IPART

Independent Pricing and Regulatory Tribunal
New South Wales

NSW Energy Savings Scheme Compliance and Operation in 2018

Annual Report to the Minister

Energy Savings Scheme

July 2019

ISBN 978-1-76049-309-7

The Tribunal members for this report are:

Dr Paul Paterson, Chair

Mr Ed Willett, Tribunal Member

Ms Deborah Cope, Tribunal Member

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1 Executive summary

This is the Independent Pricing and Regulatory Tribunal of NSW's (**IPART's**) tenth annual report to the Minister on the NSW Energy Savings Scheme (**ESS**), as required by section 174 of the *Electricity Supply Act 1995* (**Act**).[1] It summarises the scheme's performance during the 2018 calendar year, including the energy (electricity and gas) savings achieved and the compliance by Scheme Participants and Accredited Certificate Providers. It also outlines our actions and observations as Scheme Regulator and Scheme Administrator during 2018.

During 2018:

- The number of certificates created exceeded the ESS target for the year
- The total certificate surplus continued to trend upward and the reported certificate price ranged from $20 to $25, which remained broadly in line with the historical range
- The scheme added 0.5% to the total cost of supplying electricity to NSW residential customers, equivalent to $7 of the representative annual residential consumer electricity bill of $1,294.[2] This cost to electricity customers in the residential sector totals approximately $19 million.[3]
- The value of certificates surrendered by all Scheme Participants in 2018 (4.3 million), equates to approximately $87 - $108 million[4]
- The compliance performance of both Scheme Participants and Accredited Certificate Providers was generally high
- We continued to make significant improvements to the administration of the ESS.

We also identified several non-compliance issues that present ongoing risks to the integrity of the scheme. We undertook compliance investigation and enforcement actions to address these issues, including suspension and cancellation of accreditations and issuing penalties to Accredited Certificate Providers and directors.

In addition to the opportunities identified in 2017[5] to improve the scheme design, we have identified additional design aspects that should be reviewed and improved to maintain the integrity of the scheme and to strengthen our ability to manage compliance.

1 A complete list of the legislative reporting requirements is included in the Appendix to this report.
2 The ESS cost of $7 is estimated using an average annual consumption of 4,215 kWh for NSW households and an estimated usage charge of $0.0017/kWh provided by the NSW Department of Planning and Environment. Source: Australian Energy Market Commission, *2018 Residential Electricity Price Trends Review*.
3 The estimated cost assumes a total of 2.68 million occupied private dwellings in NSW, based on 2016 census data and an estimated annual growth rate of 1.5%. Source: Australian Bureau of Statistics, *2016 Census QuickStats – NSW*.
4 Based on an average certificate price range ($20 - $25).
5 See IPART, *NSW Energy Savings Scheme Compliance and Operation in 2017, Annual Report to the Minister,* July 2017, section 1.6.

We continue to review and enhance our systems to ensure they remain robust and flexible, and can promptly identify and address issues of concern.

Box 1.1 About the Energy Savings Scheme

The ESS is a state-based scheme that aims to reduce the consumption of energy (electricity and gas) in NSW by providing a financial incentive to implement activities that save energy without reducing production or service levels. It is established under Part 9 of the Act.

The Act sets out **ESS targets** for each calendar year to 2025 and obligates all electricity retailers operating in NSW and other specified parties – known as **Scheme Participants** – to meet these targets by surrendering Energy Savings Certificates (**certificates**) or pay a penalty. Scheme Participants who need to purchase certificates for surrender create the demand for certificates.

The Act also provides for parties to be accredited to create those certificates from recognised energy saving activities.[a] These parties are voluntary participants in the ESS, and are known as **Accredited Certificate Providers**. This creates the supply of certificates.

The ESS target is applied to each Scheme Participant's annual liable acquisitions of electricity to determine its individual energy savings liability for the year. The target started at 1% of liable acquisitions in 2009 and has increased annually to reach 8% in 2018. It reaches 8.5% in 2019, and is currently set to remain at this level until 2025.[b]

[a] Certificates for energy saving activities may be created up to six months after the end of the calendar year in which the energy savings occur (or are deemed to occur) eg, 2018 vintage certificates may be created up until 30 June 2019.

[b] The ESS target for each calendar year is set out in Schedule 5 of the Act.

1.1 Number of certificates created exceeded the 2018 target

The ESS target for 2018 was 8% of all electricity purchased for supply to end-use customers in NSW, compared with 7.5% in 2017. After deducting allowed exemptions, the effective target for 2018 was 6.6%, which is equivalent to 4,330,051 megawatt hours (**MWh**) of electricity savings, or 4,330,051 certificates.[6]

Accredited Certificate Providers created 5,165,715 certificates in 2018, which exceeded the number required to meet the effective target in 2018. The 2018 vintage certificates represented 4,651,027 MWh of electricity savings and 604,169 MWh of gas savings.[7] As in previous years, the majority of certificates were from commercial lighting activities.

Since the ESS commenced in July 2009, a total of 28,928,327 certificates have been created for activities implemented under the scheme. These certificates represent 27,003,987 MWh of electricity savings and 779,745 MWh of gas savings.[8]

6 To calculate the target (demand) for certificates each year, the electricity savings target (in MWh) is multiplied by the energy conversion factor (1.01 for the years 2009 to 2015, 1.0 for 2016 to 2025).

7 To calculate the supply of certificates, the electricity savings and gas savings achieved (both in MWh) are multiplied by the relevant certificate conversion factor (1.06 for electricity and 0.39 for gas).

8 This compares with 23,768,309 certificates created (equivalent to 22,357,891 MWh of electricity savings and 176,780 MWh of gas savings) for activities implemented up until the end of the 2017 calendar year.

Box 1.2 IPART is the Scheme Regulator and Scheme Administrator

IPART is both Scheme Regulator and Scheme Administrator for the ESS. The Scheme Regulator role relates to activities of Scheme Participants, while the Scheme Administrator role relates to the activities of Accredited Certificate Providers.

Our mission is to administer the ESS efficiently and effectively, and to maintain the integrity of the scheme by ensuring that participants understand and adhere to the ESS requirements. To achieve these goals, we:

- Publish detailed guidance about the ESS requirements
- Present online workshops about specific aspects of the ESS and hold in-person stakeholder forums and workshops
- Use various online tools to improve our administrative efficiency and enhance the user experience of our stakeholders
- Apply a risk-based approach to determine the compliance regime that applies to each accreditation over time
- Require audits of participants' activities
- Maintain robust systems and processes to minimise the risk of non-compliance with the ESS requirements
- Monitor emerging issues and receive and act on intelligence.

1.2 Certificate surplus continued to trend upwards and certificate price range was in line with previous years

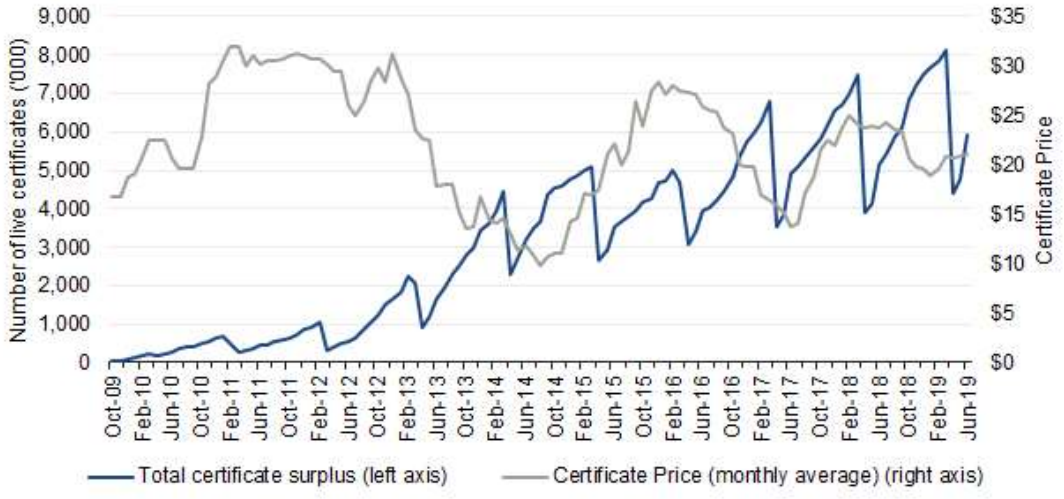
The total certificate surplus[9] at 30 June 2019 was almost 6 million certificates, which is higher than the surplus at 30 June 2018 (see Figure 1.1). Typically, the surplus rises throughout the year as Accredited Certificate Providers register certificates, and falls sharply in March/April of the following year when Scheme Participants surrender certificates to meet their compliance obligations.

The indicative certificate price[10] varied across the year, from a low of $20 in mid-2018 to a high of $25 in late 2018 (see Figure 1.1). This is within the price range of $10 to $32 observed since the commencement of the ESS. As the certificates are traded in a free market, the certificate price varies over time.

9 Total certificate surplus comprises all vintages, including 2019 certificates that are unable to be surrendered to meet the 2018 target.

10 The price data is provided by third parties, as indicated in Figure 1.1. As it does not include price data for all certificate trades, it may not represent the actual average certificate price over time. Nevertheless, it provides a useful guide to broad movements in the certificate price.

Figure 1.1 Total certificate surplus and indicative certificate price (2009 to 2019)[a]

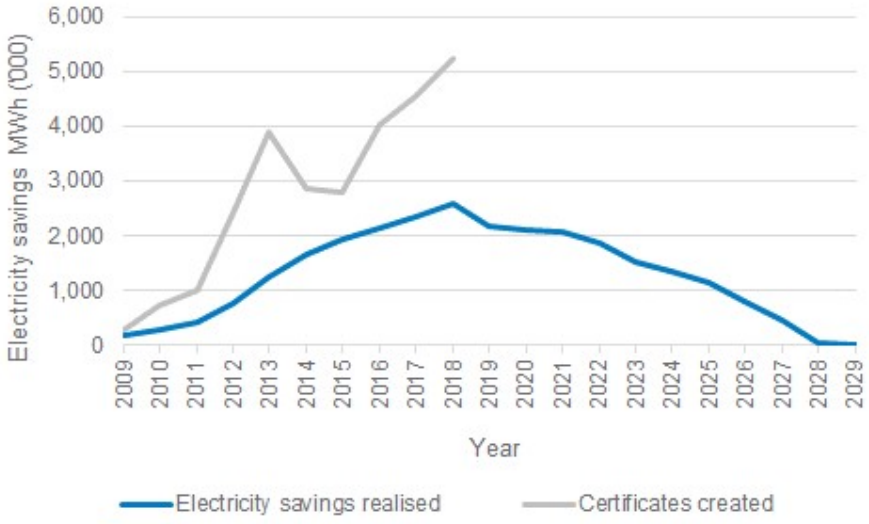


a Based on data provided by the financial brokers, Nextgen and TFS Green Australia, for all certificates traded through brokers in both the spot market and the forward market.

1.3 The ESS continued to achieve significant actual energy savings

As a result of certificates created between 2009 and 2018, we estimate that the ESS has achieved, or will achieve (over the lifetime of implemented energy-saving activities), actual electricity savings of 27,003,987 MWh and actual gas savings of 779,745 MWh (see Figure 1.2).

Figure 1.2 Certificates created (2009 to 2018) compared with estimated actual electricity savings (2009 to 2029)[a]



a Estimated actual gas savings to date are not included on this graph as the savings to date are comparatively small (see Table 2.2).

1.4 Scheme Participant compliance was high

There were 74 Scheme Participants operating in NSW during the 2018 calendar year[11] and 70 fully complied with their obligations. Of these:

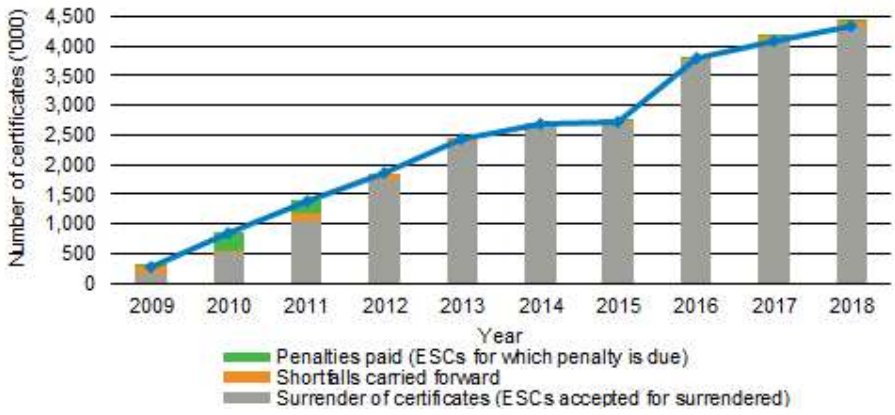
- 44 met their individual target by surrendering certificates[12]
- One elected to pay a penalty and paid on time
- 25 reported no liable acquisitions in NSW.

Of the remaining Scheme Participants:

- One submitted its Annual Energy Savings Statement (**AESS**) after the due date[13]
- One surrendered a portion of the required certificates by 30 April 2019 and the remainder on 11 June 2019 to fully meet its individual energy savings target[14]
- One elected to pay a penalty and made payment after the due date
- One did not meet its target or submit an AESS.[15]

Figure 1.3 shows how Scheme Participants have met their energy savings target each year since the ESS began.

Figure 1.3 How the increasing ESS targets have been met each year (2009 to 2018)



1.5 Most Accredited Certificate Providers' compliance was high

The compliance of most Accredited Certificate Providers was high. During 2018, we identified 38,883 certificates (of various vintages)[16] as being improperly created due to a range

11 This compares to 65 Scheme Participants in the 2017 calendar year.
12 Of these Scheme Participants, 36 surrendered the full amount, while 8 surrendered at least 90% of the full amount and carried forward a shortfall of up 10% of their target, as permitted under the Act.
13 The Scheme Participant that submitted its AESS late reported no liable acquisitions in NSW.
14 Surrendered a portion of the certificates due to an administrative error. Refer to section 3.1 in this report for further details.
15 See section 3.1 of the report for further details of these issues and the actions we are taking.
16 Some of the certificates we identified as improperly created in 2018 were created in previous years.

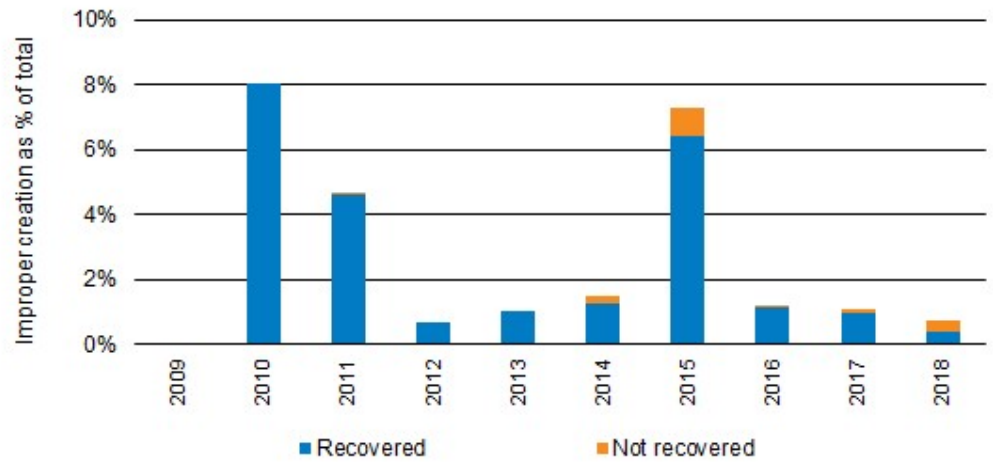
of Accredited Certificate Provider errors and/or deliberate non-compliance. This is equivalent to 0.8% of all certificates created for 2018 activities (see Figure 1.4).

We recovered all but 18,281 of these improperly created certificates (0.4% of all certificates created for 2018 activities). Of the unrecovered certificates, 18,233 were not recovered because the Accredited Certificate Provider went into liquidation without forfeiting them.[17]

We continually undertake activities to minimise non-compliance and reduce t he risk of Accredited Certificate Providers creating certificates where no genuine energy savings occurred, in accordance with the ESS Rule. During 2018 these activities included:

- Monitoring Accredited Certificate Providers' energy saving activities and using audits to verify savings
- Using set-aside agreements[18] to:
  - Commit Accredited Certificate Providers to withhold from trade a percentage of the certificates they create until an audit of those certificates has been satisfactorily completed
  - Require them to forfeit certificates to address any improper creation identified.

Figure 1.4 Identified improper certificate creation (2009 to 2018)[a]



a Refer to previous ESS Annual Reports for details of improper creation, and our recovery of improperly created certificates prior to 2018.

During the second half of 2018 we identified a number of emerging non-compliance issues involving the Commercial Lighting Energy Savings Formula and Project Impact Assessment with Measurement and Verification methods. However, as our examination of these issues was not concluded during 2018, the resulting number of improperly created certificates is not included in this report. This information will be included in the 2019 ESS Annual Report statistics.

17 We note, in some instances, the precise number of improperly created certificates cannot be quantified (see section 4.2 of this report for further details).

18 Prior to the introduction of mandatory set-aside undertakings in 2016 under clause 40 of the Regulation, we requested the Accredited Certificate Provider to enter into a voluntary set-aside deed, which had the same requirements.

1.6 We identified and responded to issues that present risks to the scheme's integrity

Our mission as Scheme Administrator is to administer the ESS efficiently and effectively, and to maintain the integrity of the scheme by ensuring that participants understand and adhere to the ESS requirements. We do this by applying a risk-based approach to managing the compliance of Accredited Certificate Providers. Our primary tools are third-party audits, independent of Accredited Certificate Providers, and legally binding set-aside agreements.

As the ESS is funded through electricity prices, it should deliver a net benefit and value for money to the NSW consumers. It is, therefore, important to ensure that the ESS is incentivising activities that would not have happened if it were not for the subsidy. It is possible that, through the success of the scheme to date, some activities have now reached a point of being economically viable without the subsidy. It is also important to ensure that energy savings are real and verifiable.

In 2018, we identified several issues that present risks to the scheme's integrity, including concerns related to additionality of energy savings and emerging non-compliance issues. 'Additionality' refers to the energy savings achieved by activities that would not have occurred in the absence of the ESS incentive.

1.6.1 Concerns related to additionality

We have ongoing concerns about the potential lack of evidence of additionality with respect to some implementations under the scheme. These concerns relate, for example, to Accredited Certificate Providers becoming involved late in the development of projects under the Project Impact Assessment with Measurement and Verification method, when decisions have already been made to implement those projects without the ESS incentive.

The lack of additionality of energy savings achieved from commercial lighting activities is another issue that we are concerned about. The market for energy efficient lighting has matured significantly in the last few years and, therefore, may no longer require financial incentives to achieve the objectives of the scheme.

1.6.2 Compliance issues and how we addressed them

During 2018 we identified several issues that present risks to the scheme's integrity. These include Accredited Certificate Providers failing to comply with the co-payment requirement under the Commercial Lighting Energy Savings Formula and some of the key requirements under the Project Impact Assessment with Measurement and Verification method.

We have dedicated a significant amount of time and resources to examine and address emerging non-compliance issues associated with the application of the Project Impact Assessment with Measurement and Verification method.

We have also observed that all the major instances of non-compliance identified since 2016 continue to involve very large volume certificate creators. Prior to 2016, major instances of non-compliance typically involved smaller certificate creators.

To address the compliance issues and improve our ability to identify and manage compliance risk, we continued to take a range of actions. Refer to section 5.1.2 for further details.

1.7 We identified further opportunities to improve the ESS scheme design

The financial incentives for energy efficiency upgrades under the ESS attract operators of varying size, experience and compliance standards. A poor or deficient compliance culture in parts of the industry represents a threat to the integrity of the scheme, if certificates are improperly created. This can compromise the objectives of the scheme. While IPART focuses on building a strong culture of compliance in the industry this should be supported by a robust regulatory framework.

1.7.1 A robust scheme design is required to reduce the risk of non-compliance

While some non-compliance arises from a lack of diligence, we consider there may be scope for deliberate non-compliance where regulated entities perceive that detection of non-compliance or enforcement of compliance is difficult. Where changes to the ESS Rule are contemplated, we seek requirements that are auditable, resistant to fraud and enforceable.

For example, Project Impact Assessment with Measurement and Verification is a complex method and we have identified a number of instances of non-compliance with the relevant requirements. In addition, there are growing concerns about the use of the Commercial Lighting Energy Savings Formula method continuing to create compliance issues, particularly in relation to document irregularities.

The provisions of the ESS Rule are often necessarily complex and technical. In our enforcement and compliance role, we are required to interpret and apply these provisions in accordance with recognised legal principles. Where possible, we aim to communicate our interpretation to ACPs to provide clarity and consistency.

We are also working with the policy agencies to strengthen and simplify the requirements under the Project Impact Assessment with Measurement and Verification and other methods to support and improve industry understanding, capability and compliance, and reduce the risks to the integrity of the scheme.

While we are exploring new strategies and appropriate powers to address these issues, we consider that there are further opportunities to improve the ESS statutory compliance and enforcement framework.

1.7.2 We are working with the policy agencies to enhance the ESS compliance and enforcement framework

As part of the five-yearly statutory review[19] of the ESS, commencing in 2019, we are working with the policy agencies to address non-compliance issues and to ensure that IPART has adequate enforcement powers to maintain the integrity of the scheme.

19 Section 175 of the *Electricity Supply Act 1995* (NSW) requires the Minister to review the operation of the ESS 'to determine whether the policy objectives of the scheme remain valid and whether the terms of [Part 9 of the ES Act] remain appropriate to securing those objectives'.

We have provided recommendations for enhancements to the statutory framework, such as the expansion of existing powers and the addition of a limited number of new powers and requirements, which we consider are essential for the enforceability of the ESS. We consider that strengthening of the compliance and enforcement framework is critical for the ongoing integrity of the ESS.

1.8 We continued our core administrative activities

We continued to perform our core administrative tasks and make continuous improvements to our systems and processes. For example, we:

- Approved 15 new accreditations, and made 45 amendments to the conditions of existing accreditations[20]
- Accepted 1,768 lighting products for use in the scheme, bringing the total number of products accepted since 2011 to 7,653
- Managed 131 audits of certificate creation[21]
- Cancelled 18 accreditations[22]
- Made improvements to the ESS Portal[23] to increase administrative efficiency and improve how Accredited Certificate Providers and auditors interact with us.

In addition, we continued our 'face-to-face' interaction with stakeholders to help improve their understanding of ESS requirements, including through a public stakeholder forum. We also increased the number and scope of our online training workshops.

1.9 Functions of Scheme Regulator and Scheme Administrator were exercised by Tribunal and ESS Committee

For the period of 1 August to 31 October 2018, the Tribunal exercised the functions of Scheme Regulator and Scheme Administrator. During this time, the Tribunal comprised:

- Dr Peter J. Boxall AO as Chair[24]
- Ms Deborah Cope and Mr Ed Willett as Tribunal Members.

From 1 January to 31 July 2018, and from 1 November to 31 December 2018, the Tribunal delegated these functions to the ESS Committee,[25] which comprised:

- Mr Ed Willett as Chairman

20 Some accreditations had their conditions amended multiple times. Most amendments were to change the maximum number of certificates to be created between audits, or change the activities allowed under the accreditation.
21 These audits were undertaken by members of our Audit Services Panel.
22 We typically cancelled these accreditations because we were satisfied that the Accredited Certificate Provider had breached its accreditation conditions or was no longer eligible to be accredited, or because the Accredited Certificate Provider requested cancellation.
23 The ESS Portal is an online system we use to manage compliance activities.
24 Dr Paul Paterson has been appointed as IPART's new Chair from 11 February 2019 until 31 December 2023.
25 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.

- Dr Brian Spalding, Ms Fiona Towers (from 1 January to 5 July 2018) and Ms Pamela Soon (from 24 July to 31 December 2018) as Committee Members.

The Secretariat continued to perform certain administrative functions previously delegated to it by the Tribunal to improve administrative efficiency.

1.10 Report structure

The remainder of this report discusses the compliance performance and operation of the ESS during 2018 in more detail:

- Chapter 2 focuses on the scheme's performance in terms of energy savings achieved and certificate market activity
- Chapters 3 and 4 discuss the compliance performance of Scheme Participants and Accredited Certificate Providers respectively in 2018, and forecast energy savings for the next 10 years
- Chapter 5 outlines our activities in administering the scheme.

Further information about the ESS is available on our website.[26]

26 See www.ess.nsw.gov.au

2 Scheme performance

The principal objective of the ESS is to create a financial incentive to reduce energy consumption (electricity and gas) by encouraging energy saving activities by electricity consumers.[27] To assess the scheme's performance against this objective, each year we estimate the energy savings achieved from certificate creation. In 2018, we found that:

- The number of certificates created exceeded the number required to meet the ESS target for the year
- The scheme continued to achieve significant actual energy savings
- The level of activity in the certificate market (ie, transactions) was similar to 2017.

2.1 The number of certificates created exceeded the 2018 target

The ESS target for 2018 was 8% of all electricity purchased for supply to end-use customers in NSW, compared with 7.5% in 2017. After deducting allowed exemptions (see section 3.2), the effective target was 6.6%. This is equivalent to 4,330,051 MWh of electricity savings, or 4,330,051 certificates.[28]

Accredited Certificate Providers created 5,165,715 certificates in 2018, which was 19% higher than the effective target. These certificates represented 4,651,027 MWh of electricity savings and 604,169 MWh of gas savings.[29]

2.2 The ESS continued to achieve significant actual energy savings

As a result of certificates created between 2009 and 2018, we estimate that the ESS has achieved or will achieve (over the lifetime of the energy-saving activities) actual electricity savings of 27,003,987 MWh and actual gas savings of 779,745 MWh (see Figure 2.1). These savings comprise:

- 10,926,351 MWh of electricity savings and 28,891 MWh of gas savings achieved during the period 2009 to 2017
- 2,579,128 MWh of electricity savings and 111,552 MWh of gas savings achieved during 2018
- 13,498,509 MWh of electricity savings and 639,302 MWh of gas savings estimated to be achieved over the 10 years from 2019 to 2029 (Table 2.1 and Table 2.2).

The reason some of these energy savings will be realised in future years is that Accredited Certificate Providers may, under some of the ESS calculation methods, create certificates in

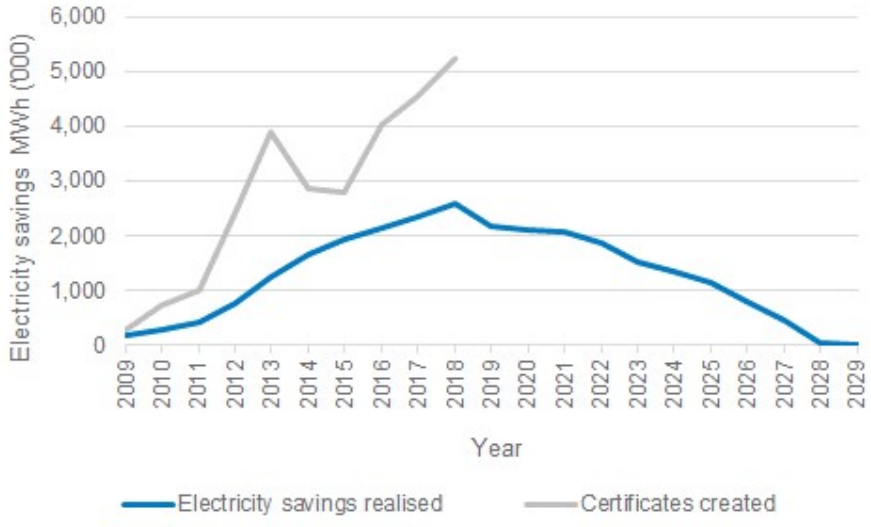
27 The objectives of the ESS are specified in section 98 of the Act.

28 To calculate the target (demand) for certificates each year, the electricity savings target (in MWh) is multiplied by the energy conversion factor (1.01 for the years 2009 to 2015, 1.0 for 2016 to 2025).

29 To calculate the supply of certificates, the electricity savings and gas savings achieved (both in MWh) are multiplied by the relevant certificate conversion factor (1.06 for electricity and 0.39 for gas).

advance of the savings occurring (see Box 2.1). To estimate these future savings, we pro rate the certificates created in each year across the forward-creation or deeming period of the relevant energy saving activity. This is why energy savings estimates extend beyond the legislated life of the scheme.

Figure 2.1 Certificates created (2009 to 2018) compared with estimated actual electricity savings (2009 to 2029)[a]



[a] Estimated actual gas savings to date are not included on this graph as the savings to date are comparatively small (see Table 2.2).

Box 2.1 Certificate creation in advance of actual energy savings

For some recognised energy saving activities (**RESAs**), specifically for all accreditations under the Metered Baseline Method, certificates can only be created in the year that the energy savings occurred. However, for other RESAs, certificates may be created in advance of the actual energy savings occurring where those savings will continue for up to 15 years into the future. This is referred to as forward creation and deeming.

Under the Project Impact Assessment Method and the Project Impact Assessment with Measurement and Verification Method, it is possible to forward-create certificates (at the start of the energy savings period) for up to 5 years and 10 years respectively, based on estimated energy savings. The certificates are discounted by an approved percentage to account for some uncertainty, and may later be 'topped up' if additional actual savings can be verified.

Under the Deemed Energy Savings Method, which includes the Commercial Lighting Energy Savings Formula, the lifetime or deemed energy savings are estimated up-front and the certificates are forward-created from the time the activity is implemented. The deeming period depends on the type of activity, and typically ranges between 7 years and 15 years.

Table 2.1 Estimated actual electricity savings (in '000 MWh per year) by calculation method (2009 to 2028)[a]

Calculation method	2009-17[b]	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028[d]	Total
Deemed Energy Savings Method													
Commercial Lighting Formula	5,460	1,922	1,921	1,914	1,867	1,674	1,345	1,143	966	663	345	0	19,220
Sale of New Appliances	182	113	113	113	113	113	113	113	111	83	53	24	1,244
Default Savings Factors	590	73	28	0	0	0	0	0	0	0	0	0	691
Removal of Old Appliances	80	19	15	9	6	5	2	0	0	0	0	0	136
Installation of High Efficiency Appliances for Business	1	2	2	2	2	2	2	2	2	1	1	0	19
Public Lighting Formula	3	8	8	8	8	8	8	8	8	8	8	8	91
Home Energy Efficiency Retrofits	1	19	19	19	19	19	19	19	19	19	18	0	190
Power Factor Correction Formula	0	0	0	0	0	0	0	0	0	0	0	0	0
High Efficiency Motor Formula	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal	6,317	2,156	2,106	2,065	2,015	1,821	1,489	1,285	1,106	775	425	32	21,591
Metered Baseline Method[c]													
Baseline per unit of output	1,954	163	0	0	0	0	0	0	0	0	0	0	2,117
Baseline unaffected by output	128	9	0	0	0	0	0	0	0	0	0	0	137
NABERS baseline	309	19	0	0	0	0	0	0	0	0	0	0	328
Normalised baseline	712	156	0	0	0	0	0	0	0	0	0	0	868
Subtotal	3,103	347	0	0	0	0	0	0	0	0	0	0	3,450
Project Impact Assessment Method	1,471	30	8	0	0	0	0	0	0	0	0	0	1,509
Project Impact Assessment with Measurement and Verification Method	34	44	44	44	44	44	44	44	43	37	18	0	440
TOTAL SAVINGS	10,925	2,577	2,158	2,109	2,059	1,865	1,533	1,329	1,149	811	443	32	26,990[e]

a See Box 5.1 for an explanation of the calculation methods. Methods for which certificates are yet to be created (eg, Aggregated Metered Baseline Method) are not included in this table.

b For the period from 1 July 2009 to 31 December 2017.

c Certificates can only be created under the Metered Baseline Method after the savings have occurred (ie, there is no forward creation or deeming as with other methods). This results in 'zero' savings being allocated for 'future' years (ie, all savings are allocated to the year in which certificates are created).

[d] Section 174(2)(e) of the Act requires the Scheme Administrator to estimate electricity savings over the next 10 years having regard to the number of certificates created.

[e] Represents total electricity savings achieved under the ESS based on total certificates created to date.

Note: Figures are rounded to nearest integer (this may result in 'zero' certificates for some years with small certificate creation). Totals may not add exactly due to rounding. All data is in MWh. While the ESS closes at the end of 2025 (Section 178 of the Act), savings will be realised beyond that date. Small differences in data compared with previous annual reports reflect certificates that have been forfeited after the report was released. Some improvements have been made in this year's modelling analysis, which has changed the allocation of energy savings year by year (these include changes to the deeming period for some calculation methods and disregarding decay factors for Project Impact Assessment and Project Impact Assessment with Measurement and Verification methods).

Table 2.2 Estimated actual gas savings (in '000 MWh per year) by calculation method (2009 to 2028)[a]

Calculation method	2009-17[b]	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028[d]	Total
Deemed Energy Savings Method													
Installation of High Efficiency Appliances for Business	3	7	7	7	7	7	7	7	7	7	4	0	70
Subtotal	3	7	7	7	7	7	7	7	7	7	4	0	70
Metered Baseline Method[c]													
Baseline per unit of output	13	35	0	0	0	0	0	0	0	0	0	0	48
Normalised baseline	0	4	0	0	0	0	0	0	0	0	0	0	4
Subtotal	13	39	0	0	0	0	0	0	0	0	0	0	52
Project Impact Assessment with Measurement and Verification Method	14	66	66	66	66	66	66	66	66	66	53	0	661
TOTAL SAVINGS	30	112	73	73	73	73	73	73	73	73	57	0	783[e]

[a] See Box 5.1 for an explanation of the calculation methods. Methods for which certificates are yet to be created are not included in this table.

[b] For the period from 1 July 2009 to 31 December 2017.

[c] Certificates can only be created under the Metered Baseline Method after the savings have occurred (ie, there is no forward creation or deeming as with other methods). This results in 'zero' savings being allocated for 'future' years (ie, all savings are allocated to the year in which certificates are created).

[d] Section 174(2)(e) of the Act requires the Scheme Administrator to estimate gas savings over the next 10 years having regard to the number of certificates created.

[e] Represents total gas savings achieved under the ESS based on total certificates created to date.

Note: Figures are rounded to nearest integer (this may result in 'zero' certificates for some years with small certificate creation). Totals may not add exactly due to rounding. All data is in MWh. While the ESS closes at the end of 2025 (Section 178 of the Act), savings will be realised beyond that date. Small differences in data compared with previous annual reports reflect certificates that have been forfeited after the report was released. Some improvements have been made in this year's modelling analysis, which has changed the allocation of energy savings year by year (these include changes to the deeming period for some calculation methods and disregarding decay factors for Project Impact Assessment and Project Impact Assessment with Measurement and Verification methods).

Table 2.3 compares, by calculation method, the number of certificates created with the estimated actual electricity savings in the period 2009 to 2018 (it does not include electricity savings estimated to occur after 2018).

It shows that the Deemed Energy Saving Method (which includes commercial lighting activities) accounts for 80% of the certificates created to date, but only 64% of the estimated actual electricity savings to date. This is because forward creation of certificates is permitted under this method, and a high proportion of the electricity savings associated with the certificates created under the method to date will be realised after 2018.

In contrast, the Metered Baseline Method Deemed Energy Saving Method accounts for 12% of the certificates created to date, but 25% of the estimated actual electricity savings to date. Forward creation of certificates is not permitted under this method, and so all electricity savings associated with certificates created under this method to date were realised before or during 2018.

Table 2.3 Calculation method proportions – certificate creation vs estimated actual electricity savings (2009 to 2018)

	Certificate creation (2009-2018)	Estimated actual electricity savings in MWh (2009-2018)
Deemed Energy Savings Method	22,926,970 (79.3%)	8,476,822 (62.8%)
Metered Baseline Method	3,676,394 (12.7%)	3,449,422 (25.5%)
Project Impact Assessment Method	1,599,792 (5.5%)	1,501,279 (11.1%)
Project Impact Assessment with Measurement and Verification Method	725,171 (2.5%)	77,955 (0.6%)
Total	28,928,327 (100%)	13,505,478 (100%)

2.3 Activity level in the certificate market was similar to 2017

As Scheme Administrator, we maintain publicly available registers of Accredited Certificate Providers and energy savings certificates on the ESS Registry.[30] This registry records information about all Accredited Certificate Providers, their activities and the certificates they create. It also records information about each certificate, including the creator, vintage, energy saving calculation method used and activity undertaken. In addition, it tracks the status of a certificate – which is either live (available for transfer or surrender), surrendered or forfeited.

Our analysis of this information shows a similar level of activity (ie, transactions) in the certificate market in 2018 compared to 2017:

- The number of certificates created was higher than last year
- Certificate registration and transfer activity continued to fluctuate across the year
- Most certificates surrendered were to meet regulatory obligations
- Some certificates were forfeited due to incorrect certificate creation issues
- The cumulative certificate surplus remains high.

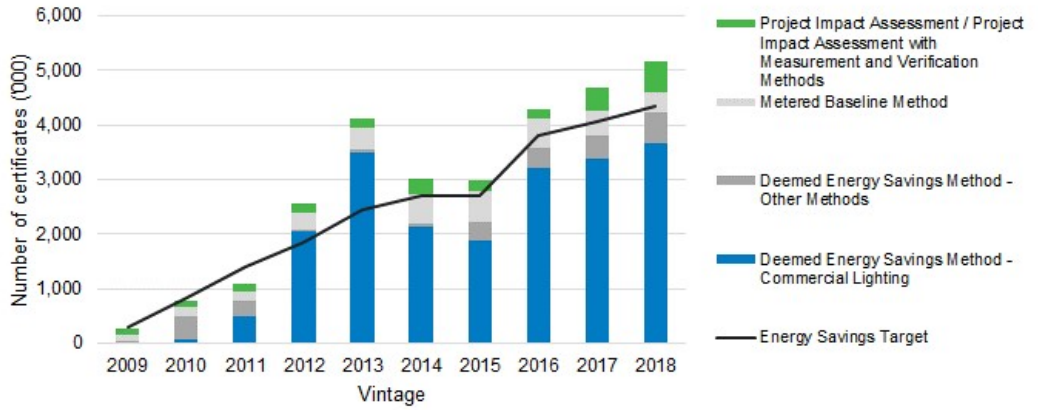
30 See IPART, *ESS Registry and ESS Portal*, www.ess.nsw.gov.au/Registry

2.3.1 The number of certificates created was higher than last year

Accredited Certificate Providers created 5,165,715 certificates of 2018 vintage,[31] compared with 4,697,039[32] in 2017. The proportion of certificates created under the different calculation methods was similar to last year, with 71% of the certificates created from commercial lighting activities (see Figure 2.2 and Table 2.4). However, we also identified some differences, including:

- A significant increase in certificates created under the Home Energy Efficiency Retrofits method, which accounted for 190,037 (or 4%) of all certificates created in 2018, almost 16 times the amount of certificates created under this method in 2017 (11,843)
- A decrease in certificates created under the Metered Baseline Method, which accounted for 383,577 of all certificates created in 2018 - around 20% less than the certificates created in 2017 (476,533) and the lowest amount since 2013.

Figure 2.2 Certificate creation by calculation method and vintage (2009 to 2018)



We anticipate there may be further changes in the proportion of certificates created under different methods in future years, including:

- A continued increase in activity in the residential and small business sectors, partly due to the NSW Government's energy efficiency programs for these sectors that are delivered in part through the ESS's Home Energy Efficiency Retrofits method
- A potential increase in certificate creation under Project Impact Assessment Measurement and Verification Method, as the industry builds capacity to undertake activities under the method
- A potential decrease in certificate creation from commercial lighting activities, as the NSW Government may continue to reduce incentives under the Commercial Lighting Energy Savings Formula because of the market's uptake of energy efficient light emitting diode (**LED**) lighting.[33]

31 2018 vintage certificates relate to energy saving activities undertaken during the 2018 calendar year. However, certificates may be created up to six months after the end of the calendar year. Therefore, a 2018 vintage certificate can be registered from 1 January 2018 to 30 June 2019.

32 Small differences in data compared with previous annual reports reflect certificates that have been forfeited after the report was released.

33 In 2018, the NSW Government introduced changes to the ESS Rule, including amendments to the Commercial Lighting Energy Savings Formula.

Table 2.4 Number of certificates created by energy savings calculation sub-method (2009 to 2018) [a]

Calculation method	2009-2015[b]	2016	2017	2018	Total
Deemed Energy Savings Method					
Commercial Lighting Energy Savings Formula	10,137,596	3,207,231	3,372,795	3,656,203	20,373,825
Sale of New Appliances[c]	359,483	343,064	338,535	282,134	1,323,216
Default Savings Factors[c]	732,854	0	0	0	732,854
Home Energy Efficiency Retrofits	0	0	11,843	190,037	201,880
Removal of Old Appliances[c]	108,516	22,758	12,522	0	143,796
Public Lighting Energy Savings Formula	0	0	40,048	64,907	104,955
Installation of High Efficiency Appliances for Businesses	1,843	1,829	15,320	25,655	44,647
High Efficiency Motor Energy Savings Formula	1,569	0	0	0	1,569
Power Factor Correction Energy Savings Formula	228	0	0	0	228
1-for-1 Residential Downlight Replacement[c]	0	0	0	0	0
Metered Baseline Method					
Baseline per unit of output	1,496,727	330,489	248,734	186,721	2,262,671
Normalised baseline	430,283	147,551	176,483	166,722	921,039
NABERS baseline	263,565	36,771	26,946	20,330	347,612
Baseline unaffected by output	83,300	27,598	24,370	9,804	145,072
Aggregated metered baseline	0	0	0	0	0
Project Impact Assessment Method	1,166,061	95,308	172,840	165,583	1,599,792
Project Impact Assessment with Measurement and Verification Method	9,090	67,556	256,603	397,619	725,171
Total	14,791,115	4,280,155	4,697,039	5,165,715	28,928,327

a See Box 5.1 for an explanation of the calculation methods.

b Refer to previous ESS Annual Reports for a breakdown of the number of certificates created during these years.

c As part of changes to the ESS Rule in 2014, the Default Savings Factors sub-method was replaced with three new sub-methods: 1-for-1 Residential Downlight Replacement, Removal of Old Appliances and Sale of New Appliances. Some existing accreditations under the Default Savings Factors sub-method transitioned into the new sub-methods (see section 6.1 of the 2014 ESS Annual Report, available on our website).

Note: Small differences in data compared with previous annual reports reflect certificates that have been forfeited after the report was released. DESM stands for Deemed Energy Savings Method, MBM stands for Metered Baseline Method.

Table 2.5 Number of certificates created by project type (2009 to 2018)

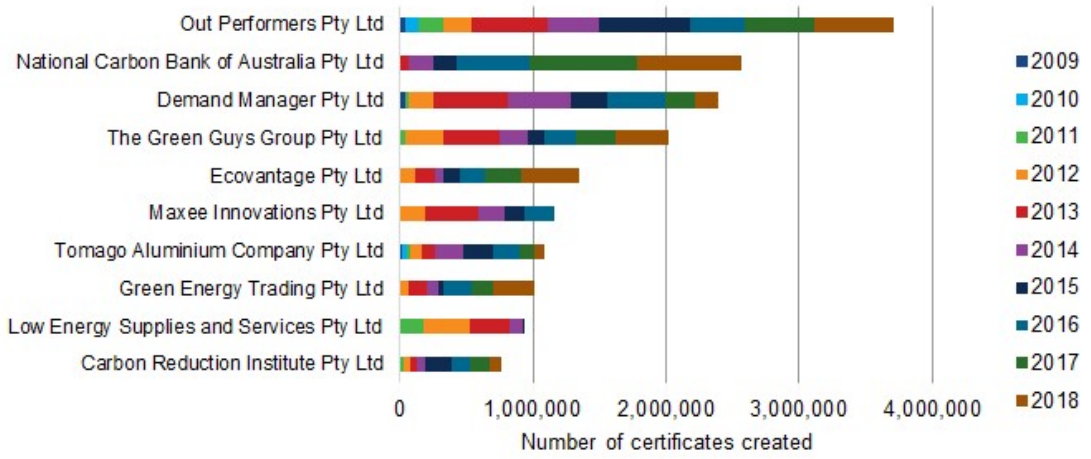
Project type	2009-2015[a]	2016	2017	2018	Total
Lighting	10,371,265	3,207,231	3,423,951	3,815,440	20,817,887
Process Change/Control Systems	1,417,474	245,418	137,100	613,734	2,169,583
Multiple activities	830,514	267,085	458,250	98,728	1,898,720
New Appliances	360,442	343,064	338,535	291,940	1,333,981
Showerheads	728,025	0	0	0	728,025
HVAC	294,390	77,676	129,603	119,317	620,986
Building Upgrade	242,868	42,042	49,044	67,247	395,504
Refrigeration	156,479	28,083	41,734	50,676	276,972
Compressed Air	146,432	16,190	28,841	33,317	224,780
Fans/Pumps	101,366	21,564	50,626	23,152	196,708
Refrigerator & freezer removal	108,516	22,758	12,522	0	143,796
Power Systems	27,577	1,668	1,131	22,921	48,623
Air Handling Fans Ventilation	0	0	25,702	17,367	47,743
Ind Refrigeration and Freezing	0	7,376	0	6,737	14,113
High Efficiency Motors	5,539	0	0	0	5,539
Home Retrofit	0	0	0	5,139	5,139
Power Factor Correction	228	0	0	0	228
Total	14,791,115	4,280,155	4,697,039	5,165,715	28,928,327

[a] Refer to previous ESS Annual Reports for a breakdown of the number of certificates created during these years.

Note: Small differences in data compared with previous annual reports reflect certificates that have been forfeited after the report was released.

Out Performers Pty Ltd continued to be the largest certificate creator, having created a total of 3.7 million certificates to date, the most of any Accredited Certificate Provider. Other large creators include National Carbon Bank of Australia Pty Ltd, Demand Manager Pty Ltd, and The Green Guys Group Pty Ltd – each of which has created more than 2 million certificates since the ESS began (see Figure 2.3). The 10 largest creators of certificates account for 59% of the total number of certificates created under the ESS to date.

Figure 2.3 Accredited Certificate Providers – 10 largest certificate creators (2009-2018)



Note: Low Energy Supplies and Services Pty Ltd was wound up in 2015.

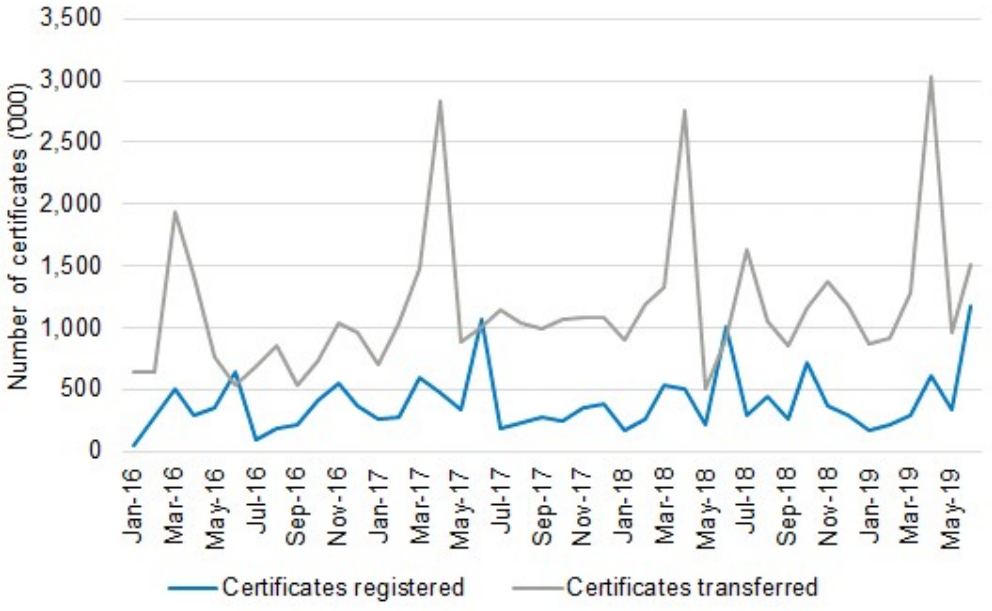
2.3.2 Certificate registration and transfer activity continued to fluctuate across the year

As in previous years, monthly certificate registration and certificate transfers fluctuated across the year (Figure 2.4). The average monthly certificate registration was 414,930, with peaks in June (1,001,104 certificates registered) and October (713,802 certificates registered). These peaks may have been due to:

- The 30 April 2018 deadline for Scheme Participants to surrender certificates
- The 30 June 2018 deadline for registering certificates for activities that were implemented in the previous calendar year (2017 vintage)
- The 30 October 2018 deadline for registering certificates before commencement of certain provisions of the 31 July 2018 version of the ESS Rule.[34]

[34] Due to transitional arrangements for calculation of energy savings under the Commercial Lighting Energy Savings Formula from 31 July 2018 until 31 October 2018.

Figure 2.4 Number of certificates registered and transferred each month for 2015-2019



There were 1,982 certificate transfers[35] in 2018, involving 14.9 million certificates. This is approximately three times the number of certificates registered in 2018. This indicates that it is likely that certificates were transferred multiple times between their initial creation and final surrender.

2.3.3 Most certificates surrendered were to meet regulatory obligations

The ESS Registry recorded the surrender of 4,331,734 certificates for 2018. Of these, 4,319,963 certificates were surrendered by Scheme Participants to meet their regulatory obligations. The remaining 11,771 certificates were voluntarily surrendered by the NSW Office of Environment and Heritage as part of its Small Business Upgrade Program.

2.3.4 Some certificates were forfeited due to incorrect certificate creation issues

The ESS Registry recorded 77 instances where certificates were voluntarily forfeited by Accredited Certificate Providers and cancelled in the Registry. These instances involved 73,469 certificates,[36] which were forfeited to:

- Address improper certificate creation identified through audit or other means (19,470 certificates identified in 2018 and 49,839 certificates identified in previous years)
- Correct errors identified during the certificate registration process (such as registering a certificate as the incorrect vintage) or, errors identified by the Accredited Certificate Provider (4,160 certificates).

35 Each time there is a change in ownership of certificates, it is recorded as a transfer in the ESS Registry.

36 This includes 19,527 certificates that were reported in last year's report (see IPART, *NSW Energy Savings Scheme Compliance and Operation in 2017, Annual Report to the Minister,* July 2017, section 4.2) and 29,427 certificates as a result of a payback deed arrangement with an ACP (see section 4.4 of this Annual Report)

2.3.5 Cumulative certificate surplus remains high

At 30 June 2019, there were 5,907,813 certificates of 2018 vintage or older available for surrender in future compliance years (see Table 2.6). The surplus has remained above 3 million certificates each year since 2015 and has increased each year. This is due to the high level of certificate creation in 2013, and annual certificate creation since that time exceeding the amount required to be surrendered each year. It is likely that the current surplus will exceed the number of certificates required to be surrendered for 2019.

Further information about creation, transfer and surrender of certificates is available from the ESS Registry.[37]

Table 2.6 Supply and surplus of certificates (2009 to 2018)

Year	Net certificates created[a]	Total certificates surrendered	Revived certificates[b]	Surplus for the compliance year	Cumulative surplus
2009	276,942	148,928	0	128,014	128,014
2010	764,385	651,655	0	112,730	240,744
2011	1,079,407	1,063,564	0	15,843	256,587
2012	2,553,627	1,885,240	0	668,387	924,974
2013	4,121,802	2,491,055	0	1,630,747	2,555,721
2014	3,023,249	2,700,190	26,603	349,662	2,905,383
2015	2,971,703	2,706,669	0	265,034	3,170,417
2016	4,280,155	3,766,762	0	513,393	3,683,810
2017	4,691,342	4,063,989	0	627,353	4,311,163
2018	5,165,715	4,331,734	0	833,981	5,145,144

a Small differences in data compared with previous annual reports reflect certificates forfeited after the reports were released.

b The certificates that were revived in 2014 increased the cumulative surplus at the end of the 2014 calendar year (see sections 2.2.6 and 3.3 of the 2014 ESS Annual Report, available on our website for further detail).

37 See IPART, *ESS Registry and ESS Portal*, www.ess.nsw.gov.au/Registry

3 Compliance by Scheme Participants

Scheme Participants include all holders of NSW electricity retail licences ('retailers'), NSW electricity generators that supply directly to customers in NSW ('direct suppliers of electricity'), and customers in NSW that purchase electricity directly from the National Electricity Market ('market customers'). Scheme Participants have legal obligations under the scheme (see Box 3.1). To assess each participant's compliance performance each year, we check whether it met these obligations, including meeting its individual energy savings target and submitting its Annual Energy Savings Statement (**AESS**) by the compliance date.

In 2018, there were 74 Scheme Participants in the ESS (compared with 65 in 2017), including 71 retailers, two direct suppliers of electricity, and one market customer. Of these participants, all but four complied with their obligations. In addition:

- Deductions for exempt loads were similar to 2017
- Scheme Participants that had energy savings shortfalls either elected to carry these forward or pay a penalty
- All Scheme Participants required to have their AESSs audited did so, and no issues were identified.

Box 3.1 Scheme Participant obligations

Scheme Participants' key compliance obligations include:

- Calculating their individual energy savings target for the year
- Meeting their individual energy savings target by either obtaining and surrendering certificates, carrying forward an energy savings shortfall (within the 10% limit) to the next year, or paying an energy savings shortfall penalty
- Lodging their AESS by the compliance date, and ensuring it is complete and correct, covering:
  - the Scheme Participant's calculation of its individual energy savings target
  - the particulars of its liable electricity acquisitions and any deductions in respect of exempt loads
  - the extent to which it met the target by surrendering certificates
  - any energy savings shortfall it is carrying forward
  - any penalty it is required to pay.
- Lodging an independent audit report of the AESS, if required.[a]

We assess each AESS by reviewing the data it contains (and any audit report), cross-checking certificate numbers with the ESS Registry, and undertaking a reasonableness check. Where an error or misstatement is identified, the Scheme Regulator may make an amendment. We advise Scheme Participants that the certificates they have offered for surrender have been accepted (or refused in certain cases) in the ESS Registry, and of any energy savings shortfall penalties they must pay.

a An audit is typically required if the AESS includes data about liable acquisitions from non-market sources or seeks exemptions for any electricity loads (see sections 3.2 and 3.4). The exempt entity must provide details of their exempt load to the electricity retailer in order to claim the exemption.

3.1 Most Scheme Participants complied

As noted above, 70 of the 74 Scheme Participants in 2018 complied with their obligations under the scheme (see Table 3.1).

Table 3.1 Scheme Participants' performance in 2018

Surrendered certificates to fully meet their individual energy savings target	36	complied
Surrendered certificates to meet at least 90% of their target and carried forward a shortfall of no more than 10% of their target to 2019	8	
Elected to pay a Penalty and paid on time (ReAmped)	1	
Target of zero[a] and submitted AESS by 30 April 2019	25	
Did not submit an AESS and did not surrender certificates (COzero Energy Retail)	1	did not comply
Surrendered part of certificates by 30 April 2019 and part on 11 June 2019 to fully meet its energy savings target (WINconnect)	1	
Elected to pay a penalty for the shortfall and paid penalty late (ERGON)	1	
Target of zero[a] but did not submit AESS by 30 April 2019 (Positive Energy TM)	1	
Total Scheme Participants	74	

[a] Target was zero as it reported no direct purchases or sales of electricity in 2017.

The four Scheme Participants that did not comply were Positive Energy TM Pty Ltd (**Positive Energy TM**), WINconnect Pty Ltd (**WINconnect**), ERGON Energy Queensland Pty Ltd (**ERGON**) and COzero Energy Retail Pty Ltd (**COzero Energy Retail**), with three of the four non-compliances relating to timing issues:

- COzero Energy Retail went into administration, but it still had an obligation to meet its individual energy savings target and submit its AESS for the 2018 compliance year. It did not comply with these obligations. As COzero Energy Retail failed to meet its target, it was liable for an energy savings shortfall penalty. The same issue occurred for the 2017 compliance year. We made a default assessment of its liability, and issued an invoice for the shortfall penalty of $756.
- WINconnect surrendered certificates to fully meet its individual energy savings target. However, only part of the certificates were surrendered by 30 April 2019.[38] The remaining were surrendered on 11 June 2019. As such, it did not fully comply with its obligation by the due date.
- ERGON elected to pay a penalty for the shortfall and was required to submit payment by 6 June 2019. ERGON made payment on 9 June 2019 and, as such, it failed to comply with its obligation by the due date.
- Positive Energy TM had an individual energy savings target of zero as it had no direct purchases or sales of electricity. However, it still had an obligation to submit an AESS by 30 April 2019. It did not comply with this obligation, as it submitted its AESS on 1 May 2019. It is Positive Energy TM's second year as a Scheme Participant and the same issue occurred for the 2017 Compliance Year.

Table 3.2 summarises the compliance performance of individual Scheme Participants.

38 WINconnect surrendered only a portion of the certificates required to meet its target due to an administrative error (ie, it incorrectly used data from the 2017 compliance year, resulting in a lower amount of certificates to be surrendered).

Table 3.2 Scheme Participant compliance in 2018

Surrendered sufficient certificates to meet 2018 individual energy savings target	
AGL Macquarie Pty Ltd[a]	Macquarie Bank Limited
Alinta Energy Retail Sales Pty Ltd	Mojo Power Pty Ltd
Blue NRG Pty Ltd	Momentum Energy Pty Ltd
Click Energy Pty Ltd (t/as Amaysim energy Pty Ltd)	Next Business Energy Pty Ltd
Cova U Pty Ltd	Origin Energy Electricity Limited (& Origin Uranquinty & Sun Retail P/L & Cogent Energy P/L)[b]
Delta Electricity (Sunset Power International Pty Ltd)	Pacific Hydro Retail Pty Ltd (t/as Tango Energy Pty Ltd)
Diamond Energy	People Energy Pty Ltd
Energy Locals Pty Ltd	Pooled Energy Pty Ltd
EnergyAustralia Pty Ltd	Power Club Limited
EnergyAustralia Yallourn Pty Ltd	Powershop Australia
Enova Energy Pty Ltd	Progressive Green Pty Ltd
Enwave Mascot Pty Ltd (formerly Brookfield District Energy (GX) Pty Ltd)	Sanctuary Energy Pty Ltd
ERM Power Retail Pty Ltd	Simply Energy
Flow Systems Pty Ltd	Stanwell Corporation
Globird Energy Pty Ltd	Sumo Power Pty Ltd (formerly SparQ Pty Ltd t/as Sumo Power)
Infigen Energy Markets Pty Limited	Tomago Aluminium Company Pty Ltd
M2 Energy Pty Ltd (previously Dodo Power and Gas Pty Ltd)	
Surrendered certificates to meet part of 2018 energy savings target and chose to carry forward the remaining energy savings shortfall to 2019	
1st Energy Pty Ltd	Powerdirect Pty Ltd
AGL Sales (Queensland Electricity) Pty Ltd	Qenergy Pty Ltd
AGL Sales Pty Ltd (& AGL South Australia)[c]	Red Energy Pty Ltd
Lumo Energy (NSW) Pty Ltd	
Surrendered part of the certificates necessary to meet its target by 30 April 2019 and the remaining part to fully meet its target after the due date	
WINconnect Pty Ltd	
Did not directly purchase or sell electricity in NSW in 2018 so individual energy savings target was zero	
ActewAGL Retail Ltd	OC Energy Pty Ltd
Apex Energy Holdings Pty Ltd	Online Power and Gas Pty Ltd
Aurora Energy Pty Ltd	Ozgen Retail Pty Ltd
CS Energy	Positive Energy TM Pty Ltd[d]
Discover Energy Pty Ltd	PowerHub Pty Ltd
EDL Retail Pty Ltd	Real Utilities Pty Ltd
ElectrAg Pty Ltd	ReNu Energy Pty Ltd
Evergy Pty Ltd	Savant Energy Power Networks Pty Limited
Infigen Energy Holdings	SIMEC ZEN Energy Retail Pty Ltd
International Power (Retail) Pty Ltd	Starcorp Energy Pty Ltd
Locality Planning Energy Pty Ltd	Sustainable Savings Pty Ltd
Metered Energy Holdings Pty Ltd	The Embedded Networks Company
Neighbourhood Energy Pty Ltd	Trustpower Australia Holdings Ltd (Tilt Renewables Australia Pty Ltd)
Chose to pay an energy savings shortfall penalty against their 2018 energy savings target	
ERGON Energy Queensland Pty Ltd	ReAmped Energy Pty Ltd
Did not submit an annual energy savings statement	
COzero Energy Retail Pty Ltd	

[a] A direct supplier of electricity.

b Classified as 4 Scheme Participants.
c Classified as 2 Scheme Participants.
d Submitted its AESS on 1 May 2019 – after the due date of 30 April 2019.
e In voluntary administration.

As discussed in section 1.1, the effective energy savings target for 2018 was equivalent to 4,330,051 certificates. Table 3.3 reconciles the certificates required to meet Scheme Participants' combined compliance obligation for 2018 with the certificates they offered for surrender (and we accepted).

Table 3.3 Reconciliation of certificates required to meet combined compliance obligations and certificates surrendered in 2018

Certificates required to meet 2018 compliance obligations	**4,330,051**
Add: Certificates required to meet shortfalls carried forward from 2017	84,651
Less: Shortfall carried forward to 2019	(94,454)
Less: Certificate equivalent value of penalties to be paid in lieu of certificate surrender (Ergon Energy, COzero)	(285)
Add: Over-surrender of certificates not accepted for surrender by the Scheme Regulator	2
Total certificates surrendered	4,319,965

3.2 Deductions for exempt loads were similar to 2017

Under Section 119 of the Act, the Minister can grant exemptions from the ESS for part of the electricity load used by entities in emissions-intensive and trade-exposed industries or activities.[39] The entities with an exemption are listed in a Ministerial Order published each year in the Government Gazette.[40] Scheme Participants that supply electricity to these entities are entitled to deduct the exempt portion of their sales when calculating their annual liable acquisitions, thereby reducing their individual energy savings target (in MWh).

During 2018, 26 entities claimed exemptions for 29 locations (all with 90% exemptions of the load). Various manufacturing activities are undertaken at these locations, including aluminium smelting, integrated iron and steel manufacturing, and the production of various chemicals, and glass and paper products.

Eleven Scheme Participants supplied electricity to these entities at these locations. In total, they claimed deductions for exempt loads of 11,522,230 MWh, equivalent to 17.5% of the total electricity supplied in NSW in 2018. This was similar to 2017, with 18% of the total load.

More information on the Ministerial Order and the Exemptions Rule is available on our website.[41]

39 These entities must provide details of their exempt load to the electricity retailer in order to claim the exemption. The retailer then deducts this proportion of the load from its annual liable electricity acquisitions, thereby reducing its individual energy savings target (in MWh). It is then a matter for the exempt party and the retailer to negotiate any adjustment to pass through costs.

40 The Ministerial Order lists each exempt entity (company or business name), the trade exposed activity it undertakes, the site where the activity takes place, and the proportion of the load that is exempt under the ESS (90% for all loads in 2018). The amended Ministerial Order published on 22 December 2017 applied for the 2018 year (NSW Government Gazette no. 138 of 2017; see www.ess.nsw.gov.au/Scheme_Participants).

41 See IPART, *Scheme Participants*, www.ess.nsw.gov.au/Scheme_Participants

3.3 Energy savings shortfalls were carried forward and some penalties paid

A Scheme Participant with an energy savings shortfall in a given year can elect to carry forward at least some of this shortfall to the next year – up to a maximum of 10% of its individual energy savings target. Any shortfall carried forward must be met in the following compliance year. Alternatively, the Scheme Participant can elect to pay a shortfall penalty.

In 2018, 10 Scheme Participants had a shortfall. Eight of these elected to carry it forward to the 2019 compliance year. This represents a total obligation of 94,454 certificates or around 2.2% of Scheme Participants' combined compliance obligation for 2018, which is similar to the proportion (2%) that was carried forward in 2017.

The remaining two Scheme Participants elected to pay an energy savings shortfall penalty (ie, they did not surrender any certificates).

3.4 All Scheme Participants complied with audit requirements

Scheme Participants are generally required to have their AESSs audited where the statement includes either of the following data inputs:

- Data relating to non-market purchases, or
- Data relating to exempt electricity loads (ie, in relation to emissions-intensive trade-exposed exemptions).

In 2018, the AESSs of 36 Scheme Participants met the above criteria for an audit. Members of the ESS Audit Services Panel conducted these audits and verified that:

- Inputs and arithmetical calculations were correct
- Claims for exemptions for electricity sold to exempt parties were supported by appropriate evidence
- Any energy savings shortfalls had been calculated correctly.

We were satisfied with the outcome of all these audits.

4 Compliance by Accredited Certificate Providers

Accredited Certificate Providers include all organisations accredited to create certificates from RESAs in NSW, and they have a range of legal obligations (see Box 4.1). We actively monitor their compliance with these obligations (see Box 4.2 and Chapter 5). We use third-party auditors, independent of Accredited Certificate Providers, to verify the energy savings they claim. Where we detect non-compliance, we take action to protect the integrity of the ESS.

On 31 December 2017, there were 91 Accredited Certificate Providers holding 175 accreditations. During 2018 we granted 15 new accreditations and cancelled 18 accreditations. As a result, there were 93 Accredited Certificate Providers holding 172 accreditations on 31 December 2018.

Of these, 63 Accredited Certificate Providers and 93 accreditations were active,[42] and created certificates from energy saving activities at thousands of sites across NSW.[43]

As in previous years, the compliance of most Accredited Certificate Providers was high. Most identified non-compliances were due to improper creation of certificates. A common reason for improper creation in 2018 was non-compliance with the co-payment requirement under the Commercial Lighting Energy Savings Formula and requirements under the Project Impact Assessment with Measurement and Verification. These issues are discussed further in sections 5.1 and 5.2.

We continue to monitor and test for recurrence of non-compliance which present a risk to the integrity of the ESS.

Box 4.1 Accredited Certificate Provider obligations

Accredited Certificate Providers' key obligations include complying with:

- The requirements of the Act, the Regulation and the ESS Rule
- The conditions of accreditation set out in their Accreditation Notices, such as engaging auditors to undertake the audits of their certificate creation and record keeping.

The Act sets out offences relating to non-compliance with these obligations, including:

- Improperly creating certificates (section 133)
- Contravening the conditions of accreditation (section 138)
- Obstructing the Scheme Administrator (section 157)
- Supplying false or misleading information (section 158).

42 Active accreditations are those for which the Accredited Certificate Provider registered certificates for implementations conducted in 2018.

43 For comparison, 56 providers and 77 accreditations were active in 2017.

4.1 Most Accredited Certificate Providers complied with obligations

In 2018, we identified 53 instances of non-compliance by Accredited Certificate Providers. As Table 4.1 shows, both the number and types of instances were broadly in line with previous years. We addressed instances of non-compliance through a variety of actions. In some instances, we imposed stricter conditions of accreditation, such as requiring pre-registration audits of proposed energy savings certificate creation (see Box 4.2).

Table 4.1 Instances of non-compliance by Accredited Certificate Providers (2011-2018)

Type of non-compliance[a]	2011	2012	2013	2014	2015	2016	2017	2018
Improper creation of certificates (section 133 of the Act)	14	21	45	50	39	36	49	51
Failure to meet record keeping requirements (clause 46 of the Regulation)[b]	-	-	-	-	-	5	4	2
Failure to submit a report statement by required deadline (section 138 of the Act)	15	19	14	57	N/A[c]	N/A[c]	N/A[c]	N/A[c]
Failure to engage an auditor by the required deadline (section 138 of the Act)	1	4	3	25	4	6	4	0
Failure to meet other Accreditation Notice conditions (section 138 of the Act)	0	1	3	0	1	0	2	0
Total	30	45	65	132	44	47	59	53

a The statistics provided in this table reflect decisions made by the Scheme Administrator

b We first reported this category of non-compliance in 2016.

c The requirement to submit periodic reports was removed during 2015 due to the introduction of a new requirement in 2015 to submit implementation data before applying for certificate registration.

Box 4.2 How we manage Accredited Certificate Providers' compliance

When we accredit an organisation as an Accredited Certificate Provider, we impose audit and reporting requirements as part of the conditions of accreditation. We determine these requirements using a risk-based approach and with reference to our Accredited Certificate Provider Compliance Guide.[a]

Auditors perform a regulatory role on behalf of IPART and conduct audits in accordance with IPART's directions.

We typically require post-registration audits, which occur after the certificates have been created. However, where we consider the risk of improper creation to be high (eg, where the Accredited Certificate Provider has had significant instances of non-compliance, or has no compliance history), we may require pre-registration audits. These audits must be completed (with a satisfactory result) before the Accredited Certificate Provider can register (and trade) certificates.

We also require the Accredited Certificate Provider to enter into a set-aside undertaking[b] to mitigate these risks. In general, the undertaking requires the Accredited Certificate Provider to:

- Withhold from trade a portion of the certificates it creates[c] until an audit is completed
- Forfeit certificates that it has withheld from trade to address any improper creation identified by an audit.

We can also require, by order, that an Accredited Certificate Provider forfeit certificates. In addition, we may amend, suspend or cancel accreditations in response to non-compliance and issue penalty notices in certain circumstances.

a See IPART, *Auditing Requirements*, www.ess.nsw.gov.au/Audits_and_Compliance/Audit_and_compliance_guides

b Prior to the introduction of mandatory set-aside undertakings in 2016 under clause 40 of the Regulation, we requested the Accredited Certificate Provider to enter into a voluntary set-aside deed, which had the same requirements.

c Typically, the portion to be set-aside depends on the risk rating of the accreditation and reduces to zero after three successive audits with no material error.

4.2 Most identified non-compliance was due to improper creation of certificates

We identified 51 instances of improper creation of certificates in 2018, which involved 38,883 certificates of various vintages. These improperly created certificates are equivalent to 0.8% of all certificates created from 2018 activities. Three of these instances were material,[44] and accounted for 61% of the total number of improperly created certificates (see Table 4.2). By comparison, in 2017 we identified that 49,623 certificates (of various vintages) had been improperly created, and recovered all but 4,305 of them.

Table 4.2 Improper creation of certificates in 2018

Type of error and means of identification	Number of instances	Certificates improperly created
Material improper creation identified by audit	3	23,762
Non-material improper creation identified by audit	45	13,821
Improper creation identified by other means[a]	3	1,300
Total	51	38,883

a See section 4.2.2.

44 Material improper creation is improper creation that exceeds 5% of the certificates audited.

We took a range of actions to recover the improperly created certificates, and recovered all but 18,281 of them. These unrecovered certificates were equivalent to 0.4% of all certificates created from 2018 activities.

18,233 of the unrecovered certificates were improperly created by Maxee Innovations Pty Ltd (**Maxee**), which went into liquidation without forfeiting these certificates. We were unable to confirm the full extent of Maxee's non-compliant conduct and improper certificate creation.

In addition to the issues included in previous chapters of this report, during the second half of 2018 we identified emerging non-compliance issues with respect to a number of accreditations involving the Commercial Lighting Energy Savings Formula and Project Impact Assessment with Measurement and Verification methods. These issues are discussed further in section 5.1.

However, as our assessment of these issues was not concluded in this reporting year, the resulting number of improperly created certificates is not included in this report. This information will be included in the 2019 ESS Annual Report statistics.

4.2.1 Improper creation of certificates occurred for a variety of reasons

As in previous years, the improper creation of certificates occurred for a range of reasons. Typical reasons for non-compliance included Accredited Certificate Providers:

- Not meeting the requirements of the method they used to calculate the energy savings. Most commonly, this involved:
  - failing to meet the co-payment requirement under the Commercial Lighting Energy Savings Formula (see Box 4.3)
  - failing to meet some of the key requirements under the Project Impact Assessment with Measurement and Verification method (for example, by selecting inappropriate measurement periods, site boundaries and independent variables, or for including ineligible activities within the measurement boundary).
- Not providing sufficient or consistent evidence to support claims associated with certificate creation (including modifying evidence)[45]
- Creating certificates before the project's implementation date or before accreditation
- Not being nominated as the energy saver as at the implementation date
- Creating certificates from energy savings that were the result of a reduction in production or service levels
- Creating certificates for equipment that had not been accepted for use.

45 While digitisation has the potential to enhance document verification for evidence in the ESS, we have seen examples of deterioration in the quality of documentary evidence, potentially associated with the increase in digital processing. This has ranged from the omission of signatures to what seems to be deliberate document modification. In conjunction with our auditors we are targeting known areas of compliance risk for compliance and enforcement. We are enhancing our processes and systems so we can better prevent, detect and address fraud and breaches of the ESS Rule.

Box 4.3 Co-payment requirement – Commercial Lighting Energy Savings Formula

The co-payment requirement in clause 9.4.1(e) of the ESS Rule specifies that prior to an Accredited Certificate Provider creating certificates for a lighting upgrade:

- The purchaser of the lighting upgrade must have paid a minimum of $5 (excluding GST) per MWh of electricity savings, which must not be reimbursed
- The Accredited Certificate Provider must maintain adequate evidence of the payment.

We have identified various instances of non-compliance with this requirement including:

- The customer having paid an amount that is less than $5 per MWh of electricity savings
- The Accredited Certificate Provider, its representatives or other parties reimbursing the customer, so that the net co-payment is less than $5 per MWh of electricity savings
- The customer making the required payment after the Accredited Certificate Provider has created certificates, which may involve the customer making payments over time via financing arrangements
- The Accredited Certificate Provider having unsatisfactory evidence of the payment.

4.2.2 Three material instances of improper creation were identified

Through post-registration audits, we identified three material instances of improper creation involving three Accredited Certificate Providers:

- Maxee
- National Carbon Bank of Australia Pty Ltd (**NCBA**)
- Energy & Carbon Solutions - Certificate Creations Pty Ltd (**Energy & Carbon Solutions**).

Together, these instances resulted in the improper creation of 23,762 certificates. As Table 4.3 shows, the majority of these (18,233 certificates) resulted from Maxee failing to meet the requirement for a co-payment of at least $5 per MWh of energy savings from the purchaser of the lighting upgrade. Maxee went into liquidation without forfeiting the improperly created certificates (section 4.4 discusses the actions taken to address this issue).

Energy & Carbon Solutions and NCBA both forfeited the full number of improperly created certificates.

Table 4.3 Material instances of improper certificate creation identified by post-registration audits (2018)

Accredited Certificate Provider	Accreditation	Number of improperly created certificates	Error rate (%)	Certificate forfeiture
Energy & Carbon Solutions - Certificate Creations Pty Ltd	Eco Lighting Upgrade	1,437	16.7	Forfeited full amount
National Carbon Bank of Australia Pty Ltd	NCBA Building Services Energy Efficiency Upgrades	4,092	42.7	Forfeited full amount
Maxee Innovations Pty Ltd	Commercial Lighting Retrofit Program	18,233	19.2	0
Total		23,762		5,529

4.3 Other non-compliance was due to failure to meet other obligations

We identified two material instances where Accredited Certificate Providers failed to keep records in accordance with the requirements set out in the Act, Regulation and their conditions of accreditation. In each instance, we required the Accredited Certificate Provider to detail the steps it would undertake to rectify the issue, and for its next audit to examine whether it had implemented these actions.

4.4 Action taken to address major non-compliance in 2018

In 2018, we took enforcement action and resolved several instances of non-compliance, including major instances involving Maxee (discussed in section 4.2.2), Golden International Trading Pty Ltd (**Golden International**) and Demand Manager Pty Ltd (**Demand Manager**).

Two instances were due to the Accredited Certificate Provider's failure to comply with the co-payment requirement and one instance due to failure to conduct an audit as required by the Scheme Administrator. In response:

- We issued Demand Manager with a $20,000 fine on 9 January 2018 (the first penalty notice issued under the ESS). Demand Manager paid the fine on 14 February 2018.
- We cancelled Maxee's accreditation (on 9 May 2018) and issued its director with four penalty notices (on 25 July 2018), totalling $80,000, for knowingly authorising or permitting the improper creation of certificates. The director (Mr Aquilina) completed payment of the fine on 20 December 2018.
- We cancelled Golden International's accreditation on 15 March 2018 (effective 16 March 2018). Golden International sought external review of the decision by the NSW Civil and Administrative Tribunal, which (on 21 August 2018) affirmed the decision of the Scheme Administrator to cancel Golden International's accreditation.[46]

In addition, Energy Makeovers Pty Ltd (**Energy Makeovers**) forfeited 29,427 certificates to fully comply with a payback deed obligation in relation to the improper creation of certificates prior to 2018.

46 *Golden International Trading Pty Ltd v Independent Pricing and Regulatory Tribunal* [2018] NSWCATAD 189.

5 Scheme administration

As Scheme Administrator, our mission is to administer the ESS efficiently and effectively, and to maintain the integrity of the scheme by ensuring that participants understand and comply with the ESS requirements. To achieve this mission, we:

- Publish detailed guidance about the ESS requirements, present online workshops about specific aspects of the ESS and hold in-person stakeholder forums and workshops
- Use various online tools to improve our administrative efficiency and enhance the user experience of our stakeholders
- Apply a risk-based approach to determine the compliance regime that applies to each accreditation over time
- Maintain robust systems and processes to minimise the risk of non-compliance with the ESS requirements
- Monitor emerging issues and act on intelligence.

In 2018, we:

- Identified and responded to issues that present risks to the scheme's integrity
- Identified further opportunities (in addition to the issues identified in 2017) to improve the scheme design and enhance our ability to manage the compliance of Accredited Certificate Providers
- Continued to improve our systems and processes
- Performed our core administrative tasks.

5.1 We identified and responded to issues that present risks to the scheme's integrity

The cost of the scheme represented 0.5% of the total cost of supplying electricity to NSW residential customers, equivalent to $7 of the representative annual consumer electricity bill of $1,294. This cost to electricity customers equates to approximately $87 - $108 million.

As the ESS is funded through electricity prices, it should deliver a net benefit and value for money to the NSW consumers. As such, it is important to ensure that the ESS is incentivising activities that would not have happened if it were not for the subsidy. It is possible that, through the success of the scheme to date, some activities have now reached a point of being economically viable without the subsidy. It is also important to ensure that energy savings are real and verifiable.

In 2018, we identified several issues that present risks to the scheme's integrity, including concerns related to additionality of energy savings and emerging non-compliance issues. 'Additionality' refers to the energy savings achieved by activities that would not have occurred in the absence of the ESS incentive.

5.1.1 Concerns related to additionality

We have ongoing concerns about the potential lack of evidence of additionality with respect to some implementations under the scheme. These concerns relate, for example, to Accredited Certificate Providers becoming involved late in the development of projects under the Project Impact Assessment with Measurement and Verification method, when decisions have already been made to implement those projects without the ESS incentive.

The lack of additionality of energy savings achieved from commercial lighting activities is another issue that we are concerned about. The market for energy efficient lighting has matured significantly in the last few years. For example, lighting upgrades involving LED technology are now being implemented as a standard practice, achieving energy savings that generally exceed the cost to upgrade and use the lights.[47] The market, therefore, may no longer require financial incentives to achieve the objectives of the scheme.

5.1.2 Compliance issues and how we addressed them

We identified several issues that may pose a risk to the integrity of the ESS. These include:

- Accredited Certificate Providers continuing to not comply with the co-payment requirement under the Commercial Lighting Energy Savings Formula (see section 4.1)
- Accredited Certificate Providers not meeting minimum evidence requirements
- Large volume Accredited Certificate Providers continuing to account for all major instances of non-compliance identified since 2016[48] (prior to 2016, major instances of non-compliance typically involved smaller Accredited Certificate Providers).

We have dedicated a significant amount of time and resources to address emerging non-compliance issues under the Project Impact Assessment with Measurement and Verification. These issues included:

- Accredited Certificate Providers and Measurement and Verification Professionals not meeting some of the key requirements under this method (for example, selection of inappropriate measurement periods, site boundaries and independent variables or the inclusion of ineligible activities within the measurement boundary)
- Lack of understanding of method requirements from Measurement and Verification Professionals and auditors.

In response, we have been reviewing our systems and processes to ensure they remain robust and flexible, and we can readily identify issues. Some of the specific actions we are taking include:

- Imposing stricter conditions of accreditation (eg, through changes to audit regimes or certificate creation limits)
- Expanding the scope of particular audits to include additional verification checks

47 The up-front cost of LED lighting generally has a payback time of less than 1 year. See Department of Environment and Energy, *Lighting*, www.energy.gov.au/households/lighting, accessed 18 July 2019.

48 For the 10 largest certificate creators to date, see Figure 2.3. For the major instances of non-compliance identified in 2018, see Table 4.3.

- Conducting formal investigation activities
- Taking enforcement action, including the issuing of penalty notices
- Using market intelligence to better target our compliance activities
- Expanding our reviews of applications for increases to certificate creation limits to manage the risks of non-compliance
- Conducting a review of the performance of Measurement and Verification Professionals
- Running stakeholder sessions to improve the understanding of Accredited Certificate Providers, auditors and Measurement and Verification Professionals of ESS legislation and requirements (refer to section 5.3.3)
- Working with policy agencies to improve the clarity of the rules and enhance our ability to manage compliance (refer to section 5.2).

5.2 We identified further opportunities to improve the scheme design

In addition to the opportunities identified in 2017 to improve the scheme design, we have identified additional aspects that should be reviewed and improved to maintain the integrity of the scheme and to strengthen our ability to manage compliance.

5.2.1 A robust scheme design is required to reduce the risk of non-compliance

The financial incentives for energy efficiency upgrades under the ESS attract operators of varying size, experience and compliance standards. A poor or deficient compliance culture in parts of the industry represents a threat to the integrity of the scheme, if certificates are improperly created. This can compromise the objectives of the scheme. While IPART focuses on building a strong culture of compliance in the industry, a robust design of the regulatory framework is also required to support this.

While some non-compliance arises from a lack of diligence, we consider there may be scope for deliberate non-compliance where regulated entities perceive that detection of non-compliance or enforcement of compliance is difficult. Where changes to the ESS Rule are contemplated, we seek requirements that are auditable, resistant to fraud and enforceable.

For example, Project Impact Assessment with Measurement and Verification is a complex method and we have identified a number of instances of non-compliance with the relevant requirements. In addition, there are growing concerns about the use of the Commercial Lighting Energy Savings Formula method continuing to create compliance issues, particularly in relation to document irregularities.

The provisions of the ESS Rule are often necessarily complex and technical. In our enforcement and compliance role, we are required to interpret and apply these provisions in accordance with recognised legal principles. Where possible, we aim to communicate our interpretation to ACPs to provide clarity and consistency.

We are also working with the policy agencies to strengthen and simplify the requirements under the Project Impact Assessment with Measurement and Verification and other methods

to support and improve industry understanding, capability and compliance, and reduce the risks to the integrity of the scheme.

While we are exploring new strategies and appropriate powers to address these issues, we consider that there are further opportunities to improve the ESS statutory compliance and enforcement framework.

5.2.2 We are working with the policy agencies to enhance the ESS compliance and enforcement framework

As part of the five-yearly statutory review[49] of the ESS, commencing in 2019, we are working with the policy agencies to address non-compliance issues and to ensure that IPART has adequate enforcement powers to maintain the integrity of the scheme.

We have provided recommendations for enhancements to the statutory framework, such as the expansion of existing powers and the addition of a limited number of new powers and requirements, which we consider are essential for the enforceability of the ESS. We consider that strengthening of the compliance and enforcement framework is critical for the ongoing integrity of the ESS.

5.3 We continued to make improvements to our systems and processes

We made a range of improvements to our systems and processes during the year to increase the efficiency of administration of the ESS and to address non-compliance. This included further enhancements to the ESS Portal, redesigning the ESS website, updating ESS compliance guidance documents and procedures, and working to improve stakeholder understanding of ESS legislation and requirements.

5.3.1 Enhancing the ESS Portal and ESS website redesign

The ESS Portal is our primary administration system. During 2018 we continued to develop the ESS Portal to improve the efficiency of ESS administration and our interactions with Accredited Certificate Providers and auditors. In particular, we:

- Increased the usability of the ESS Portal, including improvements to the interface functions for Accredited Certificate Providers and auditors
- Continued to improve reporting and data capturing processes for IPART staff
- Improved the performance of the ESS Portal, including improvements to the implementation data upload process for Accredited Certificate Providers.

We also redesigned our ESS website to provide our stakeholders with easier access to the ESS public information they require. The implementation of the new ESS website was completed in May 2019.

49 Section 175 of the *Electricity Supply Act 1995* (NSW) requires the Minister to review the operation of the ESS 'to determine whether the policy objectives of the scheme remain valid and whether the terms of [Part 9 of the ES Act] remain appropriate to securing those objectives'.

5.3.2 Enhancing our compliance framework

We improved our compliance guidance, by updating the Method Guides for various calculation methods to simplify content and access to information.

In response to feedback received from stakeholders, we also commenced updates to the ESS Audit Guideline and the development of a standardised process for submitting Detailed Scope of Works, which will help to streamline the production and approval of audit scopes.

In addition, we continued to improve our systems for capturing and acting on intelligence to better support both our routine compliance work and formal investigations.

5.3.3 Improving stakeholder understanding of ESS legislation and requirements

We continued to hold in-person and online workshops for existing and potential Accredited Certificate Providers and auditors to help them understand the requirements of the ESS. We held 14 workshops during the year (one auditor workshop and 13 online workshops), with a total of 124 participants.

We also held our annual stakeholder forum, which was attended by 62 people. We use these forums to advise stakeholders of recent and upcoming changes to the ESS, clarify scheme requirements, and receive feedback on our performance as Scheme Administrator and Regulator.

Since the commencement of the ESS in July 2009, we have published quarterly ESS newsletters to provide regular information to stakeholders about the administration of the scheme. Common topics include key changes to scheme requirements, updates to guides and other ESS documentation, reminders of key deadlines (eg, registration of certificates) and upcoming events (workshops and forums).

Further information about our workshops and forums, and registration for all of our events, is available on our website.[50]

5.4 We performed our core administrative tasks

During 2018 we continued to conduct our core administrative tasks. In particular, we:

- Updated guidance and processes to reflect changes to the ESS Rule
- Assessed applications for accreditation as an Accredited Certificate Provider and granted 15 new accreditations
- Refused one application for accreditation (Primeline Australia Pty Ltd)
- Amended 45 accreditations and cancelled 18 accreditations
- Assessed applications to have emerging lighting technologies accepted for use in the ESS, and accepted 1,768 new products

50 See IPART, *Events, Forums and Consultations*, www.ess.nsw.gov.au/Events

- Managed the membership of the Audit Services Panel and approved two additional Measurement and Verification Professionals
- Managed 131 audits of Accredited Certificate Providers
- Continued working with governments in other jurisdictions to align the ESS with other energy efficiency and emissions reduction schemes.

5.4.1 Updating guidance and processes to reflect changes to the ESS Rule

The Minister made changes to the ESS Rule that commenced on 20 April 2018, 31 July 2018 and 1 November 2018.[51] We updated our guidance and processes in response to these changes, which included:

- Changes to the definition of site, from "Small Business Building" to "Small Business Site"
- Updates to several Deemed Energy Savings methods, including new and amended factors, activity requirements and references to relevant standards
- Updates to the Regional Network Factors
- New equipment requirements for the acceptance of lighting products under the Project Impact Assessment with Measurement and Verification and Metered Baseline methods
- New requirements for maintained emergency lighting, introduction of a cap on Lamp Circuit and Nominal Lamp Power values for high bay metal halides and mercury vapour lamps, and updates to asset lifetimes under the Commercial Lighting Energy Savings Formula.

5.4.2 We granted 15 new accreditations

During 2018 we granted 15 new accreditations, compared with 26 in 2017. They comprised:

- Seven using the Home Energy Efficiency Retrofits method, which is a sub method of the Deemed Energy Savings Method
- Three using the Commercial Lighting Energy Savings Formula, which is a sub-method of the Deemed Energy Savings Method
- Four using the other sub-methods of the Deemed Energy Savings Method, which cover activities such as the installation of more energy efficient equipment, or removal of old, inefficient appliances
- One using the Project Impact Assessment with Measurement and Verification Method.

See Box 5.1 for further information about how the different calculation methods relate to energy saving activities.

The number of new accreditations under the Home Energy Efficiency Retrofits method in 2018 was the highest since its introduction in 2014. In contrast, the number of new accreditations under the Project Impact Assessment with Measurement and Verification Method was the

51 Energy NSW, *Energy Savings Scheme*, energy.nsw.gov.au/government-and-regulation/energy-savings-scheme, accessed 18 July 2019.

lowest since we began granting accreditations under this method in 2015 (see Table 5.1). New accreditations under the Commercial Lighting Energy Savings Formula also decreased significantly compared to last year and was the lowest since 2015.

Our average time for processing applications for accreditation was 139 calendar days, compared with 118 days in 2017.[52] The increase in the average processing time was due to a range of factors, including poor quality applications, complex applications, and applicants requesting additional time to provide the required information. We continue to improve our guidance documentation to help improve potential applicants' understanding of our requirements (for further information on the application process, see our website).[53]

52 Processing times include days taken by the applicant to respond to requests for information.
53 See IPART, *Accredited Certificate Providers,* www.ess.nsw.gov.au/How_to_apply_for_accreditation

Box 5.1 How the calculation methods relate to energy saving activities

The ESS Rule outlines how energy savings, and consequently certificates, are determined. It comprises four calculation methods, some of which include a number of sub-methods, which detail how energy savings are measured and calculated depending on the type of energy saving activity.

The **Deemed Energy Savings Method** provides a wide range of energy saving activities, many of which can be applied in the residential sector. These calculation methods deem that energy savings commence at implementation and continue into the future (see Box 2.1). Deemed methods are specific to the type of activity:

- **Sale of New Appliances** encourages retailers to sell energy efficient appliances over less efficient ones
- **Commercial Lighting Energy Savings Formula** encompasses the replacement of inefficient lights with more efficient lights
- **Public Lighting Energy Savings Formula** covers the upgrade of traffic signals, or lighting for roads and public spaces
- **Power Factor Correction Energy Savings Formula** covers the installation of capacitors to more efficiently manage the power supply to commercial or industrial sites
- **Removal of Old Appliances** encourages the removal and destruction of old inefficient fridges and freezers
- **Home Energy Efficiency Retrofits** provides for activities that improve the energy efficiency in homes and small businesses
- **Installation of High Efficiency Appliances for Business** covers the installation of energy efficient heating, cooling and refrigeration units.

The **Project Impact Assessment with Measurement and Verification Method** requires the development of complex energy models to accurately predict energy savings at commercial and industrial sites. It replaced the **Project Impact Assessment Method (PIAM)** which allows an engineering assessment, measurement or modelling to be used to calculate energy savings. Accredited Certificate Providers accredited to use the PIAM method on or before 30 September 2014 may still use it to calculate energy savings.

The **Metered Baseline Method** encompasses a range of sub-methods designed to achieve energy savings by measuring electricity or gas consumption before and after an activity is carried out. Unlike the other methods, it does not allow deeming, or forward creation, of certificates. It includes the **NABERS Baseline** sub-method, which uses commercial buildings ratings from the National Australian Built Environment Rating System to measure improvements in energy efficiency.

Figure 5.1 New accreditations each year by calculation method (2009 to 2018)

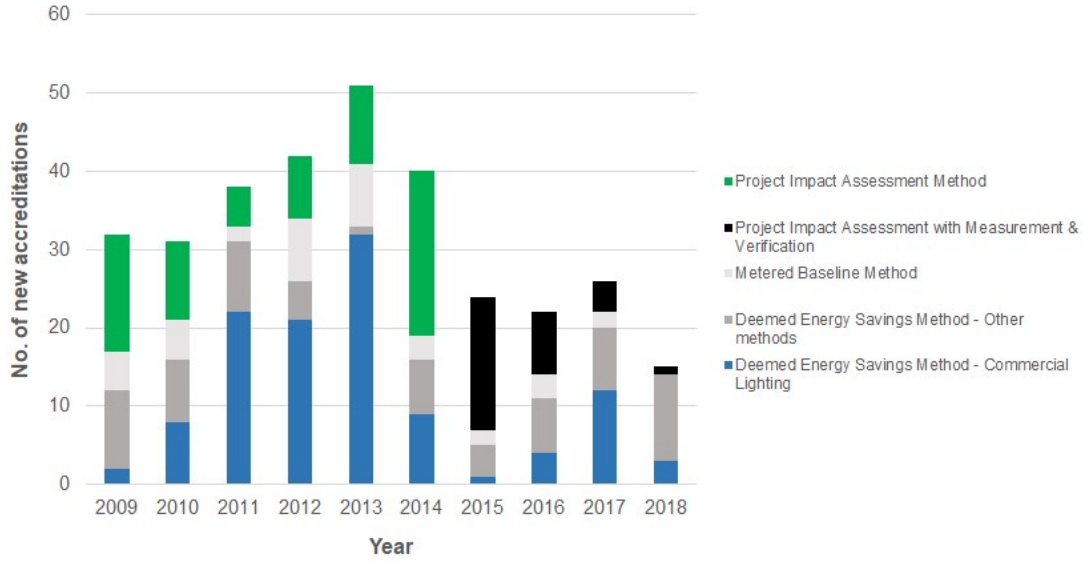


Table 5.1 Change in number of accreditations by calculation sub-method during 2018

Method	As at 31 December 2017	As at 31 December 2018
Commercial Lighting Energy Savings Formula (DESM)	56	54
Project Impact Assessment Method	33	30
Project Impact Assessment with Measurement and Verification Method	29	24
Baseline unaffected by output (MBM)	7	6
NABERS baseline (MBM)	7	6
Project Impact Assessment Method & Project Impact Assessment with Measurement and Verification Methoda	6	6
Sale of New Appliances (DESM)	5	5
Baseline per unit of output (MBM)	4	4
Baseline per unit of output, Baseline unaffected by output & Normalised baseline (MBM)[a]	3	3
Home Energy Efficiency Retrofits (DESM)	7	14
Installation of High Efficiency Appliances for Businesses (DESM)	7	8
Commercial Lighting Energy Savings Formula & Public Lighting Energy Savings Formula (DESM)[a]	4	4
Public Lighting Energy Savings Formula (DESM)	2	3
Removal of Old Appliances (DESM)	2	3
Normalised baseline (MBM)	2	2
High Efficiency Motor Energy Savings Formula (DESM)	1	0
Power Factor Correction Formula (DESM)	0	0
Total	175	172

[a] These accreditations comprise more than one calculation method.

Note: DESM stands for Deemed Energy Savings Method, MBM stands for Metered Baseline Method.

The total number of accreditations in the ESS decreased from 175 as at 31 December 2017 to 172 as at 31 December 2018 (see Table 5.1). The number of accreditations under the different calculation methods remained similar to 2017, except for the Home Energy Efficiency Retrofits method, which doubled its number of accreditations to 14. There have been slight decreases in the number of accreditations under the Commercial Lighting Energy Savings Formula, Project Impact Assessment, Project Impact Assessment with Measurement and Verification and Metered Baseline methods.

Further information about Accredited Certificate Providers and their accreditations is available from the ESS Registry.[54]

5.4.3 We amended 45 accreditations and cancelled 18 accreditations

From time to time, we amend the conditions of accreditation imposed on Accredited Certificate Providers. During the 2018 calendar year, we approved 45 amendments to the conditions of existing accreditations.[55] Most of the amendments were to:

- Change the limit on the number of certificates that can be created between audits
- Expand or change the description of the activity allowed, or
- Change the audit requirement or audit due date.

We also cancelled 18 accreditations, typically either because:

- We were satisfied that the Accredited Certificate Provider had breached its accreditation conditions, or
- We determined that the Accredited Certificate Provider was no longer eligible to be accredited, or
- The Accredited Certificate Provider requested cancellation.

Some of the cancellations were a result of our ongoing process of identifying and actively managing accreditations that were either inactive, or held by Accredited Certificate Providers that were no longer eligible (eg, where the company had been wound up).

5.4.4 We accepted 1,768 lighting technology products

During 2018 we received 704 applications for acceptance as emerging lighting technology (**ELT**) products under the Commercial Lighting Energy Savings Formula and lighting products under the Home Energy Efficiency Retrofits method. These applications covered a total of 2,104 products.[56] We accepted 1,768 of these products for use in the scheme (including 114 products previously approved under the Victorian Energy Efficiency Target (**VEET**) scheme).[57] The number of products we accepted in 2018 was in line with 2017 (1,887) and took the total number of products we have accepted since 2011 to 7,653.

54 See IPART, *ESS Registry and ESS Portal*, www.ess.nsw.gov.au/Registry
55 This compares with 64 amendments in 2017.
56 Some applicants subsequently withdrew their applications.
57 We apply a streamlined application process for products that are already approved under the VEET scheme.

Our average time for processing lighting product applications was 14 days (including the time for applicants to respond to requests for further information). This was similar to our average time in 2017 (15 days) and substantially shorter than in 2016 (35 days). The recent reduction in time for processing these applications is largely due to improvements in our process and guidance and receiving better quality applications.

Table 5.2 shows the number of applications received and the products accepted in 2018 for both Commercial Lighting Energy Savings Formula and Home Energy Efficiency Retrofits methods. We received no applications for lighting product acceptance under the Project Impact Assessment with Measurement and Verification method and Metered Baseline Method.

Table 5.2 Lighting products acceptance by calculation method (2018)

	Commercial Lighting Energy Savings Formula	Home Energy Efficiency Retrofits	Total
Applications received	667	37	704
Products included in applications	2,000	104	2,104
Products accepted	1,678	90	1,768
Products accepted under VEET	114	N/A	114
Total products since 2011	7,495	158	7,653
Average processing time (days)	14	19	14[a]

[a] Weighted average between the two methods

Further information about applying for acceptance of lighting products is available on our website.[58]

5.4.5 We managed membership of the Audit Services Panel

We removed four lead auditors from the Audit Services Panel in 2018, which reduced the number of lead auditors to 29 lead auditors. However, the number of firms on the panel remained at 16 members, with no additions or removals observed in 2018.

The number of auditors in our specialist category for audits of Accredited Certificate Providers using the Project Impact Assessment with Measurement and Verification Method remained at six.

All audits must be undertaken by a member of our ESS Audit Services Panel, with IPART (either as Scheme Administrator or Scheme Regulator) as the client. Applications for panel membership may be made at any time. We assess applicants against specific selection and eligibility criteria to ensure they have the institutional capacity to support the audit process, and also have lead auditors with demonstrated qualifications, skills and experience. Further

58 See IPART, *Lighting Equipment Requirements*, www.ess.nsw.gov.au/Home/About-ESS/Lighting-equipment-requirements

information about the Audit Services Panel, including a list of panel members, is available on our website.[59]

5.4.6 We managed 131 audits of certificate creation

The Audit Services Panel undertook 131 audits of Accredited Certificate Providers in 2018, compared with 109 audits in 2017 and 92 audits in 2016. These audits covered 76 accreditations, and included:

- 75 post-registration audits (compared with 67 in 2017)
- 55 pre-registration audits (compared with 40 in 2017)
- One record keeping audit (compared with two in 2017).

A post-registration audit occurs after the certificates have been created, and it examines whether the certificates have been validly created and are supported by appropriate records. A pre-registration audit involves the same procedures, but reduces risk as it occurs before the certificates are created. A record keeping audit examines whether the Accredited Certificate Provider's system and processes meet the ESS requirements, but does not examine certificate creation. Most post-registration and pre-registration audits also examine record keeping.

On average, these audits took 51 days to complete, compared with 53 days in 2017 and 56 days in 2016.

5.4.7 We approved two more Measurement and Verification Professionals

Accredited Certificate Providers that use the Project Impact Assessment with Measurement and Verification method must use an approved Measurement and Verification Professional to validate their use of the method to calculate energy savings. To become approved as a Measurement and Verification Professional, an applicant must apply to IPART.

In 2018 we approved two more Measurement and Verification Professionals. This took the total number of approved Measurement and Verification Professionals to 13.[60] This involved assessing applications against specific selection and eligibility criteria to ensure that they have the relevant qualifications, skills and experience and a demonstrated understanding of the Project Impact Assessment with Measurement and Verification method requirements.

Further information about the Measurement and Verification Professional approval process and the list of approved Measurement and Verification Professionals is available on our website.[61]

59 See IPART, *Audit Panel*, www.ess.nsw.gov.au/Auditors-Professionals/Audit-Panel

60 Our published list only shows 12 Measurement and Verification Professionals as at 31 December 2018, as one Measurement and Verification Professional requested that his name not be published on the list.

61 See IPART, *Project Impact Assessment with M&V*, www.ess.nsw.gov.au/Methods_for_calculating_energy_savings/Project_Impact_Assessment_with_MV

5.4.8 We continued to work with other regulators

We continued to work with regulators in other states and territories and the Commonwealth Government to align the operation of the ESS with other energy efficiency schemes, reduce red tape for participating businesses and address common compliance issues. For example, we continued:

- Accepting for use in the ESS most categories of lighting products approved under the VEET scheme (the VEET scheme also recognises ESS accepted products)
- Considering an organisation's compliance performance in the VEET scheme when it applies to be accredited under the ESS
- Exploring the potential to working with the ACT Government to allow the creation of certificates for activities in the ACT where the savings are calculated using ESS calculation methods[62]
- Working with the Commonwealth Government's Clean Energy Regulator to ensure there is no overlap between the ESS and the Emissions Reduction Fund (**ERF**)[63]
- Meeting with other scheme regulators periodically to share relevant information between jurisdictions.

62 Energy savings certificates for activities in the ACT would be used to meet ACT targets, not NSW targets.

63 More information on the Emissions Reduction Fund is available on the Clean Energy Regulator's website. See www.cleanenergyregulator.gov.au. We liaise with the Commonwealth Government to ensure that organisations do not obtain benefit for the same activity under both the ESS and the ERF.

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 relating to a Recognised Energy Saving Activity.
Act	The *Electricity Supply Act 1995,* which establishes the ESS.
Baseline	The level of energy consumption or energy intensity against which improvements are measured, and from which the calculation of Energy Savings Certificates is made.
Certificate Conversion Factor	The factor to be applied to convert energy savings in megawatt hours to a number of energy savings certificates. As specified in section 130 of the Act, the factor is 1.06 for electricity savings and 0.39 for gas savings.
Default Savings Factors	A default figure which may be used to calculate the number of Energy Savings Certificates 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.
Energy Saver	The person who has the right to create certificates for particular Energy Savings arising from an implementation of a RESA, as defined in the relevant calculation method of the ESS Rule.
Energy Savings	The calculated reduction in electricity consumption arising from implementation of a 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 has a value of one notional megawatt hour.
ESS Rule	The *Energy Savings Scheme Rule of 2009* made by the Minister for Resources, Energy and Utilities, and the Arts, sets out the primary eligibility requirements, calculation methods and arrangements for the creation of Energy Savings Certificates. It is amended from time to time.
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.

Term	Meaning
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.
Exempt Electricity Load	An Exempt Electricity Load is the load attributed to a person or class of person which has been granted exemption (90% from the scheme by the Minister, as specified in the Ministerial Order).
Implementation Date	The Implementation Date is generally the date on which the Energy Savings from the RESA commence and is defined for each calculation method in the ESS Rule.
Individual Energy Savings Target	The Individual Energy Savings Target is the value (in MWh) of energy savings that a Scheme Participant must meet each year. This target is determined by multiplying the Energy Savings Target for that year by the total liable acquisitions in that year and the certificate conversion factor.
Liable Acquisition	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	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 (90% under the ESS).
National Australian Built Environment Rating System (NABERS)	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. This method can be used for new or existing buildings.
Recognised Energy Saving Activity (RESA)	A specific activity implemented by an Energy Saver that increases the efficiency of energy consumption or reduces energy consumption without reducing production or service levels.
Regulation	The *Electricity Supply (General) Regulation 2014*.
Retail Supplier	A Scheme Participant under the Energy Savings Scheme. Includes all holders of an electricity retail licence for operation in NSW.
Scheme Administrator	The body responsible for administering functions such as accrediting Accredited Certificate Providers, verifying energy saving activities and maintaining a registry of certificates. The NSW Independent Pricing and Regulatory Tribunal (IPART) is the Scheme Administrator for the Energy Savings Scheme.

Term	Meaning
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 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.
Victorian Energy Efficiency Target (VEET) scheme	Similar to the ESS, the VEET scheme is a Victorian Government initiative designed to make energy efficiency improvements more affordable, contribute to the reduction of greenhouse gases, and encourage investment, employment and innovation in industries that supply energy efficiency goods and services.

Appendix – Legislative reporting requirements

The table below lists the legislative requirements that IPART must report upon to the Minister, and where this information is contained in this report.

Requirement of the Act	Section of the Act	Section(s) in report
Name of each Scheme Participant and its performance of each Scheme Participant in relation to its individual energy savings target	174(2)(a)	3.1
Total number of certificates surrendered in the year to which the report relates	174(2)(b)	2.3.3 3.1
Total number of certificates created in the year to which the report relates	174(2)(c)	1.1 2.3.1
Number of certificates created in previous years but not yet surrendered	174(2)(c1)	2.3.5
Assessment of the extent of any over or under supply of certificates	174(2)(c2)	1.2 2.3.5
Estimate of actual energy savings realised in the year to which the report relates and for the next 10 years, in respect of certificates created	174(2)(d),(e)	2.2
Functions delegated by the Scheme Regulator or Scheme Administrator and the person or body to whom they were delegated	174(3)	1.9
Scheme Regulator to report to the Minister on compliance by Scheme Participants	152(1)	1.4 Chapter 3
Scheme Administrator to report to the Minister on compliance by Accredited Certificate Providers	154(1)	1.5 Chapter 4