IPART
New South Wales

Independent Pricing and Regulatory Tribunal

# Compliance and Mpcration of the NSW Energy Savings Scheme during 2012

Report to Minister

**Energy Savings Scheme**
July 2013

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**Energy Savings Scheme**
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# 1 Executive Summary

The NSW Energy Savings Scheme (ESS) has been in operation since mid-2009. In that time the scheme has grown and has demonstrated that a market based mechanism can be used to achieve real energy savings.

For the first time, the supply of Energy Savings Certificates (ESCs or certificates) from energy savings activities exceeded total compliance obligations for the year. 2,572,978 certificates were created representing 2,427,338 MWh of energy saved across NSW during 2012.

This increase in energy savings for 2012 was largely due to growth in commercial lighting activities, which accounted for over 80% of total certificate creation. The almost 4 fold increase in certificates created from commercial lighting activities in 2012 presented significant administrative and regulatory challenges.

During 2012, processing times for an application for accreditation remained similar to 2011, despite an upsurge of applications during the year. In the latter half of 2012, new administrative approaches were introduced which included the use of online tools for both acceptance of commercial lighting products and requests to use extended operating hours in certificate calculations. This has led to greater efficiencies for businesses and IPART, with average processing times for applications reducing from around 160 days during 2012 to around 84 days in the first half of 2013. In addition, we accredited more new energy saving activities in the first half of 2013 than for the entire 2012 year.

With the rapid growth of commercial lighting activity during 2012, we reviewed our approach to managing safety issues and identified additional actions that we could take in relation to electrical safety. We have strengthened our relationship with NSW Fair Trading, who has responsibility for electrical safety under the *Electricity (Consumer Safety) Act 2004*. We have also improved our management of safety-related requirements where needed.

In the absence of a national energy efficiency scheme, we furthered our efforts to harmonise the ESS with the Victorian Energy Efficiency Target scheme wherever possible. We have entered into a Memorandum of Understanding with the Victorian Essential Services Commission who administers the VEET to allow for the easy exchange of information between the schemes. We expect this to lead to greater efficiencies for businesses and liable parties operating across both states.

During 2012, 3,746,101 certificates were transferred between parties, up from 1,106,819 transfers in 2011. The increased trading between parties has demonstrated a maturing of the market and has established energy savings certificates as a valued commodity.

During most of 2012 the spot price of certificates remained steady at around $31. The spot price has declined since, with prices recorded as low as $15 in late June 2013. This is most likely a response to the increased certificate supply arising from the growth in commercial lighting activities.

During 2012, all 36 compulsory Scheme Participants operating in NSW met their individual target by either surrendering sufficient certificates or carrying forward a small portion of their shortfall to 2013. For the first time since the scheme began, none were required to pay a penalty.

The net cost of administering ESS in 2012 was approximately $2.7 million, or $1.05 per tonne of $CO_2$-e saved. Approximately $1.8 million of this was recovered through application payments and certificate registration fees. The remaining $900,000 represents a cost to the NSW Government of approximately 35 cents per tonne of $CO_2$-e saved during 2012.

To better understand the costs of participating in the ESS, we commissioned Databuild Pty Ltd to revisit the earlier work it did on the average costs of participation for Accredited Certificate Providers and Scheme Participants. Databuild found that the cost of participating had reduced significantly for Accredited Certificate Providers, from $23.16 per certificate in 2009/10 to between $14.84 and $21.70 in 2012. The cost of purchasing certificates fluctuated over the same period. However, the additional internal costs to Scheme Participants reduced from $5.14 in 2009/10 to 31 cents per certificate in 2012.

As well as meeting the regulatory requirements for annual reporting to the Minister for Energy and Resources, this report provides a detailed description of the scheme and a comprehensive picture of its operation throughout 2012. Further detail on all the issues identified above can be found throughout the body of the report.

# 2 Summary of performance of ESS in 2012

The NSW ESS is established under Part 9 of the NSW *Electricity Supply Act 1995* (the Act). The Independent Pricing and Regulatory Tribunal of NSW (IPART) is both Scheme Regulator and Scheme Administrator for the ESS. In these roles we monitor and report annually to the Minister for Resources and Energy on the extent to which Scheme Participants and Accredited Certificate Providers comply with their obligations under the ESS. We also report on general aspects of the Scheme's performance and operation.

As allowed under the Act, IPART has delegated the exercise of its functions as ESS Scheme Regulator and Scheme Administrator to an ESS Committee.[1] In 2012, this committee comprised Mr James Cox as full-time IPART Tribunal Member and Dr Brian Spalding and Mr Eric Groom as Committee Members, and met a total of 13 times.

This is our fourth annual report on the ESS, and covers the 2012 calendar year.

## 2.1 Energy savings target for 2012

The Act sets out annual energy savings targets to 2020. It obliges all electricity retailers operating in NSW and certain other parties – known as Scheme Participants – to meet these targets by purchasing and surrendering Energy Savings Certificates (ESCs or certificates). It also provides for parties to be accredited to create those certificates from specific energy savings projects. These parties are known as Accredited Certificate Providers.

Individual energy savings targets are expressed as a percentage of Scheme Participants' annual liable electricity acquisitions. The targets increase each year until 2014, after which they remain steady until 2020.

For 2012, the energy savings target was 3.5% of each Scheme Participant's liable acquisitions for the year. For all Scheme Participants combined, this was equivalent to 1,838,682 MWh of energy saved, or 1,857,069 certificates.

1 Section 152(4) of the Act allows IPART, with the approval of the Minister, to delegate the exercise of its functions as Scheme Regulator and Scheme Administrator to another person or body.

The ESS legislation includes provisions that allow a portion of the Scheme Participants' electricity sales to be excluded when calculating their annual liable acquisitions.[2] This is the portion sold to entities that have been granted exemptions for the part of their load used in 'emissions-intensive and trade-exposed' industries or activities. In 2012, 9 Scheme Participants supplied electricity to such entities. Together, their excluded sales comprised around 19% of total electricity sales in NSW during the year.

## 2.2 Scheme Participants' performance in 2012

Each year, Scheme Participants are required to demonstrate that they have met their annual energy savings target in their Annual Energy Savings Statement (AESS), which they submit to IPART. To meet this target, they must surrender the appropriate number of certificates. If they do not have enough certificates, they can carry forward an energy savings shortfall of up to 10% of their individual target to the next year. If they choose to do this, they must make up the shortfall for the following year. In addition, they can choose to meet some or all of their target by paying a penalty in lieu of surrendering certificates.

During 2012, there were 36 Scheme Participants operating in NSW. Their overall compliance performance for this year was very good:

- All met their individual target by either surrendering sufficient certificates or carrying forward a shortfall. None paid a penalty.
- Together, they surrendered 1,885,240 certificates, which is equivalent to 95% of the total number of certificates required to meet their combined compliance obligations for the year.
- They carried forward energy savings shortfalls equivalent to 100,232 certificates, which is equivalent to 5% of their combined obligations.

## 2.3 Accredited Certificate Providers' performance in 2012

Accredited Certificate Providers are voluntary participants in the ESS who have applied for and received accreditation to create certificates in respect of specific energy savings projects, known as Recognised Energy Savings Activities (RESAs). Once accredited, they must comply with the conditions of their accreditation and other obligations under the ESS.

During 2012, there were 88 Accredited Certificate Providers and 133 RESAs accredited to create certificates of 2012 vintage. This number includes 7 RESAs that were accredited during 2013 to create certificates of 2012 vintage.[3]

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2 Sections 119-122 of the Act and the Ministerial Order published on 25 June 2012.

3 The companies accredited had applied during 2012 and created certificates from projects where energy savings occurred during 2012.

The Accredited Certificate Providers' overall compliance performance for the year was very good. Together, 45 instances of non-compliance were identified:

- 21 of these related to failure to submit an Annual Report Statement by the required deadline, and were relatively minor in nature.
- The remaining mainly related to improper certificate creation. However, only 3 of these instances were considered material in nature or quantity (see section 5.1 for more information).
- All non-compliances were satisfactorily resolved.

## 2.4 Performance of Audits during 2012

To help manage compliance in the ESS, the Act empowers IPART, as Scheme Regulator and Scheme Administrator, to impose audit requirements on participants in the scheme.[4] We established a panel of independent third-party auditors (the ESS Audit Services Panel) to undertake these audits. This panel undertook a total of 62 audits, including:

- 17 audits of Scheme Participants' annual energy savings statements for the 2012 compliance year (conducted in the first quarter of 2013), and
- 45 certificate creation audits of Accredited Certificate Providers' RESAs (conducted during 2012).

To further manage Accredited Certificate Providers' compliance risk, we placed all remaining showerhead installation RESAs and 4 commercial lighting upgrade RESAs on to pre-registration audits. In addition, we entered into Deeds of Agreement with 28 Accredited Certificate Providers for RESAs considered to be high risk, most of which involved commercial lighting replacement. These deeds require the Accredited Certificate Provider to withhold from sale a portion of certificates created by the RESAs until completion of an audit.

## 2.5 Administration costs in 2012

The net cost of administering both ESS and the Greenhouse Gas Reduction Scheme (GGAS)[5] was approximately $2.7 million in 2012, compared to $2.4 million in 2011.

4 Sections 152 and 154 of the Act.

5 The ESS was modelled on the Demand Side Abatement (energy efficiency) component of GGAS. This part of GGAS ceased when the ESS commenced. Both schemes were run in parallel until GGAS closed on 1 July 2012. IPART remains the Scheme Administrator for any residual GGAS related matters until the legislation is repealed.

The administration costs can be broken down as follows:

- Employee related costs - 76%
- Consultancy/contractor costs - 30%
- Other operating expenses - 4%

The increase in administration costs between 2011 and 2012 is a direct result of the need for increased staffing to accommodate the rapid growth in energy savings activities that occurred during 2012.

This cost was partially recovered through the fees imposed on participants, which include application fees ($500) and certificate registration fees ($0.70 per certificate) (see Section 7.1). Revenue from these fees amounted to approximately $1.8 million in 2012. The net cost to the NSW Government of the scheme for 2012 can be calculated as 35 cents per tonne of $CO_2$-e saved.

## 2.6 Creation, ownership and surrender of certificates for 2012

As at 30 June 2013, Accredited Certificate Providers had created 2,572,978 certificates for energy saving activities in 2012, up from 1,079,515 in 2011. This took the total number of certificates created since the scheme commenced in mid 2009 to 5,399,103 certificates[6].

The ESS Registry also recorded the transfer of 3,746,101 certificates between parties in 2012, up from 1,106,819 transfers in 2011. 1,885,240 certificates were surrendered by Scheme Participants in 2012, up from 1,063,564 in 2011.

In general, the certificates associated with an energy saving activity are created after the energy savings have occurred. However, the ESS allows certificates for certain types of activity to be created in advance of the actual savings (known as deeming),[7] and for some limited forward creation of certificates.[8] When deeming and forward creation are taken into account, we estimate that in 2012, the ESS resulted in actual energy savings of 958,799 MWh, with further savings of 1,468,539 MWh to be realised across future years.[9]

6 This figure includes 2013 Vintage certificates created as at 30 June 2013.
7 Section 9 of the Energy Savings Scheme Rule of 2009.
8 Section 7.4 of the Energy Savings Scheme Rule of 2009.
9 Section 174 of the Act requires an estimate of the actual energy savings that have been realised with regard to the number of certificates created.

## 2.7 Projected supply and demand for certificates beyond 2012

For the first time in the life of the ESS, the supply of certificates for 2012 exceeded Scheme Participants' total compliance obligation for the year. This increase in supply was largely due to growth in commercial lighting activities, which accounted for over 80% of total certificate creation in 2012.

In 2013 and potentially 2014, we expect the supply of certificates to continue to increase from further growth in commercial lighting activities. The balance between supply and demand is expected to level out as the ESS target reaches its maximum level of 5% from 2014 onwards.

## 2.8 What does the rest of this report cover?

The rest of this report discusses the compliance and operation of the ESS during 2012 in detail:

- Chapter 3 outlines developments in the ESS during the year, including any changes to legislation
- Chapters 4 and 5 focus on the performance of the Scheme Participants and Accredited Certificate Providers
- Chapter 6 discusses ESS auditing activities and findings
- Chapter 7 provides key statistics on the creation, surrender and transfer of certificates recorded in the ESS Registry, and
- Chapter 8 provides information about the demand for and supply of certificates during 2012, and presents some possible scenarios for demand and supply in the coming years.

The appendices provide an overview of the ESS and its key elements, detailed information on the certificates created since the scheme commenced, and the estimated energy savings achieved through those activities. The glossary provides a general guide to the terminology used in ESS.

# 3 Developments in the ESS during 2012

The 2012 calendar year was the third full year of ESS operation[10]. During the year, we took a range of initiatives to improve the performance of the scheme, both from an operational perspective and in terms of regulatory compliance. In particular, we:

- continued our discussions with the Victorian Essential Services Commission (ESC), which manages the Victorian Energy Efficiency Target (VEET) scheme, and made progress towards harmonising the ESS and VEET
- commissioned a review of electrical safety issues in the ESS, and considered the recommendations to form our response to the rapid growth in some sectors of the ESS
- introduced new processes and arrangements to manage the strong growth in commercial lighting replacement activities, reduce the risk associated with this growth, and improve our administration of these activities
- continued to hold pre-application workshops to improve understanding of the scheme and reduce the time taken to process applications.

In addition, the rapid growth of commercial lighting activities had an impact on our approach to managing the ESS during the year, particularly in terms of managing compliance by certificate creators. It also had an impact on the supply and spot price of certificates. These factors are discussed further below.

## 3.1 Progress towards harmonising the ESS and VEET

In line with the NSW and Victorian governments' reform agenda,[11] IPART and the ESC identified and started implementing 4 main initiatives to increase consistency between the ESS and VEET:

1. harmonising reporting requirements and reporting deadlines, and using a shared panel of auditors

[10] The ESS began operating in July of 2009 so 2009 has only half a year.

[11] In late 2011, the governments agreed to pursue a new reform agenda to promote economic growth, make it easier to do business in the 2 states and put a downward pressure on the cost of living and running a business. As part of this agenda, the State Premiers agreed to increase the consistency between the 2 state energy efficiency schemes. The aim is to harmonise the 2 schemes wherever possible without the need to amend legislation.

2. streamlining the process for businesses that want to be accredited to undertake energy savings activities in both States
3. standardising record keeping, audit and compliance requirements, and
4. expanding the range of energy efficiency activities, products and services common to both schemes.

IPART and the ESC also established a Memorandum of Understanding, which sets out general principles of our agreement to maintain a dialogue, coordinate approaches to scheme administration and identify opportunities for further alignment of processes.

## 3.2 Review of electrical safety in the ESS

In early 2013 we commissioned David Hemming and Associates to review electrical safety in the ESS, and identify IPART's responsibilities in terms of safety and any additional actions we should take in this area. The review looked at other State energy efficiency schemes and considered the different approaches taken to manage safety risks.

The review clarified that electrical safety is the responsibility of NSW Fair Trading under the *Electricity (Consumer Safety) Act 2004*. However, it recommended measures to strengthen our own management of safety-related requirements. In response to this review, we have:

- embedded the requirement into the accreditation conditions of Accredited Certificate Providers that any activity carried out in the ESS must not result in a reduction of production or service levels including safety
- introduced a requirement that Accredited Certificate Providers accredited to undertaking high-volume commercial lighting activities maintain public liability insurance and product liability insurance
- taken steps to formalise the exchange of information with NSW Fair Trading regarding electrical safety (strengthening our relationship with NSW Fair Trading).

As part of our ongoing approach to risk management, we undertook an organisational risk review of all of our licensing activities, and developed a risk register to better structure our approach. In the ESS, the highest risk areas relate to safety, and on-going measures are being pursued to mitigate these risks now and in the future.

## 3.3 Review of the costs of participation in the ESS

We again commissioned Databuild Research & Solutions Pty Ltd (Databuild) to review the costs of participating in the ESS during 2012. This review was less extensive than what was conducted by Databuild for the first 18 months of the scheme's operation (2009 and 2010) where we investigated the cost effectiveness of the ESS and showed that participating in the scheme resulted in a new benefit of $24 per energy savings certificate.

For the 2012 study, Databuild interviewed 12 Accredited Certificate Providers from a range of project types and 7 Scheme Participants of varying sizes to gather information on the cost of participation in the scheme during 2012[12]. Where available, they reviewed data for 2011 as well.

The study found that Accredited Certificate Providers are currently operating in the scheme at an indicative cost of between $14.84 and $21.70 per certificate produced. The administration, compliance and audit part of this cost was estimated to be $2.74 per certificate. During 2012, the certificates were trading at around $31.00 early in the year and finished the year at around $19.80.

Scheme Participants reported that during 2012 the cost of complying with the scheme was reflective of the cost of purchasing certificates for surrender. The administrative costs of complying were estimated to be around 30 cents per certificate and related mainly to staff and administration, including the submission of Annual Energy Savings Statements and certificate purchase negotiations.

Comparison with the results from the Databuild study conducted for 2009/10 has shown that the costs to both Accredited Certificate Providers and Scheme Participants has reduced significantly over time. In 2009/10 the costs of participation for Accredited Certificate Providers was estimated to be $26.73 per certificate. The current study showed this has fallen to a range of between $21.70 and $14.84 during 2012 depending on the costs of project delivery. Likewise, administrative costs for Scheme Participants have fallen from an estimate of $1.25 during 2009/10 to around 31 cents during 2012.

12 This represents 14% of Accredited Certificate Providers and 19% of Scheme Participants in the Scheme during 2012.

## 3.4 Managing growth and reducing risk of commercial lighting activities

During 2012, we accredited 20 new RESAs under the Commercial Lighting Energy Savings formula. Whereas initial projects focussed on halogen replacements, towards the latter part of 2012 most project activity was focused on LED downlights and LED tube replacements. More than 80% of the certificates created in 2012 came from commercial lighting projects. This represents an almost 300% increase in the number of certificates created from commercial lighting projects from 2011 to 2012.

To help us manage the workload created by this growth and reduce the risk associated with it, we:

- improved our processing of commercial lighting applications
- introduced Deeds of Agreement for commercial lighting RESAs
- adjusted reporting requirements for commercial lighting RESAs
- engaged a consultant to review our administration of commercial lighting activities.

### 3.4.1 Improvements to processing of commercial lighting applications

We implemented 2 initiatives to expedite the processing of commercial lighting applications. The first was to streamline our approach to reviewing requests for acceptance of Emerging Lighting Technologies (ELT) in the scheme.

In early 2012, interest in using ELT grew rapidly. By mid-year we were receiving up to 100 requests per day which exceeded our capacity to process efficiently. By late 2012, we had developed a web-based portal to allow businesses to directly enter data specifications concerning different ELT products. The portal went live in early 2013, and it has reduced processing times by 80%. Currently, where applications include a complete and correct set of data, the turnaround time is almost immediate.

The second initiative was to streamline our process for approving claims for Extended Operating Hours (EOH). The ESS allows Accredited Certificate Providers to apply for EOH where sites subject to a lighting upgrade stay open for longer than 3,000 hours per annum. We no longer assess individual claims for EOH. Instead, businesses now submit for approval their process for gathering evidence, including the types of evidence collected, and acknowledge that this process is subject to audit. Failure to produce the appropriate evidence during audit may result in certificate claims being invalidated. This approach has helped to reduce the time taken to approve EOH requests.

### 3.4.2 Deeds of Agreement for commercial lighting RESAs

During 2012, there was a significant increase in the number of new businesses using the Commercial Lighting Energy Savings Formula and rapidly creating large volumes of certificates. This posed a risk that the businesses might inadvertently register certificates later found to be invalid during an audit.

To manage this risk while still allowing the businesses to actively create and trade certificates to maintain cash flow, we sought a voluntary agreement from all Accredited Certificate Providers carrying out commercial lighting replacement activities.

The terms of the agreement are outlined in a legally binding Deed. The Deed requires that up to 10% of any certificates created must be withheld from trade until an audit can provide reasonable assurance that the certificates have been properly created. Any improperly created certificates are then forfeited from these certificates. The amount to be held back is reduced to 5% then zero over a period of satisfactory compliance audits.

Almost all Accredited Certificate Providers operating commercial lighting RESAs entered into such a Deed of Agreement during 2012. Those that chose not enter the Deed were audited more frequently to manage their risk.

### 3.4.3 Quarterly reporting for commercial lighting RESAs

Accredited Certificate Providers operating under the ESS are generally required to report annually on the number of certificates they have created during the year, and any changes that may affect the energy savings from their RESAs. Those operating under the Commercial Lighting Energy Savings Formula are also required to report quarterly, and to provide more detailed information about the sites that have been subject to a lighting upgrade. This quarterly reporting allows us to better monitor this type of project implementation, to prevent double counting of energy savings, and to manage any other emerging compliance issues.

During 2012, we provided further guidance on providing accurate and comprehensive quarterly reports. We also removed the annual reporting requirement for Accredited Certificate Providers required to provide quarterly reports to reduce their administrative burden.

### 3.4.4 Consultancy on commercial lighting

We engaged Beletich and Associates and Light Naturally in 2012 to review our administration of commercial lighting activities and recommend improvements so that:

- installed lighting meets or exceeds the requirements of ASNZS 1680
- lighting upgrades are carried out by appropriately trained persons
- an appropriate process is in place for assessment and acceptance of conventional and emerging lighting technologies.

One of the review's key recommendations was that we place more emphasis on ensuring Accredited Certificate Providers providing lighting upgrades have appropriate training. Lighting projects are highly technical, and training is essential to ensure lighting levels are not compromised as a result of achieving energy savings.

Another recommendation was that we require Accredited Certificate Providers accredited for commercial lighting activities to use software-based lighting design tools. These tools are generally free and, after some initial training, are simple to use. Their use will ensure that lighting design is incorporated into any lighting upgrade.

The review also made several recommendations which went beyond our powers as Scheme Administrator to implement. For example, it recommended some products currently eligible for use in the ESS be removed.

At the time of writing this report, we are finalising our consideration of the responses received from stakeholders. We will consult further with stakeholders before implementing any changes to our administration of commercial lighting activities. Those recommendations that are beyond our powers will be referred to the policy agencies for their consideration.

## 3.5 Pre-application workshops and other activities to improve understanding of the ESS

We continued to run pre-application workshops to assist potential applicants better understand the requirements for the ESS. We held 8 workshops during 2012, with around 200 participants from 115 different businesses.

While our workshops have been well received, in late 2012 we decided to move to a digital format and offer them online. This will allow us to provide the workshops on a regular basis and include more participants. The first of these online workshops was held in May 2013.

In addition, we released a lot of new information about the ESS on our website during 2012. In most cases, this information clarified certain aspects of the Rules and scheme administration. We also continued to publish a quarterly newsletter, which is well received and now has a readership of more than 2,000.

Partly as a result of these efforts, the time taken to process applications for entry to the ESS did not increase during 2012 in spite of a significant increase in the number of applications received. We maintained an average of around 160 days to process an application, however with our new systems and online tools we have reduced this to around 84 days in early 2013.

The ESS was represented at 3 conferences, both local and international during 2012. The following papers were presented:

- *The NSW Energy Efficiency Scheme – an effective model for a national energy savings initiative* was presented at the Summer Study, Energy Efficiency & Decentralised Energy at the Novotel Sydney Manly Pacific, which ran from 29 February to 2 March 2012.
- An overview of the NSW Energy Savings Scheme was presented to the Renewable Quarterly Review Conference held at the Grace Hotel Sydney on 20 March 2012.
- An overview of the NSW Energy Savings Scheme was also provided at the US DOE/IEA/RAP Workshop on Policies for Energy Provider-Delivered Energy Efficiency in Washington DC, USA on 18 April 2012.

## 3.6 Factors affecting the supply and price of certificates

During 2012 we noted a decline in energy consumption, which affects the compliance obligations of Scheme Participants (ie, demand for certificates). At the same time, there was a rapid growth in the number of businesses accredited to undertake commercial lighting projects, and in the number of certificates created from these projects. As a result, the supply of certificates in 2012 was sufficient, without the scarcity of supply experienced in the scheme's early years of operation. In general, the spot price of certificates remained stable, averaging around $31 for most of the year, however this price has declined rapidly in the first half of 2013 to around $15.

There are a number of likely reasons for the decline in energy consumption. These include:

- an increase in the use of embedded generation, particularly solar PV units
- the closure or mothballing of several large industrial sites (Hydro Aluminium's Kurri Kurri plant and Blue Scope Steel's no. 6 blast furnace)
- an increased awareness of energy efficiency measures driven by the ESS and other schemes
- an increase in the cost of electricity.

Chapter 8 provides a detailed discussion of the supply and demand for certificates during 2012.

# 4 Scheme Participants' compliance performance

Scheme Participants include all holders of NSW electricity retail licences; NSW electricity generators that supply directly to retail customers in NSW; and market customers in NSW that purchase electricity directly from the National Electricity Market (NEM). Their key compliance obligations include:

- Calculating their individual energy savings target for the year.
- Obtaining and surrendering sufficient certificates to meet this target or, carrying forward some or all of the resulting energy savings shortfall (within allowable limits) and/or paying a shortfall penalty.
- Lodging an Annual Energy Savings Statement (AESS) for the calendar year with IPART by the compliance date in the following year. In 2012, we extended this date from 18 March to 30 April to align with the Victorian Energy Efficiency Target Scheme.
- Ensuring this AESS is complete and correct – that it includes the Scheme Participant's calculation of its individual energy savings target including the particulars of its liable acquisitions and any deductions in respect of partially exempt loads; the extent to which it met the target by surrendering certificates; any energy savings shortfall it is carrying forward and any penalty it is required to pay.
- Lodging an independent audit report with the AESS, unless exempted from this obligation.[13]

During 2012, there were 36 Scheme Participants – including 32 retail electricity suppliers, 2 generators that supply directly to retail customers, and 2 market customers that purchase directly from the NEM. The sections below summarise their compliance performance in 2012, and then discuss key aspects of their performance in more detail.

[13] Scheme Participants submitting nil returns can complete a simplified AESS which does not require an audit. In addition, we can grant audit exemptions for Scheme Participants that had low electricity purchases for the year and/or a very simple AESS.

## 4.1 Summary of Scheme Participants' compliance performance in 2012

Of the 36 Scheme Participants, 30 fully met their 2012 individual energy savings targets under the ESS, including any remaining obligations for the 2011 compliance year. Of these, 20 surrendered sufficient certificates to meet their energy savings target, while a further 10 did not directly purchase or sell electricity in NSW and so were not required to surrender any certificates.

The 6 Scheme Participants that did not fully meet their individual energy savings targets identified a shortfall equal or less than 10% of their target. Therefore, all were able to carry forward their total shortfall to 2013. None elected to pay a shortfall penalty.

Table 4.1 summarises the reconciliation of the certificates required to meet Scheme Participants' combined compliance obligation for 2012 and the certificates surrendered. Table 3.2 summarises the compliance performance of individual Scheme Participants.

**Table 4.1 Reconciliation of certificates required to meet Scheme Participants' combined compliance obligation and certificates surrendered, 2012**

| | | | |
|---|---|---|---|
| Certificates required to meet 2012 compliance obligations | 1,857,069 | Total certificates surrendered | 1,885,239 |
| Add: Certificates required to meet shortfalls carried forward from 2011 | 128,402 | Add: Penalties paid | 0 |
| *Less:* Shortfall carried forward to 2013 | (100,232) | *Add:* Penalties to be paid | 0 |
| Total certificates required to be surrendered | 1,885,239 | Total certificates required to be surrendered | 1,885,239 |

## 4.2 Liable acquisitions

Early in 2013 it was identified that "liable acquisitions" as defined in the *Electricity Supply Act 1995* do not include non-market settled electricity purchased directly from a registered participant (registered under the National Electricity Rules). This is inconsistent with the policy intent of the ESS, which was developed to capture all electricity purchased for use or on-sale within NSW.

This anomaly meant that 3 Scheme Participants were able to reduce their 2012 individual energy savings target by not including any electricity purchased directly from a registered participant. Their combined energy savings target for 2012 was reduced by approximately 60,000 MWh as a result.

The relevant Section of the Act has been amended and Scheme Participants will be required to report on all non-market settled electricity purchases for 2013.

## 4.3 Deductions for exempt loads

The ESS includes provisions that allow a portion of Scheme Participants' electricity sales to be deducted when calculating their annual liable acquisitions. This portion relates to electricity sold to entities that have been granted exemptions for part of the electricity load used in 'emissions-intensive and trade-exposed' industries or activities.[14] These entities are set out in a Ministerial Order published by the Minister for Resources and Energy in the Government Gazette.[15],[16]

The Scheme Regulator Exemptions Rule No. 1 of 2009 outlines the manner in which Scheme Participants must calculate and claim deductions and specifies the evidence that Scheme Participants must provide to the Scheme Regulator to support these deductions.

During 2012, 20 entities had exemptions for 29 specified locations. These included:

- 11 locations with exemptions for 60% of the load. The activities undertaken at these locations included the production of glass containers, chlorine gas, sodium hydroxide, ammonium nitrate, nitric acid, ethanol, hydrogen peroxide, magnetite concentrate and polymer grade propene.
- 21 locations with exemptions for 90% of the load. The activities undertaken at these locations include the manufacture of paper, newsprint, packaging and flat glass, the production of lime, clinker, magnesia, carbon black, ethylene and polyethylene, coke and iron, as well as steel making, aluminium smelting and petroleum refining.

Nine Scheme Participants supplied electricity to these entities at these locations. However, 1 of these participants advised that it did not wish to claim the exemptions that some of its customers were eligible for during the year. In addition, an exemption was claimed on behalf of Hydro Aluminium Kurri Kurri Pty Ltd for electricity used in the activity of aluminium smelting. As Hydro Aluminium had ceased aluminium smelting at its Kurri Kurri facility during September of 2012, the exemption did not apply for the final 3 months of the

14 These entities must provide their electricity retailer with details of their exempt load in order to claim the exemption. The retailer then deducts this proportion of the load from its annual liable electricity acquisitions, thereby reducing its annual energy savings target (in MWh).

15 The Ministerial Order lists each exempt entity (company or business name), the trade exposed activity, the site where the activity takes place, and the proportion of the load that is exempt under the ESS (either 60% or 90%).

16 The amended Ministerial Order published on 25 June 2012 applies for the 2012 year. For 2013 compliance, the Ministerial Order published on 21 December 2012 applies. See www.nsw.gov.au/gazette.

year. In total, the deductions for exempt loads comprised approximately 19% of the total electricity supplied in NSW in 2012.

For more information on the Ministerial Order and the Exemptions Rule, see Appendix A, Section A.6.

## 4.4 Energy savings shortfalls carried forward

Section 116 of the Act provides that a Scheme Participant with an energy savings shortfall for a given year can elect to carry forward at least some of this energy savings shortfall to the next year – up to a maximum amount equivalent to 10% of its individual energy savings target.[17] Any shortfall carried forward must be met in the following compliance year.

[17] Section 116(4) of the Act.

**Table 4.2 Scheme Participants' compliance for the 2012 compliance year**

| Compliance performance | Scheme Participant |
|---|---|
| **Surrendered sufficient certificates to meet individual 2012 energy savings target** | Alinta Energy Retail Sales Pty Ltd<br>Aurora Energy Pty Ltd<br>Ausgrid<br>Australian Power and Gas (NSW)<br>Delta Electricity [a]<br>Dodo Power and Gas<br>Endeavour Energy<br>EnergyAustralai Pty Ltd<br>EnergyAustralia Yallourn Pty Ltd<br>Eraring Energy [b]<br>ERM Power Retail Pty Ltd<br>Essential Energy<br>GoEnergy Pty Ltd<br>Infigen Energy Markets Pty Limited<br>Lumo Energy (NSW) Pty Ltd<br>Macquarie Generation [a]<br>Powerdirect Pty Ltd<br>Qenergy Pty Ltd<br>Red Energy Pty Ltd<br>Simply Energy<br>Stanwell Corporation<br>Tomago Aluminium Company Pty Ltd [b] |
| **Did not directly purchase or sell electricity in NSW in 2012 and therefore not required to surrender certificates** | Actew AGL Retail Ltd<br>Diamond Energy Pty Ltd<br>GridXPower Pty Ltd<br>Metered Energy<br>Progressive Green<br>Tarong Energy Corporation Ltd<br>WINenergy |
| **Surrendered certificates to meet part of 2012 energy savings target and chose to carry forward the remaining energy savings shortfall to 2013** | AGL Sales<br>AGL Sales (Queensland Electricity) Pty Ltd<br>Momentum Energy Pty Ltd<br>Origin Energy Electricity Limited (including Cogent Energy and Sun Retail) [c]<br>Powerdirect Pty Ltd<br>Sanctuary Energy Pty Ltd |

**a** A direct supplier of electricity.

**b** A market customer. Section 101(2) of the Act defines a market customer as: a customer that has classified any of its electricity loads as a market load and that is registered with the Market Operator as a market customer under the National Electricity Rules (within the meaning of the National Electricity (NSW) Law).

**c** Origin Energy submitted a single AESS covering Origin Energy Electricity, Cogent Energy and Sun Retail.

For the 2012 compliance year, 6 Scheme Participants elected to carry forward a total of 100,232 certificates to the 2013 compliance year. This equates to 5% of Scheme Participants' combined compliance obligation for 2012. In comparison, 11 Scheme Participants carried forward an energy savings shortfall of 128,402

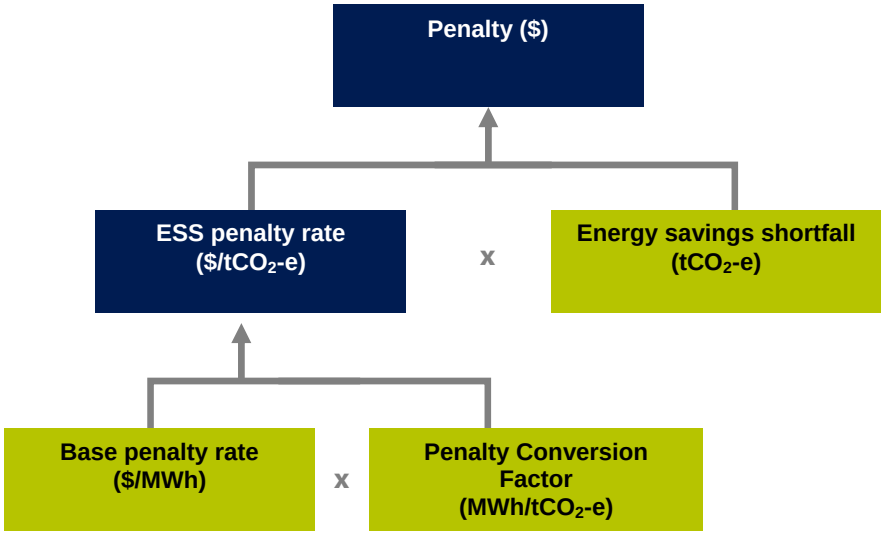
certificates for the 2011 compliance year (equal to 9% of the combined compliance obligation).

## 4.5 Energy savings shortfall penalties paid.

Section 112 of the Act provides that a Scheme Participant with an energy savings shortfall for a given year (which it has not carried forward to the following year) is liable to pay a penalty in respect of that shortfall. This effectively allows the Scheme Participant to 'buy out' its compliance obligations for that year. (Box 3.1 explains how this penalty is calculated).

### Box 4.1 Calculating the penalty associated with an energy savings shortfall

The Scheme Participant's penalty liability is calculated by multiplying its energy savings shortfall by the ESS penalty rate for that year. This rate is established by taking the base penalty rate (listed in the Regulation, and expressed in $ per MWh), then multiplying it by the penalty conversion factor (also listed in the Regulation). This converts the base rate to $ per $tCO_2$-e ($tCO_2$-e is the unit of measurement for energy savings shortfalls).




Every year, the base penalty rate is indexed by changes in the CPI using an equation listed in the Regulation. For 2012, the ESS penalty rate was $24.86 per $tCO_2$-e.

In 2012, for the first time since the commencement of the ESS, all Scheme Participants met their individual energy savings target either through the surrender of certificates only, or through the surrender of certificates and the carry forward of their energy savings shortfall to 2013. No Scheme Participants chose or were required to pay a shortfall penalty.

# 5 Accredited Certificate Providers' performance

Accredited Certificate Providers participate in the ESS by carrying out eligible energy saving activities to create energy savings certificates, which they then sell. They can be accredited to carry out one or more Recognised Energy Savings Activities (RESAs), as defined in the ESS Rule (see Box 5.1). They can create certificates from these activities via multiple projects at multiple sites. One certificate represents the energy savings equivalent to one tonne of carbon dioxide equivalent ($tCO_2$-e). As discussed earlier, these are called energy savings certificates, or ESCs.

To become an Accredited Certificate Provider, an interested party must apply to IPART (as Scheme Administrator) for accreditation. Their application must demonstrate that they and their proposed RESA meet the criteria for accreditation according to the Act, Regulation and the ESS Rule. Once accredited, they must comply with the conditions of their accreditation, and other obligations.

During 2012, 88 Accredited Certificate Providers and 133 RESAs were operating and able to create certificates of 2012 vintage.[18] This involved energy savings activities at thousands of sites across NSW.

The section below summarises the Accredited Certificate Providers' compliance performance during the year. The following sections discuss their RESAs in more detail.

[18] The calendar year in which energy savings activities occurred, or were deemed to have occurred.

**Box 5.1 What are Recognised Energy Savings Activities?**

RESAs are specific activities implemented by an Accredited Certificate Provider that increase the efficiency of electricity consumption, or reduce electricity consumption, without negative effects on production or service levels, including safety. In general, they involve:

- modifying end-user equipment or usage of end-user equipment (including installing additional components) resulting in a reduction in the consumption of electricity
- replacing end-user equipment with other end-user equipment that consumes less electricity
- installing new end-user equipment that consumes less electricity than other end-user equipment of the same type, function, output or service, or
- removing end-user equipment that results in reduced electricity consumption, where there is no negative effect on production or service levels.

Some more specific examples include replacing existing lighting in commercial buildings with more efficient LED lighting, installing voltage reduction units in commercial and industrial buildings, and directing waste heat back into an industrial process to reduce the reliance on external electricity supplies.

## 5.1 Summary of Accredited Certificate Providers' compliance performance in 2012

All Accredited Certificate Providers are responsible for complying with the conditions of their accreditation and other obligations under the ESS. Failure to do so may result in apparent breach notices, or suspension or cancellation of their accreditation. The Act sets out the actions that constitute non-compliance with these obligations, including:

- contravening the conditions of accreditation (typical conditions include submitting annual or quarterly report statements by the required deadline, undertaking annual, periodic or 'spot' audits of their RESAs as prescribed, and notifying the Scheme Administrator of any changes to their accredited RESA) (Section 138)
- improperly creating certificates (Section 133)
- obstructing the Scheme Administrator (Section 157)
- supplying false or misleading information (Section 158).

During 2012, there were 45 instances of non-compliance by Accredited Certificate Providers (Table 5.1). Most of these related to failure to submit an annual report statement by the required deadline or improper creation of certificates. These instances were discovered through our administration processes and compliance audit process. Three were considered to be material errors (see Box 5.2 for more information on what is meant by material errors).

**Table 5.1 Instances of non-compliance by Accredited Certificate Providers**

| | 2010 | 2011 | 2012 |
|---|---|---|---|
| Failure to submit an Annual Report Statement by the required deadline (S138) | 3 | 15 | 19 |
| Improper creation of certificates (S133) | 11 | 14 | 21[a] |
| Failure to engage an auditor by the required deadline (S138) | 0 | 1 | 4 |
| Failure to meet other Accreditation Notice conditions (eg, implementing RESA as described in application) (S138) | 0 | 0 | 1[b] |

**a** Two of these instances were considered to be material errors.

**b** Considered to be a material error

### Box 5.2 What are material errors?

When auditing Accredited Certificate Providers, auditors are required to identify any errors that affect the integrity of the energy savings claimed or the number of certificates registered, and assess their materiality. As a guide, errors resulting in improperly created certificates are generally considered to be material if the improperly created certificates exceed 5% of the certificate claim being audited.

When an auditor finds a material error, the audit is considered a 'failed audit'. The Accredited Certificate Provider is required to take immediate corrective actions to rectify the error, and to 'make good' the error by voluntarily forfeiting a percentage of its total certificate claim equal to the error rate identified by the auditor. (For example, if an auditor identifies a 10% error rate, then the Accredited Certificate Provider is required to voluntarily forfeit 10% of the certificate claim being audited.)

Once these actions are taken, a re-audit may be required. We may decide to amend the Accredited Certificate Provider's conditions of accreditation to reflect the findings or recommendations of the auditor. In these circumstances, we may require the Accredited Certificate Provider to enter into a Deed of Agreement if we assess a project as being high risk (see Chapter 5 for information on these agreements).

When an auditor finds a non-material error, the Accredited Certificate Provider is usually given a period of time in which to make the recommended changes and report to us on those changes. It is also required to 'make good' the error by voluntarily forfeiting the number of improperly created certificates identified during the audit (rather than a percentage of its total certificate claim).

For further information on materiality and treatment of errors, refer to our *Compliance and Performance Monitoring Strategy* on our website (www.ess.nsw.gov.au/For_Auditors/Audit_process).

### 5.1.1 Failure to submit an Annual Report Statement

Nineteen Accredited Certificate Providers failed to submit complete and correct Annual Report Statements for 23 RESAs by the required deadline. However, all submitted their outstanding Annual Report Statements after being reminded.

### 5.1.2 Improper creation of certificates

Fifteen Accredited Certificate Providers were responsible for 21 instances of improper creation of certificates. Two of these instances were identified by the Accredited Certificate Provider and the relevant certificates were forfeited. The remaining instances were identified through the audit process. Two instances were considered to be material errors, while the remainder were considered non-material (discussed further below).

Together, these instances resulted in the over-creation of 17,793 certificates, or 0.7% of total 2012 creation. This is a significant reduction compared to 2011, when instances of improper creation resulted in the over-creation of 50,006 certificates, or 4.6% of total 2011 creation.

In each instance of improper certificate creation in 2012, we notified the Accredited Certificate Providers involved. All agreed to voluntarily forfeit the over-created certificates.

#### Reasons for improper creation

There were a range of reasons for the improper certificate creation in 2012, and in some instances, the auditors identified more than one reason. These reasons included:

- use of incorrect data, calculation factors or input errors (11 instances)
- insufficient evidence retained as records to support certificate claims (9 instances)
- creation of certificates in the incorrect vintage (1 instance)
- insufficient evidence to support the use of control multipliers (1 instance)
- use of unapproved nomination forms (1 instance)
- rounding and pro-rating errors in calculations (2 instances)
- failure to update calculations following internal quality assurance review (1 instance).

### Material instances of improper creation

In general, the number of certificates improperly created is considered 'material' if it exceeds 5% of the total certificate claim being audited (see Box 5.2 for more information).

As noted above, there were 2 material instances of improper creation in 2012. The first, by HMBC Pty Ltd, trading as Energy En-nnovations, resulted in the over-creation of 1,482 certificates (16.6% of the total certificate claim). The reason for this was insufficient evidence retained as records to support certificate calculations. Energy E-nnovations Pty Ltd agreed to voluntarily forfeit the certificates and implemented corrective actions to prevent future occurrences.

The second material instance of improper creation was by Woolworths Ltd, and resulted in the over-creation of 3,317 certificates (10.9% of the total certificate claim). The reasons were the use of an incorrect calculation factor and failures in record keeping. Woolworths Ltd agreed to voluntarily forfeit the 3,317 certificates and has implemented corrective actions.

### 5.1.3 Failure to engage an auditor by the required deadline

There were 4 instances of failure to engage an auditor by the required deadline, in respect of 9 RESAs. Following submissions made by the companies involved, Commonwealth Bank of Australia and Demand Manager Pty Ltd, audit waivers were granted for 7 RESAs due to low certificate creation volumes. The remaining 2 outstanding audits were commissioned by Woolworths Ltd and Coles Supermarkets Australia following reminders.

### 5.1.4 Failure to meet other conditions of accreditation

An audit of one Accredited Certificate Provider, Ecovantage Pty Ltd, identified material errors in the record keeping arrangements used to support the creation of certificates. The audit also found that the RESA had not been implemented as described in documentation submitted to the Scheme Administrator for approval, or in a manner consistent with the conditions of accreditation. Ecovantage Pty Ltd was asked to revise its processes to meet ESS requirements and address the auditor's recommendations. Subsequent audit findings indicate this non-compliance has not reoccurred.

## 5.2 RESAs accredited to create certificates for 2012

To be accredited as a RESA, an energy saving activity needs to meet the criteria for one of the 3 methods for calculating energy savings set out in the ESS Rule – the Project Impact Assessment Method, the Metered Baseline Method, and the Deemed Energy Savings Method.

Table 5.2 shows the number of RESAs able to create 2012 vintage certificates, by the method they use to calculate energy savings and the year in which they were accredited. The RESAs shown as being accredited in 2013 are those where the application lodgement and project implementation occurred prior to 31 December 2012, but accreditation took place after that date.

**Table 5.2 Number of RESAs by year accredited and energy savings calculation method**

| | 2009 | 2010 | 2011 | 2012[a] | 2013[a] |
|---|---|---|---|---|---|
| Project Impact Assessment Method | 15 | 10 | 5 | 8 | 3 |
| Metered Baseline Method | | | | | |
| Baseline per unit of output | 4 | 1 | 0 | 1 | |
| Baseline unaffected by output | 1 | 0 | 1 | 3 | 2 |
| Normalised baselines | 0 | 0 | 0 | 1 | 1 |
| NABERS baseline | 0 | 4 | 1 | 3 | 1 |
| Deemed Energy Savings Method | | | | | |
| Default Savings Factors | 9 | 7 | 9 | 3 | 0 |
| Commercial Lighting Formula | 2 | 8 | 21 | 21 | 4 |
| High Efficiency Motor Formula | 0 | 0 | 0 | 1 | 0 |
| Power Factor Correction Formula | 1 | 1 | 0 | 1 | 0 |
| Total RESAs accredited | 32 | 31 | 37 | 42 | 11 |

**a** Applications accredited in the first half of 2013 that can claim 2012 vintage certificates.

As the table shows, most current RESAs use the Deemed Energy Savings Methods' default savings factors or commercial lighting energy savings formula sub-methods. These sub-methods are simple to apply, and make use of deeming (claiming future energy savings) at the time of certificate creation, with consequential discounting of those savings. Neither requires technical monitoring or ongoing measurements to determine energy savings, which is also an advantage. In each case, specific factors are listed in Schedule A of the ESS Rule which determine the exact number of certificates that can be claimed from each activity.

A small number of RESAs use the Project Impact Assessment Method, the Metered Baseline Method, or other sub-methods of the Deemed Energy Savings Method. These methods cover a broader range of activities, and are more technically complex. They are more suited to capital-intensive energy efficiency projects in the commercial and industrial sectors. Forward creation of the energy savings is possible under most of the calculation methods, with the exception of the Metered Baseline Method.

Boxes 5.3 to 5.6 provide examples of current RESAs that use different methods to calculate energy savings. Appendix A, Section A.8 provides more information on the 3 methods and their sub-methods, and on the process for incorporating a new methodology into the ESS Rule.

### Box 5.3 Project Impact Assessment Method RESA – Tooheys Pty Ltd

Tooheys' RESA allows it to create certificates by increasing energy efficiency at its brewery in Lidcombe. To date, it has created certificates from 4 projects that involved:

- modifying the ammonia refrigeration plant to increase system efficiency
- installing glycol float controls at the glycol cooling plant
- replacing 4 air compressor units with 2 efficient air compressors with variable speed drives, and
- installing a heat recovery system that allows it to use previously lost heat to vaporise carbon dioxide.

At 30 June 2012, this RESA had generated energy savings of 8,646 MWh, and enabled the forward creation of 9,165 certificates.

### Box 5.4 Deemed Energy Savings Method RESA – Ecovantage Pty Ltd

Ecovantage is an environmental services company operating under various state energy saving schemes. During 2012, it was engaged by a regional government office to create certificates on an energy efficient lighting project at the premises.

Ecovantage worked with Lumaled (lighting supplier), Hotspot ( installer) and DTZ (contract manager) to develop a solution that reduced electricity, increased energy savings and decreased maintenance costs for the customer. T8 Fluorescent tubes were replaced with Lumaled LED tube and occupancy sensors were installed. Overall, the project resulted in energy savings of 4,702 MWh and enabled the creation of 4,985 certificates. These savings were calculated with the commercial lighting energy savings formula sub-method.

### Box 5.5 Project Impact Assesment Method – Commonwealth Bank of Australia

The Commonwealth Bank has carried out energy efficiency activities in 298 retail branches in NSW retail branches and in selected commercial offices. Its RESA involves replacing inefficient lighting equipment (typically T8 fluorescent tubes, dichroic tungsten halogen downlights and magnetic ballasts) with new energy efficient equipment. This new equipment includes T5 fluorescent fittings, extra low voltage infra-red coated dichroic tungsten halogen downlights, compact fluorescents (not eligible in the ESS), LED downlights and electronic ballasts.

Overall, its RESA has resulted in energy savings of 30,911 MWh and enabled the creation of 32,766 certificates.

**Box 5.6 Metered Baseline Method RESA – Tomago Aluminium Company Pty Limited**

Tomago Aluminium Company Pty Limited (Tomago) is accredited under the Metered Baseline per Unit of Output Method. Its RESA allows it to create certificates by reducing the electricity consumed at its aluminium smelting facility. To date, it has created certificates from modifying cell design to manage electrical resistance, experimenting with cathode materials, and progressively refurbishing pots within each of the 3 potlines. These upgrades resulted in increased electrical efficiency as well as an increase in metal production.

To calculate the energy savings, Tomago originally charted the total electricity consumption and the aluminium output over a baseline period to demonstrate that electricity consumption was a linear function of output. This relationship between output and energy consumption is called specific energy consumption. The improved specific energy consumption of the new technology is calculated using actual energy meter data for each monthly measurement period on a days-per-month basis and actual production output. The reduction is multiplied by a confidence factor of 0.99 to determine energy savings (MWh).

This RESA resulted in energy savings of 75,820 MWh and created 80,369 certificates during 2012.

## 5.3 RESAs amended and cancelled during 2012

During 2012, Accredited Certificate Providers initiated amendments to 30 existing RESAs, including:

- changes to the nominated number of certificates that can be created
- the addition or removal of Special Accreditation Conditions
- changes to audit and/or reporting requirements
- changes to the application of equations and/or methods used.

In addition, we initiated and processed 2 batch amendments. These involved simultaneously changing the accreditation conditions of all Accredited Certificate Provides with RESAs using the commercial lighting energy savings formula to:

- incorporate safety and insurance requirements into the conditions of accreditation
- allow for approval of extended operating hours (EOH) procedures, in order to speed up processing of extended operating hours claims.

We also cancelled 8 RESAs. The cancellations were due to the Accredited Certificate Providers withdrawing their participation in the ESS after they ceased carrying out eligible energy savings activities, or where the Accredited Certificate Provider changed company structure. Seven of these cancellations involved showerhead replacement, which ceased to be an eligible activity on 22 December 2011.

## 5.4 RESA applications under assessment at the end of 2012

We receive applications to accredit RESAs throughout the year. Once an application is deemed complete and the application fee paid, we review the information provided against the requirements of the Act, Regulation, the ESS Rule and our published policies and procedures.

Where information is deemed insufficient or is missing, we request this information from applicants, and our assessment is placed on hold until the information is received. The application assessment process then continues, although we may need to make further requests for information from the applicant. The process of requesting and awaiting further information adds to the time taken to finalise our assessment.

As at 31 December 2012, we had 27 RESA applications under assessment. Of these:

- 14 were on hold, awaiting further information
- 3 were undergoing assessment of additional information
- 7 were undergoing initial assessment as they had been received in late November or December
- 2 were being prepared for final consideration by the Scheme Administrator
- 1 was on hold, awaiting re-submission of the application due to incomplete information or change of methodology.

## 5.5 Disclosure of external funding sources for RESAs

When applying for accreditation of a RESA, applicants are required to list sources of external funding, and to provide evidence that the funding provider is aware of proposed certificate creation under the ESS.

During 2012, a small number of applicants identified that part of the funding for implementing their proposed RESA was provided through the Energy Efficiency for Small Business Program (EESBP) run by Office of Environment and Heritage. We informed the EESBP administrator, or required the applicant to inform the administrator of the intention to claim certificates for these activities. In these instances, the energy savings claimed is reduced to reflect the level of government funding received.

# 6 Audit activities

Our audit activities are an important part of our approach to managing compliance risk in the ESS. Audits help us ensure the scheme is being implemented as designed and the creation, sale and surrender of energy savings certificates is resulting in genuine energy savings. In particular, audits are required and used to provide assurance that:

- Scheme Participants meet their individual energy savings targets, and
- Accredited Certificate Providers create certificates in accordance with the Act, Regulation and the ESS Rule.

To assist us and ESS participants meet audit requirements, we established a panel of eligible independent third-party auditors, known as the ESS Audit Services Panel (the Audit Panel). The section below summarises our audit activity in 2012. The subsequent sections provide information on the Audit Panel, Scheme Participant audits, Accredited Certificate Provider audits, and our broad approach to managing the compliance risk of Accredited Certificate Providers.

## 6.1 Summary of audit activity in 2012

For 2012, the Audit Panel undertook 17 audits of Annual Energy Savings Statements (AESS), which covered 19 Scheme Participants' statements. These audits were conducted in early 2013, prior to the compliance deadline of 30 April 2013. Nine audit exemptions were granted on the basis that the Scheme Participant had limited input data and audit assurance was unnecessary. The remaining 10 Scheme Participants submitted nil returns and did not require audits.

This year we asked auditors to verify any deductions to Scheme Participants' annual liable acquisitions claimed on the basis that they supplied electricity to customers granted exemptions for part of their load (discussed in section 4.3). As a result, we have decided to revisit how we verify exempt loads and will be consulting on a revised approach for the 2013 compliance year.

The Audit Panel also undertook 45 audits of Accredited Certificate Providers during 2012, covering 31 RESAs. Eight of these audits were initiated by the Scheme Administrator to assess the compliance of high-risk activities, such as commercial lighting projects. These were pre-registration audits, which is the highest level of audit control under the ESS and can be used when a RESA is considered to be extreme or high risk. They covered the 4 remaining showerhead installation RESAs[19] and 4 commercial lighting upgrade RESAs. They were conducted for a total cost of $128,125[20], and were paid for by the relevant Accredited Certificate Providers.

Table 6.1 provides summary data on audit activity since the ESS began.

**Table 6.1 ESS audit activity**

| | 2010 | 2011 | 2012 |
|---|---|---|---|
| **Audits of Scheme Participants** | | | |
| Number of audits | 18 | 13 | 17 |
| Number of AESS covered | 20 | 13 | 19 |
| **Audits of Accredited Certificate Providers initiated by the Scheme Administrator** | | | |
| Number of audits | 11 | 11 | 8 |
| Number of RESAs covered | 11 | 13 | 8 |
| **Total audits of Accredited Certificate Providers** | | | |
| Number of audits | 5 | 17 | 45 |
| Number of RESAs covered | 7 | 21 | 31 |

**Note:** The AESS audit data included in Table 5.1 relates to audits covering the relevant compliance year. These audits were actually conducted in the first quarter of the following calendar year. The RESA audit data relates to audits conducted during the calendar year indicated. There were no audits conducted during the first months of the scheme operation (2009).

The number of Scheme Participant audits has generally decreased over the life of the scheme due to an increase in audit exemptions granted for AESSs with limited input data. However, in 2012 they increased somewhat due to a higher number of new Scheme Participants beginning to operate as retailers in NSW.

The number of Accredited Certificate Provider audits in 2012 was more than twice that in 2011. This is largely due to increased project activity and growing certificate creation from commercial lighting activities. In addition, the volume of certificates being audited has increased, as audit limits are increased after successive good audits.

19 Showerhead Replacement activities were removed as an eligible activity in December 2011.

20 Where audits are initiated by the Accredited Certificate Provider, we approve the detailed scope of the audit, however we generally do not know the audit cost.

## 6.2 ESS Audit Services Panel

All audits must be undertaken by a member of the Audit Panel with IPART (acting as either the Scheme Administrator or Scheme Regulator) as the principal client. Audits are paid for by the relevant Scheme Participant or Accredited Certificate Provider.

Audit firms are eligible to apply to the Audit Panel at any time. We assess applications against specific selection criteria to ensure each firm has both the institutional capacity to support the audit process, and appropriate lead auditors with demonstrated skills and experience to conduct reasonable assurance audits under the ESS.[21]

Panel members provide services in accordance with the Audit Panel Agreement. In addition to auditing, they may provide advice or consultancy services to Accredited Certificate Providers or to IPART under this agreement where no conflict of interest exists. Panel members may not be accredited as an Accredited Certificate Provider because of potential conflicts of interest.

At the end of 2012, 12 firms with a total of 26 lead auditors served on the Audit Panel. Four additional firms have joined the Audit Panel since then, and there are several new firms with applications under assessment. Table 6.2 lists the Audit Services Panel members at the end of 2012.

**Table 6.2 Audit Services Panel members at the end of 2012**

| | |
|---|---|
| Beca Pty Ltd | Ernst & Young |
| Birdanco Nominees Pty Ltd (trading as RSM Bird Cameron) | GHD Pty Ltd |
| Clear Environment Pty Ltd | Pacific Environment Operations Pty Ltd (formerly Queensland Environment Pty Ltd) |
| Energetics Pty Ltd | Perenia Pty Ltd |
| ENVIRON Australia Pty Ltd | PricewaterhouseCoopers |
| ERM Pty Ltd | URS Australia Pty Ltd |

## 6.3 Scheme Participant audits

Scheme Participants are required to lodge an audited AESS with as Scheme Regulator each year in respect of the previous year's compliance period. The requirement to have these statements independently audited by a member of the Audit Panel is important, as professional auditors are able to examine primary data sources and data collection systems to which the Scheme Regulator does not ordinarily have access.

[21] A Panel Application Form is available from the Scheme website at www.ess.nsw.gov.au/For_Auditors/Join_the_audit_panel.

These audits are commissioned by the Scheme Participants to confirm self-reported data related to the calculation of their individual energy savings targets and the surrender of certificates to meet that target. Primarily, the auditor checks the input data, the calculations, and where a Scheme Participant has failed to meet their individual energy savings target, any energy savings shortfall that has been determined. The audits are carried out after the end of the compliance year, as they are required to capture all electricity sales or purchases made by Scheme Participants for that year.

## 6.4 Accredited Certificate Provider audits

When we accredit an Accredited Certificate Provider to carry out a RESA, we impose audit requirements as part of the conditions of accreditation. We determine these requirements using a risk management approach, as described in our *Compliance and Performance Monitoring Strategy* (see section 6.5 below).

These audits are generally commissioned by the Accredited Certificate Provider. However, the Scheme Administrator is provided with an opportunity to amend the detailed scope of works for each audit and has the capacity to commission an audit directly where deemed necessary.

The audits provide assurance that the certificates from the RESA are supported by sufficient record keeping and other documentary evidence, and have been created properly. They also provide assurance that the number of certificates created is accurate, based on valid information free from material misstatement.

The timing and type of audits varies by RESA, depending on our risk assessment. For example, an audit may be required on a periodic or spot basis, or when a threshold number of certificates is created. Where the risk is considered to be high, pre-registration audits may be required.

## 6.5 Our approach to managing Accredited Certificate Providers' compliance risk

The *Compliance and Performance Monitoring Strategy*[22] helps us manage the compliance of Accredited Certificate Providers. Our objective in establishing this strategy is to inform all stakeholders of how we assess risk, determine audit regimes and manage ongoing compliance with the ESS. Our approach involves:

- assigning a risk rating of low, medium, high or extreme for each RESA
- establishing an audit regime based on this risk rating
- rewarding good compliance performance and responding promptly and fairly to poor compliance

[22] Compliance Performance and Management Strategy is available on the ESS website www.ess.nsw.gov.au

- providing an opportunity for parties subject to audit to reduce audit costs, and
- clearly stating the materiality threshold and describing how errors are treated.

As noted above, where the risk is considered to be high or extreme, we may require pre-registration audits. These audits must be completed (with a satisfactory result) before the Accredited Certificate Provider can create (and sell) certificates. These audits provide the highest level of assurance.

We can use a Deed of Agreement with an Accredited Certificate Provider to also provide additional assurance. We seek these agreements with Accredited Certificate Providers on a voluntary basis. Their terms and conditions vary to reflect individual circumstances, but generally they require the Accredited Certificate Provider to withhold from trade a portion of certificates created until an audit is completed. This amount is currently set at a maximum of 10% and typically reduces to 0% after 3 successive audits with no material error.

In extreme cases, we can also suspend an Accredited Certificate Provider's accreditation. Typically, we would consider this approach when we have serious concerns about its activities and evidence of serious instances of improper certificate creation. We have only used this measure once since the ESS commenced.[23]

[23] Enact Energy was suspended in 2011 for a 12-month period for contraventions of their accreditation conditions and the legislation.

# 7 Creation, ownership and surrender of certificates

As Scheme Administrator, we maintain the ESS Registry, an online database of information on Accredited Certificate Providers and the creation, ownership and surrender of certificates under the ESS (See Box 7.1).

This registry records information about each certificate created under the scheme – including the creator, vintage, creation date, energy savings calculation method, activity undertaken, and the number of certificates created. It also tracks the certificate's current status – whether it is live, the current owner, whether it has been surrendered by a Scheme Participant to fulfil a compliance obligation, or whether it has been forfeited. Once a certificate has been surrendered or forfeited, it is removed from the scheme and cannot be reused.

The sections below summarise the key statistics related to the creation and surrender of 2012 vintage certificates.[24] The following sections discuss them in more detail, and compare them to previous years. The statistics are taken from the ESS Registry as at 30 June 2013 and include certificate records from 2009 to 2012 vintage.

## 7.1 Summary of creation and surrender of certificates for 2012

The ESS Registry recorded the creation of 2,572,978 certificates of 2012 vintage. This is a significant increase in certificate creation when compared to previous years. The vast majority of certificates were created through commercial lighting replacement activities under the Deemed Energy Savings Method.

We estimate that 2,427,338 MWh of energy was saved by activities carried out under the ESS during 2012. While forward creation of certificates means that the majority of the savings from commercial lighting will be realised in future years, we estimate that 958,799 MWh of these savings occurred during 2012. This is a significant increase from the 450,778 MWh of energy savings that occurred during 2011.

[24] 2012 vintage certificates relate to energy savings activities undertaken during the 2012 calendar year. However, because certificates can be created up to 6 months after the energy savings event took place, a 2012 vintage certificate may have been registered from 1 January 2012 to 30 June 2013.

**Box 7.1 The ESS Registry**

The Registry was established under the Greenhouse Gas Reduction Scheme, and was upgraded in 2009 to incorporate the requirements of the ESS. Although GGAS ceased on 1 July 2012, the Registry continues to operate as an online database serving the requirements of the ESS. The Registry also holds any remaining certificates from GGAS.

It is accessible to all ESS participants and the public through a web portal at http://www.ess.nsw.gov.au/Registry. Its functions include:

- storing contact details for Accredited Certificate Providers
- recording details of accreditation projects, including the project name, type and energy savings calculation method used
- creating certificates and ownership details and recording the transfer of certificates to other parties
- surrendering of certificates to meet a Scheme Participant's license obligations
- registering voluntary certificate surrenders by members of the public.

## 7.2 Total number of certificates created as 2012 vintage

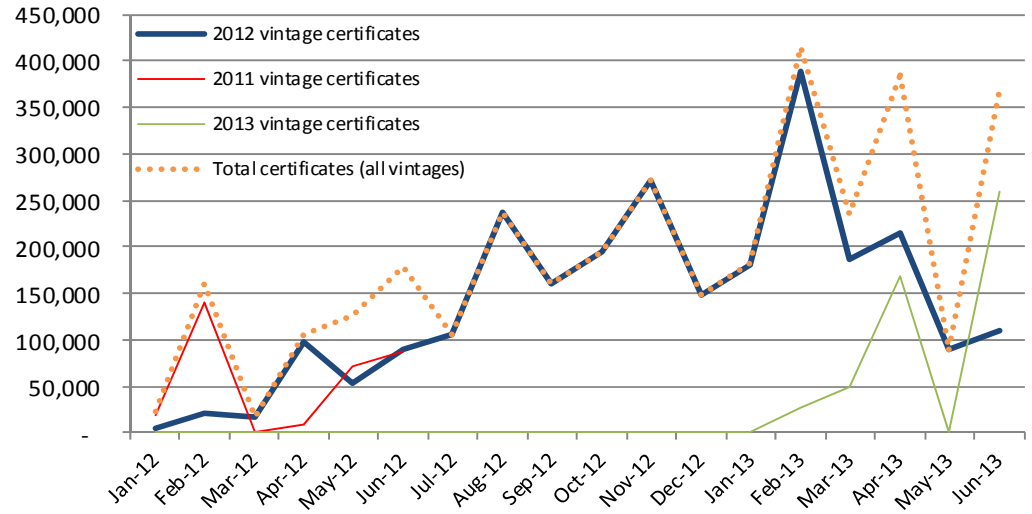
The ESS Registry has recorded the creation of 5,399,103 certificates since the scheme started on 1 July 2009. Of these, 2,572,978 – over half – were created as 2012 vintage certificates.

On average, 143,000 2012 vintage certificates were created each month between 1 January 2012 and 30 June 2013. Monthly certificate creation followed an established pattern across the year, dictated largely by demand from Scheme Participants and the 30 June 2013 close off for 2012 certificate creation.

Figure 7.1 illustrates this pattern with the creation of 2012 vintage certificates beginning slowly in early 2012. During this period, Accredited Certificate Providers were focussed on creating 2011 vintage certificates. These supply Scheme Participants seeking to surrender certificates by the compliance deadline of 18 March 2012. Creations of 2011 vintage certificates dropped sharply after its deadline, but then continued until the 30 June 2012 close off. Similarly, 2012 vintage certificate creations peaked in early 2013 as the compliance deadline of 30 April 2013[25] approached for Scheme Participants. Creation of 2012 vintage certificates then declined after the compliance deadline passed, and continued at a slower pace until the deadline for creating 2012 vintage certificates of 30 June 2013.

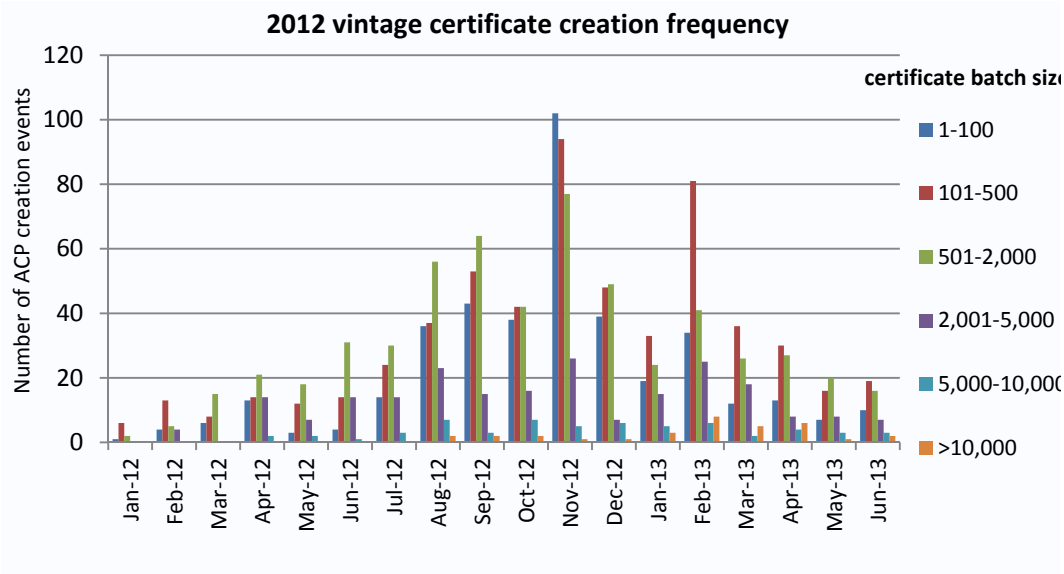
[25] The compliance deadline was extended to 30 April in 2013 to align with the Victorian VEET scheme.

**Figure 7.1 Monthly certificate creations by vintage**




In general, the size of a certificate creation event (the number of certificates created in a single event) was smaller in 2012 than in previous years. Figure 7.2 shows the number of creation events from January 2012 and the batch-size (number of certificates created) for each event. It indicates, for example, that in November 2012, there over 100 events where Accredited Certificate Providers created less than 100 2012 vintage certificates (dark blue bar columns in Figure 7.2). This trend can be partly attributed to the introduction of a certificate holding Deed of Agreement (see section 5), where Accredited Certificate Providers voluntarily set aside certificates under an administration hold. This has increased the number of creation events and decreased the average size of each creation.

**Figure 7.2 2012 vintage monthly certificate creations – number of creation events by batch size**

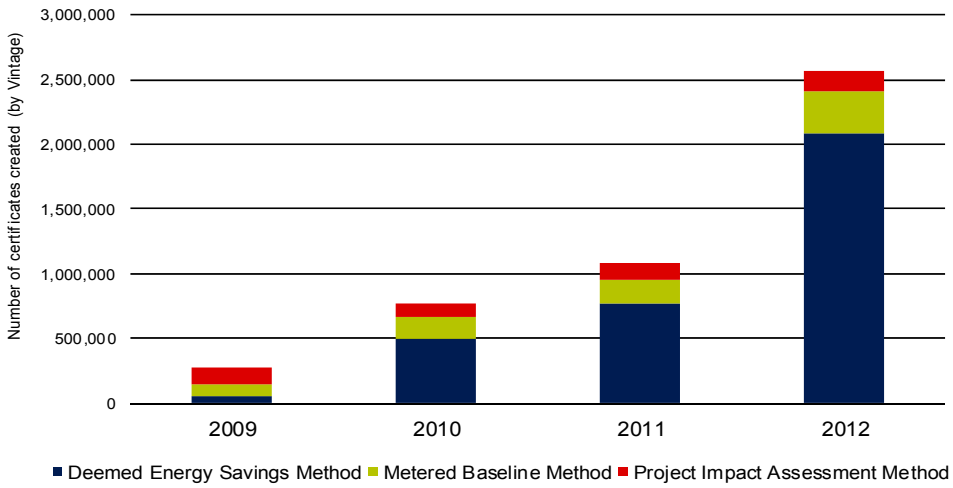



## 7.3 2012 certificates created by energy savings calculation method

During 2012, the number of certificates created under the Deemed Energy Savings Method continued to increase, both in absolute terms and relative to the other energy savings calculation methods. The number of certificates created under the Metered Baseline Method also increased, while the number created under the Project Impact Assessment Method remained reasonably constant (see Figure 7.3).

Most of the certificates created under the Deemed Energy Savings Method used the Commercial Lighting Energy Savings Formula sub-method (Table 7.1). The number using the Default Savings Factors sub-method continued to decline from the peak in 2010. Most of this decline can be attributed to the removal of showerhead replacements activities from the scheme.

**Figure 7.3 Number of certificates created by energy savings calculation method**




**Note:** 2009 represents the 6-month period from 1 July 2009 to 31 December 2009.

**Table 7.1 Number of certificates created by energy savings calculation sub-method**

| Vintage | 2009[a] | 2010 | 2011[b] | 2012 | Total |
|---|---|---|---|---|---|
| Deemed Energy Savings - Commercial Lighting Formula | 10,123 | 70,343 | 502,448 | 2,051,714 | **2,634,628** |
| Deemed Energy Savings - Default Savings Factors | 37,733 | 425,982 | 269,177 | 35,304 | **768,196** |
| Deemed Energy Savings - Power Factor Correction | 0 | 0 | 228 | 0 | **228** |
| Metered Baseline - per unit of output | 89,497 | 153,475 | 144,079 | 234,020 | **621,071** |
| Metered Baseline - unaffected by output | 630 | 856 | 3,909 | 8,599 | **13,994** |
| Metered Baseline - normalised baseline | 0 | 0 | 0 | 19,185 | **19,185** |
| Metered Baseline - Normalised by NABERS scheme | 4,073 | 14,339 | 37,577 | 57,465 | **113,454** |
| Project Impact Assessment Method | 134,886 | 99,390 | 122,097 | 166,691 | **523,064** |
| Total | 276,942 | 764,385 | 1,079,515 | 2,572,978 | 4,693,820 |

**a** Certificates shown for 2009 vintage represents a 6-month period from 1 July 2009 to 31 December 2009.

**b** There are small differences in the number of certificates shown for 2011 compared to last year's Annual Report. This reflects the number of certificates forfeited since that report was released.

## 7.4 Certificates created by project type

Almost 80% of 2012 vintage certificates were created from projects that involved replacing commercial lighting equipment with more energy-efficient lighting equipment and design. None were created from showerhead replacement activities, as these were removed from the scheme on 22 December 2011.

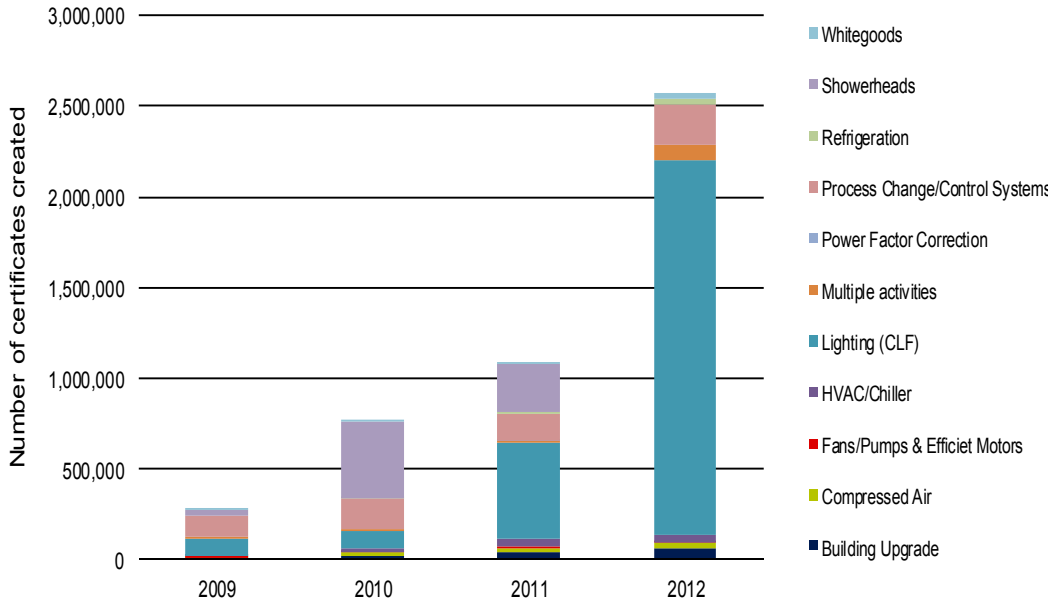
Figure 7.4 shows certificates created under each project-type for each year since the scheme has been in operation. Table 7.2 provides the same details, demonstrating the significant growth in commercial lighting projects.

**Table 7.2 Number of certificates created by project type**

| Project Type | 2009 | 2010 | 2011 | 2012 |
|---|---|---|---|---|
| Other | | | | |
| Building Upgrade | 4,073 | 14,339 | 37,577 | 56,379 |
| Compressed Air | 4,424 | 19,200 | 24,274 | 30,297 |
| Fans/Pumps & High Efficiency Motors | 6,968 | 9,245 | 8,216 | 6,505 |
| HVAC/Chiller | 7 | 16,683 | 37,878 | 41,007 |
| Multiple activities | 7,720 | 13,735 | 15,869 | 76,818 |
| Power Factor Correction | 0 | 0 | 228 | 0 |
| Whitegoods - Residential | 701 | 258 | 38 | 35,304 |
| Refrigeration | 0 | 1,606 | 9,696 | 23,428 |
| Showerheads | 37,032 | 424,685 | 266,308 | 0 |
| Process Change/Control Systems | 118,871 | 173,527 | 145,209 | 231,358 |
| Lighting (CLF) - Commercial | 97,146 | 91,107 | 534,222 | 2,071,882 |
| **Total** | **276,942** | **764,385** | **1,079,515** | **2,572,978** |

**Note:** 2009 represents the 6-month period from 1 July 2009 to 31 December 2009.

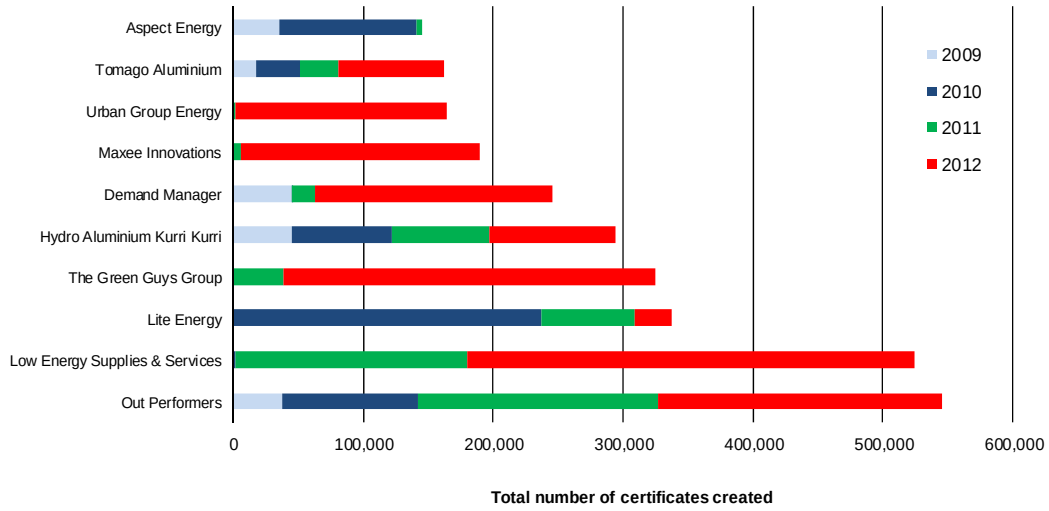
**Figure 7.4 Number of certificates created by project category**



## 7.5 Certificates created by Accredited Certificate Providers

During 2012, Out Performers remained the largest creator of certificates in the ESS, closely followed by Low Energy Supplies and Services. Figure 7.5 shows the 10 largest Accredited Certificate Providers that have created the most certificates since the scheme's commencement. Appendix B also provides additional details on certificate creation by individual RESA activity names.

**Figure 7.5 Accredited Certificate Providers – 10 largest certificate creators**




## 7.6 Certificates created by sector

Energy savings activities can be conducted in the commercial, residential and industrial sectors. In 2012, the number of certificates created in the commercial sector continued to increase, due to the large increase in commercial lighting projects (Table 7.3). The commercial sector now accounts for 66% of total certificate creations, while 14% of creations are from the residential sector.

**Table 7.3 Number of certificates created by sector**

| Sector | 2009 | 2010 | 2011 | 2012 | Total | % |
|---|---|---|---|---|---|---|
| Commercial | 100,066 | 170,439 | 652,353 | 2,184,119 | 3,106,977 | 66% |
| Industrial | 139,136 | 217,818 | 211,266 | 353,555 | 921,775 | 20% |
| Residential | 37,740 | 376,128 | 215,896 | 35,304 | 665,068 | 14% |
| Total | 276,942 | 764,385 | 1,079,515 | 2,572,978 | 4,693,820 | 100% |

**Note:** 2009 represents the 6-month period from 1 July 2009 to 31 December 2009.

## 7.7 Estimated energy savings - 2012 vintage certificates

Under the ESS, the certificates created by some RESAs represent energy savings that occurred during the year for which they were created. These include all RESAs under the Metered Baseline Method and most under the Project Impact Assessment Method, which are typically large-scale, industrial projects with significant annual savings.

However, the certificates created by other RESAs can represent both savings in the year of creation and estimated savings in future years. This is because the ESS Rule allows certificate creation in advance of actual energy savings when the energy savings are small. In particular:

- Under the Project Impact Assessment Method, it is possible to forward create certificates for up to 5 years of estimated energy savings at the start of the RESA. In these cases, the certificates claimed are discounted by an approved percentage and may be 'topped up' at the end of the forward creation period if savings can be verified.
- Under the Deemed Energy Savings Method, the lifetime or 'deemed' energy savings are estimated up-front and the certificates are forward created from the time the project is implemented. The deeming period depends on the type of project, and ranges from 1.5 years to 25 years.

Where certificates are created in advance of energy savings, an estimate of the actual energy savings occurring in future years is calculated by applying a discount factor to certificates created each year across the forward creation or deeming period, where applicable.

For 2012, we estimate that the 2,572,978 certificates created are equivalent to 2,427,338 MWh of energy saved. When taking into account the forward creation and deeming associated with this certificate creation, we estimate that the energy saving[26] that occurred in 2012 was 958,799 MWh.[27] The remaining energy savings are expected to be realised across future years, as shown in Table 7.4.

The estimated energy savings that occurred in 2012 represents a 238% increase in equivalent MWh (Table 7.5), when compared to 2011. Table 7.5 also shows the large increases in certificate creation and equivalent MWh savings that occurred in 2010, closely followed by the increase in 2012. Each year since the scheme's inception, growth rates have significantly exceeded 100%. As previously mentioned, a large portion of these savings were created under the commercial lighting energy savings formula sub-method of the Deemed Energy Savings Method.

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26 Section 174 of the Act requires an estimate of the actual energy savings that have been realised with regard to the number of certificates created.

27 Includes energy savings under all calculation methods where forward creation or deeming has been applied, only energy savings relating to the 2012 calendar year are included.

**Table 7.4 Changes in certificate creation and MWh energy savings by year**

| Vintage | 2009 | 2010 | 2011 | 2012 | Total 2009-12 |
|---|---|---|---|---|---|
| Certificates created | 276,942 | 764,385 | 1,079,515 | 2,572,978 | 4,693,820 |
| Equivalent MWh | 261,266 | 721,118 | 1,018,410 | 2,427,338 | 4,428,132 |
| % increase in ESCs creation (y-o-y) | | 276% | 141% | 238% | |

Also refer to Appendix C for further details on the estimated energy savings by project.

**Table 7.5 Estimated energy savings (MWh) by calculation method**

| Calculation Method | 2009/10 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022* | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Project Impact Assessment Method** | **125,782** | **96,472** | **119,745** | **69,972** | **44,766** | **25,654** | **9,976** | **1,090** | **0** | **0** | **0** | **0** | **0** | **493,457** |
| **Metered Baseline Method** | | | | | | | | | | | | | | |
| Baseline per unit of output | 229,219 | 135,924 | 220,774 | 25,084 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **611,000** |
| Baseline unaffected by output | 1,402 | 3,688 | 8,112 | 3,425 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **16,626** |
| Normalised baselines | 0 | 0 | 18,099 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **18,099** |
| Normalised by NABERS | 17,370 | 35,450 | 54,212 | 1,113 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **108,145** |
| **Metered Baseline Total** | **247,991** | **175,061** | **301,197** | **29,622** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **753,871** |
| **Deemed Energy Savings Method** | | | | | | | | | | | | | | |
| Default Savings Factors | 111,853 | 77,061 | 81,420 | 81,228 | 80,834 | 80,669 | 80,418 | 35,672 | 35,407 | 32,017 | 28,251 | 5,059 | 26 | **729,917** |
| Commercial Lighting Formula | 36,645 | 102,183 | 456,437 | 459,444 | 424,757 | 270,442 | 200,254 | 198,071 | 164,133 | 61,367 | 61,207 | 54,326 | 13,586 | **2,502,853** |
| High Efficiency Motor Formula | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| Power Factor Correction | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| **Deemed Energy Savings Total** | **148,498** | **179,244** | **537,857** | **540,672** | **505,591** | **351,112** | **280,672** | **233,743** | **199,540** | **93,385** | **89,459** | **59,385** | **13,612** | **3,232,771** |
| **Total estimated energy savings** | **522,271** | **450,778** | **958,799** | **640,266** | **550,357** | **376,765** | **290,648** | **234,833** | **199,540** | **93,385** | **89,459** | **59,385** | **13,612** | **4,480,098** |

* S 184(2)(e) requires the Scheme Administrator to estimate the energy savings created under the Scheme over the next 10 years having regard to the number of energy savings certificates that have been created.

## 7.8 Surrender of certificates

Almost 1.9 million certificates were surrendered by Scheme Participants to meet the Energy Savings Target for 2012. Since the ESS began, the total number of certificates surrendered by Scheme Participants is 3,749,387 (Table 7.6). The Registry also allows any member of the public to own certificates which can be surrendered to offset emissions – known as voluntary surrender. No certificates have yet been surrendered in this way.

At 30 June 2013, there were 1,649,716 live certificates held by Scheme Participants which remain available for surrender in future compliance years.

**Table 7.6 Total certificates surrendered**

| | Certificates surrendered by Scheme Participants | Certificates surrendered by voluntary participants |
|---|---|---|
| 2009 compliance year | 148,928 | 0 |
| 2010 compliance year | 651,655 | 0 |
| 2011 compliance year | 1,063,564 | 0 |
| 2012 compliance year | 1,885,240 | 0 |
| **Total certificates surrendered** | **3,749,387** | **0** |

# 8 Current and projected supply and demand for certificates

IPART monitors and publishes information about the supply of and demand for energy saving certificates annually, including our projections of future supply and demand. These projections are based on known information about existing Accredited Certificate Providers and applications for accreditation received, and where necessary, some conservative assumptions. Market participants should consider information about historic creation of certificates by Accredited Certificate Providers (available on the ESS Registry)[28] in making their own projections of supply and demand.

The sections below outline the developments that influenced certificate supply and demand in 2012, trends in the certificate spot price (which may influence supply and demand in the coming years), the approach we used to project future certificate supply and demand in 2013 and 2014, and our projection results.

## 8.1 Developments that influenced certificate supply and demand in 2012

The demand for certificates in a given calendar year is largely determined by the energy savings target for that year, which dictates the number of certificates that Scheme Participants are obliged to surrender to meet their individual targets (based on their liable acquisitions for that year). However, the ESS allows Scheme Participants to carry forward up to 10% their obligation to surrender certificates for a given year to the following year.

In 2012, the total demand for certificates was 1,857,069. However, as in any year, this figure was not known in advance. Rather, it was identified after all Scheme Participants had submitted their Annual Energy Savings Statements.

For the first time, the supply of certificates for 2012 exceeded Scheme Participants' total obligation for the year. In total, 2,553,999 certificates were created from eligible energy savings activities in 2012. In addition, 90,324 certificates remained un-surrendered from previous calendar years. Thus, the total supply of certificates for the purposes of 2012 compliance was 2,644,323.

[28] https://www.ggas-registry.nsw.gov.au.

This total represents approximately 142% of the energy savings target for 2012, well above the notional minimum requirement of 90% (taking into account that up to 10% of a Scheme Participant's obligation can be carried forward into the next year).

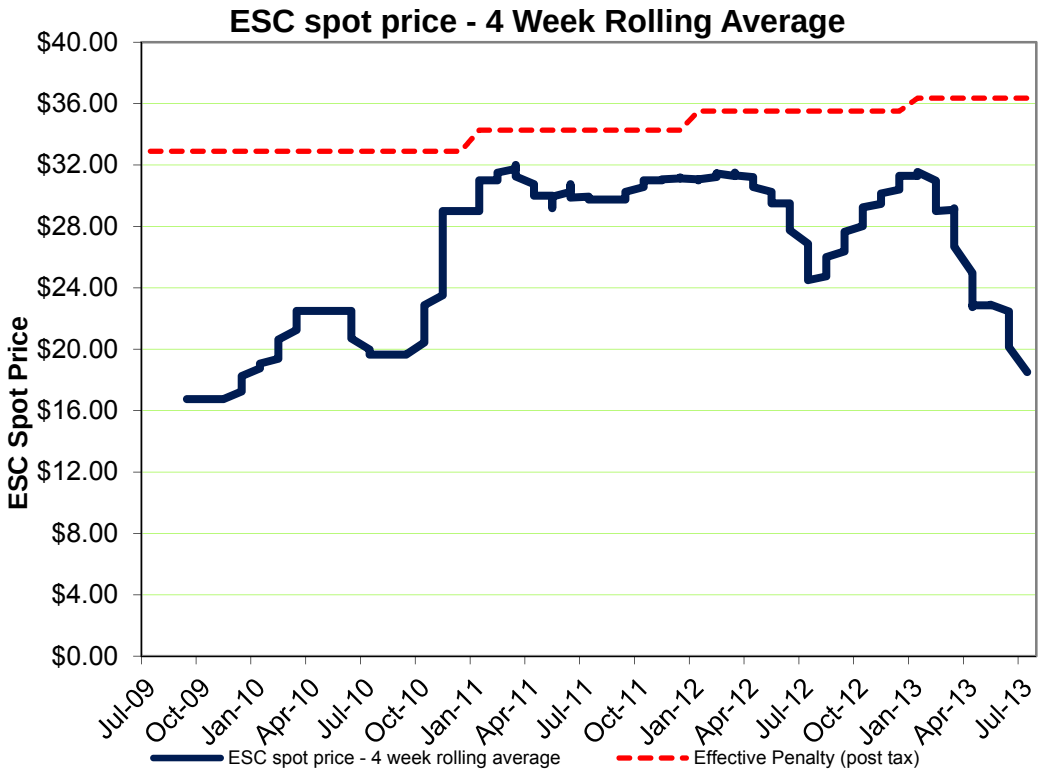
## 8.2 Trends in the certificate spot price

IPART does not regulate the price of energy saving certificates. However, we track trends in the published certificate spot market price, as these can influence supply and provide an indication of the state of the market. If prices go up, more projects will be cost effective to implement, which can increase certificate supply. Similarly, if certificate supply increases rapidly, this could have a negative impact on certificate price (ie, if the market considers supply will outstrip demand).

Since the ESS commenced, the certificate price has climbed significantly from $16.75 in August 2009, peaking at $32.00 in March 2011 and March 2012 (coinciding with the 2010 and 2011 compliance year deadlines of 18 March). However, in early 2013, prices fell significantly and were around $23.00 at the compliance deadline of 30 April 2013.[29] The surplus of 2012 vintage certificates, discussed in section 8.1 above is probably the major factor influencing the fall in price. Figure 8.1 shows the trend in the spot prices recorded for spot trades (where known).

[29] As Chapter 2 noted, the compliance deadline was changed to the end of April, to align with Victoria's VEET scheme.

**Figure 8.1 Trends in the energy saving certificate spot price, July 2009 to July 2013**




**Note:** This figure shows a 4-week rolling average of the last market spot price. The data account only for certificates traded through NGES and may not reflect the price paid by certificate buyers at the times shown. The Scheme Administrator recommends that persons seek independent advice before buying or selling certificates, and cautions against making decisions based solely on this chart.

**Data source:** The Green Room, published by Nextgen (see www.nges.com.au).

Published data indicates that spot trades constitute only a small proportion of total certificate transactions. Most transactions are forward trades, where the price may be agreed in advance for an extended period. The prices for such transactions may differ significantly from the prevailing spot price. Nevertheless, the spot price provides a useful guide to broad movements in the certificate price over time.

Several factors may influence certificate supply and demand in the future, and so could also influence the certificate price. These include:

- changes to the ESS Rule that impact on the eligibility of activities or the methodologies to calculate energy savings
- future energy consumption in light of recent falls
- the future of state energy efficiency schemes, and

Box 8.1 provides an overview of market commentary from The Green Room, a weekly report of spot market trades published by Nextgen.

**Box 8.1 Market commentary for 2012 from The Green Room, editions 338-401**

**16 January 2012:** A forward trade of $30.75 for 10,000 ESCs was reported.

**19 March 2012:** 20,000 ESCs of 2011 vintage traded at a spot of $32.00, whereas 2 forward trades for 2012 vintage settled at $29.95 and $29.50 respectively. The difference reflects the market view of undersupply for 2011 ESCs and Liable Parties keen to avoid paying a penalty. Given the uncertainty of the supply/demand balance for 2012, Liable parties were unwilling to pay the higher premium, instead adopting a wait-and-see approach to 2012 creation.

**24 September 2012**: A modest level of activity saw continued improvement in the price with a forward transaction for 10,000 ESCs settling at $29.00 and a spot trade at $28.50. This represents a recovery of 16% since mid-July.

**21 January 2013:** Trading was quiet until a trade of $31.35 for 5,000 ESCs. There were 3 forward deals for 2013 vintages for 25,000 and 20,000, all at $27.65. A final spot trade was recorded at $31.25 with ESCs holding above $31.00.

**25 March 2013:** Attention turned to vintage 2013. The market sits apart for long periods of time as buyers push back bids and sellers revise their business cases for installations. No 2012 ESCs were traded this week. Buyers tend to dip into the market to top up if they require additional ESCs to meet compliance. There is still premium in 2012 ESCs, but only if there is a buyer on a particular day.

As Scheme Participants are required to pay a base penalty rate of $26.45 per MWh[30] if they fail to meet their 2012 compliance obligation, the effective certificate price ceiling during 2012 was $35.51. This certificate ceiling price is inclusive of company tax.

The base penalty rate (which is CPI adjusted each year) is set to increase from $26.45 to $27.07 per MWh for the 2013 compliance year.[31] This will mean the effective certificate price ceiling for the 2013 compliance year will rise to $36.36.

## 8.3 Our approach for projecting certificate supply and demand to 2013 and 2014

To calculate future certificate demand, we use the methodology prescribed in Section 106 of the Act, which involves making a number of assumptions. To calculate certificate supply, we use the expected certificate creations (as nominated by Accredited Certificate Providers for their accredited RESAs and current applications as our base data), and 2 supply scenarios.

30 Equivalent to $24.86 per $tCO_2$-e calculated on the basis of the prescribed penalty conversion factor of 0.94.

31 Equivalent to $25.45 per $tCO_2$-e.

### 8.3.1 Projecting certificate demand

Certificate demand under the ESS is driven by the legislated targets for each year, which are met through the surrender of certificates by Scheme Participants. The target for each year is allocated to Scheme Participants in proportion to their liable acquisitions.

A Scheme Participant's liable acquisitions include all its NSW electricity purchases on the NEM, plus any unregistered generator sales[32] less any exempt load deductions[33] in NSW. This reduces the 'effective' target by approximately 20%.[34]

As detailed in Section 4.2, it was recently identified that the definition of liable acquisitions did not include non-market settled electricity purchased directly from a registered participant. The definition has been amended and Scheme Participants will be required to include all NSW electricity purchased on the NEM, plus any other non-market generator sales (whether from an unregistered or registered participant) less any exempt load deductions.

We base our calculation of the future demand for certificates on the methodology prescribed in Sections 106 and 107 of the Act. The future demand calculation is based on estimates of future energy consumption in NSW as determined by the Australian Energy Market Operator (AEMO).[35] Previously it was calculated based on estimates published by TransGrid.

In simple terms, for 2012 we calculated the demand as follows:

*Demand = Total Liable Acquisitions × Energy Savings Target × Energy Conversion Factor*

where

*Total Liable Acquisitions = AEMO's Total Electricity Customer Sales (for NSW only)*[36] *+ Total Unregistered Generator Purchases*[37] *– Total Exempt Load Deductions*

32 The definition of liable acquisitions in the Act has been amended to include non-market electricity purchases from registered generators for 2013 onwards.
33 Refer to Sections 4.3 and A.6 for further information on exempt loads.
34 Refer to Appendix A, Section A.7 for a table showing the ESS targets and further information.
35 AEMO is the national energy market (NEM) operator and planner for scheduled electricity generation, including NSW.
36 As per Table 4-2 of the National Electricity Forecasting Report published by AEMO on 29 June 2012. Note: projected Customer Sales in this report also includes the ACT.
37 Total Unregistered Generator Purchases includes solar photovoltaic (PV) generation.

The Energy Savings Target and Energy Conversion Factor are prescribed in Schedule 5 to the Act. To calculate the Total Liable Acquisitions we used:

- AEMO's mid-range (referred to as planning) estimates of energy consumption for NSW (excluding the ACT), as published in its National Electricity Forecasting Report 2012[38]
- our own assumption that Exempt Load Deductions will equal approximately 20% of all electricity purchases in NSW.

Also note that our assumption about the Total Exempt Load Deductions in 2012 and beyond is in line with the actual exemptions for previous compliance years. In previous years, the deductions were equal to approximately 20% of Scheme Participants' total energy purchases in that year. Therefore, we consider a Total Exempt Load Deduction figure of 20% to be a suitable proxy for estimating demand in future years.

### 8.3.2 Projecting certificate supply

To derive the base data for calculating future supplies of certificates, we use Accredited Certificate Providers' and applicants' calculations of the number of certificates they have created, and/or expect to create, from their RESAs over the period 1 July 2009 to 30 June 2015. For RESAs already accredited, we generally use the Nominated Number of certificates reported in the Accreditation Notice, or an estimate based on the creation of certificates from the RESA for 2012. However, where annual reports have been submitted (as part of an Accredited Certificate Provider's accreditation conditions) we use the updated forecast figures in these reports. For RESAs still in the application stage, we use forecast numbers that are an expected creation pattern based on the applicant's own calculations.

We projected certificate supply for 2013 and 2014 under 2 different supply-side scenarios. These scenarios are based on our knowledge of the potentially variable sources of supply for certificates, and include:

- **Scenario 1:** The projected supply of certificates is based on the energy savings expected to be achieved by currently accredited RESAs only (ie, excluding RESAs still in the application stage). This scenario is the low-range projection.
- **Scenario 2:** The projected supply of certificates is based on the energy savings expected to be achieved by all currently accredited RESAs and all applications to date. It is assumed that applicant RESAs will be accredited and will commence energy saving activities as anticipated by their proponents.

[38] AEMO National Electricity Forecasting Report 2012, see http://www.aemo.com.au/Electricity/Planning/Forecasting/National-Electricity-Forecasting-Report-2012.

Note that both these supply scenarios are conservative in nature. They only include certificates from RESA applications that were either approved or being assessed as at 30 June 2013. We anticipate receiving further RESA applications in the future which, if accredited, will add to the certificate supply we have projected. In addition, these scenarios assume there will be zero un-surrendered certificates available meet 2014 compliance (as the amount available cannot be known at this stage). Further, they do not encompass additional supply that may come from any new technologies or new activities that might be introduced following any changes to the ESS Rule. Likewise, they do not take account of any activities that may be removed from the Scheme as part of any Rule change or the impact of price movements on future supply.

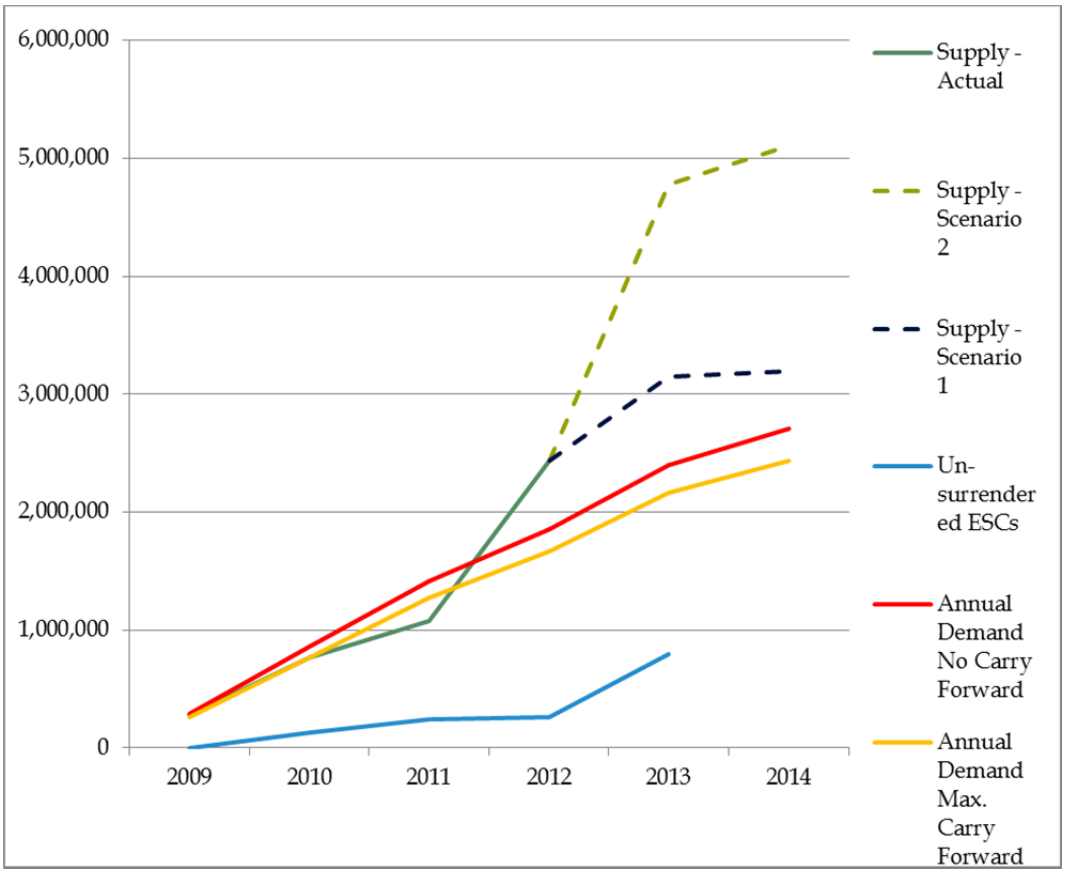
While the Act allows for the ESS to continue until 2020, we have chosen to project certificate supply and demand to the end of 2014 only. This shortened timeframe reflects the fact that any projection more than 2 years out may be unreliable due to:

- the unpredictable nature of future prices for certificates
- the relatively short history of the ESS to date (and therefore only a limited, albeit growing, knowledge of participant behaviour), and
- the effect of forward creation on projections, whereby some project proponents are eligible to forward create certificates (see section 7.7).

## 8.4 Projection results

Our projections suggest there will be surplus certificates to meet demand in 2013 and 2014 under both supply scenarios, despite increases in the ESS target each year to 4.5% and 5% respectively.

**Figure 8.2 IPART's projections for certificate supply and demand in 2013 and 2014 (as at 30 June 2013)**




**Note**: These projections are for illustrative purposes only and should not be relied upon. For example, the demand/supply outlook may vary if the ESS Rule changes, if applications currently being assessed fail to be accredited, or if estimates of future certificate creation by applicants and accredited parties are inaccurate.

### 8.4.1 Projected demand

As Figure 8.2 shows, demand for certificates is projected to steadily rise in the period 2013 to 2014 (and beyond). This is primarily because the legislated target increases in both years (see Appendix A for more information).

However, we note that actual demand may be affected by changes in demand for grid electricity (which would affect Scheme Participants' total liable acquisitions). As indicated in section 8.2 above, we establish total liable acquisitions partly based on AEMO's forecast of electricity sales in NSW. Although AEMO has forecasted steadily rising demand in these sales to 2020/21, recent trends show decreasing demand.[39] Reasons for this include:

- higher retail electricity prices
- decreasing industrial demand (as evidence by closure/mothballing of Hydro Aluminium's Kurri Kurri Aluminium smelter and Bluescope Steel's No. 6 blast furnace)
- improved energy efficiency, and
- increased embedded generation such as solar PV.

### 8.4.2 Projected supply

Under both Scenario 1 and Scenario 2, our projections indicate supply will increase in 2013. This is due to continuing growth in commercial lighting activities which accounted for 80% of all certificate creation in 2012. Barring major changes to the Rule, or saturation of the commercial lighting market, these projects will comprise the majority of ongoing certificate creation.

Our projections indicate that supply will increase further in 2014 and remain higher than projected demand. This is due to expected continued supply from commercial lighting activities but does not take into account the effect of certificate price fluctuations or changes to the ESS Rule.

[39] AEMO National Electricity Forecasting Report 2012, see: http://www.aemo.com.au/Electricity/Planning/Forecasting/National-Electricity-Forecasting-Report-2012.

# Appendices

# A Overview of the ESS

The ESS is a NSW-based energy efficiency scheme which commenced on 1 July 2009. It is legislated to continue until 2020 or until a national scheme with similar objectives is introduced. Its principal objective is to achieve energy savings and to reduce carbon emissions by creating a financial incentive to reduce the consumption of electricity through energy savings activities.

The ESS is established under Part 9 of the NSW *Electricity Supply Act 1995* (the Act), and commenced operation in July 2009. The objectives set out in the Act state that the ESS is to:

- assist households and businesses to reduce their electricity consumption and electricity costs
- complement national schemes for reducing carbon pollution by making the reduction of greenhouse gas emissions achievable at a lower cost, and
- reduce the cost of, and the need for, additional energy generation, transmission and distribution infrastructure.[40]

The ESS is designed to increase opportunities to improve energy efficiency by placing obligations on parties to undertake or pay for energy efficiency programs, and rewarding companies that undertake eligible projects that either reduce electricity consumption or improve the efficiency of electricity use. It was developed as a complementary but independent measure to the Carbon Pollution Reduction Scheme (CPRS) proposed at the time by the Commonwealth Government. It is modelled on the end-use energy efficiency part of the Demand Side Abatement component of the Greenhouse Gas Reduction Scheme (GGAS). This part of GGAS ceased with the commencement of the ESS. The ESS does not include the use of gas.

40 Section 98 of the Act.

The ESS places a mandatory obligation on Scheme Participants (electricity retailers and other parties licensed to buy or directly supply electricity in NSW) to obtain and surrender Energy Savings Certificates (ESCs), which represent eligible energy savings under the ESS. Scheme Participants purchase certificates from Accredited Certificate Providers, who create certificates following the implementation of Recognised Energy Savings Activities (RESAs). Companies that are Scheme Participants may also apply to become Accredited Certificate Providers.

IPART is both Scheme Regulator and Scheme Administrator of the ESS. In these roles, we:

- monitor and report on Scheme Participants' compliance with their ESS obligations
- assess Accredited Certificate Providers' applications to create certificates from specific energy savings projects under the *Energy Savings Scheme Rule of 2009* (ESS Rule), and accredit those we find to be eligible
- monitor and report on Accredited Certificate Providers' compliance with the conditions of their accreditation and the ESS Rule
- conduct independent audits to ensure the integrity of the scheme is maintained
- manage the GGAS & ESS Registry which tracks the creation, transfer and surrender of certificates[41]
- monitor and publish annual reports on the supply of and demand for certificates.

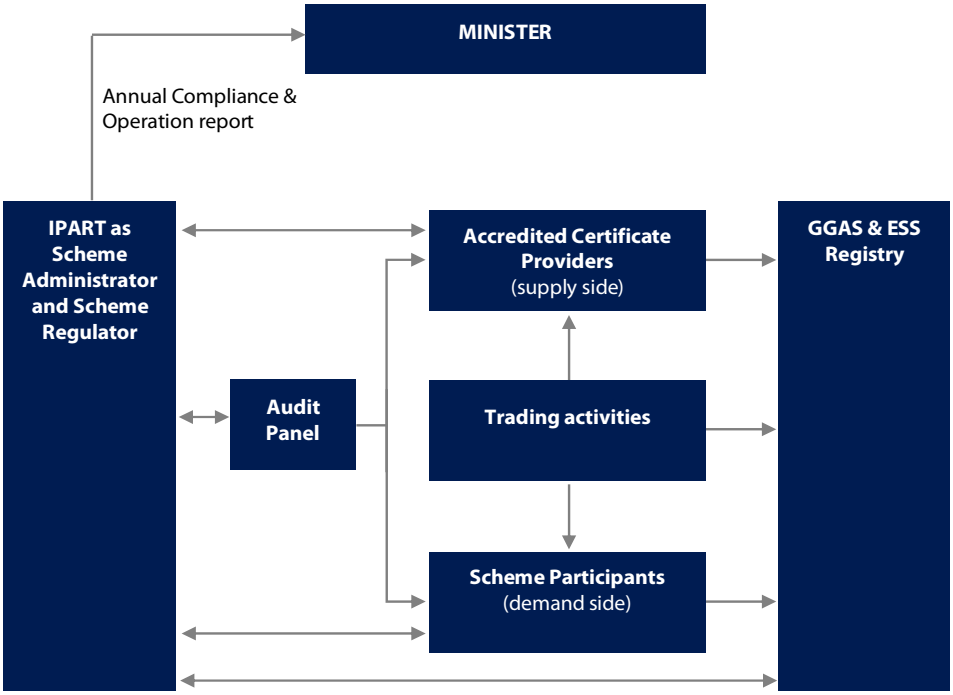
We also host the ESS website, which can be found at www.ess.nsw.gov.au.

Figure A.1 provides an overview of the structure of ESS. The sections below provide more information on key elements of the scheme, including the:

- functions of the Scheme Regulator and Scheme Administrator
- Scheme Participants
- Accredited Certificate Providers and RESAs
- ESS Registry
- ESS legislation
- Ministerial Order and Exemptions Rule, and
- ESS targets.

41 See https://www.ggas-registry.nsw.gov.au.

**Figure A.1 Structure of the ESS**




## A.1 Functions of Scheme Regulator and Scheme Administrator

The Scheme Regulator's role is to monitor the Scheme Participants' compliance with the ESS targets, which includes conducting independent audits of this compliance.

The Scheme Administrator's roles include:

- assessing applications for accreditation as an Accredited Certificate Provider
- accrediting these providers to undertake eligible activities and to create certificates from those activities
- monitoring compliance of Accredited Certificate Providers by conducting independent audits
- managing the GGAS & ESS Registry – an online database which records the creation, transfer and ultimate surrender of certificates.

## A.2 Scheme Participants

Electricity retailers and certain other parties who buy or directly supply electricity in NSW are mandatory participants in the ESS and are called Scheme Participants. Scheme Participants are required to meet individual energy savings targets based on the size of their share of NSW's liable electricity acquisitions (see Section A.7).

Scheme Participants buy certificates from Accredited Certificate Providers. Each Scheme Participant must calculate its individual energy savings target and obtain and surrender certificates in order to meet its target. If a Scheme Participant does not surrender sufficient certificates, it will have an energy savings shortfall and can choose to carry this shortfall forward to the following year (up to 10% of their individual energy savings target) or be subject to a shortfall penalty.

To comply with the ESS, Scheme Participants must lodge an Annual Energy Savings Statement (AESS) with the Scheme Regulator each year. The legislation provides for the Scheme Regulator to require that these statements be audited as part of its assessment of Scheme Participants' compliance. Where an audit is required, Scheme Participants are required to engage an auditor from the ESS Audit Services Panel.

## A.3 Accredited Certificate Providers and Recognised Energy Savings Activities

Companies voluntarily apply for accreditation in the ESS to undertake Recognised Energy Savings Activities (RESAs). Once accredited, they are called Accredited Certificate Providers. They are subject to a number of conditions of accreditation which outline their responsibilities as determined by the Act, Regulation and the *Energy Savings Scheme Rule of 2009* (ESS Rule).

RESAs are the specific activities implemented by Accredited Certificate Providers to reduce the consumption of electricity or increase the efficiency of electricity consumption. A RESA cannot include an activity that has been undertaken to comply with any statutory requirement (eg, another scheme or development application requirement). In addition, a RESA cannot reduce the scope or quantity of production or service from the use of electricity. For example, closing part of a factory would not qualify as a RESA under the ESS as production has reduced. In addition, a RESA must have been implemented on or after 1 July 2008 to be eligible.

The legislation provides for the Scheme Administrator to require audits of RESAs as part of the assessment of compliance by Accredited Certificate Providers. Where an audit is required, Accredited Certificate Providers are required to engage an auditor from the ESS Audit Services Panel.

## A.4 ESS Registry

The ESS Registry[42] is a web-based database that records Accredited Certificate Providers and certificates as required by legislation. The Registry tracks certificate creation, transfer and surrender and can be accessed by all participants and members of the public.

Certificates are transferrable and the Registry records all changes in ownership of certificates. However, the Registry is not a trading platform as trading of certificates is expected to occur outside of the Registry whether bilaterally, through brokers or through other trading platforms.

## A.5 The ESS legislation

The ESS is established in NSW through the *Electricity Supply Act 1995* (the Act). The Act sets out the legal and technical framework of the ESS as well as the functions and responsibilities of Scheme Regulator and Scheme Administrator.

The Act is supported by the *Electricity Supply (General) Regulation 2001* (the Regulation) which makes provision for aspects of the operation of the ESS. The Regulation provides further details of the ESS, such as:

- the assessment of compliance of Scheme Participants
- the eligibility requirements for accreditation as an Accredited Certificate Provider
- the conditions of accreditation that are imposed by the Scheme Administrator
- the creation and transfer of certificates
- the conduct of audits
- the requirement to maintain a register of Accredited Certificate Providers and a register of certificate creation and ownership.

The ESS Rule issued by the NSW Minister for Resources and Energy provides additional eligibility requirements and calculation methodologies for Accredited Certificate Providers and their accreditations. The ESS Rule sets out:

- the types of eligible and ineligible activities
- the requirements for eligible applicants
- detailed calculation methodologies
- the calculation methods for the creation of certificates.

42 The ESS Registry is also referred to as the GGAS-ESS Registry as it was originally developed for the GGAS Scheme. GGAS closed on 30 June 2012.

The NSW Department of Trade and Investment, Regional Infrastructure and Services (DTIRIS) has responsibility for policy development of the ESS and ultimate responsibility for any legislative changes introduced to the ESS. DTIRIS is responsible for recommending any Rule changes to the Minister for Resources and Energy. The Office of Environment and Heritage (OEH) provides policy support and recommends developments to the ESS.

## A.6 Ministerial Order and the Exemptions Rule

Exemptions are allowed under the ESS for electricity loads used in conjunction with emissions-intensive and trade-exposed industries or activities. They are granted by the NSW Minister for Resources Energy via a Ministerial Order.[43] The Ministerial Order lists each exempted person (company), and each emissions intensive trade exposed activity being carried out, the location and the proportion of electricity load granted exemption (either 60% or 90%). The Ministerial Order also allows a further deduction for network losses and authorises the Scheme Regulator to make rules with respect to the way in which the deduction of the exempt load is applied and the evidence needed in support of these deductions.

The most recent Ministerial Order was published on 21 December 2012 and applies from 1 January 2013 until it is revoked. Any change to the Ministerial Order needs to be gazetted prior to 31 December of the year preceding the year the Order is to have its effect. For the purpose of the 2012 compliance year, the Ministerial Order published on 16 December 2011, and amended on 25 June 2012 applies.

Scheme Participants that supply electricity to a person specified in the Ministerial Order are entitled to deduct a specified portion of the electricity load from that location from their liable acquisitions using the *Scheme Regulator Exemptions Rule No. 1 of 2009* (Exemptions Rule). The Exemptions Rule outlines the manner in which Scheme Participants calculate and claim deductions from the total value of their liable acquisitions and specifies the evidence Scheme Participants must provide in support of any deductions.

Exemptions under the ESS are designed to align with the approach the Commonwealth Government takes regarding emissions-intensive trade-exposed industries and activities in implementing its expanded Renewable Energy Target and any proposed national scheme. It is regularly revised and updated to take account of any changes.

[43] The Ministerial Order can be downloaded from the ESS website at www.ess.nsw.gov.au/How_the_scheme_works/Framework_and_Rules.

## A.7 ESS targets

The ESS has legislated targets for each year that need to be met through the surrender of certificates by Scheme Participants. The ESS target for each year is allocated to Scheme Participants in proportion to their liable acquisitions. A Scheme Participant's liable acquisitions include all its NSW electricity purchases from Australian Energy Market Operator (AEMO), plus any unregistered generator sales[44] (including rooftop solar photovoltaic) less any exempt sales in NSW. This results in an 'effective' target that, for NSW, is approximately 20% less than the legislated target (20% being the approximate percentage of exempt sales).

Table A.1 shows the target (both with and without exemptions) gradually increasing until 2014, after which it remains constant until 2020.

**Table A.1 Annual ESS targets over life of scheme**

| Year | ESS target (% of annual liable electricity sales) | Effective ESS target (% of annual NSW electricity sales) |
|---|---|---|
| 2009[a] | 0.5% | 0.4% |
| 2010 | 1.5% | 1.2% |
| 2011 | 2.5% | 2.0% |
| 2012 | 3.5% | 2.8% |
| 2013 | 4.5% | 3.6% |
| 2014-2020 | 5.0% | 4.0% |

[a] Half year from 1 July.

The targets were developed following modelling by consultants engaged by the former Department of Environment, Climate Change and Water. The modelling involved estimation of the marginal cost of abatement for various energy efficiency activities, and the amount of energy savings that could be achieved based on differing certificate prices.

Although the targets in the ESS are based on electricity sales (MWh), certificates are measured in tonnes of $CO_2$-e to be consistent with the former GGAS and any national scheme. In converting MWh to $CO_2$-e, a recognised and robust greenhouse emission factor needs to be applied. Drawing on work carried out by the Commonwealth, the value of 1.06 kg $CO_2$-e/kWh has been approved for use in the ESS. This factor is called the ESS 'certificate conversion factor' and is listed in Schedule 5B of the Act.

[44] The intent of the ESS is to capture all AEMO and non-AEMO purchases made by a Scheme Participant.

## A.8 Calculation methods

The ESS Rule sets out the type of activities undertaken by Accredited Certificate Providers and the methodologies for calculating the number of certificates. The 3 methodologies are:

- Project Impact Assessment Method
- Metered Baseline Method
- Deemed Energy Savings Method.

This section describes each calculation method in more detail.

### A.8.1 Project Impact Assessment Method

The Project Impact Assessment Method calculates savings from one-off energy savings projects. This method is most appropriate when:

- energy savings are small compared to the site's consumption
- baseline energy consumption data for the site is unavailable, or
- the variation in the baseline energy consumption due to other factors is high.

The energy savings can be determined by various means, including by direct measurement or by an engineering assessment. The Project Impact Assessment Method applies a confidence factor which reflects the accuracy and/or reliability of the data used to calculate energy savings.

One of the advantages of the Project Impact Assessment Method is that it is possible to make an up-front assessment of estimated future savings (known as forward creation of certificates). This is considered to be an incentive where projects achieve small annual savings that might be insufficient to warrant accreditation under the ESS.

The ESS Rule allows the forward creation of up to 5 years of certificates from a RESA that has ongoing energy savings as soon as the RESA is commenced. However, discount factors will apply to any forward creation (see Table A.2).

**Table A.2 Discount factors for calculating forward creation of certificates under the Project Impact Assessment Method**

| Year | Discount factor |
|---|---|
| 1 | 1.00 |
| 2 | 0.80 |
| 3 | 0.60 |
| 4 | 0.40 |
| 5 | 0.20 |

**Source:** Schedule 5, Table 16 of the ESS Rule.

The ESS Rule also allows Accredited Certificate Providers who use the forward creation provisions under the Project Impact Assessment Method to revisit the savings claimed at the end of the 5-year period and to 'top up' the savings if a greater level of savings can be verified. To do this they need to have maintained adequate records so that any additional savings claimed can be validated by an independent audit of the project.

### A.8.2 Metered Baseline Method

The Metered Baseline Method involves measuring the electricity consumption before the RESA commences to establish a baseline electricity consumption standard for the site, and then measuring this consumption again after the RESA has commenced to establish new levels of electricity consumption. The difference between these measurements represents the impact of the RESA (assuming that the remainder of the site continues to operate as it did before the RESA commenced). This idea of 'before' and 'after' measurements is fundamental to the design of the ESS as the recognition of energy savings is based on being able to confirm savings against a baseline.

The Metered Baseline Method comprises 4 sub-methods for measuring consumption. Which of these is most appropriate depends on the nature of the project. These methods include the baseline per unit of output, baseline unaffected by output, normalised baseline and National Australian Built Environment Rating System (NABERS) methods.

#### Baseline per unit of output method

This method is most appropriate where consumption is strongly linked to output (eg, aluminium smelting). This method is usually used if:

- the consumption of all energy sources for the site are linear functions of output (that is they directly reflect each other)
- where the energy consumption that is fixed (that is, the proportion of energy consumed at the site does not vary with variations in output), can be measured or estimated, and
- output has not changed by more than 50% from the average output over the period that the baseline was measured.

#### Baseline unaffected by output method

This method is most appropriate where energy consumption is not linked to output (eg, schools and swimming pools).

### Normalised baseline method

This method is most appropriate where the baseline needs to be normalised to remove explainable variation from the baseline. Examples may include changes to ambient conditions or input characteristics.

### National Australian Built Environment Rating System baseline method

The NABERS method is based on the normalised baseline approach and consists of 2 methods which are Method 4a for existing NABERS buildings and Method 4b for new NABERS buildings. These methods are used for normalising baseline energy consumption of offices, hotels and shopping centre buildings which use the NABERS Method for measuring building energy performance.

NABERS ratings (administered by the NSW Office of Environment and Heritage) are star based, with more stars indicating a higher level of energy efficiency. The number of buildings with NABERS ratings is expected to increase significantly following the introduction of the national Commercial Building Disclosure (CBD) program[45] which came into effect in November 2010. As part of the CBD program, most building owners or lessors seeking to sell or lease commercial office space with a net lettable area of 2,000m² or more will be required to have and to disclose to interested parties a current NABERS energy rating for the building.

## A.8.3 Deemed Energy Savings Method

The Deemed Energy Savings Method is used for the installation of common end-user equipment, such as refrigerators and more energy efficient lighting. The method comprises 4 sub-methods, which provide robust and easy-to-use equations and factors for specific activities and/or equipment to calculate the energy savings/number of certificates claimed. The method allows certificates to be claimed at the time of implementation of the energy savings activity, for the energy savings that will occur over the deemed lifetime for the activity.

As part of the calculation methodology of each sub-method, there are assumed deeming periods for different activities. The Scheme Administrator also takes account of these deeming periods when determining actual annual energy savings from accredited RESAs.

45 See www.cbd.gov.au

Table A.3 shows the deeming periods for some of the common activities/equipment. The sections below outline the 4 sub-methods

- default savings factors
- commercial lighting energy savings formula
- high-efficiency motor energy savings formula, and
- power factor correction energy savings formula.

**Table A.3 Deeming periods for certain activities and/or equipment under the Deemed Energy Savings Method**

| Activity and/or end-user equipment | Deeming period |
|---|---|
| Replacement of 50W ELV halogen lamp with 35W ELV halogen lamp | 4,000-10,000 hours |
| Replacement of 50W ELV halogen lamp and magnetic transformer with 35W ELV halogen lamp and electronic transformer – Residential & Commercial | 4,000-10,000 hours |
| Replacement of a 50W halogen ELV lamp and transformer with a CFL, CCFL, LED or CMH, which has a Lamp Life of ≥10,000 hours | 10,000 hours |
| Purchase of a new high efficiency Clothes Washer | 12 years |
| Purchase of a new high efficiency Dishwasher | 16 years |
| Destruction of refrigerator or freezer built before 1996 | 7 years |
| Purchase of a new high efficiency Refrigerator | 16 years |
| Purchase of a new high efficiency Freezer | 20 years |
| Upgrade of commercial lighting, where the upgrade cannot be easily 'reversed': Other lighting | 10 years |
| Upgrade of commercial lighting, where the upgrade cannot be easily 'reversed': Road lighting | 12 years |
| Installation of high efficiency motor | 12-25 years |
| Power factor correction equipment | 10 years |

### Default savings factors

The default savings factors sub-method is used for projects that involve the installation or supply of end-user equipment types listed in Tables 1 to 8 of Schedule A of the ESS Rule. This includes the replacement of halogen down-lights with energy efficient alternatives; the sale or purchase of energy efficient clothes washers, dishwashers, fridges or freezers; the retirement of old spare fridges and freezers; and the installation of energy efficient shower heads[46]. It does not include the installation of compact fluorescent light globes or water flow restrictors.

[46] Replacement of showerheads is no longer eligible after the Rule amendment in 2011.

### Commercial lighting energy savings formula

This sub-method is used for projects that only involve energy savings attributable to commercial lighting upgrades.

An electronic Commercial Lighting Calculation Tool is available on the ESS website for persons to calculate the number of certificates they may create from a commercial lighting upgrade. The Tool sets out the correct factors and discounts applicable for all eligible types of commercial lighting installations. As new technologies become available, both the ESS Rule and this tool will be updated to take account of new developments.

The advantage of the Commercial Lighting Calculation Tool is that it simplifies the calculation of energy savings and certificate creation that may be achieved from a lighting upgrade. An applicant can easily determine whether a project is eligible, and whether participation in the ESS is warranted.

### High efficiency motor energy savings formula

This sub-method is used for projects that only involve energy savings attributable to the sale or installation of one or more high efficiency motors. Table 12 of the ESS Rule contains an extensive list of default load utilisation factors for high efficiency motors where the end-user equipment and end-use are known. The load utilisation factors are divided into different categories depending on the end-use industry sector (eg, agriculture, mining, construction etc).

Table 13 in the ESS Rule lists a number of default load utilisation factors where the end-user equipment and end-use are not known, and consequently is based on rated output in kW for different sizes of high efficiency motors.

### Power factor correction energy savings formula

This sub-method is used for projects that only involve energy savings attributable to the reduced losses from the installation of Power Factor Correction (PFC) equipment.

The Electricity Service and Installation Rules of NSW[47] require the power factor of a site to be a minimum of 0.9 lagging. As such, certificates can be generated only by the implementation of PFC which increases the power factor of a site above 0.9 to a maximum of 0.98.

## A.9 Process of incorporating new methods into the ESS Rule

As noted above, if a RESA or RESA project is unable to satisfy the criteria in one of the 3 methods listed in the ESS Rule, then the applicant can either modify its project, if possible, or apply to have a new methodology incorporated into the ESS Rule.

For parties seeking to have new methodologies included in the ESS Rule, information is available from the Office of Environment and Heritage, which has responsibility for investigating areas to develop and expand the ESS Rule. Changes to the ESS Rule, including the addition of new methodologies, are the responsibility of the NSW Department of Trade and Investment, Regional Infrastructure and Services and require approval by the Minister for Resources and Energy.

47 www.industry.nsw.gov.au/energy/electricity/network-connections/rules

# B Creation of certificates

The ESS Rule makes provisions for the creation of certificates where an Accredited Certificate Provider is carrying out an eligible RESA. This appendix provides a detailed breakdown of certificate creation for each vintage year by individual RESA activity.

Both current and cancelled activities are included.

Data in this chapter are current as at 30 June 2013.

**Table B.1 Project Impact Assessment Method (certificates created)**

| Company Name | RESA / Activity Name | 2009 | 2010 | 2011 | 2012 | Total |
|---|---|---|---|---|---|---|
| Apathco Group Pty Ltd | Voltage Optimisation Unit Installation | 0 | 0 | 0 | 12,050 | **12,050** |
| Autonomous Energy Pty Ltd | Compressed Air Energy Efficiency Upgrade | 0 | 0 | 0 | 0 | **0** |
| BlueScope Steel (AIS) Pty Ltd | Coke Plant FSP Improvement | 0 | 0 | 0 | 8,981 | **8,981** |
| BOC Ltd | Port Kembla LMPC | 0 | 1,052 | 0 | 0 | **1,052** |
| Boral Ltd | Berrima Kiln 6 Upgrade | 6,350 | 8,942 | 4,327 | 6,238 | **25,857** |
| Coles Supermarkets Australia Pty Ltd | Coles Supermarket Lighting Controls Upgrade | 0 | 0 | 11,647 | 3,716 | **15,363** |
| Commonwealth Bank of Australia | Branch Network BMS Upgrade | 271 | 538 | 0 | 0 | **809** |
| Commonwealth Bank of Australia | Lighting Controls | 282 | 560 | 0 | 0 | **842** |
| Commonwealth Bank of Australia | User IT Equipment Shutdown | 0 | 0 | 0 | 2,449 | **2,449** |
| Commonwealth Bank of Australia | Voltage reduction in branch network lighting | 275 | 0 | 0 | 0 | **275** |
| Commonwealth Bank of Australia | VSD Upgrades on cooling fans and condenser pump | 58 | 116 | 0 | 0 | **174** |
| Continental Carbon Australia Pty Ltd | Installation of VSD on boiler fan | 816 | 0 | 0 | 0 | **816** |
| CSR Building Products Ltd | Warehouse control system upgrade | 0 | 0 | 0 | 1,021 | **1,021** |
| Demand Manager Pty Ltd | Lighting Aggregation Project - PIAM | 44,886 | 0 | 0 | 0 | **44,886** |
| Essential Energy | Conductor Optimisation Program | 0 | 0 | 0 | 0 | **0** |
| Golder Associates Pty Ltd | Flakt 2 VSD | 0 | 0 | 0 | 0 | **0** |
| GridX Power Pty Ltd | Glenfield MiniGrid Home Space Cooling Project | 7 | 0 | 0 | 0 | **7** |
| Merck Sharp & Dohme (Australia) Pty Ltd | Lighting voltage reduction | 0 | 0 | 0 | 0 | **0** |
| Norske Skog Paper Mills (Australia) Ltd | Deckers Feed Pump Bypass | 2,246 | 4,456 | 4,456 | 4,468 | **15,626** |
| Norske Skog Paper Mills (Australia) Ltd | Paper machine vacuum system optimisation | 0 | 3,019 | 5,288 | 3,367 | **11,674** |
| Out Performers (Griffone Family Trust trading as) | OP001 Diageo Huntingwood Refrigeration | 1,417 | 0 | 0 | 0 | **1,417** |
| Out Performers (Griffone Family Trust trading as) | OP002 Simplot Bathurst Refrigeration | 3,280 | 0 | 0 | 0 | **3,280** |
| Out Performers (Griffone Family Trust trading as) | OP005 OneSteel Waratah Steel Mill Efficiency | 11,653 | 0 | 0 | 0 | **11,653** |
| Out Performers (Griffone Family Trust trading as) | OP007 OneSteel Sydney Steel Mill EAF Efficiency | 17,447 | 0 | 0 | 0 | **17,447** |
| Out Performers (Griffone Family Trust trading as) | OP008 Westpac DCD | 0 | 10,592 | 0 | 0 | **10,592** |
| Out Performers (Griffone Family Trust trading as) | OP009 Hunter Water Energy Savings | 975 | 7,225 | 3,514 | 0 | **11,714** |
| Out Performers (Griffone Family Trust) | OP010 Compressed Air Projects | 2,759 | 19,200 | 24,274 | 28,591 | **74,824** |
| Out Performers (Griffone Family Trust) | OP011 Nationwide News | 0 | 3,572 | 0 | 0 | **3,572** |
| Out Performers (Griffone Family Trust) | OP013 Commercial and Industrial Chillers | 0 | 13,111 | 37,812 | 38,313 | **89,236** |

| Company Name | RESA / Activity Name | 2009 | 2010 | 2011 | 2012 | Total |
|---|---|---|---|---|---|---|
| Out Performers (Griffone Family Trust) | OP014 Pfizer Air Handling Unit | 0 | 0 | 0 | 817 | **817** |
| Out Performers (Griffone Family Trust) | OP015 Commercial and Industrial Refrigeration | 0 | 1,606 | 3,253 | 3,782 | **8,641** |
| Out Performers (Griffone Family Trust) | OP016.1.1 Rio Tinto Spiral Upgrade | 0 | 0 | 1,540 | 0 | **1,540** |
| Out Performers (Griffone Family Trust) | OP016.1.2 Rio Tinto HVO | 0 | 0 | 1,290 | 0 | **1,290** |
| Out Performers (Griffone Family Trust) | OP018 Water and Wastewater RESA | 0 | 0 | 0 | 31,687 | **31,687** |
| Out Performers (Griffone Family Trust) | OP020 Motor VSD | 0 | 0 | 0 | 2,037 | **2,037** |
| Roads and Maritime Services | Upgrade of Traffic Lights | 31,180 | 0 | 0 | 0 | **31,180** |
| SEE Enterprises Pty Limited | Lurgi & Flakt2 baghouse flow reduction- OneSteel | 0 | 5,516 | 0 | 0 | **5,516** |
| Steve Halloran Refrigeration Pty Ltd | Commercial HVACR - Variable Technology Upgrade | 0 | 0 | 0 | 0 | **0** |
| Tooheys Pty Ltd | PIAM method RESA | 0 | 0 | 6,443 | 2,722 | **9,165** |
| University of Technology Sydney | Building 2 Lighting Upgrade | 585 | 0 | 0 | 0 | **585** |
| University of Wollongong | Occupancy Sensor and Voltage Reduction for Lighting | 323 | 643 | 0 | 0 | **966** |
| Visy Pulp & Paper Pty Ltd | Cooling Water Pumps Improvement | 855 | 1,258 | 957 | 0 | **3,070** |
| Western Sydney Local Health District | Variable speed drives on air handling plant | 0 | 0 | 0 | 0 | **0** |
| Woolworths Ltd | Supermarket After Hours Lighting Controls | 9,221 | 17,984 | 17,296 | 16,452 | **60,953** |
| **Calculation Method Total** | | **134,886** | **99,390** | **122,097** | **166,691** | **523,064** |

### Table B.2 Metered Baseline Method – baseline per unit of output (certificates created)

| Company Name | RESA / Activity Name | 2009 | 2010 | 2011 | 2012 | Total |
|---|---|---|---|---|---|---|
| A J Bush & Sons (Manufactures) Pty Ltd | Riverstone Plant Upgrade | 0 | 0 | 0 | 0 | **0** |
| Amcor Packaging (Australia) Pty Ltd | Botany Paper Mill - Whole of Site | 7,090 | 11,669 | 11,315 | 5,044 | **35,118** |
| Carter Holt Harvey Australia Pty Ltd | Oberon Refiner Control Improvement | 7,363 | 1,766 | 0 | 0 | **9,129** |
| Hydro Aluminium Kurri Kurri Pty Ltd | Kurri Kurri Smelter Upgrade and Retrofit | 44,836 | 77,638 | 74,350 | 97,486 | **294,310** |
| Norske Skog Paper Mills (Australia) Ltd | NS Energy 550 - Energy Saving Initiative | 0 | 0 | 0 | 20,328 | **20,328** |
| Orica Australia Pty Ltd | Botany Chlorine Plant Upgrade | 12,129 | 29,378 | 28,414 | 30,793 | **100,714** |
| Tomago Aluminium Company Pty Ltd | Smelting Electrical Energy Reduction | 18,079 | 33,024 | 30,000 | 80,369 | **161,472** |
| **Calculation Method Total** | | **89,497** | **153,475** | **144,079** | **234,020** | **621,071** |

**Table B.3 Metered Baseline Method – baseline unaffected by output (certificates created)**

| Company Name | RESA / Activity Name | 2009 | 2010 | 2011 | 2012 | Total |
|---|---|---|---|---|---|---|
| Haron Robson Energy Pty Ltd | Chiller Up-Grade | 0 | 0 | 0 | 1,133 | **1,133** |
| Knowledge Global Pty Ltd | Blue Hotel - Energy Efficiency Verification Program | 0 | 0 | 0 | 94 | **94** |
| Knowledge Global Pty Ltd | Centennial Coal Energy Efficiency Verification | 0 | 0 | 0 | 99 | **99** |
| Knowledge Global Pty Ltd | Fitness First Efficiency Verification Program | 0 | 0 | 3,054 | 4,759 | **7,813** |
| Knowledge Global Pty Ltd | Intercontinental Hotel - EE Verification Program | 0 | 0 | 0 | 999 | **999** |
| Sydney Markets Limited | Building E Chillers Replacement | 0 | 0 | 66 | 744 | **810** |
| Western Sydney Local Health District | EPC and GEEIP | 630 | 856 | 789 | 771 | **3,046** |
| **Calculation Method Total** | | **630** | **856** | **3,909** | **8,599** | **13,994** |

**Table B.4 Metered Baseline Method – NABERS & Normalised Baseline (certificates created)**

| Company Name | RESA / Activity Name | 2009 | 2010 | 2011 | 2012 | Total |
|---|---|---|---|---|---|---|
| Out Performers (Griffone Family Trust trading as) | OP017 UCP Normalised Baseline | 0 | 0 | 0 | 0 | **0** |
| Woolworths Ltd | Project CO2 | 0 | 0 | 0 | 19,185 | **19,185** |
| Charter Hall Asset Services Limited | Building Energy Consumption Reduction | 4,073 | 0 | 12,062 | 16,908 | **33,043** |
| Colonial First State Property | NABERS Energy Efficiency Program | 0 | 2,540 | 7,427 | 8,767 | **18,734** |
| Demand Manager Pty Ltd | MBM - NABERS Aggregation Project RESA (MAP) | 0 | 0 | 0 | 1,086 | **1,086** |
| Dexus Holdings Pty Ltd | NABERS Upgrade Program | 0 | 0 | 0 | 9,420 | **9,420** |
| Eureka Funds Management | NABERS Energy Efficiency Program | 0 | 0 | 0 | 0 | **0** |
| Investa Properties Pty Ltd | Office Buildings Assessed using NABERS | 0 | 10,618 | 13,604 | 16,266 | **40,488** |
| LIF Pty Ltd | Commercial Building Energy Efficiency Upgrades | 0 | 0 | 0 | 0 | **0** |
| Stockland Property Management Pty Ltd | NABERS Energy Monitoring and Modification | 0 | 1,181 | 4,484 | 4,191 | **9,856** |
| The Sigma Global Company Pty Ltd | Energy Efficiency Upgrades | 0 | 0 | 0 | 827 | **827** |
| **Calculation Method Total** | | **4,073** | **14,339** | **37,577** | **76,650** | **132,639** |

**Table B.5 Deemed Energy Savings Method – Power Factor Correction Energy Savings Formula (certificates created)**

| Company Name | RESA / Activity Name | 2009 | 2010 | 2011 | 2012 | Total |
|---|---|---|---|---|---|---|
| Ausgrid | PFC Aggregation Program | 0 | 0 | 0 | 0 | **0** |
| Demand Manager Pty Ltd | PFC Aggregation Project | 0 | 0 | 0 | 0 | **0** |
| Tooheys Pty Ltd | PFC method RESA | 0 | 0 | 228 | 0 | **228** |
| **Calculation Method Total** | | **0** | **0** | **228** | **0** | **228** |

**Table B.6 Deemed Energy Savings Method – Commercial Lighting Formula (certificates created)**

| Company Name | RESA / Activity Name | 2009 | 2010 | 2011 | 2012 | Total |
|---|---|---|---|---|---|---|
| AAACP Pty Ltd | Aggregator Lighting Sales and Installations | 0 | 0 | 0 | 0 | **0** |
| Abony Green Energy Pty Ltd (Nationstar) | Commercial & Industrial LED Lighting Upgrade | 0 | 0 | 0 | 0 | **0** |
| ADS Pty Ltd (trading as ADS Solar) | Improving Lighting Scheme | 0 | 0 | 0 | 0 | **0** |
| AGL Energy Services Pty Ltd | Commercial Lighting Replacement Project | 7,622 | 1,448 | 459 | 3,619 | **13,148** |
| Apathco Group Pty Ltd | Commercial and Industrial Lighting DESM | 0 | 0 | 0 | 3,719 | **3,719** |
| Ausgrid | Commercial Lighting Aggregation Program | 660 | 3,416 | 0 | 0 | **4,076** |
| Autonomous Energy Pty Ltd | Lighting Energy Efficiency Upgrade in Commercial Buildings | 0 | 0 | 12,468 | 53,958 | **66,426** |
| Beter Power Pty Ltd | Lighting Sales and Installations | 0 | 0 | 0 | 0 | **0** |
| Blue Green Engineering Pty Ltd | Energy Efficient Commercial Lighting Replacements | 0 | 0 | 0 | 2,626 | **2,626** |
| Carbon Reduction Institute Pty Ltd | CRI Commercial Lighting (551B) | 0 | 0 | 9,388 | 0 | **9,388** |
| Carbon Reduction Institute Pty Ltd | CRI Commercial Lighting (551C) | 0 | 0 | 23,673 | 38,703 | **62,376** |
| Commonwealth Bank of Australia | Green Refresh Lighting | 0 | 0 | 0 | 32,766 | **32,766** |
| COzero Energy Efficiency Pty Ltd | COzero Commercial Lighting Upgrade | 0 | 0 | 0 | 49,178 | **49,178** |
| CTY Envirotech Pty Ltd | Envirotech Energy Saver Certificate Provider | 0 | 0 | 0 | 778 | **778** |
| Demand Manager Pty Ltd | Commercial Lighting Aggregation Project | 0 | 201 | 17,463 | 182,259 | **199,923** |
| Easy Being Green (formerly ClimateBank) | Commercial Lighting Project | 0 | 0 | 0 | 0 | **0** |
| Eco Ease Electrical Pty Ltd (Harmay Trust) | Commercial Lighting Upgrade | 0 | 0 | 0 | 1,739 | **1,739** |
| Ecolight Installations Pty Ltd | Modification and replacement of commercial lighting | 0 | 0 | 907 | 4,013 | **4,920** |
| Ecovantage Pty Ltd | Commercial Lighting Upgrade Program | 0 | 48 | 5,082 | 109,661 | **114,791** |
| Ecovation Pty Ltd | Ecovation Lighting | 0 | 0 | 0 | 503 | **503** |

| Company Name | RESA / Activity Name | 2009 | 2010 | 2011 | 2012 | Total |
|---|---|---|---|---|---|---|
| Essential Energy | Commercial Lighting Retrofit Program | 0 | 1,185 | 4,291 | 11,248 | **16,724** |
| Essential Energy | Streetlighting Replacement Program | 0 | 0 | 6,141 | 73,051 | **79,192** |
| Firecorp Australia Pty Ltd | Commercial Lighting Upgrade Program - Retrofit of Lighting | 0 | 0 | 0 | 0 | **0** |
| Futurebrite Technology Pty Ltd | Futurebrite LED Retrofit | 0 | 0 | 0 | 842 | **842** |
| Global Sustainability Initiatives Pty Ltd | ABESP Commercial Lighting Replacement | 0 | 3,800 | 1,159 | 3,394 | **8,353** |
| Glolight Pty Ltd | Energy Efficient Lighting Upgrades | 0 | 0 | 5,159 | 9,003 | **14,162** |
| Gosford City Council | Gosford Town Centre Car Parks LED Lighting Project | 0 | 0 | 0 | 1,497 | **1,497** |
| Green Alliance | T5 Commercial Lighting | 0 | 364 | 0 | 0 | **364** |
| Green Connection Group Pty Ltd | Commercial Lighting Upgrade Program | 0 | 0 | 0 | 23,380 | **23,380** |
| Green Energy Trading Pty Ltd | Commercial Lighting Aggregation Project | 0 | 0 | 8,834 | 51,395 | **60,229** |
| Greenbank Environmental Pty Ltd | Commercial Lighting Upgrade Program | 0 | 0 | 0 | 0 | **0** |
| Greenearth Energy Efficiency Pty Ltd | HID Lighting Equipment Upgrade and Optimisation | 0 | 96 | 153 | 0 | **249** |
| Haron Robson Energy Pty Ltd | Commercial Lighting Energy Savings | 0 | 0 | 0 | 9,863 | **9,863** |
| Hilton Hotels of Australia Pty Limited | Hilton Sydney - Guest floor lighting retrofit | 0 | 0 | 3,079 | 0 | **3,079** |
| HMBC Pty Ltd (Energy E-nnovations) | Supply & Installation of Energy Efficient Lighting Products | 0 | 0 | 4,352 | 17,423 | **21,775** |
| Ironbark Group Pty Ltd | Street Lighting Replacement Program | 0 | 0 | 0 | 12,829 | **12,829** |
| Lakeco Pty Ltd, trading as Nickel Energy | Replacement of halogen downlights and fluorescent lighting | 0 | 0 | 0 | 0 | **0** |
| LED Bright Light Australasia (Grant 2 You) | Commercial Lighting Upgrade | 0 | 0 | 0 | 0 | **0** |
| Lite Energy Pty Ltd (formerly Enact Energy) | Commercial Lighting Activities | 0 | 0 | 17,819 | 27,906 | **45,725** |
| Low Energy Supplies and Services Pty Ltd | Commercial Lighting Halogen Replacement Program | 0 | 1,090 | 118,568 | 121,936 | **241,594** |
| Low Energy Supplies and Services Pty Ltd | Commercial Lighting Upgrade Program | 0 | 0 | 60,746 | 221,726 | **282,472** |
| Low Energy Supplies and Services Pty Ltd | Commercial Lighting Upgrade Projects | 0 | 336 | 0 | 0 | **336** |
| Lowa Investments Pty Ltd | LED Installation Program | 0 | 0 | 6,367 | 88,516 | **94,883** |
| Maxee Innovations Pty Ltd | Commercial Lighting Retrofit Program | 0 | 0 | 5,648 | 184,339 | **189,987** |
| Metro Energy Group Pty Ltd | Upcoming Energy Saving Lighting Equipment | 0 | 0 | 0 | 0 | **0** |
| National Carbon Bank of Australia Pty Ltd | NCBA Commercial Lighting Upgrade | 0 | 0 | 0 | 341 | **341** |
| Out Performers (Griffone Family Trust trading as) | OP012 Commercial and Industrial Lighting | 0 | 49,815 | 112,293 | 113,865 | **275,973** |
| Ozzy Fortune Pty Ltd trading as Your Green Planet | YGP Commercial Lighting | 0 | 0 | 0 | 22,755 | **22,755** |

| Company Name | RESA / Activity Name | 2009 | 2010 | 2011 | 2012 | Total |
|---|---|---|---|---|---|---|
| Priority Group Australia Pty Ltd | Lighting Efficiency Upgrade | 0 | 0 | 0 | 0 | **0** |
| Qantas Airways Limited | Lighting Upgrade Works | 0 | 0 | 0 | 5,256 | **5,256** |
| Roads and Maritime Services | Traffic light globe replacement project | 1,841 | 8,497 | 6,458 | 16,173 | **32,969** |
| Robcath Pty Ltd | Commercial Lighting Project | 0 | 47 | 0 | 0 | **47** |
| Sales Solutions Australia Pty Ltd | Commercial Lighting Retrofit | 0 | 0 | 0 | 0 | **0** |
| Summit LED Energy Australia Pty Ltd | LED lighting installations NSW | 0 | 0 | 0 | 36,260 | **36,260** |
| Sustain Agility Pty Ltd | Managed Certificate Projects | 0 | 0 | 66 | 2,176 | **2,242** |
| Sydney Markets Limited | Sydney Markets Lighting RESA | 0 | 0 | 2,426 | 0 | **2,426** |
| The Green Guys Group Pty Ltd | Commercial Lighting Replacement | 0 | 0 | 38,500 | 286,154 | **324,654** |
| The Sigma Global Company Pty Ltd | SG0002 - Lighting Upgrades | 0 | 0 | 0 | 0 | **0** |
| The Sigma Global Company Pty Ltd | SG0003-Lighting Upgrades-AllambieU3-4 | 0 | 0 | 0 | 735 | **735** |
| The Sigma Global Company Pty Ltd | SG0005 - Lighting Upgrades - Lyon 102 | 0 | 0 | 0 | 0 | **0** |
| The University of New South Wales | Lighting Upgrade T8 to T5 | 0 | 0 | 0 | 0 | **0** |
| Tomago Aluminium Company Pty Ltd | Lighting Replacement Program | 0 | 0 | 0 | 549 | **549** |
| Trade In Green Pty Ltd | Lighting Efficiency Program - Commercial | 0 | 0 | 6,459 | 62,175 | **68,634** |
| UGE Efficient Products Pty Ltd | b-efficient Commercial Lighting | 0 | 0 | 0 | 0 | **0** |
| Urban Group Energy Pty Ltd | b-Efficient Commercial Lighting | 0 | 0 | 1,391 | 163,103 | **164,494** |
| Versace LED Low Energy Pty Ltd | Commercial Lighting Upgrade Program | 0 | 0 | 0 | 302 | **302** |
| Wattly Pty Ltd | Commercial LED Lighting Upgrades (CLF) | 0 | 0 | 0 | 0 | **0** |
| Watts Green Pty Ltd | Emerging Lighting Technology | 0 | 0 | 0 | 0 | **0** |
| Woolworths Ltd | Lighting - T5 Upgrades | 0 | 0 | 23,099 | 0 | **23,099** |
| **Calculation Method Total** | | **10,123** | **70,343** | **502,448** | **2,051,714** | **2,634,628** |

**Table B.7 Deemed Energy Savings Method – Default Savings Factors (certificates created)**

| Company Name | RESA / Activity Name | 2009 | 2010 | 2011 | 2012 | Total |
|---|---|---|---|---|---|---|
| Aspect Energy | Residential Showerlite Program | 35,928 | 105,745 | 3,429 | 0 | **145,102** |
| Ausgrid | Commercial Lighting - LED replacement of Halogen Downlights | 0 | 0 | 0 | 0 | **0** |
| Ausgrid | Halogen lamp and transformer replacement program | 0 | 1,039 | 0 | 0 | **1,039** |
| Australian Eco Developments Pty Ltd | Showerhead Replacement Program | 0 | 0 | 5,460 | 0 | **5,460** |
| Combined Force Pty Ltd | Meters slow with Low H20 | 0 | 10,000 | 0 | 0 | **10,000** |
| CSR Building Products Ltd | Bradford Halogen to LED downlight replacement | 0 | 0 | 0 | 0 | **0** |
| Cyanergy Pty Ltd | Energy Savings Program - Residential and Commercial | 0 | 0 | 0 | 0 | **0** |
| Demand Manager Pty Ltd | Carbon Saver Program | 0 | 0 | 0 | 0 | **0** |
| Easy Being Green Pty Ltd (formerly ClimateBank) | Change for the better | 0 | 0 | 0 | 0 | **0** |
| Envirocare & Savers Pty Ltd (Wellbeinggreen) | Showerhead and Halogen Replacement | 0 | 20,732 | 0 | 0 | **20,732** |
| Envirocare & Savers Pty Ltd (Wellbeinggreen) | Showerhead and Halogen Sales | 0 | 0 | 0 | 0 | **0** |
| Fieldforce Services Pty Ltd | Enviro Saver Residential Program | 0 | 0 | 0 | 0 | **0** |
| Genco Australia Pty Ltd | Showerhead and Halogen Replacement | 0 | 0 | 2,831 | 0 | **2,831** |
| Genco Australia Pty Ltd | Showerhead and Halogen Sales | 0 | 0 | 0 | 0 | **0** |
| Green Made Easy Pty Ltd | Installation of Raindrop water efficient shower heads | 0 | 0 | 0 | 0 | **0** |
| Greenmoola.com Pty Ltd | Greenmoola.com Rebate Program | 0 | 0 | 38 | 108 | **146** |
| Lite Energy Pty Ltd (formerly Enact Energy) | NSW Showerhead and Halogen Replacement | 0 | 237,492 | 21,913 | 0 | **259,405** |
| Lite Energy Pty Ltd (formerly Enact Energy) | NSW Showerhead Sales | 0 | 0 | 32,036 | 0 | **32,036** |
| Low Energy Supplies and Services Pty Ltd | Direct Sales and Installations | 0 | 0 | 0 | 0 | **0** |
| Lowa Investments Pty Ltd | Lowa Group LED sales program | 0 | 0 | 0 | 0 | **0** |
| Next Energy Pty Ltd | Fridge Buyback | 0 | 0 | 0 | 35,196 | **35,196** |
| Ozzy Fortune Pty Ltd (Your Green Planet) | Your Green Planet | 0 | 29,920 | 76,012 | 0 | **105,932** |
| Sales Solutions Australia Pty Ltd | Shower Rose Replacement Project | 0 | 0 | 89,872 | 0 | **89,872** |
| Sydney Water Corporation | Washing Machine Rebate Program | 701 | 258 | 0 | 0 | **959** |
| Sydney Water Corporation | Waterfix | 1,104 | 2,364 | 0 | 0 | **3,468** |
| Urban Group Energy Pty Ltd | B-efficient Halogen Lamp Replacement Program | 0 | 0 | 0 | 0 | **0** |
| Urban Group Energy Pty Ltd | B-Efficient Whitegoods Rebate Program | 0 | 0 | 0 | 0 | **0** |
| Watts Green Pty Ltd | Energy Efficiency Refit Program | 0 | 18,432 | 37,586 | 0 | **56,018** |
| **Calculation Method Total** | | **37,733** | **425,982** | **269,177** | **35,304** | **768,196** |

**Table B.8 Deemed Energy Savings Method – High Efficiency Motor Formula (certificates created)**

| Company Name | RESA / Activity Name | 2009 | 2010 | 2011 | 2012 | Total |
|---|---|---|---|---|---|---|
| Subsidia Pty Ltd | E3bates HEM Rebate Program | 0 | 0 | 0 | 0 | **0** |

# C Estimated energy savings

This appendix details estimated energy savings where forward creation or deeming calculation methods are applied to energy saving activities.

Refer to Section 7 for further information on estimated energy savings.

Data in this chapter is current as at *30 June 2013*.

## Table C.1 Project Impact Assessment Method (MWh savings)

| PIAM Accreditations | 2009-10 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Apathco Group Pty Ltd: Voltage Optimisation Unit Installation - annual creation | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| Apathco Group Pty Ltd: Voltage Optimisation Unit Installation - forw ard creation | 0 | 0 | 2,429 | 3,304 | 2,546 | 1,788 | 1,030 | 272 | 0 | 0 | 0 | 0 | 0 | **11,368** |
| Autonomous Energy Pty Ltd: Compressed Air Energy Efficiency Upgrade | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| BlueScope Steel (AIS) Pty Ltd: Coke Plant FSP Improvement | 0 | 0 | 186 | 2,787 | 2,222 | 1,657 | 1,092 | 528 | 0 | 0 | 0 | 0 | 0 | **8,473** |
| BOC Ltd: Port Kembla LMPC | 6,983 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **6,983** |
| Boral Ltd: Berrima Kiln 6 Upgrade | 8,436 | 4,082 | 5,885 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **18,403** |
| Coles Supermarkets Australia Pty Ltd: Coles Supermarket Lighting Controls Upgrade | 153 | 3,571 | 4,161 | 3,178 | 2,195 | 1,229 | 262 | 0 | 0 | 0 | 0 | 0 | 0 | **14,749** |
| Commonw ealth Bank of Australia: Branch Netw ork BMS Upgrade | 774 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **774** |
| Commonw ealth Bank of Australia: Lighting Controls | 528 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **528** |
| Commonw ealth Bank of Australia: User IT Equipment Shutdow n | 259 | 0 | 2,310 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **2,570** |
| Commonw ealth Bank of Australia: Voltage reduction in branch netw ork lighting | 55 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **55** |
| Commonw ealth Bank of Australia: VSD Upgrades on cooling fans and condenser pump | 879 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **879** |
| Continental Carbon Australia Pty Ltd: Installation of VSD on boiler fan | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| CSR Building Products Ltd: Warehouse control system upgrade | 25,407 | 8,469 | 5,920 | 3,089 | 202 | 138 | 74 | 9 | 0 | 0 | 0 | 0 | 0 | **43,308** |
| Demand Manager Pty Ltd: Lighting Aggregation Project - PIAM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| Essential Energy: Conductor Optimisation Program | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| Golder Associates Pty Ltd: Flakt 2 VSD | 4 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **7** |
| GridX Pow er Pty Ltd: Glenfield MiniGrid Home Space Cooling Project | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| Merck Sharp & Dohme (Australia) Pty Ltd: Lighting voltage reduction | 989 | 494 | 353 | 212 | 70 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **2,119** |
| Norske Skog Paper Mills (Australia) Ltd: Deckers Feed Pump Bypass | 5,053 | 4,204 | 4,215 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **13,472** |
| Norske Skog Paper Mills (Australia) Ltd: Paper machine vacuum system optimisation | 3,336 | 4,989 | 3,176 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **11,501** |
| Out Performers (Griffone Family Trust trading as): Glycol Heat Exchanger | 733 | 366 | 262 | 157 | 52 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **1,571** |
| Out Performers (Griffone Family Trust trading as): Grasso Compressor VSD | 711 | 355 | 254 | 152 | 51 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **1,524** |
| Out Performers (Griffone Family Trust trading as): Compressor System Upgrade | 713 | 356 | 254 | 153 | 51 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **1,526** |
| Out Performers (Griffone Family Trust trading as): Condenser System Upgrade | 308 | 154 | 110 | 66 | 22 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **660** |
| Out Performers (Griffone Family Trust trading as): Fume Fan VSD | 4,112 | 2,054 | 1,467 | 880 | 293 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **8,807** |
| Out Performers (Griffone Family Trust trading as): Heat Slingers | 7,685 | 3,839 | 2,742 | 1,645 | 548 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **16,459** |
| Out Performers (Griffone Family Trust trading as): Heel Procedure | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| Out Performers (Griffone Family Trust trading as): EAF Efficiency | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| Out Performers (Griffone Family Trust trading as): OP008 Westpac DCD | 0 | 3,331 | 2,665 | 1,998 | 1,332 | 666 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **9,992** |
| Out Performers (Griffone Family Trust trading as): Belmont WWTW DO Control | 688 | 550 | 413 | 275 | 138 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **2,064** |

| PIAM Accreditations | 2009-10 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Out Performers (Griffone Family Trust trading as): Berry Park WWPS Rising Main | 89 | 71 | 54 | 36 | 18 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **268** |
| Out Performers (Griffone Family Trust trading as): Burwood Beach WWTW Blowers | 125 | 100 | 75 | 50 | 25 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **375** |
| Out Performers (Griffone Family Trust trading as): Burwood Beach WWTW PPS | 272 | 195 | 145 | 95 | 45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **750** |
| Out Performers (Griffone Family Trust trading as): Burwood Beach WWTW SPS | 766 | 582 | 435 | 287 | 140 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **2,210** |
| Out Performers (Griffone Family Trust trading as): Eleebana WPS | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| Out Performers (Griffone Family Trust trading as): Kahibah No. 1 WWPS | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| Out Performers (Griffone Family Trust trading as): Leak Detection Program 2011 | 0 | 224 | 179 | 134 | 89 | 45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **671** |
| Out Performers (Griffone Family Trust trading as): Network Leak Detection 2010 | 381 | 304 | 228 | 152 | 76 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **1,142** |
| Out Performers (Griffone Family Trust trading as): Pump Replacement Wallsend | 52 | 780 | 622 | 463 | 305 | 151 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **2,373** |
| Out Performers (Griffone Family Trust trading as): Shortland WWTW DO Reduction | 316 | 193 | 141 | 89 | 37 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **776** |
| Out Performers (Griffone Family Trust trading as): Swansea 3A WWPS Sewer Relining | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| Out Performers (Griffone Family Trust trading as): Swansea 3A WWPS VSD | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| Out Performers (Griffone Family Trust trading as): Swansea 4 WWPS Relining | 13 | 11 | 8 | 5 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **40** |
| Out Performers (Griffone Family Trust trading as): Toronto Trans Lake Pumping | 1,215 | 717 | 521 | 326 | 130 | 22 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **2,932** |
| Out Performers (Griffone Family Trust trading as): VSD Installation and Control Stockton 2 | 0 | 18 | 14 | 11 | 7 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **53** |
| Out Performers (Griffone Family Trust trading as): Compressed Air Projects | 6,038 | 12,464 | 18,720 | 14,188 | 9,655 | 5,123 | 1,798 | 0 | 0 | 0 | 0 | 0 | 0 | **67,986** |
| Out Performers (Griffone Family Trust trading as): OP011 Nationwide News | 345 | 1,054 | 830 | 605 | 380 | 156 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **3,370** |
| Out Performers (Griffone Family Trust trading as): OP013 Commercial and Industrial Chillers | 1,851 | 15,643 | 24,489 | 18,876 | 13,264 | 7,652 | 2,410 | 0 | 0 | 0 | 0 | 0 | 0 | **84,185** |
| Out Performers (Griffone Family Trust trading as): OP014 Pfizer Air Handling Unit | 0 | 0 | 257 | 206 | 154 | 103 | 51 | 0 | 0 | 0 | 0 | 0 | 0 | **771** |
| Out Performers (Griffone Family Trust trading as): OP015 Commercial and Industrial Refrige | 0 | 1,528 | 2,412 | 1,868 | 1,325 | 781 | 238 | 0 | 0 | 0 | 0 | 0 | 0 | **8,152** |
| Out Performers (Griffone Family Trust trading as): OP016.1.1 Rio Tinto Spiral Upgrade | 0 | 127 | 459 | 362 | 265 | 168 | 71 | 0 | 0 | 0 | 0 | 0 | 0 | **1,453** |
| Out Performers (Griffone Family Trust trading as): OP016.1.2 Rio Tinto HVO | 0 | 107 | 384 | 303 | 222 | 141 | 60 | 0 | 0 | 0 | 0 | 0 | 0 | **1,217** |
| Out Performers (Griffone Family Trust trading as): OP018 Water and Wastewater RESA | 17,649 | 5,883 | 12,870 | 10,136 | 6,182 | 4,189 | 2,196 | 203 | 0 | 0 | 0 | 0 | 0 | **59,308** |
| Out Performers (Griffone Family Trust trading as): OP020 Motor VSD | 0 | 0 | 251 | 590 | 462 | 334 | 206 | 78 | 0 | 0 | 0 | 0 | 0 | **1,922** |
| Roads and Maritime Services: Upgrade of Traffic Lights | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| SEE Enterprises Pty Limited: Lurgi baghouse flow reduction-OneSteel Waratah | 513 | 1,632 | 1,285 | 938 | 591 | 244 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **5,204** |
| Steve Halloran Refrigeration Pty Ltd: Commercial HVACR - Variable Technology Upgrade | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| Tooheys Pty Ltd: Ammonia Refrigeration | 0 | 444 | 1,937 | 1,532 | 1,127 | 722 | 316 | 0 | 0 | 0 | 0 | 0 | 0 | **6,078** |
| Tooheys Pty Ltd: Compressor Upgrade | 0 | 0 | 505 | 404 | 303 | 202 | 101 | 0 | 0 | 0 | 0 | 0 | 0 | **1,516** |
| Tooheys Pty Ltd: Glycol Float | 331 | 110 | 219 | 153 | 87 | 58 | 29 | 0 | 0 | 0 | 0 | 0 | 0 | **987** |
| Tooheys Pty Ltd: Tune Heat Recovery System | 183 | 61 | 246 | 185 | 123 | 82 | 41 | 0 | 0 | 0 | 0 | 0 | 0 | **922** |
| University of Technology Sydney: Building 2 Lighting Upgrade | 377 | 188 | 134 | 81 | 27 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **807** |
| University of Wollongong: Occupancy Sensor and Voltage Reduction for Lighting | 607 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **607** |
| Visy Pulp & Paper Pty Ltd: Cooling Water Pumps Improvement | 9,886 | 903 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **10,789** |
| Western Sydney Local Health District: Installation of variable speed drives on air handling p | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| Woolworths Ltd: Supermarket After Hours Lighting Controls | 16,966 | 16,317 | 15,521 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **48,804** |

## Table C.2 Metered Baseline Method – baseline per unit of output (MWh savings)

| Accreditation - Metered Baseline Method | 2009-10 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A J Bush & Sons (Manufactures) Pty Ltd: Riverstone Plant Upgrade | 0 | 0 | 0 | 0 | – | – | – | – | – | – | – | – | – | 0 |
| Amcor Packaging (Australia) Pty Ltd: Botany Paper Mill - Whole of Site | 17,697 | 10,675 | 4,758 | 0 | – | – | – | – | – | – | – | – | – | 33,130 |
| Carter Holt Harvey Australia Pty Ltd: Oberon Refiner Control Improvement | 8,612 | 0 | 0 | 0 | – | – | – | – | – | – | – | – | – | 8,612 |
| Hydro Aluminium Kurri Kurri Pty Ltd: Kurri Kurri Smelter Upgrade and Retrofit | 115,542 | 70,142 | 91,968 | 0 | – | – | – | – | – | – | – | – | – | 277,651 |
| Norske Skog Paper Mills (Australia) Ltd: NS Energy 550 - Energy Saving Initiative | 0 | 0 | 19,177 | 25,084 | – | – | – | – | – | – | – | – | – | 44,261 |
| Orica Australia Pty Ltd: Botany Chlorine Plant Upgrade | 39,158 | 26,806 | 29,050 | 0 | – | – | – | – | – | – | – | – | – | 95,013 |
| Tomago Aluminium Company Pty Ltd: Smelting Electrical Energy Reduction | 48,210 | 28,302 | 75,820 | 0 | – | – | – | – | – | – | – | – | – | 152,332 |

**Note:** Forward creation does not apply for certificates created under the Metered Baseline Method.

## Table C.3 Metered Baseline Method – baseline unaffected by output and normalised baseline (MWh savings)

| Accreditation - Metered Baseline Method | 2009-10 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Haron Robson Energy Pty Ltd: Chiller Up-Grade | 0 | 0 | 1,069 | 1,711 | – | – | – | – | – | – | – | – | – | 2,780 |
| Knowledge Global Pty Ltd: Blue Hotel - Energy Efficiency Verification Program | 0 | 0 | 89 | 104 | – | – | – | – | – | – | – | – | – | 192 |
| Knowledge Global Pty Ltd: Centennial Coal Energy Efficiency Verification Program | 0 | 0 | 93 | 104 | – | – | – | – | – | – | – | – | – | 197 |
| Knowledge Global Pty Ltd: Fitness First Efficiency Verification Program | 0 | 2,881 | 4,490 | 1,023 | – | – | – | – | – | – | – | – | – | 8,393 |
| Knowledge Global Pty Ltd: Intercontinental Hotel - EE Verification Program | 0 | 0 | 942 | 483 | – | – | – | – | – | – | – | – | – | 1,425 |
| Sydney Markets Limited: Building E Chillers Replacement | 0 | 62 | 702 | 0 | – | – | – | – | – | – | – | – | – | 764 |
| Western Sydney Local Health District: EPC and GEEIP | 1,402 | 744 | 727 | 0 | – | – | – | – | – | – | – | – | – | 2,874 |
| Out Performers (Griffone Family Trust trading as): OP017 UCP Normalised Baseline | 0 | 0 | 0 | 0 | – | – | – | – | – | – | – | – | – | 0 |
| Woolworths Ltd: Project CO2 | 0 | 0 | 18,099 | 0 | – | – | – | – | – | – | – | – | – | 18,099 |

**Note:** Forward creation does not apply for certificates created under the Metered Baseline Method.

## Table C.4 Metered Baseline Method – NABERS baseline (MWh savings)

| Accreditation - Metered Baseline Method | 2009-10 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Charter Hall Asset Services Limited: Building Energy Consumption Reduction | 3,842 | 11,379 | 15,951 | 1,113 | – | – | – | – | – | – | – | – | – | 32,286 |
| Colonial First State Property: NABERS Energy Efficiency Program | 2,396 | 7,007 | 8,271 | 0 | – | – | – | – | – | – | – | – | – | 17,674 |
| Demand Manager Pty Ltd: MBM - NABERS Aggregation Project RESA (MAP) | 0 | 0 | 1,025 | 0 | – | – | – | – | – | – | – | – | – | 1,025 |
| Dexus Holdings Pty Ltd: NABERS Upgrade Program | 0 | 0 | 8,887 | 0 | – | – | – | – | – | – | – | – | – | 8,887 |
| Eureka Funds Management: NABERS Energy Efficiency Program | 0 | 0 | 0 | 0 | – | – | – | – | – | – | – | – | – | 0 |
| Investa Properties Pty Ltd: Office Buildings Assessed using NABERS | 10,017 | 12,834 | 15,345 | 0 | – | – | – | – | – | – | – | – | – | 38,196 |
| LIF Pty Ltd: Commercial Building Energy Efficiency Upgrades | 0 | 0 | 0 | 0 | – | – | – | – | – | – | – | – | – | 0 |
| Stockland Property Management Pty Ltd: NABERS Energy Monitoring and Modification | 1,114 | 4,230 | 3,954 | 0 | – | – | – | – | – | – | – | – | – | 9,298 |
| The Sigma Global Company Pty Ltd: Energy Efficiency Upgrades | 0 | 0 | 780 | 0 | – | – | – | – | – | – | – | – | – | 780 |

**Note:** Forward creation does not apply for certificates created under the Metered Baseline Method.

## Table C.5 Deemed Energy Savings Method – Commercial Lighting Formula (MWh savings)

| Accreditation - Deemed Energy Savings Method | 2009-10 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AAACP Pty Ltd: Aggregator Lighting Sales and Installations | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Abony Green Energy Pty Ltd t/a Nationstar Australi: Commercial & Industrial LED Lighting Upgrade | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| ADS Pty Ltd (trading as ADS Solar): Improving Lighting Scheme | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| AGL Energy Services Pty Ltd: Commercial Lighting Replacement Project | 1,711 | 899 | 1,118 | 1,240 | 1,240 | 1,240 | 1,240 | 1,240 | 1,240 | 521 | 385 | 341 | 123 | 12,540 |
| Apathco Group Pty Ltd: Commercial and Industrial Lighting DESM | 0 | 0 | 501 | 501 | 501 | 501 | 501 | 501 | 501 | 0 | 0 | 0 | 0 | 3,508 |
| Ausgrid: Commercial Lighting Aggregation Program | 1,054 | 549 | 549 | 549 | 549 | 549 | 505 | 0 | 0 | 0 | 0 | 0 | 0 | 4,306 |
| Autonomous Energy Pty Ltd: Lighting Energy Efficiency Upgrade in Commercial Buildings | 0 | 1,680 | 8,952 | 8,952 | 8,952 | 8,952 | 8,952 | 8,952 | 7,272 | 0 | 0 | 0 | 0 | 62,666 |
| Beter Power Pty Ltd: Lighting Sales and Installations | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Blue Green Engineering Pty Ltd: Energy Efficient Commercial Lighting Replacements | 0 | 0 | 1,486 | 991 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,477 |
| Carbon Reduction Institute Pty Ltd: CRI Commercial Lighting (551B) | 0 | 886 | 886 | 886 | 886 | 886 | 886 | 886 | 886 | 886 | 886 | 0 | 0 | 8,857 |
| Carbon Reduction Institute Pty Ltd: CRI Commercial Lighting (551C) | 0 | 6,700 | 17,654 | 17,654 | 13,187 | 3,651 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 58,845 |
| Commonwealth Bank of Australia: Green Refresh Lighting | 0 | 0 | 4,416 | 4,416 | 4,416 | 4,416 | 4,416 | 4,416 | 4,416 | 0 | 0 | 0 | 0 | 30,911 |
| COzero Energy Efficiency Pty Ltd: COzero Commercial Lighting Upgrade | 0 | 0 | 6,628 | 6,628 | 6,628 | 6,628 | 6,628 | 6,628 | 6,628 | 0 | 0 | 0 | 0 | 46,394 |
| CTY Envirotech Pty Ltd: Envirotech Energy Saver Certificate Provider | 0 | 0 | 73 | 73 | 73 | 73 | 73 | 73 | 73 | 73 | 73 | 73 | 0 | 734 |
| Demand Manager Pty Ltd: Commercial Lighting Aggregation Project | 38 | 1,666 | 8,166 | 18,861 | 18,861 | 18,861 | 18,861 | 18,861 | 18,861 | 18,861 | 18,842 | 17,194 | 10,695 | 188,626 |
| Easy Being Green Pty Ltd (formerly ClimateBank): Commercial Lighting Project | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Eco Ease Electrical Pty Ltd atf Harmay Trust: Commercial Lighting Upgrade | 0 | 0 | 164 | 164 | 164 | 164 | 164 | 164 | 164 | 164 | 164 | 164 | 0 | 1,641 |
| Ecolight Installations Pty Ltd: Modification and replacement of commercial lighting | 0 | 56 | 464 | 464 | 464 | 464 | 464 | 464 | 464 | 464 | 464 | 408 | 0 | 4,642 |
| Ecovantage Pty Ltd: Commercial Lighting Upgrade Program | 13 | 691 | 15,470 | 15,470 | 15,470 | 15,470 | 15,470 | 15,464 | 14,779 | 0 | 0 | 0 | 0 | 108,300 |
| Ecovation Pty Ltd: Ecovation Lighting | 0 | 0 | 68 | 68 | 68 | 68 | 68 | 68 | 68 | 0 | 0 | 0 | 0 | 475 |
| Essential Energy: Commercial Lighting Retrofit Program | 311 | 738 | 2,254 | 2,254 | 2,254 | 2,254 | 2,254 | 2,103 | 1,516 | 0 | 0 | 0 | 0 | 15,937 |
| Essential Energy: Streetlighting Replacement Program | 0 | 828 | 10,673 | 10,673 | 10,673 | 10,673 | 10,673 | 10,673 | 9,845 | 0 | 0 | 0 | 0 | 74,709 |
| Firecorp Australia Pty Ltd: Commercial Lighting Upgrade Program - Retrofit of Lighting | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Futurebrite Technology Pty Ltd: Futurebrite LED Retrofit | 0 | 0 | 35 | 79 | 79 | 79 | 79 | 79 | 79 | 79 | 79 | 79 | 45 | 794 |
| Global Sustainability Initiatives Pty Ltd: ABESP Commercial Lighting Replacement | 2,151 | 1,403 | 2,331 | 1,647 | 1,070 | 342 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 8,956 |
| Glolight Pty Ltd: Energy Efficient Lighting Upgrades | 0 | 487 | 607 | 1,336 | 1,336 | 1,336 | 1,336 | 1,336 | 1,336 | 1,336 | 1,336 | 849 | 729 | 13,360 |
| Gosford City Council: Gosford Town Centre Car Parks LED Lighting Project | 0 | 0 | 202 | 202 | 202 | 202 | 202 | 202 | 202 | 0 | 0 | 0 | 0 | 1,412 |
| Green Alliance: T5 Commercial Lighting | 98 | 49 | 49 | 49 | 49 | 49 | 49 | 0 | 0 | 0 | 0 | 0 | 0 | 392 |
| Green Connection Group Pty Ltd: Commercial Lighting Upgrade Program | 0 | 0 | 2,206 | 2,206 | 2,206 | 2,206 | 2,206 | 2,206 | 2,206 | 2,206 | 2,206 | 2,206 | 0 | 22,057 |
| Green Energy Trading Pty Ltd: Commercial Lighting Aggregation Project | 0 | 833 | 5,682 | 5,682 | 5,682 | 5,682 | 5,682 | 5,682 | 5,682 | 5,682 | 5,682 | 4,849 | 0 | 56,820 |
| Greenbank Environmental Pty Ltd: Commercial Lighting Upgrade Program | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Greenearth Energy Efficiency Pty Ltd: HID Lighting Equipment Upgrade and Optimisation | 16 | 21 | 21 | 21 | 21 | 21 | 21 | 21 | 21 | 21 | 21 | 13 | 0 | 243 |
| Haron Robson Energy Pty Ltd: Commercial Lighting Energy Savings | 0 | 0 | 1,329 | 1,329 | 1,329 | 1,329 | 1,329 | 1,329 | 1,329 | 0 | 0 | 0 | 0 | 9,305 |

| Accreditation - Deemed Energy Savings Method | 2009-10 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hilton Hotels of Australia Pty Limited: Hilton Sydney - Guest floor lighting retrofit | 0 | 290 | 290 | 290 | 290 | 290 | 290 | 290 | 290 | 290 | 290 | 0 | 0 | 2,905 |
| HMBC Pty Ltd Tradfing as Energy E-nnovations: Supply & Installation of Energy Efficient Lighting Products | 0 | 411 | 1,982 | 2,054 | 2,054 | 2,054 | 2,054 | 2,054 | 2,054 | 2,054 | 2,054 | 1,644 | 72 | 20,542 |
| Ironbark Group Pty Ltd: Street Lighting Replacement Program | 0 | 0 | 1,210 | 1,210 | 1,210 | 1,210 | 1,210 | 1,210 | 1,210 | 1,210 | 1,210 | 1,210 | 0 | 12,103 |
| Lakeco Pty Ltd, trading as Nickel Energy: Replacement of halogen downlights and fluorescent lighting | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| LED Bright Light Australasia t/as Grant 2 You: Commercial Lighting Upgrade | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lite Energy Pty Ltd (formerly Enact Energy): Commercial Lighting Activities | 0 | 2,401 | 6,162 | 6,162 | 6,162 | 6,162 | 6,162 | 6,162 | 3,761 | 0 | 0 | 0 | 0 | 43,137 |
| Low Energy Supplies and Services Pty Ltd: Commercial Lighting Halogen Replacement Program | 294 | 16,126 | 32,560 | 32,560 | 32,560 | 32,560 | 32,560 | 32,413 | 16,433 | 0 | 0 | 0 | 0 | 228,066 |
| Low Energy Supplies and Services Pty Ltd: Commercial Lighting Upgrade Program | 0 | 8,187 | 38,069 | 38,069 | 38,069 | 38,069 | 38,069 | 38,069 | 29,882 | 0 | 0 | 0 | 0 | 266,483 |
| Low Energy Supplies and Services Pty Ltd: Commercial Lighting Upgrade Projects | 91 | 45 | 45 | 45 | 45 | 45 | 45 | 0 | 0 | 0 | 0 | 0 | 0 | 362 |
| Lowa Investments Pty Ltd: LED Installation Program | 0 | 1,802 | 26,854 | 26,854 | 25,652 | 8,351 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 89,512 |
| Maxee Innovations Pty Ltd: Commercial Lighting Retrofit Program | 0 | 1,598 | 53,770 | 53,770 | 52,704 | 17,390 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 179,233 |
| Metro Energy Group Pty Ltd: Upcoming Energy Saving Lighting Equipment | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| National Carbon Bank of Australia Pty Ltd: NCBA Commercial Lighting Upgrade | 0 | 0 | 46 | 46 | 46 | 46 | 46 | 46 | 46 | 0 | 0 | 0 | 0 | 322 |
| Out Performers (Griffone Family Trust trading as): OP012 Commercial and Industrial Lighting | 28,197 | 44,799 | 78,106 | 68,707 | 43,540 | 11,102 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 274,450 |
| Ozzy Fortune Pty Ltd trading as Your Green Planet: YGP Commercial Lighting | 0 | 0 | 6,440 | 6,440 | 6,440 | 2,147 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 21,467 |
| Priority Group Australia Pty Ltd: Lighting Efficiency Upgrade | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Qantas Airways Limited: Lighting Upgrade Works | 0 | 0 | 496 | 496 | 496 | 496 | 496 | 496 | 496 | 496 | 496 | 496 | 0 | 4,958 |
| Roads and Maritime Services: Traffic light globe replacement project | 2,663 | 2,264 | 4,443 | 4,443 | 4,443 | 4,443 | 4,319 | 3,050 | 2,180 | 0 | 0 | 0 | 0 | 32,248 |
| Robcath Pty Ltd: Commercial Lighting Project | 9 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 0 | 0 | 0 | 49 |
| Sales Solutions Australia Pty Ltd: Commercial Lighting Retrofit | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Summit LED Energy Australia Pty Ltd tas Eo Lightin: LED lighting installations NSW | 0 | 0 | 1,498 | 3,421 | 3,421 | 3,421 | 3,421 | 3,421 | 3,421 | 3,421 | 3,421 | 3,421 | 1,922 | 34,208 |
| Sustain Agility Pty Ltd: Managed Certificate Projects | 0 | 3 | 299 | 299 | 299 | 299 | 299 | 299 | 299 | 6 | 6 | 3 | 0 | 2,115 |
| Sydney Markets Limited: Sydney Markets Lighting RESA | 0 | 161 | 327 | 327 | 327 | 327 | 327 | 327 | 166 | 0 | 0 | 0 | 0 | 2,289 |
| The Green Guys Group Pty Ltd: Commercial Lighting Replacement | 0 | 2,558 | 86,176 | 86,176 | 86,176 | 32,184 | 5,189 | 5,189 | 2,631 | 0 | 0 | 0 | 0 | 306,277 |
| The Sigma Global Company Pty Ltd: SG0002 - Lighting Upgrades | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| The Sigma Global Company Pty Ltd: SG0003-Lighting Upgrades-AllambieU3-4 | 0 | 0 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 0 | 0 | 0 | 0 | 693 |
| The Sigma Global Company Pty Ltd: SG0005 - Lighting Upgrades - Lyon 102 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| The University of New South Wales: Lighting Upgrade T8 to T5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Tomago Aluminium Company Pty Ltd: Lighting Replacement Program | 0 | 0 | 155 | 155 | 155 | 52 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 518 |
| Trade In Green Pty Ltd: Lighting Efficiency Program - Commercial | 0 | 1,828 | 7,694 | 7,694 | 6,475 | 5,866 | 5,866 | 5,866 | 5,866 | 5,866 | 5,866 | 5,866 | 0 | 64,749 |
| UGE Efficient Products Pty Ltd: b-efficient Commercial Lighting | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Urban Group Energy Pty Ltd: b-Efficient Commercial Lighting | 0 | 38 | 15,518 | 15,518 | 15,518 | 15,518 | 15,518 | 15,518 | 15,518 | 15,518 | 15,518 | 15,481 | 0 | 155,183 |
| Versace LED Low Energy Pty Ltd: Commercial Lighting Upgrade Program | 0 | 0 | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 0 | 285 |
| Wattly Pty Ltd: Commercial LED Lighting Upgrades (CLF) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Watts Green Pty Ltd: Emerging Lighting technology | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Woolworths Ltd: Lighting - T5 Upgrades | 0 | 2,179 | 2,179 | 2,179 | 2,179 | 2,179 | 2,179 | 2,179 | 2,179 | 2,179 | 2,179 | 0 | 0 | 21,792 |

## Table C.6 Deemed Energy Savings Method – Default Savings Factors (MWh savings)

| Accreditation - Deemed Energy Savings Method | 2009-10 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aspect Energy: Residential Showerlite Program (2) (ESS Rule V1) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Aspect Energy: Residential Showerlite Program (ESS Rule V1) | 35,282 | 17,641 | 17,641 | 17,641 | 17,641 | 17,641 | 17,641 | 3,389 | 3,389 | 0 | 0 | 0 | 0 | 147,905 |
| Aspect Energy: Residential Showerlite Program (ESS Rule V2) | 0 | 323 | 323 | 323 | 323 | 323 | 323 | 323 | 323 | 323 | 323 | 0 | 0 | 3,235 |
| Ausgrid: Commercial Lighting - LED replacement of Halogen Downlights | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ausgrid: Hairdresser down-light replacement program | 178 | 89 | 89 | 89 | 89 | 89 | 89 | 89 | 89 | 89 | 89 | 0 | 0 | 1,069 |
| Australian Eco Developments Pty Ltd: Showerhead Replacement Program - Commercial | 0 | 1 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 17 | 198 |
| Australian Eco Developments Pty Ltd: Showerhead Replacement Program - Residential | 0 | 12 | 495 | 495 | 495 | 495 | 495 | 495 | 495 | 495 | 495 | 483 | 0 | 4,953 |
| Combined Force Pty Ltd: Meters slow with Low H20 - Commercial (ESS Rule V1) | 103 | 52 | 52 | 52 | 52 | 52 | 52 | 52 | 52 | 52 | 0 | 0 | 0 | 567 |
| Combined Force Pty Ltd: Meters slow with Low H20 - Commercial (ESS Rule V2) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Combined Force Pty Ltd: Meters slow with Low H20 - Residential (ESS Rule V1) | 1,784 | 892 | 892 | 892 | 892 | 892 | 892 | 892 | 892 | 892 | 0 | 0 | 0 | 9,811 |
| Combined Force Pty Ltd: Meters slow with Low H20 - Residential (ESS Rule V2) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| CSR Building Products Ltd: Bradford Halogen to LED downlight replacement | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Cyanergy Pty Ltd: Energy Savings Program - Commercial | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Cyanergy Pty Ltd: Energy Savings Program - Residential | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Demand Manager Pty Ltd: Carbon Saver Program | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Easy Being Green Pty Ltd (formerly ClimateBank): Change for the better | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Envirocare & Savers Pty Ltd t/a Wellbeinggreen: Halogen Lamp Replacement Program - Commercial (ES | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Envirocare & Savers Pty Ltd t/a Wellbeinggreen: Halogen Lamp Replacement Program - Residential (ESS | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Envirocare & Savers Pty Ltd t/a Wellbeinggreen: Shower Rose Replacement Program - Commercial (ESS | 214 | 107 | 107 | 107 | 107 | 107 | 107 | 0 | 0 | 0 | 0 | 0 | 0 | 856 |
| Envirocare & Savers Pty Ltd t/a Wellbeinggreen: Shower Rose Replacement Program - Commercial (ESS | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Envirocare & Savers Pty Ltd t/a Wellbeinggreen: Shower Rose Replacement Program - Residential (ESS | 5,113 | 2,687 | 2,687 | 2,687 | 2,687 | 2,687 | 2,687 | 261 | 0 | 0 | 0 | 0 | 0 | 21,496 |
| Envirocare & Savers Pty Ltd t/a Wellbeinggreen: Shower Rose Replacement Program - Residential (ESS | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Envirocare & Savers Pty Ltd t/a Wellbeinggreen: Halogen Lamp Sales - Commercial | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Envirocare & Savers Pty Ltd t/a Wellbeinggreen: Halogen Lamp Sales - Residential | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Envirocare & Savers Pty Ltd t/a Wellbeinggreen: Showerhead Sales - Commercial | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Envirocare & Savers Pty Ltd t/a Wellbeinggreen: Showerhead Sales - Residential | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Fieldforce Services Pty Ltd: Replacement of halogens | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Fieldforce Services Pty Ltd: Replacement of showerheads (ESS Rule V1) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Fieldforce Services Pty Ltd: Replacement of showerheads (ESS Rule V2) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Genco Australia Pty Ltd: Halogen Replacement - Commercial | 0 | 66 | 90 | 90 | 46 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 299 |
| Genco Australia Pty Ltd: Halogen Replacement - Residential | 0 | 92 | 237 | 237 | 237 | 237 | 237 | 237 | 237 | 237 | 237 | 146 | 0 | 2,372 |
| Genco Australia Pty Ltd: Showerhead Replacement - Commercial | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Genco Australia Pty Ltd: Showerhead Replacement - Residential | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Genco Australia Pty Ltd: Halogen Sales - Commercial | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| Accreditation - Deemed Energy Savings Method | 2009-10 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Genco Australia Pty Ltd: Halogen Sales - Residential | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Genco Australia Pty Ltd: Showerhead Sales - Commercial | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Genco Australia Pty Ltd: Showerhead Sales - Residential | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Green Made Easy Pty Ltd: Installation of Raindrop shower heads (ESS Rule V1) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Green Made Easy Pty Ltd: Installation of Raindrop shower heads (ESS Rule V2) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Greenmoola.com Pty Ltd: Greenmoola.com Rebate Program - Commercial | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Greenmoola.com Pty Ltd: Greenmoola.com Rebate Program - Residential | 0 | 5 | 14 | 14 | 14 | 14 | 14 | 14 | 9 | 9 | 9 | 9 | 9 | 138 |
| Lite Energy Pty Ltd (formerly Enact Energy): Halogen and Transformer Replacement - Commercial | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lite Energy Pty Ltd (formerly Enact Energy): Halogen Replacement - Commercial | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lite Energy Pty Ltd (formerly Enact Energy): Halogen Replacement - Residential | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lite Energy Pty Ltd (formerly Enact Energy): Showerhead Replacement - Commercial (ESS Rule V1) | 6,137 | 3,068 | 3,068 | 3,068 | 3,068 | 3,068 | 3,068 | 3,068 | 3,068 | 3,068 | 3,068 | 0 | 0 | 36,820 |
| Lite Energy Pty Ltd (formerly Enact Energy): Showerhead Replacement - Commercial (ESS Rule V2) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lite Energy Pty Ltd (formerly Enact Energy): Showerhead Replacement - Residential (ESS Rule V1) | 54,371 | 27,185 | 27,185 | 27,185 | 27,185 | 27,185 | 27,185 | 0 | 0 | 0 | 0 | 0 | 0 | 217,482 |
| Lite Energy Pty Ltd (formerly Enact Energy): Showerhead Replacement - Residential (ESS Rule V2) | 0 | 11 | 38 | 38 | 38 | 38 | 38 | 38 | 38 | 38 | 38 | 27 | 0 | 379 |
| Lite Energy Pty Ltd (formerly Enact Energy): Showerhead Sales - Commercial (ESS Rule V2) | 0 | 1,758 | 1,758 | 1,758 | 1,758 | 1,758 | 1,758 | 1,758 | 1,758 | 1,758 | 1,758 | 0 | 0 | 17,584 |
| Lite Energy Pty Ltd (formerly Enact Energy): Showerhead Sales - Residential (ESS Rule V2) | 0 | 271 | 271 | 271 | 271 | 271 | 271 | 271 | 271 | 271 | 271 | 0 | 0 | 2,709 |
| Lite Energy Pty Ltd (formerly Enact Energy): NSW Showerhead Sales - Commercial | 0 | 710 | 710 | 710 | 710 | 710 | 710 | 710 | 710 | 710 | 710 | 710 | 0 | 7,810 |
| Lite Energy Pty Ltd (formerly Enact Energy): NSW Showerhead Sales - Residential | 0 | 1,907 | 2,241 | 2,241 | 2,241 | 2,241 | 2,241 | 2,241 | 2,241 | 2,241 | 2,241 | 334 | 0 | 22,412 |
| Low Energy Supplies and Services Pty Ltd: Direct Sales and Installations - Showerheads (ESS Rule V1) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Low Energy Supplies and Services Pty Ltd: Direct Sales and Installations - Showerheads (ESS Rule V2) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lowa Investments Pty Ltd: Lowa Group LED sales program | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Next Energy Pty Ltd: Fridge Buyback | 0 | 0 | 3,320 | 3,320 | 3,320 | 3,320 | 3,320 | 3,320 | 3,320 | 3,320 | 3,320 | 3,320 | 0 | 33,204 |
| Ozzy Fortune Pty Ltd trading as Your Green Planet: Showerheads - Commercial (ESS Rule V1) | 1,121 | 561 | 561 | 561 | 561 | 561 | 561 | 561 | 561 | 561 | 0 | 0 | 0 | 6,166 |
| Ozzy Fortune Pty Ltd trading as Your Green Planet: Showerheads - Commercial (ESS Rule V2) | 0 | 1,882 | 1,882 | 1,882 | 1,882 | 1,882 | 1,882 | 1,882 | 1,882 | 1,882 | 1,882 | 0 | 0 | 18,825 |
| Ozzy Fortune Pty Ltd trading as Your Green Planet: Showerheads - Residential (ESS Rule V1) | 4,524 | 2,262 | 2,262 | 2,262 | 2,262 | 2,262 | 2,262 | 2,262 | 2,262 | 2,262 | 0 | 0 | 0 | 24,883 |
| Ozzy Fortune Pty Ltd trading as Your Green Planet: Showerheads - Residential (ESS Rule V2) | 0 | 5,288 | 5,288 | 5,288 | 5,288 | 5,288 | 5,288 | 5,288 | 5,288 | 5,288 | 5,288 | 0 | 0 | 52,885 |
| Sales Solutions Australia Pty Ltd: Shower Rose Replacement Project | 0 | 8,478 | 8,478 | 8,478 | 8,478 | 8,478 | 8,478 | 8,478 | 8,478 | 8,478 | 8,478 | 0 | 0 | 84,785 |
| Sydney Water Corporation: Washing Machine Rebate Program | 221 | 117 | 117 | 117 | 117 | 117 | 22 | 22 | 22 | 22 | 22 | 13 | 0 | 927 |
| Sydney Water Corporation: Waterfix | 1,254 | 818 | 818 | 626 | 276 | 149 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,941 |
| Urban Group Energy Pty Ltd: B-efficient Halogen Lamp Replacement Program | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Urban Group Energy Pty Ltd: B-Efficient Whitegoods Rebate Program | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Watts Green Pty Ltd: Energy Efficiency Refit Program - Commercial (ESS Rule V1) | 1,551 | 776 | 776 | 776 | 776 | 776 | 776 | 0 | 0 | 0 | 0 | 0 | 0 | 6,206 |
| Watts Green Pty Ltd: Energy Efficiency Refit Program - Commercial (ESS Rule V2) | 0 | 793 | 793 | 793 | 793 | 793 | 793 | 793 | 0 | 0 | 0 | 0 | 0 | 5,549 |

# Glossary

This glossary provides a general guide to the terminology used in ESS. It is designed to be read in conjunction with the Act, Regulation and ESS Rule. This glossary should not be relied upon as a substitute for legal advice, and does not override the true definitions of these terms in the Act, Regulation or ESS Rule.

| Term | Meaning |
|---|---|
| Accredited Certificate Provider | A person accredited by the Scheme Administrator to create Energy Savings Certificates (ESCs) in respect of a Recognised Energy Savings Activity. |
| Act | The *Electricity Supply Act 1995* which established the Energy Savings Scheme (in particular Part 9 of the Act). |
| Approved Corresponding Scheme | A scheme in another jurisdiction that the Minister has determined to have similar objectives to the ESS and an equivalent compliance regime to the ESS. Once a scheme is determined to be an Approved Corresponding Scheme, persons may carry out Recognised Energy Savings Activities that are approved under the Approved Corresponding Scheme and create Energy Savings Certificates (ESCs). |
| Base Penalty Rate | The Base Penalty Rate is the monetary rate per MWh from which the ESS Penalty Rate is calculated. The Base Penalty Rate is listed in Schedule 5A of the Act. |
| Baselines | The level of energy consumption, or energy intensity against which improvements are measured, and from which the calculation of Energy Savings Certificates are made. |
| Carbon Dioxide Equivalent ($CO_2$-e) | The standard unit for the quantification of all greenhouse gases. One Energy Savings Certificate represents the energy savings equivalent to the abatement of one tonne of carbon dioxide equivalent ($tCO_2$-e). |
| Certificate Conversion Factor | Is listed in Schedule 5B of the Act as 1.06, and is used to convert the number of MWh of Energy Savings from a Recognised Energy Savings Activity to tonnes of carbon dioxide equivalent. This is done by multiplying the MWh saved by the Certificate Conversion Factor. |

| Term | Meaning |
|---|---|
| Confidence Factor | A factor applied, when calculating the number of Energy Savings Certificates using either the Project Impact Assessment Method or the Metered Baseline Methods, that reflects that the accuracy of Accredited Certificate Provider's methodology. A more accurate methodology will generally result in a higher Confidence Factor, and a larger number of certificates. |
| Consumer Price Index (CPI) | Is the Consumer Price Index (All Groups Index) for Sydney. Under the Energy Savings Scheme, the Scheme Penalty Rate is adjusted, prior to the commencement of each calendar year, by the CPI, to give the adjusted Penalty Rate for that calendar year. |
| Default Savings Factors | A default figure which may be used to calculate the number of Energy Savings Certificates (ESCs) for each activity listed in Schedule A of the ESS Rule. The use of Default Savings Factors allows all the energy savings associated with the activities listed in Schedule A to be brought forward to the point at which the activity takes place. |
| End-user Equipment | End-user equipment refers to the electricity consuming equipment, processes, or systems, including equipment directly consuming electricity and any other equipment which controls or influences the consumption of electricity. |
| Energy Saver | The person contractually liable for the energy consumed by the end-user equipment or site that is the subject of a Recognised Energy Savings Activity (RESA), or the person nominated in writing to be the Energy Saver in respect of a RESA. |
| Energy Savings | Energy Savings refers to the calculated reduction in electricity consumption arising from a Recognised Energy Savings Activity (RESA) and calculated according to the ESS Rule. |
| Energy Savings Certificate (ESC) | A transferable certificate under Part 9 of the Act, which is created in accordance with the ESS Rule. A certificate represents the Energy Savings associated with the abatement of one tonne of carbon dioxide equivalent ($tCO_2$-e). |
| Energy Savings Scheme Rule | The Energy Savings Scheme Rule of 2009 published by the Minister for Energy, sets out the primary eligibility requirements, calculation methodologies and arrangements for the creation of Energy Savings Certificates. This rule is amended from time to time. |
| Energy Savings Target | The Energy Savings Target refers to a figure, specified in Schedule 5 of the Act, that is applied to the total Liable Acquisitions in NSW to determine each Scheme Participant's Individual Energy Savings Target for each calendar year. |
| Entitlement Date | The date an ESS application for accreditation is accepted as being lodged in a complete and acceptable form by the Scheme Administrator, and once accredited, the date from which an Accredited Certificate Provider may create certificates. |

| Term | Meaning |
|---|---|
| Energy Savings Shortfall | If a Scheme Participant fails to surrender enough Energy Savings Certificates to meet its Individual Energy Savings Target for the year, it has an Energy Savings Shortfall for that year and is liable to pay a penalty for each Energy Savings Certificate it has failed to surrender. |
| Exempt Electricity Load | An Exempt Electricity Load is the load attributed to a person or class of person which has been granted partial exemption (60% or 90%) from the scheme by the Minister, as specified in the Ministerial Order. |
| Implementation Date | The Implementation Date is the date on which the Energy Savings from the Recognised Energy Savings Activity (RESA) commences. |
| Individual Energy Savings Target | The Individual Energy Savings Target is the number of Energy Savings Certificates (ESCs) which a Scheme Participant must surrender each year to meet its obligations under the Energy Savings Scheme. This target is determined by multiplying the Energy Savings Scheme Target for that year by the total liable acquisitions in that year and the certificate conversion factor. |
| Liable Acquisition | Is any purchase of electricity by a Scheme Participant which is purchased from the Market Operator, or from parties not registered with the Market Operator for supply to end users in NSW whose loads have not been listed as Exempt Electricity Loads. |
| Market Operator | Is the entity responsible for the administration and operation of the wholesale national electricity market in accordance with the National Electricity Law (currently the Australian Energy Market Operator (AEMO)). |
| Ministerial Order | The Ministerial Order is published annually, or when required, and lists all emissions intensive trade exposed industries, their location and proportion of electricity load granted an exemption (either 60% or 90%) under the ESS. |
| National Australian Built Environment Rating System (NABERS) | Is a ratings methodology administered by the NABERS Administrator (currently the Office of Environment and Heritage (OEH)) which can be used to calculate Energy Savings under the Metered Baseline Method. The NABERS Method can be used for new or existing buildings. |
| Penalty Conversion Factor | Is specified in Schedule 5A of the Act, and is 0.94 for the duration of the Scheme. |
| (ESS) Penalty Rate | Is calculated by multiplying the Base Penalty Rate per MWh by the Penalty Conversion Factor. The ESS Penalty Rate is the amount per certificate that is applied to a Scheme Participant's Energy Savings Shortfall to calculate the monetary penalty as a result of the shortfall. The ESS Penalty Rate is listed in Schedule 5A of the Act. |

| Term | Meaning |
|---|---|
| Recognised Energy Savings Activity (RESA) | A specific activity, approved by the Scheme Administrator, which is implemented by an Energy Saver and increases the efficiency of electricity consumption or reduces electricity consumption with no negative effect on production or service levels. |
| Regulation | *Electricity Supply (General) Regulation 2001*. |
| Retail Supplier | A Scheme Participant under the Energy Savings Scheme. Includes all holders of an electricity retail licence in NSW. |
| Scheme Administrator | The body responsible for administering functions such as accrediting Accredited Certificate Providers, verifying Energy Savings activity and maintaining a registry of certificates. The NSW Independent Pricing and Regulatory Tribunal (IPART) is the Scheme Administrator for the Energy Savings Scheme. |
| Scheme Participant | A person who is required to comply with an Individual Energy Savings Target. Scheme Participants include all Retail Suppliers of electricity in NSW, any person directly supplying a customer in NSW or any person directly purchasing electricity from the Market Operator (other than a Retail Supplier). |
| Scheme Registry | An online registry of Accredited Certificate Providers and Energy Savings Certificates. |
| Scheme Regulator | The body that monitors the compliance of Scheme Participants with their Individual Energy Savings Targets under the Act. The NSW Independent Pricing and Regulatory Tribunal (IPART) is the Scheme Regulator for the Energy Savings Scheme. |
| Site | A Site refers to all the End end-user equipment for which the electricity consumed is measured by the same utility meter allocated a National Meter Identifier (NMI) under the National Electricity Law, or by other meters or logging devices approved by the Scheme Administrator. |