



Cost pass-through application for LRET and SRES

A FINAL REPORT PREPARED FOR IPART

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Cost pass-through application for LRET and SRES

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1 Background

The Independent Pricing and Regulatory Tribunal (IPART) has determined regulated electricity tariffs to apply for the period between 1 July 2010 and 30 June 2013 for customers of the Standard Retailers operating in NSW who are supplied on standard contracts (**2010 Determination**). Frontier Economics advised IPART on the total energy cost allowance for 2010/11 to 2012/13 to be incorporated in IPART's 2010 Determination.

IPART's 2010 Determination provided for annual reviews of the total energy cost allowance for 2011/12 and 2012/13 for each Standard Retailer. IPART's 2010 Determination also provided for a cost pass-through mechanism that allows the Standard Retailers to apply to pass through incremental and efficient costs associated with events that amount to regulatory and taxation change events.

1.1 Frontier Economics' engagement

Frontier Economics has been engaged by IPART to provide advice on:

- the assessment of cost pass-through applications for 2010/11 submitted by the Standard Retailers
- the annual review of the total energy cost allowance for 2011/12 and 2012/13.

1.2 This final report

This final report sets out Frontier Economics' advice to IPART on the cost pass-through applications for 2010/11 submitted by the Standard Retailers. These cost pass-through applications relate to incremental costs faced by the Standard Retailers as a result of the replacement of the enhanced Renewable Energy Target (RET) with the Large-scale Renewable Energy Target (LRET) and the Small-scale Renewable Energy Scheme (SRES).

This final report does not deal with Frontier Economics' advice to IPART on the total energy cost allowance for 2011/12 and 2012/13, for the purposes of IPART's annual review. Frontier Economics' advice to IPART on the annual review is set out in a separate report by Frontier Economics'.¹

¹ Frontier Economics, *Energy purchase costs – annual review for 2011/12 and 2012/13*, A Final Report prepared for IPART, June 2011.

1.2.1 What has changed since the draft report?

Prior to the release of this final report, Frontier Economics provided a draft report to IPART.² The draft report was released by IPART for public consultation.

Since the release of Frontier Economics' draft report, IPART have updated the following input assumptions:

- the rate of inflation from 2009/10 to 2010/11 has been revised from 2.7% to 3.3%
- the rate of inflation from 2010/11 to 2011/12 has been revised from 3.0% to 3.3%³
- the WACC for retailers has been revised from 9.1% to 8.9%
- updated transmission loss factors applicable to each Standard Retailer (which have been used only to convert total incremental costs into incremental costs measured in \$/MWh at the customer premises).

These updated input assumptions have resulted in slight changes to Frontier Economics' estimates of the incremental costs to the Standard Retailers resulting from the LRET and the SRES.

1.2.2 Structure of this report

This report is structured as follows:

- Section 2 provides an overview of the new LRET and SRES
- Section 3 provides an overview of IPART's approach to cost pass-through applications
- Section 4 provides Frontier Economics' advice to IPART regarding the incremental costs to the Standard Retailers resulting from the LRET
- Section 5 provides Frontier Economics' advice to IPART regarding the incremental costs to the Standard Retailers resulting from the SRES
- Section 6 concludes.

² Frontier Economics, *Cost pass-through application for LRET and SRES*, A Draft Report prepared for IPART, April 2011.

³ The rate of inflation for all years after 2011/12 has remained unchanged at 3.0%.

2 Overview of the schemes

As of 1 January 2011 the enhanced Renewable Energy Target (RET) was split into two separate schemes: the Large-scale Renewable Energy Target (LRET) and the Small-scale Renewable Energy Scheme (SRES). This section provides an overview of the new schemes.

2.1 Overview of the LRET

The LRET is essentially a continuation of the RET. The LRET places a legal liability on wholesale purchasers of electricity to proportionately contribute towards the generation of additional renewable electricity from large-scale generators. Liable entities support additional renewable generation through the purchase of Large-scale Generation Certificates (LGCs). The number of LGCs to be purchased by liable entities each year is determined by the Renewable Power Percentage (RPP), which is set each year by the Office of the Renewable Energy Regulator (ORER). LGCs are created by eligible generation from renewable energy power stations.

The key difference between the RET and the LRET is that small-scale installations such as solar water heaters, air sourced heat pumps and small generation units, which were eligible to create certificates under the RET, are not eligible to create LGCs under the LRET. Instead, these small-scale installations are eligible to create certificates under the SRES.

The exclusion of small-scale installations from the LRET has resulted in two key changes to the LRET relative to the REC:

- On the supply-side, the eligible sources for the creation of LGCs have been limited to large-scale generators.
- On the demand-side, ORER has adjusted the LRET target to reflect the fact that there are now two schemes providing a financial incentive to renewable generation – the LRET and the SRES – whereas previously there had only been one scheme – the RET. In effect, ORER have lowered the LRET target to account for expected renewable generation under the SRES.

2.2 Overview of the SRES

The SRES places a legal liability on wholesale purchasers of electricity to proportionately contribute towards the costs of creating small-scale technology certificates (STCs). The number of STCs to be purchased by liable entities each year is determined by the Small-scale Technology Percentage (STP), which is set each year by ORER. STCs are created by eligible small-scale installations based

on the amount of renewable electricity produced or non-renewable energy displaced by the installation.

Owners of STCs can sell STCs either through the open market (with a price determined by supply and demand) or through the STC Clearing House (with a fixed price of \$40 per STC). The STC Clearing House works on a surplus/deficit system so that sellers of STCs will have their trade cleared (and receive their fixed price of \$40 per STC) on a first-come first-served basis. The STC Clearing House provides an opportunity cost of exchanging STCs on the open market: as long as a seller of STCs can access the fixed price of \$40, the seller would only sell on the open market at a price below \$40 to the extent that doing so would reduce the expected holding cost of the STC.

3 Cost pass-through applications

This section provides a brief overview of the approach to assessing the Standard Retailers' cost pass-through applications. This includes an overview of the requirements set out in IPART's determination, as well as consideration of incremental costs and efficient costs.

3.1 Overview of requirements

IPART's 2010 Determination sets out the process to be applied to the assessment of cost pass-through applications.

Under the 2010 Determination, if IPART receives a cost pass-through application relating to a regulatory change event, and IPART determines that a regulatory change event has occurred, then IPART is required to determine, among other things, the following:

- the total amount to be passed through to customers in respect of the regulatory change event
- the amount to be passed through to customers each year in respect of the regulatory change event.

In determining the amount to be passed through to customers IPART will take into account, among other things, the following:

- the implications for efficient costs of the Standard Retailers
- the need to ensure that the Standard Retailers do not recover costs that have already been taken into account
- the need to ensure that the Standard Retailers only recover any actual or likely increment in efficient costs that is solely a consequence of the regulatory change event
- the time cost of money based on the rate of return on capital of the Standard Retailers.

The splitting of the RET scheme into the LRET and SRES has been accepted by IPART as a regulatory change event.

Frontier Economics has been engaged by IPART to advise on the calculation of the amounts to be passed through to customers in respect of the regulatory change event. In providing its advice, Frontier Economics will be guided by the requirements set out above.

3.2 What costs are incremental?

IPART's 2010 Determination requires that, under a cost pass-through, the Standard Retailers only recover any actual or likely incremental costs resulting from the regulatory change event. In order to determine the incremental costs of the change from the RET to the LRET and SRES it is necessary to consider both the incremental costs of the LRET and the incremental costs of the SRES. Since the LRET is essentially a continuation of the RET, whereas the SRES is essentially a new scheme that operates in a different way to the RET and LRET, the approach taken in this final report is to:

- calculate the incremental cost of the LRET as the efficient cost of the LRET less the efficient cost of the RET
- calculate the incremental cost of the SRES as the total efficient cost of the SRES
- add these incremental costs to determine the incremental cost of the regulatory change from the RET to the LRET and SRES.

3.2.1 LRET

Since the LRET is essentially a continuation of the RET, the incremental costs of the LRET are those costs directly resulting from the change from the RET to the LRET. The incremental costs of the LRET can be estimated by determining the difference between the efficient costs to retailers of meeting the RET and the efficient costs to retailers of meeting the LRET. The efficient costs to retailers of meeting the RET were estimated as part of the 2010 Determination. The efficient costs to retailers of meeting the LRET will be calculated as part of this assessment of the cost pass-through application. The difference between these amounts is the incremental cost.

To ensure that only the incremental costs of the change to the scheme are captured, it is important that the efficient costs to retailers of meeting the LRET are estimated using the same methodology and the same assumptions (other than the assumptions that reflect the regulatory change from the RET to the LRET) as were used to estimate the efficient costs to retailers of meeting the RET. If the efficient costs to retailers of meeting the LRET are estimated using a new methodology or new assumptions then the difference between the cost so estimated and the efficient cost of meeting the RET (as estimated as part of the 2010 Determination) will reflect both the change in the scheme and the change in the methodology or assumptions.

3.2.2 SRES

Since the SRES is essentially a new scheme, the incremental costs of the SRES are all of the efficient costs to retailers of meeting the scheme. In calculating

these incremental costs it is important to use, where relevant, assumptions that were available at the time of the 2010 Determination (specifically the regulated load of the Standard Retailers). This is for the same reason that assumptions are held constant when estimating the cost of the LRET: if assumptions are updated the cost so estimated will reflect both the change in the scheme and the change in assumptions.

4 Incremental costs associated with the LRET

IPART has received cost pass-through applications from each of the Standard Retailers regarding the incremental costs they face resulting from the LRET and SRES. This section sets out Frontier Economics' advice in regard to the LRET component of the cost pass-through applications.

4.1 Assessment of incremental LRET costs

In order to calculate the cost to a Standard Retailer of complying with the LRET, it is necessary to determine the RPP for the Standard Retailer (which determines the number of LGCs that must be purchased) and the cost of obtaining each LGC.

4.1.1 Renewable Power Percentage

The RPP establishes the rate of liability under the LRET and is used by liable entities to determine how many LGCs they need to surrender to discharge their liability each year.

The RPP is set to achieve the renewable energy targets specified in the legislation. OREER is responsible for setting the RPP for each year. The RPP for 2011 has been set at 5.62 per cent.

The *Renewable Energy (Electricity) Act 2000* states that where the RPP for a year has not been determined it should be calculated as the RPP for the previous year multiplied by the required GWh's of renewable energy for the current year divided by the required GWh's of renewable energy for the previous year. This calculation increases the RPP in line with increases in the renewable energy target but does not decrease the RPP to account for any growth in demand. As a result, this calculation is likely to overestimate the RPP for a given year.

Frontier Economics has used the published RPP for 2011 and the renewable energy target in 2012 and 2013 to calculate the RPP for 2012 and 2013. These values have then been averaged to arrive at the financial year RPPs set out in Table 1.

Table 1: Renewable Power Percentages

Year	RPP (% of liable acquisitions)
2010/11	5.80%
2011/12	7.22%
2012/13	9.34%

Source: OREER, Frontier Economics.

4.1.2 Cost of obtaining LGCs

The cost to a retailer of obtaining LGCs can be determined either based on the resource costs associated with creating LGCs or the price at which LGCs are traded.

As discussed in Frontier Economics' report for the 2010 Determination, Frontier Economics estimated the cost of RECs on the basis of the LRMC of meeting the expanded RET.⁴ As discussed, in order to calculate the incremental cost of the LRET, it is necessary to adopt the same methodology and assumptions for calculating both the costs of complying with the RET and the costs of complying with the LRET, and to change only the relevant target and the eligibility to create RECs. For this reason, and because Frontier Economics considers that a LRMC approach remains appropriate for the LRET, Frontier Economics has, for the purpose of this final report, estimated the cost of LGCs on the basis of the LRMC of meeting the LRET.

LRET target

The target for the LRET differs from the target for the RET for two reasons:

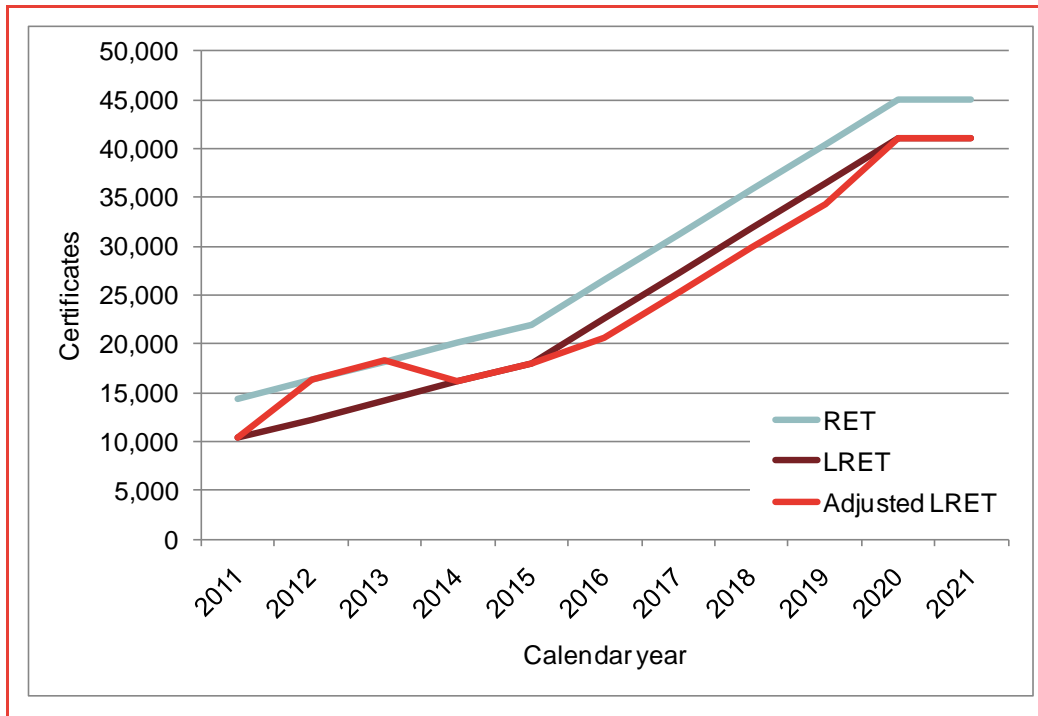
- the LRET target is below the RET target because renewable generation is now supported by both the LRET and the SRES
- the LRET target has been adjusted because the surplus RECs at the end of the 2010 calendar year exceeded 34.5 million. This adjustment has increased the LRET target in 2012 and 2013 and decreased the LRET target from 2016 to 2019.

Figure 1 shows the LRET target, the adjusted LRET target and the RET target. The modelling for the 2010 Determination used the RET target shown in Figure 1. The modelling for this final report uses the adjusted LRET target shown in

⁴ Frontier Economics, *Energy purchase costs*, A Final Report prepared for IPART, March 2010.

Figure 1. The reason is that the relevant regulatory change event incorporates both the reduction in the LRET target relative to the RET target and the adjustment to the LRET target to account for the surplus RECs at the end of the 2010 calendar year.

Figure 1: LRET target



Source: OREER, Frontier Economics.

Eligibility to create LGCs

In its modelling for the 2010 Determination, Frontier Economics recognised that part of the REC target would be met by REC creation by small-scale generators. However, because of uncertainty about the costs of small-scale technologies and the basis for decisions on investment in these technologies, Frontier Economics does not typically include them as options in its least cost modelling. Rather, Frontier Economics adopts an exogenous assumption about the number of RECs created each year by small-scale generators, and uses that assumption to reduce the effective REC target to be met by large-scale generators.

At the time of the 2010 Determination, the best information of which Frontier Economics was aware about the creation of RECs by small-scale generators was from a 2005 report by the Australian Business Council for Sustainable Energy

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(BCSE).⁵ Frontier Economics adopted this information in providing advice for the 2010 Determination.

The modelling for this final report does not assume that part of the LRET target will be met by small-scale generators. Rather, consistent with the design of the scheme, it is assumed that only large-scale generators are eligible to create RECs.

LRMC of LGCs

Other than the change from the RET target to the adjusted LRET target and the exclusion of small-scale generators from eligibility to create certificates, all other modelling assumptions adopted for the 2010 Determination have been adopted for this final report.

Based on this set of modelling assumptions, the LRMC of meeting the LRET is set out in Table 2. Table 2 also sets out the LRMC of meeting the RET as estimated for the 2010 Determination.

Table 2: LRMC of LRET (\$2010/11)

Financial Year	LRMC of RET (\$/certificate)	LRMC of LRET (\$/certificate)
2010/11	\$30.66	\$26.98
2011/12	\$31.88	\$28.06
2012/13	\$33.16	\$29.19

Source: Frontier Economics

Note: the amounts set out in this table differ from the equivalent amounts set out in Frontier Economics' draft report only as a result of the revised rate of inflation used to convert the modelled LRMC, which is in \$2009/10, into an amount in \$2010/11.

As can be seen in Table 2, Frontier Economics' estimate of the LRMC of the LRET for this cost pass-through application is lower than Frontier Economics' estimate of the LRMC of the RET from the 2010 Determination. The reason for this is that the change in the scheme target (which has fallen, from the old RET target to the new LRET target) is larger than the change in the assumed contribution of small-scale generation to that target (which has fallen to zero to reflect the fact that small-scale generation is no longer eligible to create certificates under the LRET).

⁵ Australian Business Council for Sustainable Energy, 2005 REC Report.

As discussed, for the 2010 Determination, Frontier Economics adopted input assumptions about the creation of RECs by small-scale generators from the BCSE. Since the BCSE report is not publicly available, Frontier Economics is not able to provide the BCSE's estimate of the number of RECs created by small-scale generators. We can say, however, that the BCSE forecast of the number of RECs created by small-scale generators is substantially lower than the number of RECs that have been created by small-scale generators in 2009 and 2010. Clearly, the BCSE report did not forecast the effect that the combined incentives created by the REC and feed-in tariffs would have on the installation of small-scale generators and the deemed creation of RECs.

As a result, the change from the RET to the LRET has resulted in a shift in demand for certificates that is bigger than the shift in supply of certificates. Ultimately this has resulted in a lower LRMC of meeting the LRET target.

4.1.3 Incremental cost of complying with LRET

The cost of complying with the LRET for a Standard Retailer and a financial year is determined by multiplying the cost of LGCs by the RPP and by the forecast regulated load for that Standard Retailer each financial year (as measured at the connection point between the distribution network and the transmission network).⁶ Using this approach and these inputs, the estimated efficient cost to each Standard Retailer of complying with the LRET for each financial year covered by the 2010 Determination is set out in Table 3.

⁶ Frontier Economics has used the regulated load provided by the Standard Retailers for the 2010 Determination. As with other input assumptions, keeping the regulated load consistent with that used in the 2010 Determination ensures that the estimated incremental cost reflects only the regulatory change not a change in input assumptions. Furthermore, keeping the regulated load consistent with that used in the 2010 Determination is consistent with IPART's approach to the annual reviews, in which regulated load is not subject to review.

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Table 3: Cost of complying with LRET (\$2010/11)

Financial Year	Cost of complying with LRET
Country Energy	
2010/11 (Q3 and Q4 only)	\$3,889,623
2011/12	\$10,172,617
2012/13	\$13,493,725
EnergyAustralia	
2010/11 (Q3 and Q4 only)	\$5,514,367
2011/12	\$13,593,235
2012/13	\$17,061,549
Integral Energy	
2010/11 (Q3 and Q4 only)	\$2,945,168
2011/12	\$7,513,119
2012/13	\$9,571,126

Source: Frontier Economics

Note: the amounts set out in this table differ from the equivalent amounts set out in Frontier Economics' draft report only as a result of the revised rate of inflation used to convert the modelled LRMC, which is in \$2009/10, into an amount in \$2010/11.

In order to determine the incremental cost of complying with the LRET it is necessary to determine the difference between this estimate of the cost of complying with the LRET with the estimate of the cost of complying with the RET determined for the purpose of IPART's 2010 Determination. Table 4 compares the cost of complying with the LRET with the cost of complying with the RET and sets out the incremental cost of complying with the LRET.

Table 4: Incremental cost of complying with LRET (\$2010/11)

Financial Year	Cost of complying with LRET	Cost of complying with RET	Incremental cost of complying with LRET
Country Energy			
2010/11 (Q3 and Q4 only)	\$3,889,623	\$4,678,203	-\$788,580
2011/12	\$10,172,617	\$11,488,496	-\$1,315,879
2012/13	\$13,493,725	\$13,290,821	\$202,904
EnergyAustralia			
2010/11 (Q3 and Q4 only)	\$5,514,367	\$6,632,346	-\$1,117,980
2011/12	\$13,593,235	\$15,351,589	-\$1,758,354
2012/13	\$17,061,549	\$16,804,996	\$256,553
Integral Energy			
2010/11 (Q3 and Q4 only)	\$2,945,168	\$3,542,269	-\$597,102
2011/12	\$7,513,119	\$8,484,979	-\$971,860
2012/13	\$9,571,126	\$9,427,205	\$143,920

Source: Frontier Economics

Note: the amounts set out in this table differ from the equivalent amounts set out in Frontier Economics' draft report only as a result of the revised rate of inflation used to convert the modelled LRM, which is in \$2009/10, into an amount in \$2010/11.

In the event that IPART determines that these incremental costs pass the required materiality threshold, the incremental cost for Q3 and Q4 of 2010/11 will be recovered through retail tariffs in 2011/12. To determine the amount by which retail tariffs in 2011/12 would need to be adjusted to allow the Standard Retailers' to recover the incremental costs for Q3 and Q4 of 2010/11 that are set out in Table 4, the following steps are required for each Standard Retailer:

- In the 2010 Determination, the retail margin was applied to the Standard Retailers' total costs, including the cost of complying with the RET. Applying this approach on a consistent basis means that the incremental costs for Q3 and Q4 of 2010/11 must be adjusted by the retail margin of 5.4%.
- The incremental costs for Q3 and Q4 of 2010/11 (including the retail margin adjustment) need to be divided by the regulated retail load (measured at the customer premises) for 2011/12. This provides an amount in \$/MWh by which the Standard Retailers' regulated tariffs in 2011/12 will need to

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increase to recover the relevant incremental costs. Since the amount in \$/MWh is measured at the customer premises it accounts for energy losses faced by the retailers.

Based on this approach, the estimate of the incremental efficient cost of the LRET in 2010/11, to be recovered from customers of each Standard Retailer in 2011/12, is as set out in Table 5.

Table 5: Incremental cost of complying with LRET in 2010/11 (\$2010/11)

Financial Year	Incremental cost of complying with LRET (\$/MWh)
Country Energy	-\$0.18
EnergyAustralia	-\$0.19
Integral Energy	-\$0.18

Source: Frontier Economics

Note: while the amounts set out in this table do not differ from the equivalent amounts set out in Frontier Economics' draft report, these amounts do account for the revised rate of inflation used to convert the modelled LRMC, which is in \$2009/10, into an amount in \$2010/11 and updated transmission loss factors applicable to each Standard Retailer that have been provided by IPART (which have been used to calculate the amount in \$/MWh as measured at the customer premises).

4.2 Assessment of Standard Retailers' cost pass-through applications

The estimate of the incremental efficient cost of the LRET in 2010/11 to be recovered from customers of each Standard Retailer in 2011/12 (as set out in Table 5) varies from the estimates of these amounts set out in the cost pass-through applications submitted by each of the Standard Retailers.

As far as Frontier Economics has been able to determine, these differences occur for a number of reasons:

- The Standard Retailers estimate the incremental cost associated with the LRET by comparing the cost allowance provided for the RET in the 2010 Determination (which adopted a cost-based approach to estimating the cost of RECs) with an allowance for the LRET which is based on market prices for LGCs. As a result, the Standard Retailers' estimates of the incremental cost associated with the LRET reflect a combination of the change in the scheme and a change in the methodology (from LRMC to market-based) used to calculate the cost of complying with the scheme. In contrast, and as discussed above, Frontier Economics have adopted a consistent approach

based on estimating the LRMC of compliance with the scheme. In doing so, Frontier Economics have isolated the incremental cost of the regulatory change.

- The Standard Retailers have calculated the RPP in a slightly different way.
- The Standard Retailers have made different assumptions about the regulated load. As discussed above, Frontier Economics has adopted the same assumptions about the regulated load of the Standard Retailers as were used for the 2010 Determination. In doing so, Frontier Economics has isolated the incremental cost of the regulatory change.

4.3 Response to submissions

4.3.1 LRMC of the LRET

Comparison with recent LGC prices

AGL comments in its submission that the LRMC of the LRET modelled by Frontier Economics is significantly below observed market prices for LGCs. AGL presents data on LGC spot prices over the period from January 2011 to April 2011 as an indication of this.

Origin also notes in its submission that the LGC spot price has increased over the period from January 2011.

Frontier Economics agrees that the LRMC of the LRET modelled by Frontier Economics as part of this cost pass-through application is below LGC spot prices over the period from January 2011 to April 2011. However, this comparison is not very useful to an assessment of the incremental cost of the regulatory change because it does not help understand costs or prices with and without the regulatory change. The same is true for changes in the LGC spot price since the commencement of the LRET on 1 January 2011. While it is also clear that there has been an increasing trend in the LGC spot price over this period, this trend does not help understand prices with and without the regulatory change.

The regulatory change was introduced on 1 January 2011, and information about the regulatory change was made available throughout the course of 2010. As a result, any impact of the regulatory change on market prices would be expected to be observed as information was made available throughout the course of 2010, not in the period since 1 January 2011.

RET/LGC prices during 2010

TRUenergy notes in its submission that the LRMC of the LRET modelled by Frontier Economics does not correlate to actual market outcomes. TRUenergy

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reports RET/LGC spot prices during 2010 as an indication of the impact of the regulatory change.

In principle, observed RET/LGC spot prices could be used to help understand the impact of the regulatory change from the RET to the LRET. In this case, the relevant comparison would be RET/LGC spot prices with and without the regulatory change event. The obvious difficulty is identifying the point at which RET spot prices reflect the design of the LRET and the point at which LGC spot prices reflect the design of the LGC (so that the impact of the regulatory change can be isolated). One approach would be to look at spot prices before and after the announcement of the regulatory change (as suggested by TRUenergy). However, the evidence over this period is mixed. Certainly there was an initial increase in the RET spot price following the initial policy announcement, but this increase lasted only a matter of weeks. Following this, the RET spot price returned to levels more or less the same as before the announcement. It has only been more recently that there is some evidence of a more sustained increase in the RET spot price (as highlighted by AGL). Furthermore, given that detail about the regulatory change event was released over time, it is not clear what expectations market participants were reacting to at the initial policy announcement and as further detail was released. For these reasons, it is not a straight forward exercise to try and draw lessons from the market data.

In any case, changing the methodology when determining the incremental cost of a regulatory change does run the risk of double-counting costs.

4.3.2 Comparison between cost pass-through and annual review

Origin notes in its submission that there is a difference between the LRMC of the LRET estimated by Frontier Economics for this assessment of cost pass-through applications for 2010/11 and the LRMC of the LRET estimated by Frontier Economics for the annual review of the total energy cost allowance for 2011/12 and 2012/13. Origin comments that the market expectation would be for the two calculations to fall within a closer range.

It is unclear why the market would expect these two calculations to fall within a closer range. The key reason for the difference in the two estimates of the LRMC of the LRET is that the estimate for the cost pass-through is made on the basis of all the modelling assumptions used for the 2010 Determination while the estimate for the annual review is made on the basis of all of the revised modelling assumptions developed for the annual review. The difference between the estimates, therefore, is a direct result of these updated modelling assumptions. Frontier Economics considers that it would be more surprising if estimates of the LRMC of the LRET remained constant over time despite changes in input assumptions.

4.3.3 BCSE report

Origin notes in its submission that it seeks further information about the cost assumptions and impact of data used in the BCSE report.

For clarity, the only input assumption drawn from the BCSE report was the forecast of the number of RECs created by small-scale generators to contribute to the RET. No cost input assumptions were drawn from the BCSE report. All cost input assumptions relied upon by Frontier Economics in its modelling of the LRMC of the RET for the 2010 Determination are set out in Frontier Economics' final report for the 2010 Determination⁷ and Frontier Economics' modelling methodology and assumptions report for the 2010 Determination.⁸

⁷ Frontier Economics, *Energy purchase costs*, A Final Report prepared for IPART, March 2010.

⁸ Frontier Economics, *Modelling methodology and assumptions*, A Report for IPART, August 2009. Available at:

<http://www.ipart.nsw.gov.au/files/Review%20of%20regulated%20electricity%20retail%20tariffs%20and%20charges%202010%20to%202013%20-%20Frontier%20Economics%20-%20electricity%20purchase%20cost%20allowance%20-%20methodology%20and%20assumptions%20report%20>

Note that this modelling and assumptions report was updated by addenda also available on IPART's website.

5 Incremental costs associated with the SRES

IPART has received cost pass-through applications from each of the Standard Retailers regarding the incremental costs they face resulting from the LRET and SRES. This section sets out Frontier Economics' advice in regard to the SRES component of the cost pass-through applications.

5.1 Assessment of incremental SRES costs

In order to calculate the cost to a Standard Retailer of complying with the SRES, it is necessary to determine the STP for the Standard Retailer (which determines the number of STCs that must be purchased) and the cost of obtaining each STC.

5.1.1 Small-scale Technology Percentage

The STP establishes the rate of liability under the SRES and is used by liable entities to determine how many STCs they need to surrender to discharge their liability each year.

The STP is determined by ORER and is calculated as the percentage required in order to remove STCs from the STC market for the current year liability. The STP is calculated in advance based on:

- the estimated number of STCs that will be created for the year
- the estimated amount of electricity that will be acquired for the year
- the estimated number of all partial exemptions expected to be claimed for the year.

The STP is to be published for each compliance year by March 31 of that year. ORER must also publish a non-binding estimate of the STP for the two subsequent compliance years by March 31. The STPs published by ORER for 2011, 2012 and 2013 are set out in Table 6.

Table 6: Small-scale Technology Percentages

Year	STP (% of liable acquisitions)
2011	14.80%
2012 (estimate)	16.75%
2013 (estimate)	10.62%

Source: ORER.

5.1.2 Cost of STCs

The cost of STCs exchanged through the STC Clearing House is fixed at \$40 (in nominal terms). While retailers may be able to purchase STCs on the open market at a discount to this \$40, any discount would reflect the benefit to the seller of the STC of receiving payment for the STC at an earlier date. In effect, the retailer would achieve the discount by taking on this holding cost itself (that is, by acquiring the STC at an earlier date). For this reason, in estimating the cost to retailers of the SRES, Frontier Economics has adopted an STC cost of \$40.

In real terms, and using IPART's forecast inflation rate of 3.3% from 2009/10 to 2011/12 and of 3.0% thereafter, this nominal \$40 results in the real LGC costs set out in Table 7.

Table 7: LGC costs (\$2010/11)

Calendar Year	LGC cost
2011	\$39.36
2012	\$38.10
2013	\$36.99

Source: Frontier Economics

Note: the amounts set out in this table differ from the equivalent amounts set out in Frontier Economics' draft report only as a result of the revised rate of inflation used to convert the STC cost of \$40, which is a nominal amount, into an amount in \$2010/11.

5.1.3 Incremental cost of complying with SRES

In broad terms, the cost to a Standard Retailer of complying with the SRES is the STP multiplied by the cost of STCs.

However, this is complicated by the fact that liable entities' obligation to surrender STCs under the SRES occurs on a quarterly basis and varies over the course of a calendar year. Determining financial year costs (in order to line up with IPART's 2010 Determination, which is on a financial year basis) therefore requires that the cost of complying with the SRES is calculated on a quarterly basis and then aggregated to a financial year basis.

Liable entities' quarterly obligations to surrender STCs in calendar year n are determined as follows:

$$Q1 = 35\% * STP_n * (REA_{n-1} - PEC_{n-1})$$

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$$Q2 = 25\% * STP_n * (REA_{n-1} - PEC_{n-1})$$

$$Q3 = 25\% * STP_n * (REA_{n-1} - PEC_{n-1})$$

$$Q4 = STP_n * (REA_n - PEC_n) - (Q1 + Q2 + Q3)$$

Where:

STP_n is the STP for year n

REA_n is the retailer's relevant acquisitions of electricity in year n

PEC_n is the retailer's PECs in MWh in year n

Applying this methodology, and using the real STC costs set out in Table 7, the cost each quarter of these quarterly obligations can be determined in real terms. These quarterly costs can then be summed across financial years to provide financial year costs of complying with the SRES.

Frontier Economics has applied this approach for each of the Standard Retailers. The value of REA for each Standard Retailer and each calendar year is based on the forecast regulated load for that Standard Retailer for each calendar year (as measured at the connection point between the distribution network and the transmission network).⁹ The value of PEC for each Standard Retailer and each calendar year has been set at zero, on the basis that retail customers are not eligible for PECs.

Using this approach and these inputs, the estimated efficient incremental cost to each Standard Retailer of complying with the SRES for each financial year covered by the 2010 Determination is set out in Table 8.

⁹ As for the calculation of the incremental cost of the LRET, Frontier Economics has used the regulated load provided by the Standard Retailers for the 2010 Determination. As with other input assumptions, keeping the regulated load consistent with that used in the 2010 Determination ensures that the estimated incremental cost reflects only the regulatory change not a change in input assumptions. Furthermore, keeping the regulated load consistent with that used in the 2010 Determination is consistent with IPART's approach to the annual reviews, in which regulated load is not subject to review.

Table 8: Cost of complying with SRES (\$2010/11)

Financial Year	Cost of complying with SRES
Country Energy	
2010/11(Q3 and Q4 only)	\$17,806,693
2011/12	\$30,822,146
2012/13	\$24,191,489
EnergyAustralia	
2010/11(Q3 and Q4 only)	\$26,630,308
2011/12	\$40,781,772
2012/13	\$29,821,963
Integral Energy	
2010/11(Q3 and Q4 only)	\$14,071,081
2011/12	\$22,538,044
2012/13	\$16,976,016

Source: Frontier Economics

Note: the amounts set out in this table differ from the equivalent amounts set out in Frontier Economics' draft report only as a result of the revised rate of inflation used to convert the STC cost of \$40, which is a nominal amount, into an amount in \$2010/11.

In the event that IPART determines that these incremental costs pass the required materiality threshold, the incremental cost for Q3 and Q4 of 2010/11 will be recovered through retail tariffs in 2011/12. To determine the amount by which retail tariffs in 2011/12 would need to be adjusted to allow the Standard Retailers to recover the incremental costs for Q3 and Q4 of 2010/11 that are set out in Table 8, the following steps are required for each Standard Retailer:

- In the 2010 Determination, the retail margin was applied to the Standard Retailers' total costs, including the cost of complying with the RET. Applying this approach on a consistent basis means that the incremental costs for Q3 and Q4 of 2010/11 must be adjusted by the retail margin of 5.4%.
- The incremental costs for Q3 and Q4 of 2010/11 need to be adjusted to account for the Standard Retailers' holding cost. Unlike with the RET or LRET, retailers are required to acquit their SRES obligations throughout the course of a calendar year. As a result, retailers will incur the incremental costs for Q3 and Q4 of 2010/11 during Q3 and Q4 of 2010/11, but will not

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recover the costs until 2011/12. The Standard Retailers' holding cost is calculated using IPART's retail WACC of 9.1% and assuming a holding period of 9 months.

- The incremental costs for Q3 and Q4 of 2010/11 (including the retail margin adjustment and holding cost adjustment) need to be divided by the regulated retail load (measured at the customer premises) for 2011/12. This provides an amount in \$/MWh by which the Standard Retailers' regulated tariffs in 2011/12 will need to increase to recover the relevant incremental costs. Since the amount in \$/MWh is measured at the customer premises it accounts for energy losses faced by the retailers.

Based on this approach, the estimate of the incremental efficient cost of the SRES in 2010/11, to be recovered from customers of each Standard Retailer in 2011/12, is as set out in Table 9.

Table 9: Cost of complying with SRES in 2010/11 (\$2010/11)

Financial Year	Incremental cost of complying with SRES (\$/MWh)
Country Energy	\$4.28
EnergyAustralia	\$4.75
Integral Energy	\$4.62

Source: Frontier Economics

Note: the amounts set out in this table differ from the equivalent amounts set out in Frontier Economics' draft report only as a result of the following:

- the revised rate of inflation used to convert the STC cost of \$40, which is a nominal amount, into an amount in \$2010/11;
- the updated WACC for retailers, which is used to determine the Standard Retailers' working capital costs; and
- updated transmission loss factors applicable to each Standard Retailer, which have been used to calculate the amount in \$/MWh as measured at the customer premises.

5.2 Assessment of Standard Retailers' cost pass-through applications

The estimate of the incremental efficient cost of the SRES in 2010/11 to be recovered from customers of each Standard Retailer in 2011/12 (as set out in Table 9) varies from the estimates of these amounts set out in the cost pass-through applications submitted by each of the Standard Retailers.

As far as Frontier Economics has been able to determine from the Standard Retailers' submissions, these differences occur for the following reasons:

- The Standard Retailers have used different approaches to calculating the STP for 2012 and 2013.
- The Standard Retailers do not calculate SRES costs on a quarterly basis, but assume that 60 per cent of SRES costs are incurred in the first half of a calendar year and 40 per cent of SRES costs are incurred in the second half of a calendar year. Where the Standard Retailers' load varies between calendar years, this simplifying assumption is not correct.
- The Standard Retailers have made different assumptions about the regulated load. As discussed above, Frontier Economics has adopted the same assumptions about the regulated load of the Standard Retailers as were used for the 2010 Determination. In doing so, Frontier Economics has isolated the incremental cost of the regulatory change.
- The Standard Retailers have used different approaches to converting the nominal STC cost into a real STC cost.

5.3 Response to submissions

The Australian PV Association comments in its submission that the actual price paid for STCs is below the Clearing House price of \$40 and that the incremental cost to a Standard Retailer of complying with the SRES should be based on these lower observed prices. The Australian PV Association points to published prices for spot trades of STCs that are below \$30.

As discussed, Frontier Economics considers that sellers of STCs will only sell at a discount to the Clearing House price of \$40 to the extent that there are holding costs associated with STCs. These holding costs could include working capital costs or perceived risks associated with receiving the Clearing House price of \$40. If a retailer buys STCs from these sellers at a discount to the Clearing House price the retailer is taking on these holding costs. This is not to say that the retailer may not then achieve an effective price below the Clearing House price of \$40 – the retailer may do so, particularly if it has a lower discount rate than the seller of the STCs.

It is unclear, however, that published prices for spot trades that are below \$30 indicate that retailers are able to achieve an effective price significantly below the Clearing House price of \$40 for a material proportion of the STCs they need to acquire. First, it is clear that for most of the period since the introduction the SRES published prices for spot trades of STC have been close to \$40. Second, it is unclear what volume of trades have occurred at prices below \$30, and to what extent retailers could expect to achieve this price for a material proportion of the STCs they need to acquire. Third, given the Clearing House effectively offers a

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guaranteed price of \$40, it would be expected that, over time, the price for spot trades would revert to this level. For these reasons, Frontier Economics considers that using the Clearing House price of \$40 as an estimate of the cost to retailers of the SRES is appropriate.

6 Conclusion

Frontier Economics' estimate of the incremental efficient costs associated with the LRET and the SRES, as well as the total incremental efficient costs associated with the regulatory change, is set out in Table 10.

Table 10: Incremental efficient costs for 2010/11 (\$2010/11)

	Incremental cost of complying with LRET	Incremental cost of complying with SRES	Total incremental cost of regulatory change
Country Energy	-\$788,580	\$17,806,693	\$17,018,113
EnergyAustralia	-\$1,117,980	\$26,630,308	\$25,512,328
Integral Energy	-\$597,102	\$14,071,081	\$13,473,979

Source: Frontier Economics

Recovering these incremental efficient costs – adjusted for a retail margin of 5.4% and for an SRES holding cost – requires an incremental change to retail tariffs as set out in Table 11.

Table 11: Incremental efficient costs for 2010/11 (\$2010/11)

	Incremental cost of complying with LRET (\$/MWh)	Incremental cost of complying with SRES (\$/MWh)	Total incremental cost of regulatory change (\$/MWh)
Country Energy	-\$0.18	\$4.28	\$4.10
EnergyAustralia	-\$0.19	\$4.75	\$4.56
Integral Energy	-\$0.18	\$4.62	\$4.44

Source: Frontier Economics

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