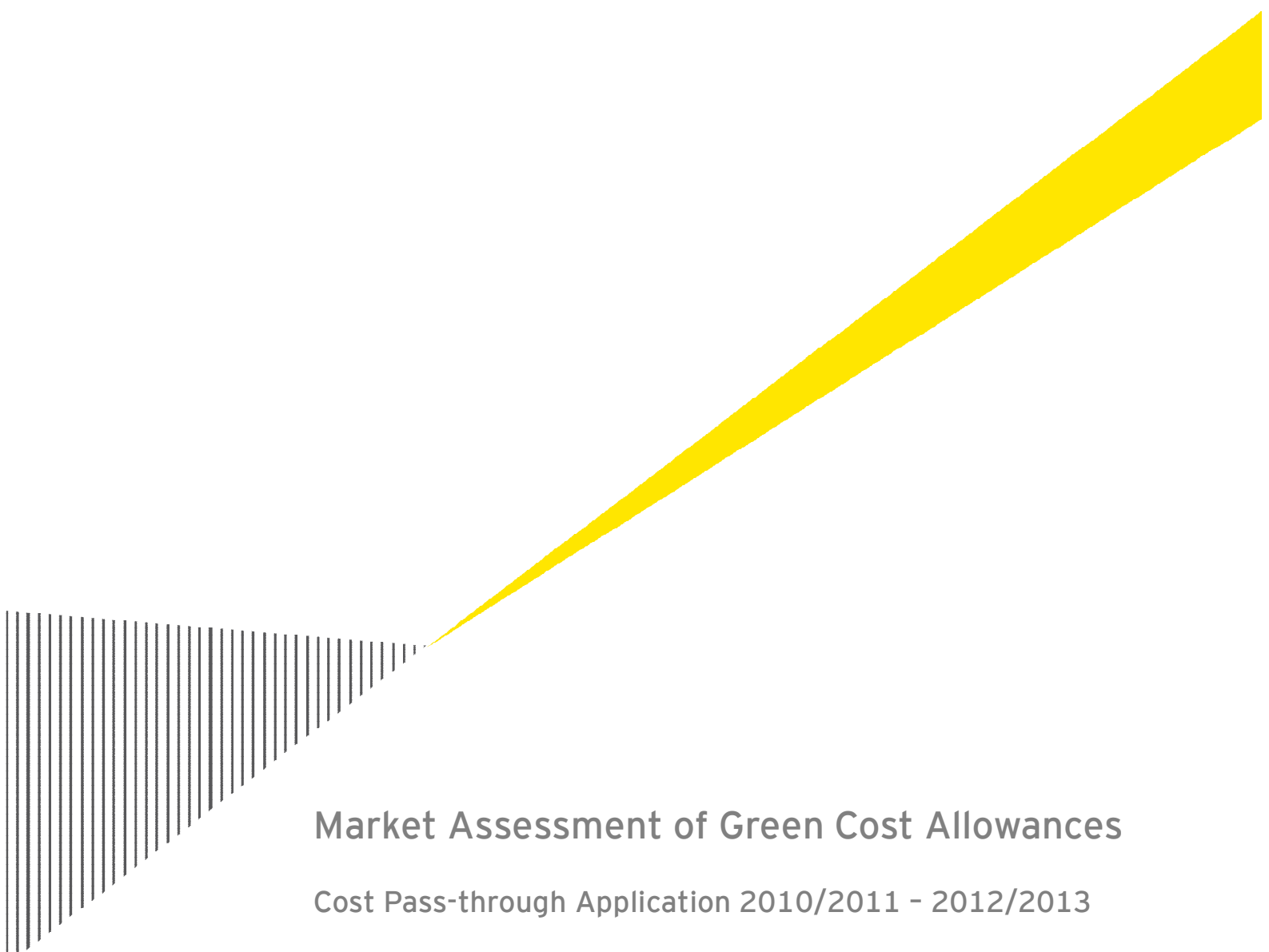
2010/11 SRES surrender costs	\$13,737,364
Retail margin adjustment @ 5.4%	\$741,818
Time value of money adjustment	\$845,164
2010/11 LRET surrender costs @ \$0.33	\$1,194,435
<b>Total 2010/11 Incremental Costs</b>	<b>\$16,518,780</b>

It is proposed that the costs be passed through to customers from 1 July 2011 and recovered in full during that financial year. The resulting forecast adjustment required to the 2011/12 energy cost per MWh arising from this pass through is estimated as \$4.56 assuming an energy forecast for regulated customers of 3,619,501 MWh for 2011/12.

Integral Energy notes that the pass through amount of \$4.56 per MWh is merely in respect to the costs incurred during the 2010/11 financial year. As such, Integral Energy anticipates that this amount will be in addition to the STC and LGC costs to be incurred over the 2011/12 financial year which will be recovered in accordance with IPART's annual review.

<sup>8</sup> Direct STC costs are approaching 7 times the required materiality level before making any adjustments for retailer margin and holding costs.





# Market Assessment of Green Cost Allowances

Cost Pass-through Application 2010/2011 - 2012/2013

January 2011

## Contents

1. Executive summary.....	1
2. Introduction.....	2
3. Introduction of SRES.....	5
4. Delay in introduction of CPRS.....	13
5. Summary.....	24

© 2011 Ernst & Young Australia.

Liability limited by a scheme approved under Professional Standards Legislation.

Our report may be relied upon by Country Energy pursuant to the terms of our engagement letter dated 10 November 2010. We disclaim all responsibility to any other party for any loss or liability that the other party may suffer or incur arising from or relating to or in any way connected with the contents of our report, the provision of our report to the other party or the reliance upon our report by the other party.

# 1. Executive summary

You have engaged Ernst & Young to advise you on the incremental costs of complying with new and existing Green Schemes pursuant to the two following recent and separate regulatory changes. These are:

- The introduction of the Small-scale Renewable Energy Scheme (SRES) by the Commonwealth Government enacted 24 June 2010; and
- The delay in the introduction of the Carbon Pollution Reduction Scheme (CPRS) by the Commonwealth Government announced 27 April 2010.

Both of these changes present incremental costs for Standard Retail Suppliers who are seeking IPART's approval to pass through these costs to their Small Retail Customers. Specifically incremental costs arise from:

- The introduction of the SRES which presents a new Green Scheme for Standard Retail Suppliers to comply with; and
- The delay in the introduction of the CPRS which commits the Standard Retail Suppliers to comply with existing and ongoing Green Schemes including the Commonwealth Government's Large-scale Renewable Energy Target (LRET) and their obligations under the NSW Greenhouse Gas Reduction Scheme (GGAS).

This report outlines the details of the regulatory changes listed above, which impact the Standard Retail Suppliers, the dates they occurred, and the increase in costs for each year of the Determination period. We have based our estimates of incremental costs on a market based assessment. We note that the Standard Retail Suppliers' incremental costs may differ from our cost estimates on an individual basis.

The following table provides a summary of the incremental cost estimates.

**Table 1.1 - Summary of Incremental Costs on Standard Retail Suppliers (presented in 2010/11 dollar terms)**

		2010/11	2011/12	2012/13
<i>Introduction of SRES</i>	<i>SRES Cost (including time value of money)</i>	\$7.52 per MWh	\$5.64 per MWh	\$4.85 per MWh
	<i>LRET Cost</i>	\$0.33 per MWh	\$0.68 per MWh	\$1.40 per MWh
<i>Delay in introduction of CPRS</i>	<i>LRET Cost</i>	\$1.15 per MWh	\$0.89 per MWh	\$0.94 per MWh
	<i>GGAS Cost</i>	\$1.95 per MWh	\$2.00 per MWh	\$2.18 per MWh

The remainder of the report provides details of the incremental cost estimates and the assumptions that have been applied.

## 2. Introduction

### 2.1 Background

The Independent Pricing and Regulatory Tribunal (IPART) released its 'Review of regulated retail tariffs and charges for electricity 2010 - 2013' Final Determination in March 2010. Standard Retail Suppliers are provided a Green Cost Allowance for the recovery of costs directly associated with purchasing electricity in the National Electricity Market (NEM). These costs involve complying with and meeting obligations under existing Green Schemes including:

- The Commonwealth Government's expanded Renewable Energy Target (RET); and
- The NSW Greenhouse Gas Reduction Scheme (GGAS).

You have engaged Ernst & Young to advise you on the incremental costs of complying with new and existing Green Schemes pursuant to two recent and separate regulatory changes. These are:

- The introduction of the SRES by the Commonwealth Government; and
- The delay in the introduction of the CPRS by the Commonwealth Government.

In providing our advice and preparing this report we have reviewed the following documentation:

- 'Review of regulated retail tariffs and charges for electricity 2010 - 2013', Electricity - Final Determination from IPART, March 2010;
- 'Review of regulated retail tariffs and charges for electricity 2010 - 2013', Electricity - Final Report from IPART, March 2010;
- 'Energy purchase costs' - A Final Report Prepared for IPART by Frontier Economics, March 2010;
- 'AGL Submission to the Essential Services Commission of SA', 2010 Review of Retail Electricity Standing Contract Price Path, 19 October 2010;
- 'LRET/SRES updates' - Office of Renewable Energy Regulator (ORER) website at <http://www.orer.gov.au/lret-sres-updates/index.html#liable>;
- 'Small-scale technology certificates data modelling for 2011 to 2013', Green Energy Markets Report to ORER, November 2010;
- 'Small-scale Technology Certificates Data Modelling - Projected take-up of small-scale renewable technologies over calendar years 2011 to 2013', ACIL Tasman Report prepared for ORER, 15 November 2010;
- 'Small-scale Technology Certificates Data Modelling for 2011 to 2013, SKM-MMA Final Report to ORER, 29 November 2010;

- 'Compliance and Operation of the NSW Greenhouse Gas Reduction Scheme during 2009' - IPART Report to Minister, July 2010;
- 'Annual Report 2009 - Increasing Australia's renewable electricity generation' - ORER report;
- 'Fuel resource, new entry and generation costs in the NEM' - ACIL Tasman 2009 Report Prepared for the Inter-Regional Planning Committee;
- 'The calculation of energy costs in the BRCI for 2010-11' - ACIL Tasman 2009 Report for the Queensland Competition Authority;
- 'Greenhouse Gas Benchmark Rule (Compliance) No. 1 of 2003';
- 'AEMO - 2010 Electricity Statement of Opportunities';
- 'Electricity Supply Amendment (Greenhouse Gas Emission Reduction) Act 2002 No 12'; and
- 'Fact Sheets and Compliance Spreadsheets (GGAS Scheme Website)' at <http://www.greenhousegas.nsw.gov.au/>.

We have also informed the report with targeted industry stakeholder consultation to capture the commercial and practical aspects facing electricity retailing operations in the NEM.

## 2.2 Recent Regulatory Changes

There are two recent and separate regulatory changes affecting Green Schemes that Standard Retail Suppliers must comply with. These are:

- The introduction of the SRES which presents a new Green Scheme for Standard Retail Suppliers to comply with; and
- The delay in the introduction of the CPRS which commits the Standard Retail Suppliers to comply with existing and ongoing Green Schemes including the Commonwealth Government's LRET and their obligations under the NSW GGAS.

Both of these changes present incremental costs for Standard Retail Suppliers who are seeking IPART's approval to pass through these costs to Small Retail Customers.

This report outlines the details of the regulatory changes, the dates they occurred, and the increase in costs they imply for each year of the Determination period.

## 2.3 Structure of this Report

Our report is structured as follows:

- Section 3 addresses the SRES and the incremental costs of compliance for each year of the Determination period;
- Section 4 addresses the impact of the delay in the introduction of the CPRS, and the incremental costs of complying with the existing Commonwealth Government LRET and obligations under the ongoing NSW GGAS for each year of the Determination; and
- Section 5 provides a summary.

## 3. Introduction of SRES

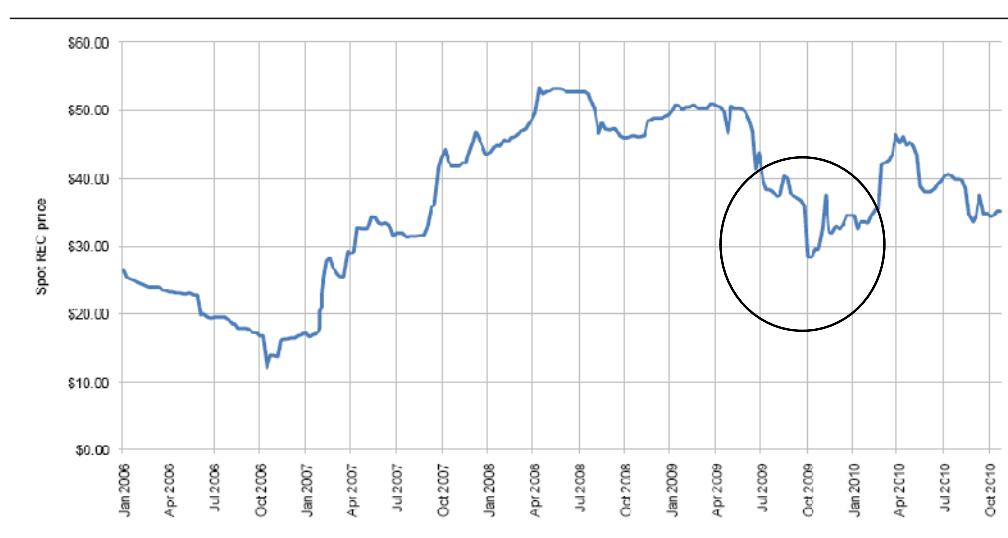
### 3.1 Background - Restoration of Investment Signals for Renewables

The proliferation of small scale renewable generation across the NEM States in the last 18 months is to a large extent a response to State and Commonwealth Government financial incentives for households to install small-scale generation units (SGUs), typically solar Photo-Voltaic (PV) units and solar hot water units. An increasing number of Renewable Energy Certificates (RECs) were registered as a consequence<sup>1</sup>. In addition, prevailing constraints on capital markets impacted the ability of installers to access working capital and RECs were used as collateral. This ultimately led to a sharp reduction of spot REC prices around mid to late 2009.

The unintended impact of these events had a dampening effect on forward investment signals for large-scale renewable projects (i.e. wind). The Commonwealth Government identified the need to restore these investment signals in order for it to reach the expanded RET by 2020. The impending policy response involved enhancements to the 'Renewable Energy (Electricity) Bill 2010'. These were enacted into law on 24 June 2010.

In broad terms these enhancements act to restore the investment signals for large-scale renewable generation by separating small-scale RECs from large-scale RECs into two distinct schemes; the SRES and the LRET. The prevailing market price of RECs increased substantially in February/March 2010 in response to the restoration of investment signals for large-scale renewable projects. Figure 3.1 shows the impact of the policy on REC prices during the relevant time period.

Figure 3.1 - REC Prices



Data source: AFMA Environmental Products Curve (mean of mids, excluding outliers).

<sup>1</sup> ORER's 'Annual Report 2009 - Increasing Australia's renewable electricity generation' states that the number of Solar Water Heaters (SWH) and Small-scale Generation Unit (SGU) installations have increased in 2009 from the level of installations in 2008. In particular approximately 4,000 SGU installations were installed each month compared to approximately 1,000 per month in 2008.

The previous legislated expanded RET scheme encompassed both small-scale RECs from SGU's and solar water heaters and large-scale RECs (e.g. from wind). The new legislation requires compliance under both the SRES and LRET schemes.

Table 3.1 compares the LRET profile for each year of the schemes operation with the previous expanded RET profile. The yearly targets for the LRET are lower than the targets of the expanded RET. This difference is explained and accounted for by the estimated creation of Small-scale technology certificates (STCs) from Small-scale generators. The actual creation of STCs may potentially lead to a combined LRET/SRET that exceeds the previous expanded RET. As the number of RECs at 2010 year end has exceeded 34.5 million, the annual LRET targets have been adjusted. The target has increased by 0.5 of the 2010 excess for both 2012 and 2013. The target has reduced by 0.25 of the 2010 excess for 2016 to 2019.

**Table 3.1 - LRET and expanded RET targets over the life of the schemes**

<i>Year</i>	<i>LRET Target (GWh) - As Adjusted<sup>2</sup></i>	<i>Expanded RET Target (GWh)</i>
<i>2010</i>	12,500	12,500
<i>2011</i>	10,600	14,825
<i>2012</i>	16,338	17,150
<i>2013</i>	18,238	19,050
<i>2014</i>	16,100	20,950
<i>2015</i>	18,000	22,850
<i>2016</i>	20,581	27,450
<i>2017</i>	25,181	32,050
<i>2018</i>	29,781	36,650
<i>2019</i>	34,381	41,250
<i>2020-2030</i>	41,000	45,000

## **3.2 SRES compliance**

The SRES came into effect on 1 January 2011. The scheme is distinct and separate from the LRET in that it incorporates a fixed price and no cap on certificate creation. Under the SRES liable parties making 'relevant acquisitions' are required to surrender small-scale technology certificates (STCs) on a quarterly basis. STCs are created by accredited SGUs and solar water heaters.

<sup>2</sup> The legislated LRET Targets have been adjusted in accordance with regulatory guidelines: (<http://www.orer.gov.au/rpp/index.html>).



The SRES has the following attributes:

- Eligible installations under the SRES create STCs;
- There is a fixed price of \$40 per STC which may be obtained from the STC clearing house at this fixed STC price or from registered creators of STCs;
- Liable parties are required to surrender an amount of STCs in accordance with the quarterly timetable published by the ORER; and
- The calculation required by ORER involves the Determination of a Small-scale Technology Percentage (STP) by 31 March each year (2011 figure was released by ORER on 1 December 2010). The STP is determined from:
  - An estimate of the number of STCs to be created in the given year (forecasts for 2012 and 2013 have also been released);
  - An estimate of electricity acquired under 'relevant acquisitions'; and
  - An estimate of 'partial exemptions' for customers operating in Emissions-Intensive Trade Exposed (EITE's) industries.

The following table outlines the SRES reporting and surrendering process for liable entities commencing 1 January 2011:

**Table 3.2 - Timeline of SRES Requirements.**

Quarter	Dates	SRES Requirements (ORER & Liable Entity)
1/2011	Before 31 March 2011	ORER: <ul style="list-style-type: none"> <li>➤ 2011 STP published</li> <li>➤ Estimates for 2012/13 STP published</li> </ul>
	Before 15 April 2011	ORER: <ul style="list-style-type: none"> <li>➤ Provide Liable Entities with estimate of required surrender amounts for quarters 1 - 3 so that correct amount of STCs are surrendered based on previous years reduced acquisitions (from Annual Energy Acquisition Statement (AEAS)).</li> </ul> Liable Entity: <ul style="list-style-type: none"> <li>➤ May apply to ORER for another required surrender amount.</li> </ul>
	15 February 2011 - 28 April 2011	Liable Entity: <ul style="list-style-type: none"> <li>➤ STC surrender for quarter 1 SRES compliance based on 35 per cent of previous year's reduced acquisitions from AEAS</li> </ul>

		<p>including Surrender Fee (report and pay any Small-scale Technology Shortfall Charge STSC in quarter 4 2011).</p> <p>ORER:</p> <ul style="list-style-type: none"> <li>➤ Accept STCs within 2 weeks after 28 April 2011.</li> </ul>
2/2011	29 April 2011 - 28 July 2011	<p>Liable Entity:</p> <ul style="list-style-type: none"> <li>➤ STC surrender for quarter 2 SRES compliance based on 25 per cent of previous year's reduced acquisitions from AEAS including Surrender Fee (report and pay any STSC in quarter 4 2011).</li> </ul> <p>ORER:</p> <ul style="list-style-type: none"> <li>➤ Accept STCs within 2 weeks after 28 July 2011.</li> </ul>
3/2011	29 July 2011 - 28 October 2011	<p>Liable Entity:</p> <ul style="list-style-type: none"> <li>➤ STC surrender for quarter 3 SRES compliance based on 25 per cent of previous year's reduced acquisitions from AEAS including Surrender Fee (report and pay any STSC in quarter 4 2011).</li> </ul> <p>ORER:</p> <ul style="list-style-type: none"> <li>➤ Accept STCs within 2 weeks after 28 October 2011.</li> </ul>
4/2011	29 October 2011 - 14 February 2012	<p>Liable Entity:</p> <ul style="list-style-type: none"> <li>➤ STC surrender for quarter 4 (annual) SRES compliance from AEAS including Surrender Fee (report and pay any STSC in quarter 4 2011).</li> </ul> <p>ORER:</p> <ul style="list-style-type: none"> <li>➤ Assesses and Finalises SRES assessments.</li> </ul>

Table 3.2 shows that liable parties are required to surrender 60 per cent of their STCs in the first two quarters of 2011. This has implications for Standard Retail Suppliers in that the majority of the SRES costs for 2011 will incur in the first two quarters of 2011 impacting the 2010/11 Determination year. This is addressed in section 3.4.

### 3.3 STC estimates for 2011/12 - 2012/13

ORER commissioned three separate reports to provide estimates of STC creation over 2010, 2011, and 2013. These reports were published on ORER's website in December 2010. Each report incorporates a unique methodology for estimating STC creation (i.e. uptake of SGU technology and assumptions of STC creation from solar water heaters). The Lower-estimate of STC creation in each report is based on the revised 'Solar Multiplier' which reduces to 4 from 5 on 1 July 2012.

The STC estimates using both the historical time series based methodologies and forward looking methodologies of STCs (i.e. pay-back period modelling) rely on the set of assumptions used in each report. Furthermore the inherent uncertainties surrounding State and Commonwealth Government policy responses regarding financial incentives for solar uptake will impact these estimates. For this reason ORER will revise STC estimates as it sees fit going forward.

Section 3.4 incorporates these estimates for determining Standard Retail Suppliers SRES incremental costs for 2011/12 and 2012/13.

### 3.4 Incremental costs of SRES compliance

As a consequence of the introduction of SRES the Standard Retail Suppliers will face incremental costs of compliance in terms of the uplift on STCs. We understand that they will seek to pass these costs on to their Small Retail Customers. This section outlines an estimate of these costs.

On 1 December 2010, the Minister for Climate Change and Energy Efficiency announced a STP of 14.8% for 2011<sup>3</sup>, which is equivalent to 28 million STCs as a proportion of total estimated electricity consumption for 2011.

The uplift for each year of Determination can be calculated as the "STP x Fixed STC Cost x Adjustment Factor"<sup>4</sup>. Each of these variables is discussed below:

- Where available published figures for the STP have been utilised. Otherwise the STP can be estimated using the following approach:
  - $STP = STC / [Relevant\ Electricity\ Acquisitions\ (REAs) - Partial\ Exemption\ Certificates\ (PECs)]$ ;
  - The STC (2012) and STC (2013) forecasts are 26,862,250 and 22,636,250, respectively. These forecasts were calculated as an average of the reduced solar multiplier scenario STC modelling outputs published by Green Energy Markets and SKM-MMA (i.e. average of Time Series and DOGMMMA approaches) for the respective year. The ACIL Tasman STC modelling output has been excluded from the average, as the outputs from that modelling have been determined using a basis (i.e. best estimate) which differs to the other reports;
  - The REAs and PECs for 2012 and 2013 are forecast using the following approach:

<sup>3</sup> <http://www.climatechange.gov.au/en/minister/greg-combet/2010/media-releases/December/mr20101201.aspx>

<sup>4</sup> To account for the upfront cost of SRES compliance as explained in table 3.2.

- Source the REAs (2011) and PECs (2011) from the 'AGL Submission to the Essential Services Commission of SA - 2010 Review of Retail Electricity Standing Contract Price Path, 19 October 2010' report<sup>5</sup>; and
  - Escalate the 2011 forecasts for both REAs and PECs by the medium energy projections annual growth rate of 2.1% for NEM sourced from the 'AEMO - 2010 Electricity Statement of Opportunities' report.
    - The calendar STP figures have been averaged<sup>6</sup> to account for the fact that the Determination years are in financial years.
- Legislated fixed price of \$40 per STC across all Determination years; and
- An adjustment factor of 120% for the 2010/11 Determination is required to account for the reporting and compliance procedures for SRES as specified in table 3.2. As the SRES will be in effect for the entirety of the 2011/12 and 2012/13 Determination years, no adjustment factors are needed.

The resulting uplifts for each of the Determination years are presented in table 3.4 below. The table breaks down the incremental cost into its key variables, as explained in the earlier part of this section.

In addition to the actual calculated incremental cost, the table below also estimates the time value of money due to the mismatch of costs incurred and cost recovery.

**Table 3.4 - Incremental Cost of SRES on Standard Retail Suppliers (presented in 2010/11 dollar terms<sup>7</sup>)**

	<i>2010/11</i>	<i>2011/12</i>	<i>2012/13</i>
<i>STP</i>	14.80%	14.46%	12.74%
<i>Fixed Cost per STC (ex GST)</i>	\$40	\$40	\$40
<i>Adjustment Factor</i>	120%	n.a.	n.a.
<i>Incremental Cost of SRES</i>	\$7.10 per MWh	\$5.64 per MWh	\$4.85 per MWh
<i>Time Value of Money<sup>8</sup></i>	\$0.41 per MWh	n.a.	n.a.
<i>Incremental Cost of SRES (including time value of money)</i>	\$7.52 per MWh	\$5.64 per MWh	\$4.85 per MWh

### 3.5 Incremental costs of LRET compliance

<sup>5</sup> 2011 REAs of 223,812,000 MWh and 2011 PECs of 39,000,000 MWh.

<sup>6</sup> A weighted average has been applied to account for the 60% and 40% compliance requirements for the first half and second half of the calendar years, respectively.

<sup>7</sup> A CPI of 2.5% (midpoint of RBA's inflation target range) has been applied.

<sup>8</sup> The WACC of 9.10% (Retail) used by Frontier in their "Energy Purchases - Final Report" has been applied.

As a consequence of the introduction of the SRES the Standard Retail Suppliers face incremental costs of LRET compliance due to two factors:

- Changes in the target under the LRET;
- Changes in LRET costs since the Determination.

The incremental cost of a change in targets can be calculated as the difference between the Renewable Power Percentage (RPP) based on the LRET and the RPP based on the previous expanded RET (refer to table 3.1), multiplied by the REC Forward Price. This calculation is set out below:

- $[RPP(\text{LRET}) - RPP(\text{expanded RET})] \times \text{REC Forward Price}$ , where:
- RPP (LRET) is the RPP based on the LRET. This has been determined as follows:
  - ORER is responsible for setting the RPP each year. The Renewable Energy (Electricity) Act 2000 specifies the default calculation for the RPP for future years;
  - RPP (2010) of 5.98% and RPP (2011) of 5.62% have been set by ORER<sup>9</sup>;
  - $RPP(2012) = RPP(2011) \times \text{LRET Target}(2012) / \text{LRET Target}(2011)$ ;
  - $RPP(2013) = RPP(2012) \times \text{LRET Target}(2013) / \text{LRET Target}(2012)$ ; and
  - The calendar RPP figures have been averaged appropriately to account for the fact that Determination years are in financial years.
- RPP (expanded RET) is the RPP calculated based on the expanded RET. These have been sourced from Frontier's 'Energy Purchases Cost - Final Report (March 2010)'; and
- REC Forward Prices have been sourced from market data as at end January 2011.

The incremental cost of LRET compliance due to changes in LRET costs since the determination can be calculated as follows:

- Current RET Cost (\$/MWh) - RET Cost Allowance (\$/MWh), where:
- Current RET Cost = RPP (MRET) x REC Forward Price; and
- RET Cost Allowance is sourced from 'Review of regulated retail tariffs and charges for electricity 2010 - 2013', Electricity - Final Report from IPART, March 2010.

The total resulting incremental costs of LRET for each of the Determination years are presented in table 3.5. The table breaks down the incremental cost into the two factors outlined above.

**Table 3.5 - Incremental Cost of LRET compliance on Standard Retail Suppliers (presented in 2010/11 dollar terms<sup>10</sup>)**

<sup>9</sup> <http://www.orer.gov.au/rpp/index.html>

<sup>10</sup> A CPI of 2.5% (midpoint of RBA's inflation target range) has been applied.

	2010/11	2011/12	2012/13
<i>RPP (expanded RET - Frontier)</i>	6.10%	7.20%	8.10%
<i>RPP (LRET)</i>	5.80%	7.14%	9.17%
<b>Impact of Change in Targets</b>			
<i>Difference in RPP</i>	-0.30%	-0.06%	1.07%
<i>Forward Price</i>	\$37.50	\$41.03	\$43.20
<i>Incremental Cost of Change in Targets</i>	-\$0.11 per MWh	-\$0.02 per MWh	\$0.46 per MWh
<b>Impact of Change in Costs since the Determination</b>			
<i>Current RET Cost</i>	\$2.29 per MWh	\$2.95 per MWh	\$3.50 per MWh
<i>RET Cost Allowance</i>	\$1.85 per MWh	\$2.26 per MWh	\$2.56 per MWh
<i>Incremental Cost of Changes in LRET Costs</i>	\$0.44 per MWh	\$0.70 per MWh	\$0.94 per MWh
<b>Net Impact</b>			
<b>Total Incremental Cost of LRET</b>	<b>\$0.33 per MWh</b>	<b>\$0.68 per MWh</b>	<b>\$1.40 per MWh</b>

## 4. Delay in introduction of CPRS

### 4.1 Background - existing/ongoing Green Schemes

The delay in the introduction of the Commonwealth Government's CPRS was announced on 27 April 2010. This delay commits Standard Retail Suppliers to continue complying and meeting the obligations of the following existing and ongoing Green Schemes:

- The Commonwealth Government's LRET; and
- The NSW GGAS.

Ongoing compliance with these schemes, brought about by the delay, presents incremental costs for Standard Retail Suppliers because:

- The Long Run Marginal Cost (LRMC) Methodology used to estimate Large-scale Generation Certificate (LGC) costs (previously REC costs) for 2010/11 and 2011/12 in the Determination assumes the CPRS will be in place from 1 July 2011 (2012/13 uses the market-based approach). The estimated LGC costs with CPRS in place from 1 July 2011 produce LGC costs for 2010/11 and 2011/12 that are lower than the LGC costs in the absence of CPRS; and
- The Green Cost Allowance for NSW GGAS costs in the Determination was zero due to the assumption:
  - That the CPRS will be in place and that the NSW GGAS will cease on 1 July 2011; and
  - That there was an oversupply of NSW Gas Abatement Certificates (NGACs) in the lead up to 1 July 2011.

The delay implies that NSW GGAS will continue throughout the Determination period and Standard Retail Suppliers will incur ongoing costs of compliance without being provided a Green Cost Allowance to account for the costs.

**Table 4.1- Comparison of Green Cost Allowance for LGCs (previously RECs) and NGACs in the Determination and prevailing market prices as at January 2011:**

<b>LGCs/NGACs<sup>11</sup></b>	<b>2010/11 - LRMC</b>	<b>2011/12 - LRMC</b>	<b>2012/13 -Market Based</b>	<b>Market Prices (Jan 2011)</b>
<b>LGCs (Previously RECs)</b>	\$29.68	\$30.86	\$32.10	Spot \$37.50 Cal 11 \$40.46 Cal 12 \$43.66 Cal 13 \$47.11
<b>NGACs</b>	Zero	Zero	Zero	Spot \$7.20

<sup>11</sup> LRMC and market based prices of LGCs for 2010/11, 2011/12 and 2012/13 have been sourced from Frontier Economics "Energy Purchases Cost - Final Report". These values have been presented in 2009/10 dollar terms.

				Cal 11	\$7.31
				Cal 12	\$8.38
				Cal 13	\$9.04

Sections 4.2 and 4.3 outline the LRET and the NSW GGAS incremental costs for each year of the Determination.

## 4.2 LRET Compliance

The spot market for LGCs is a compliance market where liable parties surrender an appropriate number of LGCs on an annual basis in accordance with the ORER timetable. LGCs are created from eligible and registered renewable energy power stations as of 1 January 2011 based on 1 MWh of renewable electricity generated above baseline levels of output. Individual LGC liabilities depend on the Renewable Power Percentage (RPP). The RPP determines the number of LGCs to be surrendered by liable parties for compliance with the LRET.

The Green Cost Allowance for LGCs (RECs) for 2010/11 and 2011/12 in the Determination is derived using the co-optimised LRMC methodology assuming CPRS is introduced on 1 July 2011. Using this methodology, the resulting LGC cost estimate for 2010/11 is lower than would prevail in the absence of the CPRS. This is because the estimated LGC cost for 2010/11 in the absence of CPRS does not subsidise the 2010/11 LRET allowance for the Net Present Value (NPV) of carbon passed through in black electricity prices from 1 July 2011. Specifically:

- The estimated LGC cost estimate for 2010/11 needs to be adjusted for the \$10 per tonne of carbon price assumption for 2011/12. In addition, the incremental carbon price pass through of \$26 per tonne of carbon for 2012/2013 should apply to the LGC cost estimate for 2010/11 (i.e. \$26 - \$10 per tonne of carbon and the assumed pass through rates); and
- The incremental carbon price pass through of \$26 per tonne of carbon for 2012/2013 should apply to the LGC cost estimate for 2010/11 (i.e. \$26 - \$10 per tonne of carbon and the assumed pass through rates).

Both of these adjustments are required because the estimated LGC cost allowance in the Determination for 2010/11 and 2011/12 is lower than that would prevail in the absence of CPRS. This subsidy needs to be recovered in a higher LGC LRMC estimate. The difference in the LGC LRMC cost with and without the introduction of the CPRS is the incremental cost.

The allowance for the 2012/13 in the Determination uses the market-based approach and we have provided the difference between this estimate and prevailing REC forward prices for 2012/13 (refer to table 4.2.2).

Finally, the Determination makes note of the bankability and borrowing of LGCs (RECs) to and from future years respectively. Irrespective of bankability and borrowing Standard Retail Suppliers face real costs of compliance with the LRET. This cost is reflected in prevailing market prices for the LGCs. In practice a prudent retailer will incorporate a 'short-fall' risk measure of insufficient LGCs within inventory for current year surrender. The worst case scenario of this is the penalty price of LGCs (i.e. \$92.86)<sup>12</sup> for a short-fall.

<sup>12</sup> After adjusting the \$65 by the corporate tax rate.



Given the Determination uses a non-market based LRMC methodology, the following approach has been used to estimate the incremental costs of the delay in the introduction of CPRS on LRET compliance:

- Determine the RPP for each year of Determination (refer to section 3.5);
- Determine a carbon price for each year of the Determination. The following carbon prices have been sourced from the “Energy Purchase Costs - Final Report” prepared by Frontier Economics:
  - Carbon Price (2010/11) = \$0 / tCO<sub>2</sub>-e;
  - Carbon Price (2011/12) = \$10 / tCO<sub>2</sub>-e; and
  - Carbon Price (2012/13) = \$26 / tCO<sub>2</sub>-e.
- Determine the impact of the delay in the introduction of CPRS in terms of the assumed carbon price for each year of the Determination by Frontier (i.e. carbon cost of delay). Based on the assumption of a 1 year delay in the introduction of CPRS, the following can be calculated:
  - Carbon Cost of Delay (2010/11) = \$25 / tCO<sub>2</sub>-e. This comprised of \$10 / tCO<sub>2</sub>-e from 2011/12 and \$15 / tCO<sub>2</sub>-e from 2012/13 (i.e. \$16 / tCO<sub>2</sub>-e discounted using Frontier’s Generation WACC of 8.0%); and
  - Carbon Cost of Delay (2011/12) = \$16 / tCO<sub>2</sub>-e.
- Estimate the level of carbon pass through for each year in the Determination period. The following carbon pass through figures have been approximated<sup>13</sup> as follows:
  - Carbon Pass Through (2010/11) = 80% (for the purposes of the calculation we have adopted the 2011/12 carbon pass through under the LRMC approach);
  - Carbon Pass Through (2011/12) = 80% (under the LRMC approach); and
  - The Carbon Pass Through (2012/13) is not needed as the incremental cost is determined from a market based approach.
- The incremental LGC cost due to the delay of the introduction of CPRS can be determined as:
  - RPP x Carbon Cost of Delay x Carbon Pass Through (for 2010/11 and 2011/12 under the LRMC approach); and
  - RPP x [Forward Price - Frontier’s Price] (for 2012/13 under the market based approach).

The resulting incremental cost for each year of the Determination period due to the delay in the introduction of CPRS on LRET compliance is presented in table 4.2.2. The table breaks down the incremental cost into its key variables, as explained in the earlier part of this section.

---

<sup>13</sup> Refer to Chapter 6 of the “Energy Purchase Costs - Final Report” prepared by Frontier Economics.

Table 4.2.2 - Incremental Cost of delay in CPRS on LRET compliance for the Standard Retail Suppliers (presented in 2010/11 dollar terms<sup>14</sup>)

	2010/11	2011/12	2012/13
<i>Approach</i>	LRMC	LRMC	Market Based
<i>Carbon Cost of Delay<sup>15</sup></i>	\$25 per tCO <sub>2</sub> -e	\$16 per tCO <sub>2</sub> -e	n.a.
<i>Carbon Pass Through</i>	80%	80%	n.a.
<i>Frontier's REC Price</i>	n.a.	n.a.	\$32.90
<i>Forward Price</i>	n.a.	n.a.	\$43.20
<i>Incremental Cost per REC</i>	\$19.85	\$12.80	\$10.29
<i>RPP</i>	5.80%	7.14%	9.17%
<i>Incremental Cost</i>	\$1.15 per MWh	\$0.89 per MWh	\$0.94 per MWh

<sup>14</sup> A CPI of 2.5% (midpoint of RBA's inflation target range) has been applied.

<sup>15</sup> The WACC of 8.00% (Generation) used by Frontier in their "Energy Purchases - Final Report" has been applied.

### 4.3 NSW GGAS Compliance

The NSW GGAS is a 'baseline and credit' compliance scheme where participants ('Benchmark Participants') meet emissions benchmarks through the surrender of NGACs, non-tradeable Large-User Abatement Certificates (LUACs) or LGCs (RECs). The scheme was established in NSW in 2003 and rolled out to the Australian Capital Territory in 2005.

The amount of certificates that Benchmark Participants need to surrender depends on their relevant market share of the NSW/ACT electricity market. Table 4.3.1 shows the percentage of surrendered certificates by type for 2009:

**Table 4.3.1 - Percentage of surrendered certificates of Total Surrendered Certificates by Benchmark Participants under the GGAS for 2009; source IPART.**

<i>Certificate Type</i>	<i>Percentage Surrender of Total Certificates</i>
<i>NGACs</i>	83.4
<i>LUACs</i>	5.1
<i>RECs (NGAC Equivalent)</i>	9.7
<i>Shortfall</i>	1.8

NGACs are the dominant surrendered certificate by Benchmark Participants and can be purchased from Abatement Certificate Providers (ACPs) from three main sources. These are:

- Creation from low emission generation;
- Creation through improved efficiency of existing conventional generation; and
- Creation through carbon sequestration from NSW forests.

The penalty price for NGACs in 2009 was \$12.50 per tonne of Carbon Dioxide equivalent above the 10 per cent allowable shortfall. This penalty is escalated by the prevailing inflation rate each year. There is also a \$1.00 penalty charge for 2010 through to 2013.

There have been significant changes to the scheme in the past 12 months. These changes are:

- New applications for GGAS accreditation closed after 31 December 2009;
- Category A generation creation (i.e. through Power Purchase Agreements (PPAs)) ceased after 30 June 2010; and
- Eligibility for End-Use energy efficiency activities removed after 30 June 2009.

The changes were made to assist Benchmark Participants prepare for the then intended introduction of the CPRS on 1 July 2011. In the absence of the CPRS the NSW GGAS scheme is scheduled to operate for the foreseeable future or until a national scheme is introduced.

The changes to the scheme have affected the supply of NGACs by decreasing the accreditation of Demand Side Abatement (DSA) given transition to the Energy Efficiency Scheme (ESS). Table 4.3.2 shows the percentage of total surrendered NGACS by type from Benchmark Participants in 2009:

**Table 4.3.2 - Percentage of total NGACs surrendered by Benchmark Participants by type for 2009; source IPART**

<i>Certificate Type</i>	<i>Per cent Surrender of Total NGACS 2009</i>
<i>Generation Rule</i>	57.4
<i>DSA Rule</i>	33.6
<i>LUAC Rule</i>	5.8
<i>Carbon Sequestration Rule</i>	3.2

Surrendered DSA Rule type certificates decreased by 10 per cent between 2008 and 2009. Surrendered Generation Rule type certificates increased by 7 per cent between 2008 and 2009. This trend of increasing Generation Rule type surrender is expected to dominate the GGAS going forward. Table 4.3.3 shows the creation of total NGACs by type.

**Table 4.3.3 - Creation of NGACs by type 2009; source IPART**

<i>Certificate Type</i>	<i>Creation of Total NGACS 2009 (%)</i>
<i>Generation Rule</i>	84.2
<i>DSA Rule</i>	4.1
<i>LUAC Rule</i>	8.2
<i>Carbon Sequestration Rule</i>	3.5

Given the trends outlined above the Generation Rule will dominate the creation of NGACs. There are four categories of generation that may create NGACs. These are:

- Category A: Generators with PPAs with electricity retailers under previous NSW voluntary benchmarks;
- Category B: Base-load NSW 'pool' generators;
- Category C: Generators pre-dating announcement of GGAS in January 2002; and
- Category D: Generators with operations after 2002 GGAS announcement, small conventional generators and all renewable plant post January 1997.

The cessation of the contribution of Category A generators leads to Category C and D creating the main supply of NGACs. Under these two Categories NGACs will be created by:

- Non-NSW based conventional generation;

- Generation from Landfill Gas Projects (including methane reduction);
- Natural Gas Generation; and
- Waste Coal Mine Gas;

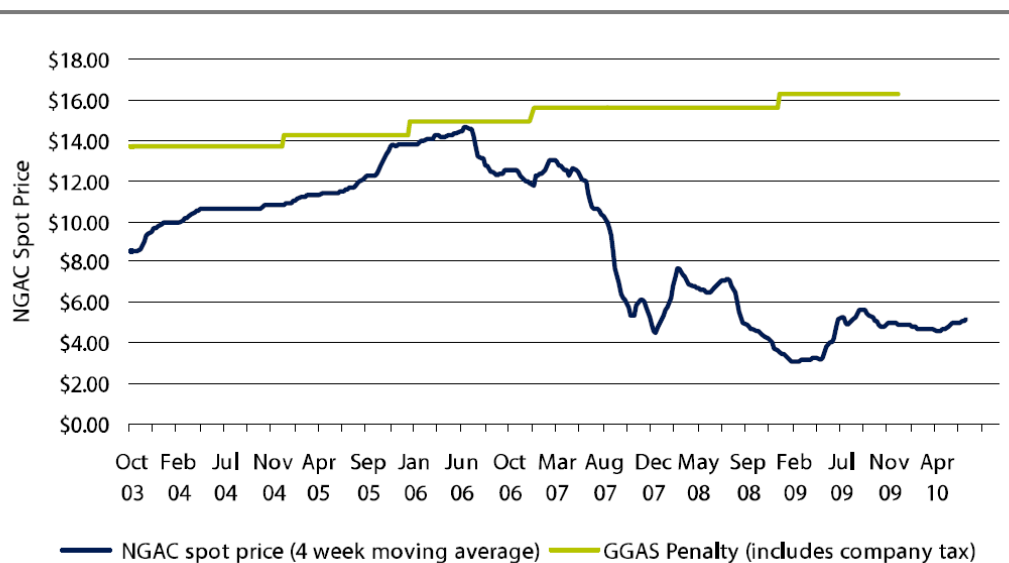
Certificates under the GGAS are bankable so those created under the previous scheme design can be used for surrender in future years. Table 4.3.4 shows the combined creation, surrender and balance of NGACs for the 2009 compliance year:

**Table 4.3.4 - Created, Surrendered and Banked Certificates for 2009 compliance year; source IPART**

<i>Created, Surrendered or Banked</i>	<i>Amount of Certificates for 2009 compliance year</i>
<i>Created</i>	18,412,251
<i>Surrendered</i>	23,297,876
<i>Deficit</i>	4,885,625
<i>Cumulative Balance (Banked)</i>	19,453,221

Although there were less certificates created than surrendered for the 2009 compliance year there is a substantial certificate balance for future compliance year surrender. It is unclear whether the balance banked is mainly held by generators or retailers however the prevailing market price of NGACs indicates a non-zero cost. IPART is currently undertaking a separate review of the GGAS scheme. Figure 4.1 shows the movements in NGAC spot prices and NGAC penalty prices for the last 7 years.

**Figure 4.1 - NGAC Prices<sup>16</sup>**



<sup>16</sup> Sourced from 'Compliance and Operation of the NSW Greenhouse Gas Reduction Scheme during 2009' - IPART Report to Minister, July 2010

NGAC prices started to decline in late 2006 due to the creation of a large number of NGACs from energy efficiency activities. Prices subsequently recovered on the announcement that energy efficiency will be separated into its own scheme (i.e. ESS) in mid 2009. The upward trend in NGAC prices has continued since mid 2010 on the announcement of a further delay in the introduction of CPRS (i.e. NGAC spot price as at January 2011 is \$7.20).

The Green Cost Allowance for NGACs in the Determination was zero. The reasoning for the zero allowance was based on:

- The impending introduction of the Commonwealth Government's CPRS leading to the cessation of the NSW GGAS; and
- The current significant balance of banked NGACs implying the market was oversupplied in the lead-up to the introduction of the CPRS.

This is no longer a relevant basis as the cumulative balance of certificates will not be as large as the annual deficit going forward, as table 4.3.4 indicates. Furthermore, the scheme is expected to continue for the foreseeable future. Therefore, current market prices appear to be the best guide to estimate cost of compliance for GGAS.

There was no estimation of NGAC costs in the Determination using the LRMC methodology for 2010/11 and 2011/12 (nor is there an allowance determined for 2012/13 using the market-based approach as per the LGC (REC) allowance). A LRMC methodology applied to the estimation of NGAC costs could draw on the fact that under the current scheme design the supply of NGACs going forward would be created from Category C and Category D generation. Demand for NGACs in each compliance year is largely driven by the forecast per capita demand growth along with other secondary factors that define the scheme. LRMC estimation would then proceed as per the co-optimised approach used for the LGC (REC) cost estimation with the output showing a cost estimate for NGACs.

In the absence of a cost estimate using the LRMC methodology, and in light of the CPRS delay, we have observed prevailing market price of NGACs and note the spot price of NGACs is \$7.20. This suggests a non-zero cost of compliance for Standard Retail Suppliers due to the delay in the introduction of the CPRS.

With established emissions trading schemes such as the NSW GGAS, the scarcity of certificates at the end of the scheme drives prices. Unless forecast emissions targets are met exactly, permit prices either tend to zero (surplus certificates) or to the penalty price (shortage of certificates). This was certainly the case for the first phase of the European Union's (EU's) Emissions Trading Scheme where carbon permits were not bankable across phases of the scheme. Phase one permits had no value given they were in surplus at the phase one end date.

The announced end date for the GGAS will have a large bearing on compliance costs for Standard Retail Suppliers. In the absence of an announced end date to the GGAS the non-zero market price of NGACs provides an indication that banked NGACs have a future surrender value which is the compliance cost for the Standard Retail Suppliers.

The incremental costs due to the delay in the introduction CPRS on GGAS compliance can be determined using the following information:

- "Greenhouse Gas Benchmark Rule (Compliance) No. 1 of 2003" - This specifies the legislated methodology for calculating GGAS compliance;
- "AEMO - 2010 Electricity Statement of Opportunities" - Provides estimates around the:

- Total electricity purchased (MWh) for NSW from 2010 to 2013;
- Medium energy projections annual growth rate for NSW; and
- Average forecasted population annual growth rate for NSW.
- “AGGBS-Comp-01-2010.xls (GGAS Scheme Website)” - Spreadsheet that specifies the total NSW electricity demand (MWh) and the total NSW population for 2010 and 2011;
- “Electricity Supply Amendment (Greenhouse Gas Emission Reduction) Act 2002 No 12” - Specifies the State Greenhouse Gas Benchmark (tCO<sub>2</sub>-e) for 2010 to 2012;
- “Fact Sheet - The NSW Pool Coefficient (GGAS Scheme Website)” - Provides forecasts of the NSW Pool Coefficient (tCO<sub>2</sub>-e/MWh); and
- Market data around NGAC spot price, NGAC forward prices and long term swap yield curves.

The above information combined with additional assumptions can be used to estimate the cost of the delay in the introduction of CPRS on GGAS compliance. This is as follows:

- GGAS compliance is determined using the following specified calculations:
  - If Attributable Emissions are less than equal to the Greenhouse Gas Benchmark then the participant is compliant. Otherwise the participant is deemed non-compliant;
  - In this report, the calculation has been performed on a State wide basis with the assumption that Attributable Emissions are equal to the Greenhouse Gas Benchmark (i.e. State is compliant);
  - Attributable Emissions (tCO<sub>2</sub>-e) = Total Electricity Purchased x NSW Pool Coefficient - NGACs Surrendered - (RECs Counted x NSW Pool Coefficient) - LUACs Surrendered; and
  - Greenhouse Gas Benchmark (tCO<sub>2</sub>-e) = [Total Electricity Sold / Total State Electricity Demand] x Electricity Sector Benchmark.
- To perform the above calculations the following necessary information has been sourced or assumed for each of year of the Determination:
  - Total Electricity Purchased (MWh) - Is sourced as the medium NSW projections from “AEMO - 2010 Electricity Statement of Opportunities” report;
  - NSW Pool Coefficient (tCO<sub>2</sub>-e/MWh) - Is sourced from “Fact Sheet - The NSW Pool Coefficient (GGAS Scheme Website)”:
    - 2010 is 0.973% (Actual);
    - 2011 is 0.975% (Actual);
    - 2012 is 0.980% (Forecast); and
    - 2013 is 0.982% (Forecast).

- Total Electricity Sold (MWh) - Is assumed to be equivalent to "Total Electricity Purchased (MWh)". On a state wide basis this is considered as a reasonable assumption;
  - Total State Electricity Demand (MWh) - The 2010 and 2011 figures are presented in the "AGGBS-Comp-01-2010.xls" compliance spreadsheet found on the GGAS Scheme website<sup>17</sup>. The 2012 and 2013 Total State Electricity Demand (MWh) is assumed to be equivalent to the 2011 value escalated by the medium energy projections annual growth rate for NSW of 1.8% sourced from "AEMO - 2010 Electricity Statement of Opportunities";
  - Total State Population - The 2010 and 2011 figures are presented in the "AGGBS-Comp-01-2010.xls" compliance spreadsheet found on the GGAS Scheme website. The 2012 and 2013 Total State Population is assumed to be equivalent to the 2011 value escalated by the average forecasted population annual growth rate for NSW of 0.95% sourced from "AEMO - 2010 Electricity Statement of Opportunities";
  - State Greenhouse Gas Benchmark (tCO<sub>2</sub>-e per capita) - This has been sourced from the "Electricity Supply Amendment (Greenhouse Gas Emission Reduction) Act 2002 No 12" for 2010 to 2012. Due to the absence of a published 2013 figure, it has been assumed that this is equivalent to the 2012 value;
  - Electricity Sector Benchmark (tCO<sub>2</sub>-e) - This is calculated as "Total State Population" multiplied by "State Greenhouse Gas Benchmark"; and
  - LUACs Surrendered (tCO<sub>2</sub>-e), NGACs Surrendered (tCO<sub>2</sub>-e) and RECs Counted (MWh) - In order to calculate the "Greenhouse Shortfall" (Attributable Emissions less Greenhouse Gas Benchmark) with the assumption that none of these certificates are surrendered for GGAS compliance.
- After determining the "Greenhouse Shortfall":
- It is necessary to average the following variables to account for the financial year basis in the Determination:
    - Total Electricity Purchased (MWh);
    - Greenhouse Shortfall (tCO<sub>2</sub>-e); and
    - Forward Prices of NGACs (\$ per NGAC).
  - The number of NGACs or NGAC equivalents required for GGAS compliance is equal to the "Greenhouse Shortfall"; and
  - The incremental cost of the delay in the introduction of CPRS on GGAS compliance is calculated as:
 

["Number of NGACs Needed for Compliance" x "Market Price (\$ per NGAC)"] / "Total Electricity Purchased (MWh)"

<sup>17</sup> <http://www.greenhousegas.nsw.gov.au/>



The resulting incremental cost for each year of the Determination period due to the delay in the introduction of CPRS on GGAS compliance is presented in table 4.3.5 below. The table breaks down the incremental cost into its key variables, as explained in the earlier part of this section.

**Table 4.3.5 - Incremental Cost of delay in CPRS on GGAS compliance for the Standard Retail Suppliers (presented in 2010/11 dollar terms<sup>18</sup>)**

	<i>2010/11</i>	<i>2011/12</i>	<i>2012/13</i>
<i>Total NSW Electricity Purchased</i>	77,739,750 MWh	79,775,750 MWh	81,032,250 MWh
<i>NGACs or NGAC equivalents needed for compliance</i>	21,072,887	20,217,116	21,305,792
<i>Forward Price of NGACs</i>	\$7.20	\$7.88	\$8.29
<i>Incremental Cost</i>	\$1.95 per MWh	\$2.00 per MWh	\$2.18 per MWh

<sup>18</sup> A CPI of 2.5% (midpoint of RBA's inflation target range) has been applied.

## 5. Summary

Ernst & Young was engaged to advise on the incremental costs of complying with new and existing Green Schemes pursuant to the two following recent and separate regulatory changes:

- The introduction of the SRES by the Commonwealth Government; and
- The delay in the introduction of the CPRS by the Commonwealth Government.

Both of these changes present incremental costs for Standard Retail Suppliers who are seeking IPART's approval to pass through these costs to their Small Retail Customers. Specifically:

- The introduction of the SRES presents a new Green Scheme for Standard Retail Suppliers to comply with; and
- The delay in the introduction of the CPRS commits the Standard Retail Suppliers to comply with existing and ongoing Green Schemes including the Commonwealth Government's LRET and their obligations under the NSW GGAS.

This report has outlined the details of the regulatory changes, the dates they occurred, and the incremental cost estimates they imply for each year of the Determination period.

A summary of incremental costs is presented in the following table.

**Table 5.1 - Summary on Incremental Costs on Standard Retail Suppliers (presented in 2010/11 dollar terms)**

		<i>2010/11</i>	<i>2011/12</i>	<i>2012/13</i>
<i>Introduction of SRES</i>	<i>SRES Cost (including time value of money)</i>	\$7.52 per MWh	\$5.64 per MWh	\$4.85 per MWh
	<i>LRET Cost</i>	\$0.33 per MWh	\$0.68 per MWh	\$1.40 per MWh
<i>Delay in introduction of CPRS</i>	<i>LRET Cost</i>	\$1.15 per MWh	\$0.89 per MWh	\$0.94 per MWh
	<i>GGAS Cost</i>	\$1.95 per MWh	\$2.00 per MWh	\$2.18 per MWh

Ernst & Young

Assurance | Tax | Transactions | Advisory

About Ernst & Young

Ernst & Young is a global leader in assurance, tax, transaction and advisory services. Worldwide, our 135,000 people are united by our shared values and an unwavering commitment to quality. We make a difference by helping our people, our clients and our wider communities achieve their potential.

For more information, please visit [www.ey.com/au](http://www.ey.com/au)

© 2011 Ernst & Young Australia.

Liability limited by a scheme approved under Professional Standards Legislation.

Our report may be relied upon by Country Energy pursuant to the terms of our engagement letter dated 10 November 2010. We disclaim all responsibility to any other party for any loss or liability that the other party may suffer or incur arising from or relating to or in any way connected with the contents of our report, the provision of our report to the other party or the reliance upon our report by the other party.

**Adelaide**

Ernst & Young Building  
121 King William Street  
Adelaide SA 5000  
Tel: +61 8 8417 1600  
Fax: +61 8 8417 1775

**Gold Coast**

12-14 Marine Parade  
Southport QLD 4215  
Tel: +61 7 5571 3000  
Fax: +61 7 5571 3033

**Perth**

Ernst & Young Building  
11 Mounts Bay Road  
Perth WA 6000  
Tel: +61 8 9429 2222  
Fax: +61 8 9429 2436

**Brisbane**

1 Eagle Street  
Brisbane QLD 4000  
Tel: +61 7 3011 3333  
Fax: +61 7 3011 3100

**Melbourne**

Ernst & Young Building  
8 Exhibition Street  
Melbourne VIC 3000  
Tel: +61 3 9288 8000  
Fax: +61 3 8650 7777

**Sydney**

Ernst & Young Centre  
680 George Street  
Sydney NSW 2000  
Tel: +61 2 9248 5555  
Fax: +61 2 9248 5959

**Canberra**

Ernst & Young House  
51 Allara Street  
Canberra ACT 2600  
Tel: +61 2 6267 3888  
Fax: +61 2 6246 1500

---