



VEU Performance Report 2018

Victorian Energy Upgrades Program

September 2019



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Our performance for 2018

This report details our regulatory and administrative actions under the Victorian Energy Efficiency Target (VEET) Act 2009 (the Act) for the 2018 reporting year. The Act established the creation of the VEET scheme, known as the Victorian Energy Upgrades (VEU) program and charged us with its implementation from 1 January 2009.

This report provides information for the 2018 calendar year on:

- our assessment of applications for new accounts and accreditation applications
- our assessment of the creation of Victorian energy efficiency certificates
- our findings on the compliance of accredited persons and relevant entities with program requirements, and product approval submissions from product applicants
- other key work and projects we delivered to strengthen and manage the remaking of the VEET Regulations and expansion of project-based activities methods.

This report satisfies our requirement to publish information about the program under sections 7(3) and 67 of the Act, as set out in Table 1.

Table 1: Information required to be published for the 2018 year

Information to be published	Measure
Relevant entities that had an energy efficiency certificate shortfall	1
Total of energy efficiency certificate shortfalls	170
Certificates created in 2018 (1 January to 31 December)	6,454,704
Certificates surrendered by relevant entities for the 2018 compliance year	6,314,700
Certificates surrendered by accredited persons in 2018 (1 January to 31 December)	35,796

Program performance overview

In 2018, 27 energy retailers met their obligation under the Act to surrender certificates, and one energy retailer was issued a penalty notice for being 170 certificates short.

The market continued to evolve in 2018, with fewer commercial lighting upgrades (activity 34) in business premises.¹ These still accounted for 84 per cent of certificates created across the year.

Installations² to replace old inefficient lamps with efficient low energy lamps (activities 21A, 21B, 21C, 21D and 21E) accounted for 67 per cent of installations, with over 99 per cent of them in residences. The highest uptake of activities in regional Victoria was for the replacement of electric resistance water heaters with more efficient units (activities 1 and 3) and replacement of central electric resistance heating systems with ducted gas heating (activity 6).

¹ Business premises include premises used for non-residential purposes, e.g. government premises, hospitals and industrial facilities.

² Installations include the installation of energy efficient products, the decommissioning of old inefficient products, upgrades of existing products or changes to energy consumption that are allowed under the program.

Interest in project-based activities continued to grow. We accredited ten companies, appointed an additional four third party experts and conditionally approved 48 projects significantly under legislated timeframes.

2018 greenhouse gas abatement, by the numbers



**139,043
installations**

During 2018, the program enabled 139,043 installations across residential and business premises in metropolitan and regional areas of Victoria.



**6.4 million
certificates**

These installations resulted in the creation of 6.4 million certificates, exceeding the annual target of 6.1 million.



**51 million tonnes
of greenhouse
gases**

The total number of certificates registered to 31 December 2018 is over 51 million, meaning 51 million tonnes of greenhouse gases have been abated (avoided) through the program.

2018 commission performance, by the numbers



16 businesses

In total, we accredited 16 businesses (including three newly accredited and 13 expanded accreditations), bringing the total number of accredited businesses to 210.



**1,717 new
products**

We also approved 1,717 new products, bringing the total in our register to 14,885 products.



93 per cent

We registered 93 per cent of energy efficiency certificates within two days of our target timeframe.



100 per cent

We assessed 100 per cent of accreditation applications within the required legislative timeframe.



**3,563 stakeholder
queries**

We received 3,563 stakeholder queries and responded to 99 per cent within target timeframes.

Forty new businesses that operate in scheduled activity premises³ became eligible for installations under the program in 2018. Installations in 20 of them resulted in certificates registered in 2018.

Table 2 outlines the key program performance measures for 2018 that complement those already reported in Table 1.

Table 2: Key program performance measures - 2018

Activity	Measure
Certificates withdrawn by accredited persons	593,568*
VEU accounts created (program total of 1,897 accounts)	61

* The majority of these certificates may have been resubmitted and registered at a later date during 2018 after our evidence and data requests during pre-registration checks were satisfied. More detail in section 4.2.

Safeguarding program integrity

We continue to undertake an effective and integrated risk-based compliance program.

2018 compliance and auditing, by the numbers

- 
35 audit meetings We completed three new accreditations and 32 additional activity approval audit meetings.
- 
1,876 compliance issues addressed We followed up on 1,876 compliance issues during the certificate registration process.
- 
619 audits We completed 170 desktop audits and 449 field audits.
- 
14 detailed audits We undertook 14 detailed audits and 8 investigations of accredited persons.

Our compliance and validation program includes actions before and after certificate creation and registration. Our efforts to build system-wide compliance levels include:

- participant accreditation and audits
- certificate validation and registration

³ Scheduled activity premises were premises of businesses that participated in the Environment and Resource Efficiency Plans (EREP) program administered by the Environment Protection Authority Victoria from 2008 to 2013, which regulated improvements in consumption for large energy and water users.

- approval of products, projects and third-party verification professionals.

We address specific compliance issues using targeted investigations, field audits and independent product testing.

Our risk-based validation checks before certificate registration contributed to the temporary withdrawal of nine per cent of the certificates created during the year. The majority of these certificates may have been resubmitted and registered at a later date after our evidence and data requests during validation checks were satisfied.

These validation checks give confidence that the certificates traded under the program reflect actual greenhouse gas and energy savings and in compliance with regulatory requirements.

New VEET Regulations and project-based activities method

A key focus of our 2018 work program was to deliver the right framework to support:

- the introduction of new VEET Regulations in December 2018
- updates to the new Project-Based Activities (PBA) Regulations in December 2018.

As part of these changes, we reviewed and refined the regulatory and administrative framework and supporting IT systems for over 30 types of activities and developed new framework and IT system changes for six new gas efficiency activities and the new bench-mark rating method.

We also held eleven individual workshops with project-based activities proponents and consulted with industry on the activities that were deemed high risk to ensure we delivered a balanced and transparent framework which protected the integrity of the program.

To help participants comply with the new VEET Regulations, we:

- outlined the proposed changes to our framework and sought feedback from participants on areas of improvement at our June 2018 forum
- communicated our proposed changes and timelines to stakeholders in October 2018
- released updated guidance documents and forms (application forms, VEEC creation forms and VEEC assignment form templates) in November 2018, ahead of implementation date
- provided a detailed briefing on changes to the framework (per activity type) under the new VEET Regulations and PBA Regulations at our November 2018 forum.

1. What the program does for Victorians

The emissions of greenhouse gases in Victoria have been steadily declining (over 10 per cent since 2005) and they are projected to be 104 million tonnes by 2020.⁴

Most emissions come from energy consumption, including electricity generation, gas and transport. In 2016, over 59 million tonnes of greenhouse gases were generated by the electricity sector.

In addition to increasing renewable energy generation, improving energy efficiency is an effective long term approach to reduce greenhouse gas emissions from electricity generation.

Energy efficiency programs are also an effective way to enable:

- reductions in energy bills for those who participate in the program while enjoying the same benefits from heating and cooling
- downward pressure on prices for all consumers.⁵

1.1. How the VEU program reduces greenhouse gas emissions

The Victorian Energy Upgrades (VEU) program is the Victorian Government's key mechanism for achieving these outcomes, and is the largest energy efficiency program in Australia.

The program helps reduce Victoria's greenhouse gas emissions by providing access to discounted energy-saving products and activities⁶ via accredited businesses. When accredited businesses complete an eligible energy-efficiency improvement activity, they generate certificates (each representing one tonne of greenhouse gas abated).

The 51 million tonnes of greenhouse gas emissions abated by the program to December 2018 are almost equivalent to running electricity generation in Victoria exclusively on renewable energy (which generated 59 million tonnes in 2016)⁴ for an entire year.

These certificates can be sold to energy retailers, many of whom are required by law⁷ to buy and surrender a certain number of certificates each year.

Our role in the program is to regulate the creation and surrender of certificates. Further information on our role in the VEU program can be found in appendix A.

1.2. How the VEU program benefits consumers

As well as reducing greenhouse gas emissions, the program enables households and businesses to better control their energy bills. With access to discounted energy efficiency products, consumers can use less energy to achieve the same benefits in their home or business.

⁴ Victorian Greenhouse Gas Emissions Report, Department of Environment, Land, Water and Planning, 2018

⁵ Regulatory Impact Statement (Victorian Energy Efficiency Target Regulations), Department of Environment, Land, Water and Resources, 2018

⁶ This report uses the common term "activity" to refer to a prescribed activity with a corresponding Schedule number as listed in the 2008 VEET Regulations or their Part number in Schedule 2 of the 2018 VEET Regulations.

⁷ Under the Act, energy retailers that are required to surrender certificates are called relevant entities. Not all energy retailers are bound by the Act, as detailed in section 4.6

It is estimated that businesses that took advantage of the VEU program in 2017 saved an average of \$4,200 on their 2018 energy bills. Similarly, households saved \$176 on average across the year. Overall, the program is estimated to have saved Victorian households and businesses that had participated up until 2017 more than \$500 million on energy bills during 2018.⁵

1.3. How the VEU program benefits all Victorians

All Victorian energy consumers benefit from the program, even if they do not participate. More efficient use of energy by consumers:

- reduces wholesale prices and delays the need for investment in new generation and transmission infrastructure
- can reduce demand at peak times and improves energy security.

A 2015 legislative impact assessment found that the net benefit of achieving the VEU targets for 2016 to 2020 was between \$1.3 and \$3.2 billion,⁵ taking into account:

- the benefits of greenhouse gas emissions reduction
- improvements to air quality
- impacts of reduced energy demand on energy prices
- avoided energy costs
- costs of buying VEECs
- energy retailer compliance costs.

A net benefit was expected even without the environmental benefits.

Since 2009, the program has facilitated the introduction of more than 14,000 energy-saving products to the market, enabled the establishment of more than 200 new businesses and expanded commercial opportunities for 4,000 new and existing trade professionals.

2. Our participants

At a glance: The number of approved VEU accounts and accredited persons continued to grow in 2018.

We evaluate and approve applications for new VEU accounts and 'accredited persons'⁸ that allow participation in the VEU program.

VEU account holders are entitled to own, trade and surrender certificates, whereas only accredited persons are able to create certificates. To apply to be an accredited person, the applicant must hold a VEU account.

Table 3 shows the number of accounts and accredited persons approved in 2018 and the total number of accounts and accredited persons approved since 2009.

Table 3: Program accounts and accreditations

Accounts and accreditations	2018	Total (2009 – 2018)
Accounts created	61	1,897
New accredited persons approved	4*	210

* One accredited person was re-accredited

Figure 1 shows the progression by year in the cumulative number of VEU accounts since 2009.

Figure 1: Cumulative number of VEU accounts by year - 2009 to 2018

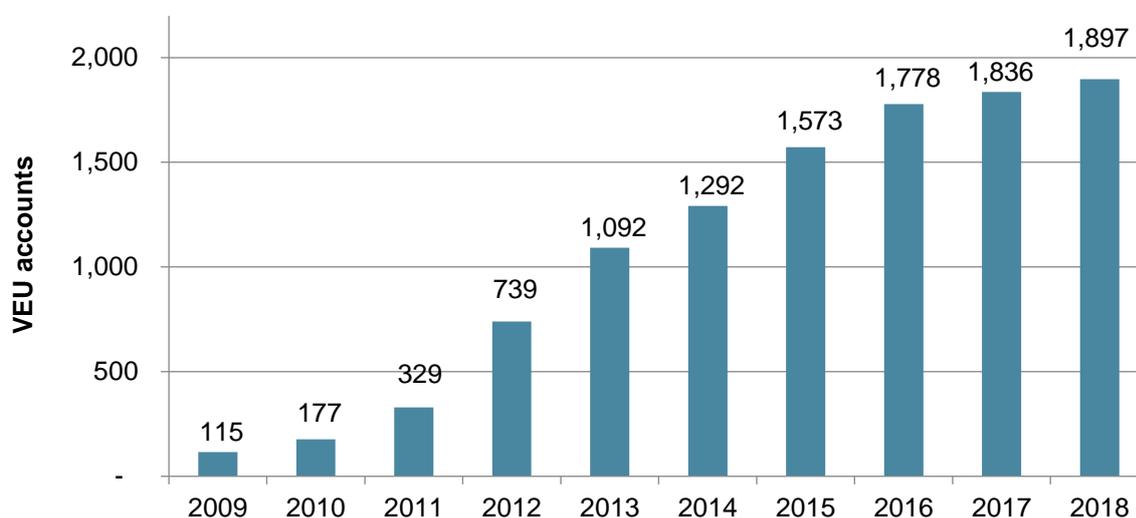
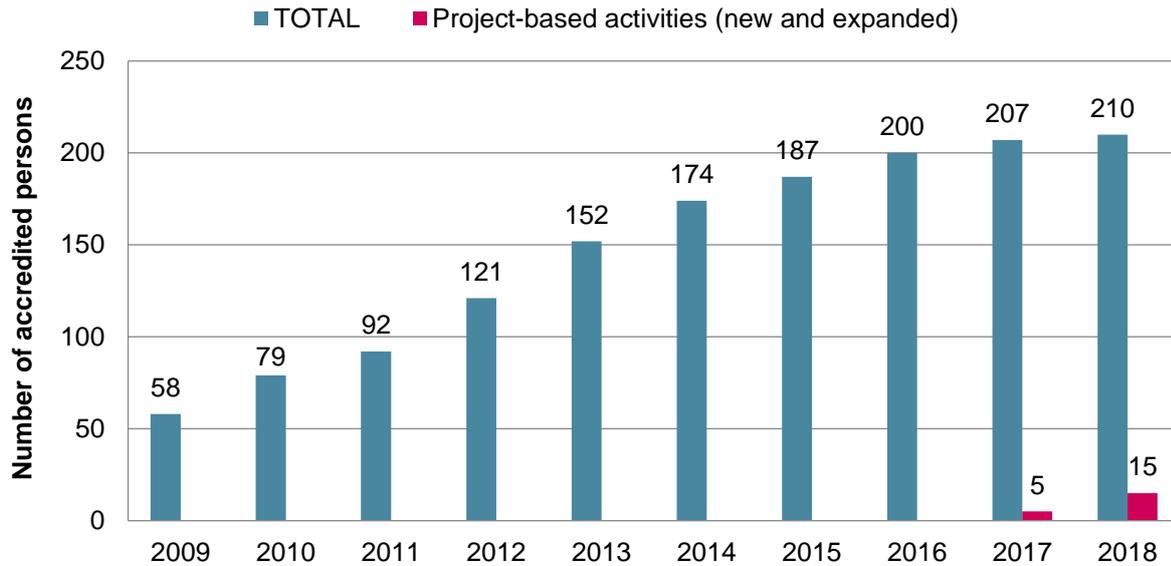


Figure 2 shows the cumulative progression by year in the number of accredited persons since 2009.

⁸ This is the term used by the Act to describe a business or person accredited to create certificates in the program.

Figure 2: Cumulative total of number of accredited persons by year - 2009 to 2018



In 2018, 61 new accounts were created and we approved three new accreditations, one re-accreditation of an existing business (change of name) and 13 expanded accredited person applications (to allow them to complete additional activities). Of those new and expanded accreditations, ten were for project-based activities.

We also received 26 applications for re-approval of accreditation for the replacement of GLS and CFL lamp (activity 21A) under the 2018 VEET Regulations which commenced on 10 December 2018. We approved six applications in December 2018, and continued to approve and assess more applications during early 2019.

There has been a steady increase in the number of accredited persons from year to year. By the end of 2018, there were 210 accredited persons in the VEU program. During the program's operation, two accreditations have been revoked by the commission and three cancelled by the accredited person. Not all VEU accounts or accredited persons are regularly active.

These trends indicate the program has reached maturity in terms of a healthy and steady number of potential creators, purchasers and buyers of certificates in the certificate market, but also signals increased interest by accredited persons in project-based activities.

3. Victorian energy efficiency certificates and activities

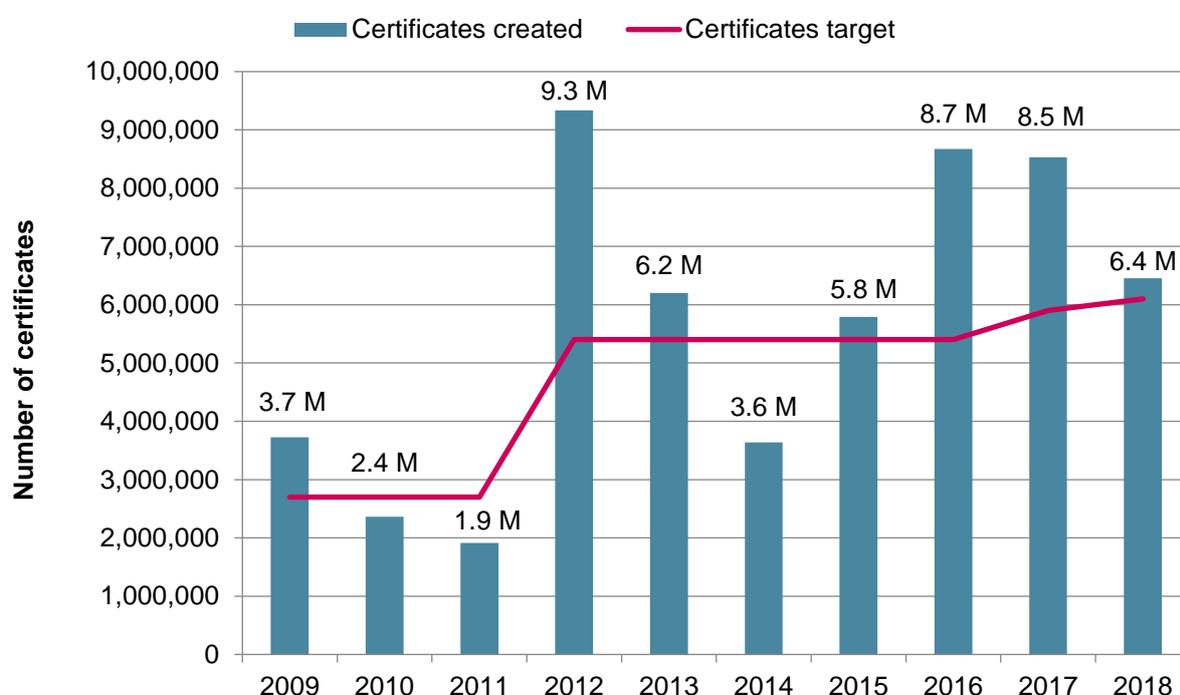
3.1. Certificate transactions during 2018

At a glance: The certificates created in 2018 exceeded the program target.

Accredited persons can create Victorian energy efficiency certificates (certificates) by completing installations of registered energy efficient products for consumers (residential and business) or implementing energy efficiency projects at business premises.

Figure 3 shows the number of certificates created for each year that the program has been in operation and the target for the year.

Figure 3: Certificates created by year – 2009 to 2018

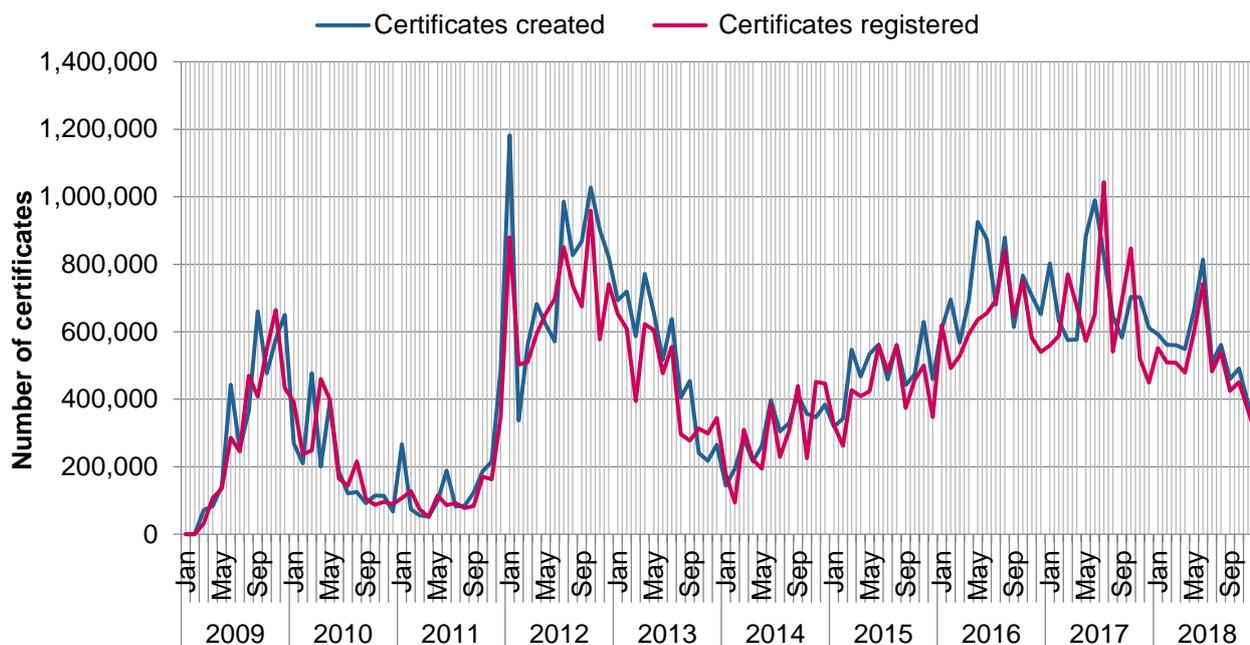


The number of certificates created should be viewed in the context of the annual program target set for that year (shown as a red line in Figure 3, which shows there have always been enough certificates created to meet each year's target. The target for 2018 was 6.1 million certificates, for 2019 is 6.3 million certificates, and it has been set at 6.5 million certificates for 2020.

Installations must be completed in accordance with the VEET Regulations, PBA Regulations, VEU Specifications and the VEET guidelines. We are responsible for ensuring that all relevant statutory requirements are met and that certificates created are eligible for registration.

Figure 4 charts the number of certificates created and registered on a monthly basis from 1 January 2009 to 31 December 2018, which indicates that the monthly rate of certificate creation started declining in 2017.

Figure 4: Certificates created and registered by month – January 2009 to January 2018



Once created, we assess certificates before they are registered and available for trade. We take a risk-based approach to certificate validation based on batches. An accredited person may withdraw their submitted certificates from a given installation if, after our checks, they are not able to provide evidence that the installation occurred as claimed.

In 2018, these pre-registration checks on 17,143 installations identified 1,876 potential compliance issues on 1,755 activities. During the year, accredited persons withdrew 593,568 certificates prior to registration. Some of these may have been resubmitted and registered at a later date after the accredited person supplied the required evidence and data.

Once we are satisfied we have received all relevant information to confirm the installation is compliant, we register certificates. We may refuse certificate registration if we establish that a certificate has not been created correctly.

Table 4 shows the number of certificates created, registered, withdrawn, refused and surrendered in 2018, and since the program started in 2009.

Table 4: Certificates created, registered, withdrawn and surrendered

Certificate transactions in 2018	2018	Total (2009 – 2018)
Certificates created	6,454,704	56,632,290
Certificates withdrawn by accredited persons	593,568*	4,111,418
Certificates registered	6,374,550	51,739,506
Certificates refused registration	0	117,355
Certificates surrendered by relevant entities	6,314,700	47,424,224
Certificates surrendered by accredited persons	35,796	314,340

* These may have been resubmitted at a later date and correspond to batches that were assessed during 2018, most of which were created during 2018.

In 2018, we registered almost 6.4 million certificates that could then be traded on the certificate market and purchased by traders or energy retailers.

Energy retailers must surrender certificates in accordance with the calculations prescribed by the Act. The number of certificates an energy retailer must surrender is based on the target for the year, the amount and type of energy they sell to eligible premises for the year (as explained in section 4.7).

Over 6.3 million certificates were surrendered⁹ by energy retailers with obligations under the program in 2018. Registered certificates may also be surrendered by accredited persons if our post-registration compliance activities find errors that the accredited person cannot address (as detailed in chapter 4). Any certificate surrendered cannot be traded again.

The 2018 target of 6.1 million certificates was reached in March 2018. While the number of certificates created in 2018 decreased by 24 per cent compared to 2017, it was the fourth largest creation year since the program began and enough to ensure that sufficient certificates would be registered to enable energy retailers meet their liabilities. By 31 December 2018, 69 per cent of the target of 6.3 million certificates required to reach the 2019 target had already been registered.

3.2. General trends

The top 10 activities for 2018 based on number of certificates created are summarised in Table 5. Lighting activities accounted for the majority of certificates created.

While commercial lighting upgrades (activity 34) created the highest number of certificates (84 percent of certificates created), the replacement of incandescent reflector lamps (activity 21B) accounted for the highest number of installations (a total of 78,010 installations, almost triple the amount in 2017).

There was a slight rebound in the overall number of installations from 109,208 in 2017 to 139,043 in 2018, associated with the resurgence of activity 21B, but they were still less than half those in 2016 (when there were 373,615 installations in total).

The 24 per cent reduction in certificate creation mentioned in section 3.1 was due to the 17 per cent drop in commercial lighting upgrades (activity 34), which have a much higher average certificate creation per installation compared to the replacement of incandescent reflector lamps (activity 21B).

The replacement of electric resistance water heaters with electric boosted solar water heaters (activity 1E) or with gas/LPG instantaneous water heaters (activity 1B) featured in the top ten activities again for 2018. Over the past three years, 98 per cent of those installations were in residential premises and over 80 per cent in regional Victoria.

In 2018, there was an increase in certificate creation for activity 1E, with 232,251 certificates created (compared with 200,831 certificates in 2017 and 211,908 for 2016). Meanwhile, the certificates created for activity 1B only declined slightly compared to 2017 (49,427 certificates in 2018 compared to 59,194 in 2017).

⁹ Energy retailers (relevant entities) make an obligatory surrender to acquit their liability under the Act (section 33 of the Act). Accredited persons make a mandatory surrender in line with a commission enforcement action under sections 38, 39 and 40 of the Act. Alternatively, accredited persons may make a voluntary surrender under section 25 of the Act to rectify occurrences where installations created did not comply with program requirements. This surrender is undertaken following discussions with the accredited person.

Table 5: Installations, certificates created and certificates registered for the top 10 activities for 2018

Period	1 Jan 2018 – 31 Dec 2018			1 Jan 2009 – 31 Dec 2018		
	Activity type	Installations	Certificates created	Certificates registered	Installations	Certificates created
34: Lighting upgrade	19,304	5,440,034	4,950,331	64,358	18,585,815	16,243,773
21B: Replacing incandescent reflector lamp	78,010	334,504	329,871	195,388	851,099	681,768
1E: Electric boosted solar replacing electric	5,028	232,251	229,126	18,899	864,803	833,972
21A: Replacing incandescent GLS lamp	9,018	106,881	99,055	416,912	4,142,765	3,656,820
21C: Replacing 12 volt halogen lamp	4,479	88,009	85,068	356,717	7,839,096	7,655,669
32: Installing high efficiency refrigerated display cabinet	160	55,455	54,792	326	119,829	104,785
1B: Gas/LPG instantaneous replacing electric	1,138	49,427	49,247	21,675	926,542	918,862
19: Destruction of old refrigerator or freezer	9,886	49,359	49,038	107,978	497,683	485,011
21E: Replacing mains voltage halogen lamp	1,495	22,721	22,025	26,686	353,126	336,905
6: Ducted gas replacing central electric resistance heater	66	17,831	16,463	2,360	665,414	641,886
Other activities	10,457	58,229	61,533	2,882,124	21,786,115	20,179,055
Total	139,043	6,454,704	6,374,534	4,093,425	56,632,290	51,739,506

Other notable activities were the installation of high efficiency refrigerated cabinets (activity 32), destruction of old fridges (activity 19) and installation of ducted gas heating to replace central electric resistance heating in houses (activity 6).

The installation of low-flow shower roses (activity 17) have had a steady decline over the past three years with only 15,093 certificates created in 2018 (down from its peak of 391,000 in 2013). It dropped off the top 10 list in 2018.

Certificates created and registered for all activities during the year can be found in Appendix B.

3.3. More certificates created in business premises than residential premises

At a glance: Over 85 per cent of certificates created were for installations in business premises, but 86 per cent of installations were undertaken in residential premises.

In 2018, certificates were created by accredited persons across 35 different types of activities at residential and business premises. This includes new activities introduced in December 2018 that are similar in nature to activities already in the program prior to this date (e.g. water heating and space heating activities that have been re-categorised, re-defined and/or assigned a different activity number under the December 2018 regulation amendments).

The number of installations in households and business sectors, and the certificates created for these installations are summarised in Table 6.

Table 6: Premises visited and installations undertaken to create certificates during 2018

Sector	Premises visited		Installations		Certificates	
	Number	Percentage	Number	Percentage	Number	Percentage
Residential	101,392	85%	118,915	86%	943,576	15%
Business	17,923	15%	20,128	14%	5,511,128	85%
Total	119,315	100%	139,043	100%	6,454,704	100%

Installations were undertaken in almost 18,000 business premises, accounting for 85 per cent of the certificates created during the year. More than 101,000 households had energy efficiency installations carried out, resulting in 15 per cent of the certificates created.

Some of these households or business premises had more than one visit under the VEU program, either to complete the installation for that same activity or undertake another installation for a different activity.

3.4. Lighting upgrades were the main activity

At a glance: Lighting activities accounted for more than 93 per cent of certificates created in 2018.

The most common installations carried out by accredited persons in 2018 were lighting activities. These include:

- replacement of lamps with low energy lamps in residential and business premises (activities 21A, 21B, 21C, 21D, 21E and 21F depending on the lamp replaced)
- commercial lighting upgrades, which may include installation of ancillary lighting equipment in business premises (activity 34)

Figure 5 shows the certificates created for all main activity type. More than 84 per cent of all certificates created in 2018 were from commercial lighting upgrade installations in business premises (activity 34).

Figure 5: Percentage of total certificates created by activity type– 2018

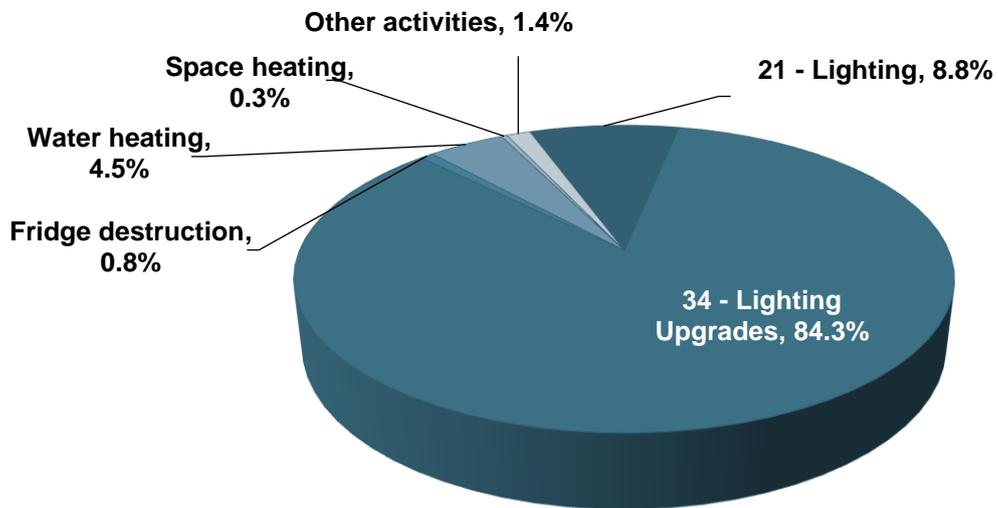
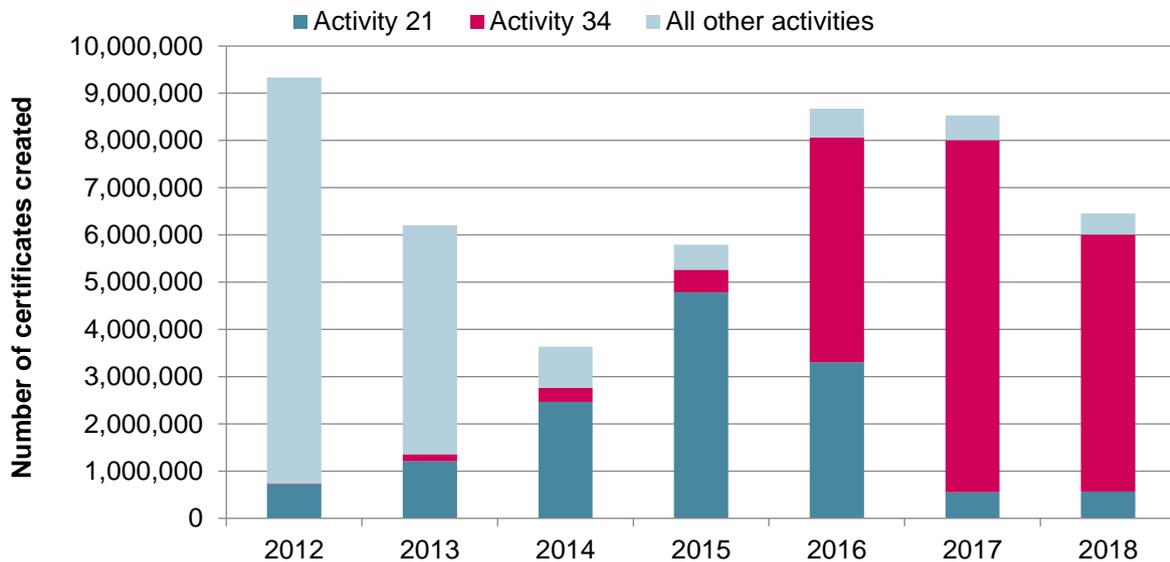


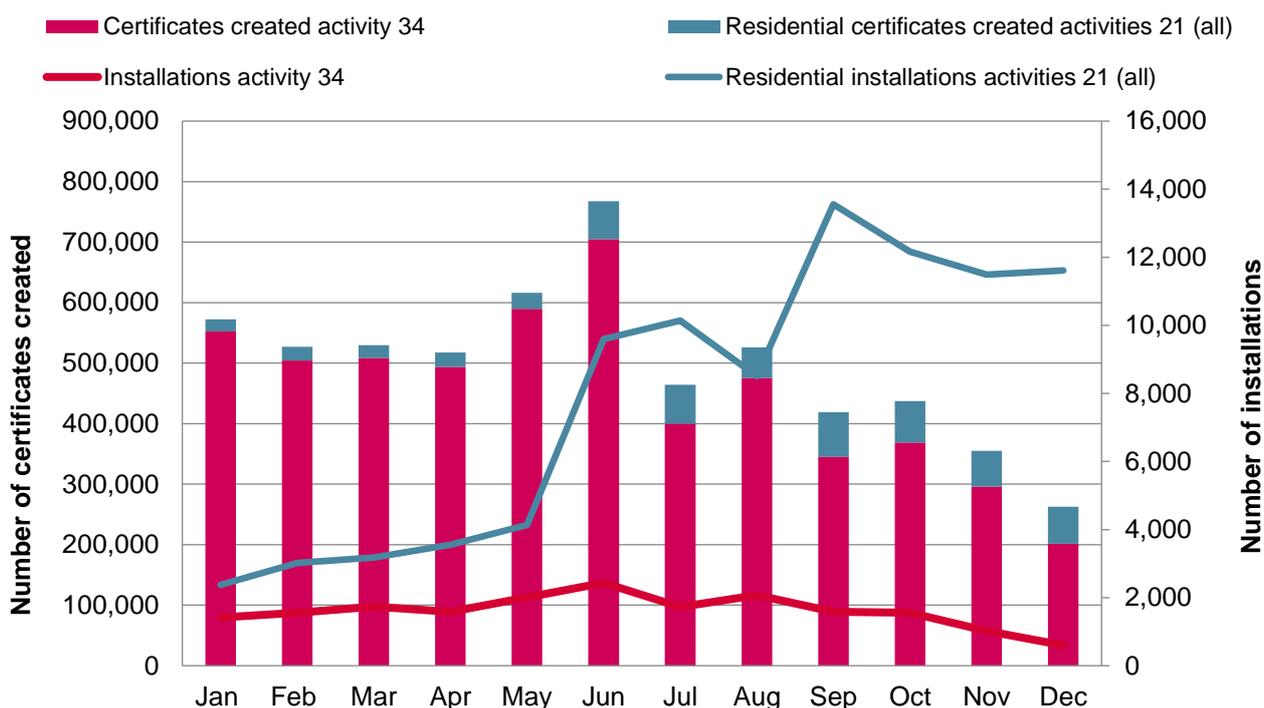
Figure 6 shows the certificates created for lighting activities from 2012 to 2018. From 2016 to 2018, the number of activity 34 installations increased from 18,446 to 23,310. The proportion of certificates created for activity 34 have grown from 54 per cent of certificates created in 2016 to over 84 per cent in 2018.

Figure 6: Certificates created for lighting activities - 2012 to 2018



However, there were signs of the market evolving during the year. Figure 7 shows the number of certificates created and installations per month for activity 34 (business premises) and activities 21 (residential premises) in 2018, with the creation rate decreasing from July 2018 for activity 34 and creations significantly rising for activities 21.

Figure 7: Monthly certificate creations and installations for activity 34 (business premises) and activities 21 (residential premises) in 2018



There are three factors that, combined, are likely to be responsible for that trend reversing previous yearly growth trends for commercial lighting upgrades (activity 34):

- the partial introduction of a discount factor for activity 34 from 1 February 2018 and full introduction from 1 May 2018
- the potential levels of saturation of that market
- the start of 2018 VEET Regulations from 10 December 2018, with the prospect of an untapped residential lighting market opening up.

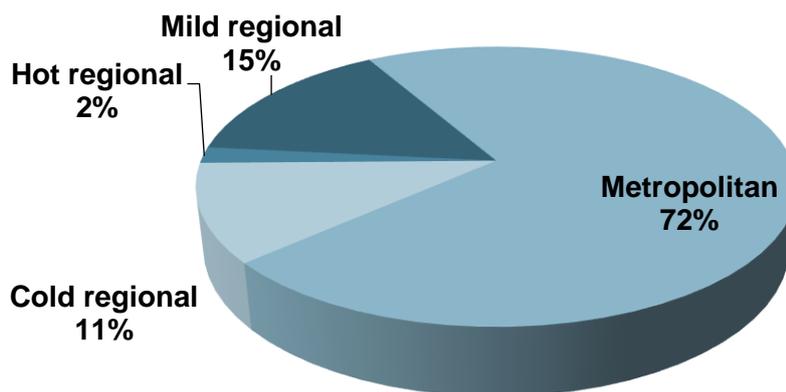
3.5. Melbourne metropolitan region the focus

At a glance: 72 per cent of installations were in the Melbourne metropolitan region.

The VEU program considers climate differences across regions when calculating greenhouse gas savings. Figure 8 shows the split in activities undertaken in each of Victoria's four climate regions.¹⁰

¹⁰ Schedule 27 of the 2008 VEET Regulations defined the four climate regions in Victoria by postcode. The updated 2018 VEET Regulations have expanded those to five regions from 10 December 2018. The number of certificates created between 10 December 2018 until 31 December 2018 have been represented against the four climatic regions existing prior to 10 December 2018 for clarity.

Figure 8: Split of activities by climate region – 2018



The largest proportion of installations occurred in metropolitan Melbourne (72 per cent of installations).

This represents a five percent swing from mild regional to metropolitan Melbourne, largely a consequence of the increase during 2018 of installations replacing incandescent reflector lamps (activity 21B), as explained in the previous section.

In 2017, almost 26 per cent of installations were activity 21B, and of those 25 per cent were in mild regional Victoria with over 67 per cent in metropolitan Melbourne. In contrast, the number of installations for activity 21B in 2018 represented over 56 per cent of total installations under the VEU program, and over 75 per cent of those were in metropolitan Melbourne and 13 per cent in mild regional areas.

3.6. Project-based activities

As the program evolves, we expect a greater number of certificates to be created from project-based activities as the pipeline of projects matures.

Project-based activities were introduced to the VEU program in June 2017 with the first method for calculating certificates based on measurement and verification.

These activities involve complex, large and capital-intensive upgrades that require substantial planning and investment by the energy consumer, the accredited person, the independent approved measurement and verification professional, and us.

As a result, project-based activities have much longer lead times than other activities and projects may only be completed years after their inception and initial consultation with us. However, the rewards they afford in terms of certificate creation and greenhouse gas abatement from a single project can be substantial.

3.6.1. Uptake of project-based activities

During 2018, we resolved over 100 questions from 50 different stakeholders (compared with 25 questions from 20 stakeholders over six months in 2017). These questions related to stakeholders seeking clarification on how to comply with our requirements or seeking advice on potential project eligibility. The questions and feedback that we received led to valuable improvements in our processes and documents that have resulted in streamlined applications and faster assessments.

There was an increased uptake from three scoping plans submitted for approval in 2017 (over six months) to 49 in 2018, and the first project reached the impact report stage where energy savings

are demonstrated. Due to the requirement to measure for an extended period before and after completing a project, the bulk of impact reports, project plan approvals and certificate creations from projects submitted in 2017 and 2018 are expected in future years.

Reports required as part of the project-based activities under the measurement and verification method include:

- scoping plans, which provide a description of the technology and initial timing of projects
- project plans, which provide a detailed description of the technology, scale and timing of projects - these also include measurement and verification plans, which detail exactly how, where and when the different steps of the project will be carried out and measured
- impact reports, which provide a detailed description of actual project activities carried out, along with measurement and modelling data justifying the number of certificates claimed for the project

We also approve measurement and verifications professionals who are independent third party assessors for use by accredited persons to confirm the validity of the approach used in the impact reports for each activity.

Table 7 provides a summary of applications related to project-based activities in 2018.

Table 7: Project-based activities uptake in 2018

Application type	2017		2018	
	Received	Approved	Received	Approved
Accreditation for project-based activities	7	5	8	10
Scoping plans	3	2	49	47
Project plans	2	0	37	19
Impact reports	0	0	2	1*
Measurement and Verification Professional	3	2	3	4

* The second impact report was approved in March 2019.

In 2018, accredited persons submitted 49 new and innovative energy saving projects that were not allowed under the program until the introduction of project-based activities. Project-based activities open the program to a commercial and industrial market that had previously been excluded from participating in the program.

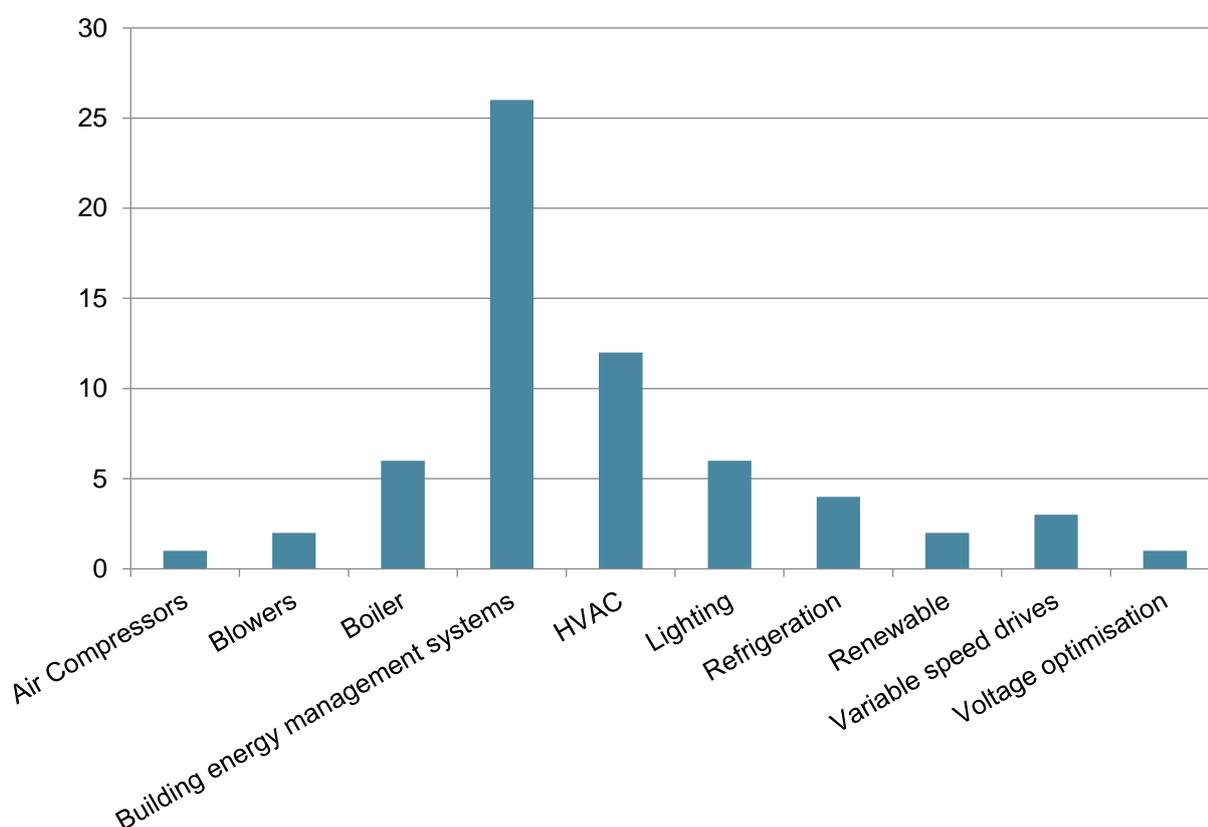
The projects generally involve:

- replacement of air compressors for more efficient models
- replacement of aeration blowers for more efficient models
- replacement of process heating boilers for more efficient models
- installation of building energy management systems (BEMS) which monitor and control energy consumption by modulating usage of building-related systems (such as heating and lighting)

- heating, ventilation and air conditioning (HVAC) projects involve the upgrade of those systems
- lighting upgrades involve the installation of more efficient lighting technology
- refrigeration projects involve the installation of more efficient technology and/or controls
- renewable projects are the replacement of fossil fuels (natural gas) with renewable fuels (biomass and biogas in the above instances)
- variable speed drive projects are the replacement of a fixed speed electric motor with one which can vary its speed depending on requirements
- voltage optimisation projects involve monitoring and reducing the voltage of a site to a more optimum level. This results in efficiency gains for most of the connected electrical equipment.

Figure 9 provides a summary of the types of projects submitted to us in 2018. More than 49 projects are included in Figure 9 as a number of projects cover more than one category.

Figure 9: Project-based activities projects by type submitted in 2018



The businesses participating in the program through project-based activities in 2018 include 20 businesses/sites operated by a company trading in the Australian Stock Exchange.

The key sectors currently engaging in project-based activities are retailers, transport and warehousing, arts and recreation, health care facilities and manufacturing. A breakdown of projects by sector is provided in Figure 10. The breakdown for the percentage of certificates expected to be created from those projects by sector is provided in Figure 11.

Figure 10: Number of projects (in parenthesis) assessed during 2018 as project-based activities by sector

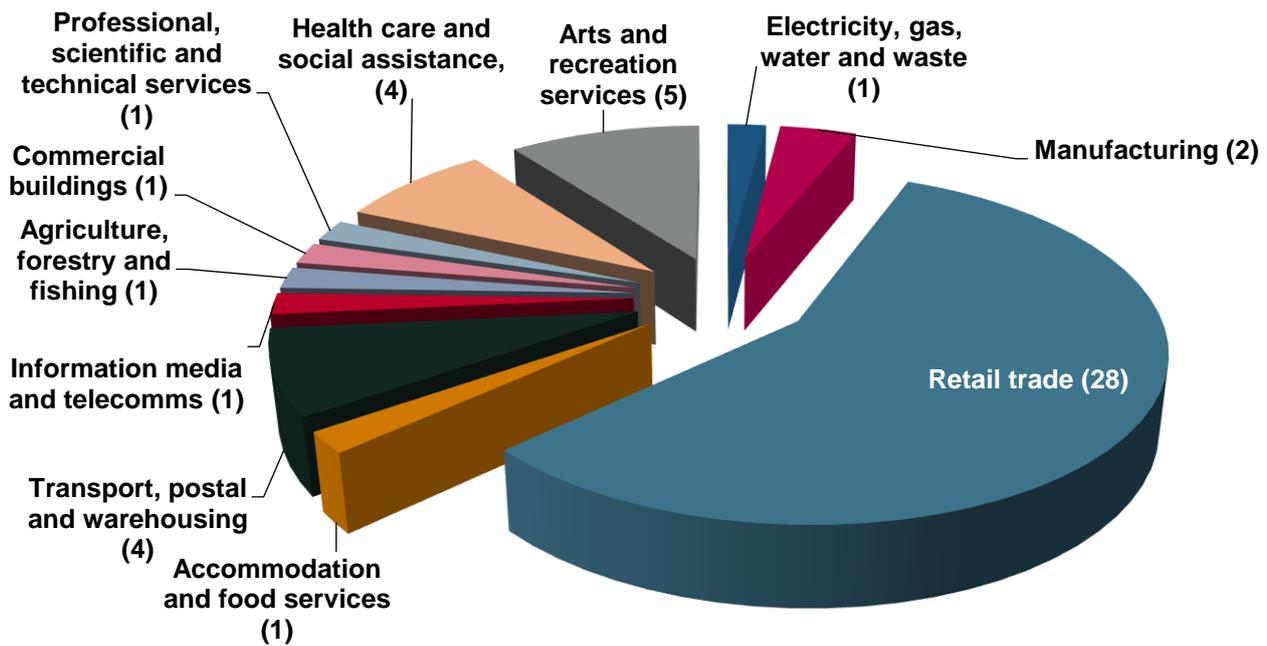
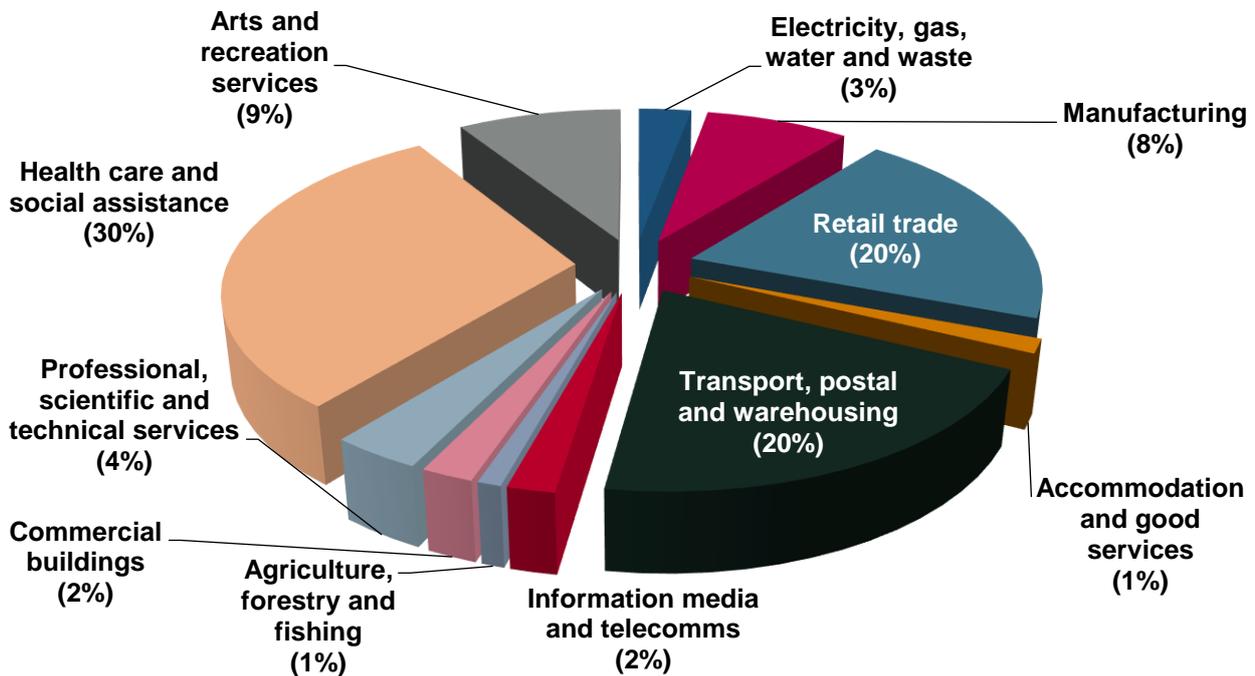


Figure 11: Percentage of certificates (in parenthesis) expected to be created from project-based activities for projects assessed during 2018 split by sector



3.6.2. Our assessment time frames for project-based activities

Our extensive engagement prior to and during project implementation mean that we develop a good understanding of the project before we review key documents, allowing us to focus our assessment on key areas.

We have a team of qualified and experienced engineers who undertake detailed assessments of each project at all three stages of the project-based activities application process. Our systems, processes and tools assist us to carry out our assessments consistently and efficiently.

We review each document and application, with particular effort at the impact report stage to ensure the number of certificates to be registered are accurately calculated.

The scoping plan is the document we must approve prior to the project being implemented. We provide conditional in-principle approval of the project at that stage. Project plans can be submitted with the scoping plan, or at a later stage, but must be submitted prior to project works commencing. The impact report must receive third-party expert verification and it details what measures were undertaken, how savings were measured and the equivalent certificates.

We publish the time we take to fulfill our duties under the PBA Regulations on the commission website. We are significantly below the legislated assessment times, as demonstrated by the comparison of actual average times and legislated times in Table 8.

Table 8: Average times and legislated times for project-based activities - 2018

Project documentation	Average time during 2017 (days elapsed)	Average time during 2018 (days elapsed)	Legislated time in PBA Regulations (days elapsed)
Scoping plan	1.4	0.6	60
Project plan	5.3	1.3	180
Impact report	N/A	11.5	120

3.7. Certificates status

At a glance: There were more than four and a half million certificates available for trading and/or surrender in the program as at 9 August 2019.

By the end of 2018, more than 56 million certificates had been created since the program started. Table 9 includes the status (as at 9 August 2018) of all certificates created from 1 January 2009 to 31 December 2018.

Approximately 4.6 million certificates were registered as at 9 August 2019 and available for trade or surrender as a result of an obligatory, voluntary or mandatory surrender.¹¹

Certificates expire six years after the installation that generated them was undertaken. Surrendered and expired certificates are retired from the program and are not able to be traded. Minor discrepancies may arise as certificates available for obligatory surrender include those created up until 31 January 2018.

¹¹ An obligatory surrender means that the certificate has been surrendered by an energy retailer (known as a relevant entity under the Act) to meet their program requirement (section 33 of the Act). Mandatory surrenders occur in response to a commission enforcement action (sections 38, 39 and 40 of the Act). Accredited persons voluntarily surrender certificates when they need to 'make good' against certificates that have been improperly created.

Table 9: Status of certificates created between 1 Jan 2009 and 31 December 2018

Status (as at 9 August 2019)	Measure
Certificates created	55,638,174
Pending registration	82,385
Certificates withdrawn by accredited persons	3,960,809
Certificates withdrawn by commission*	44,291
Registered	4,644,449
Registration refused	117,355
Retired due to obligatory surrender	47,424,224
Retired due to voluntary surrender	260,222
Retired due to expiry	222

* Certificates withdrawn by the commission between 2009 and 2012.

4. Participants' compliance with program requirements

To achieve our key goal of safeguarding the integrity of the program, we implement an integrated risk-based framework to all our regulatory functions and regularly engage with stakeholders to discuss improvements.

We primarily use audit methods to detect and address system-wide issues, and investigation methods to target individual issues.

We apply our regulatory efforts proportionally, and our compliance-focused engagement avenues depend on the type of program participant. This involves:

- setting for each activity tailored installation requirements that accredited persons must meet for an installation to be eligible
- auditing and investigating the installations and certificate creation by accredited persons
- reviewing energy retailers' independently audited annual energy acquisition statements
- setting approval requirements and processes that must be met for product applicants before the product is approved.

This approach helps to ensure participants comply with the requirements of the program.

Table 10 shows how we engage with different participants. More information is available in the chapters that follow.

Table 10: Compliance-focused engagement opportunities with VEU program participants

Participant	Engagement
Accredited persons	<ul style="list-style-type: none"> • Pre-accreditation audit • Detailed accredited person audits • Audit investigations • Project audits (for project-based activities) • Phone, desktop and field audits • Pre-registration checks • Consumer complaints
Energy retailers	<ul style="list-style-type: none"> • Audit of obligatory surrender of certificates • Enforcement of shortfall penalties
Product applicants	<ul style="list-style-type: none"> • Applications and approvals • Independent testing

We use audits and pre-registration checks as the main tools to ensure a consistent and broad level of compliance.

We perform three types of audit:

- pre-accreditation audits of prospective accredited persons (before first accreditation and for expanded accreditations).
- scheduled and unscheduled accredited person audits, including:
 - detailed audits, with frequency varying depending on the risk profile of the accredited person, certificate creation rates, and other risk criteria
 - project-based activities project audits, prior to certificate registration
 - audit investigations, which are significant audits arising out of intelligence indicating the possibility of significant non-compliance.
- phone, desktop and field audits - these are specific contacts with consumers to obtain intelligence and data to support scheduled and unscheduled audits, and may be stand alone, part of a detailed audit, or part of an audit investigation.

Our pre-registration checks include:

- first creation audits of installations and certificates when an accredited person creates certificates for that schedule for the first time
- assessment, validation and registration of certificates in batches, in which activities are grouped into discrete batches (by accredited person and activity type) and individual installations are assessed according to risk (in some instances we request further information and evidence from the accredited person to assess eligibility).
- phone audits, involving contacting specific consumers to obtain intelligence and data to confirm the eligibility of an activity.
- escalations, which occur when certificates are removed from regular validation to conduct further compliance checks across a sample population.

We also have a dedicated stakeholder contact channel that addresses queries from the public, accredited persons, relevant entities and product manufacturers.

The following sections provide further details.

4.1. Audits for new accreditation and expanded accreditation for additional activities

At a glance: In 2018, we held three pre-accreditation audit meetings and 32 expanded and re-approval accreditation audit meetings

We conduct pre-accreditation audits of anyone applying to become a new accredited person in the program or expand their existing accreditation to include a new activity. Accreditation audits always involve at least one meeting. These audits allow both parties to discuss the expectations and requirements for VEU activities.

In addition, we met with accredited persons authorised to create certificates under 21A in the 2008 VEET Regulations to renew their accreditation for that activity under the 2018 VEET Regulations.

As part of the audit, we complete a risk assessment of the accredited person, and use this assessment to calculate a risk rating score. We regularly update this rating to reflect any

accredited person's compliance performance. This process enables us to adopt a risk-based approach when we assess certificates and plan our audit and investigation program.

4.2. Pre-registration activities

4.2.1. First creation audits

To confirm a compliance focus by accredited persons and underpin our risk-based approach, we also undertake first creation audits when an accredited person actually creates certificates for the first time under their new accreditation or for a new activity. The first creation audit provides an opportunity for a thorough validation of the certificates created and complements the pre-accreditation audit work.

These extensive interactions with accredited persons prior to, and at their first creations allow us to validate that they have the systems and processes in place to undertake compliant installations, that they implement them, and that they can provide the evidence required for it. The first creation audit step is vital to underpin our risk-based batch checks.

4.2.2. Certificate batch checks

At a glance: We identified and resolved over 1,800 compliance issues during our pre-registration checks.

We validate certificates before they are registered, taking a risk-based approach that checks whether the installation, as undertaken, is likely to be eligible to create certificates.

Table 11 summarises the extent of these validations. Depending on the validation type, our assessment may include a review of the assignment form, certificates of electrical safety or photographic evidence. This helps us ensure that created certificates qualify for registration.

Table 11: Pre-registration certificate batch checking activities

Description	Measure
Certificates processed ¹²	6,925,389
Activities processed	116,986
Batches processed	4,162
Activities requiring further information	8,232
Compliance issues identified	1,876
Certificates withdrawn by accredited persons ¹³	593,568

We evaluate in batches of maximum 10,000 certificates, selecting batches based on the risk factor of the activity being undertaken and the risk factor of the accredited person creating the certificates. Accredited persons may be required to provide additional evidence to show that the created certificates meet the relevant requirements.

¹² Includes certificates created that have been subsequently registered or withdrawn, and includes certificates processed as part of regular batches and first creation batches.

¹³ The majority of these certificates may have been resubmitted and registered at a later date after our evidence and data requests during pre-registration checks were satisfied.

Over 96 per cent of certificates withdrawn were linked to commercial lighting upgrades (activity 34), a higher proportion than for certificates created (84 per cent).

In terms of installations, though, more replacement of incandescent GLS lamps (activity 21A) installations were withdrawn than any other activity (30 per cent). The next highest was activity 34 with 24 per cent followed by other replacement of incandescent reflector lamps (activity 21B) with 17 per cent.

The reasons an accredited person may withdraw certificates are varied and may be linked to their own business processes or our validation processes. Twenty per cent of the installations withdrawn had been flagged in our system associated with compliance issues.

Out of those installations withdrawn with identified compliance issues, activity 34 represented 48 per cent, activity 21B installations at 13 per cent, activity 21C installations at 10 per cent and activity 21A installations at eight per cent. When comparing these with their percentage of the total amount of installations withdrawn, they suggest that compliance issues were more prevalent in commercial lighting upgrades (activity 34) in relative terms.

This higher risk profile for activity 34 was reflected in our validation regime. From our regular validation batches, 38 per cent of the installations we looked at were for activity 34, 16 per cent for activity 21B and over eight per cent for activity 21A.

This resulted in over 176,000 certificates withdrawn with a compliance flag attached to them for activity 34, corresponding to a 97 per cent of certificates withdrawn with a compliance flag.

These may have been re-submitted and registered at a later date if our evidence and data requests were satisfied.

4.3. Phone audits, desktop audits and field audits

At a glance: 449 field audits of sites completed by authorised officers.

Once certificates are registered, we continue to focus on compliance. We use phone, desktop and field audits to check that installations undertaken at a particular premise correspond with the parameters used to create certificates.

We use phone audits to talk to consumers to validate creation claims. As part of desktop audits, we request from the accredited person specific evidentiary documents to support certificate creation claims and we review them, and as part of a field audit we inspect premises that benefited from installations. These audits feed into our detailed audits and investigations of accredited persons. A summary is provided in Table 12.

Table 12: Summary of audits for 2018

Description ¹⁴	Measure
Phone audits	122
Desktop audits	170
Field audits	449

¹⁴ Only audits and investigations that have been completed are reported.

In 2018, we completed 170 desktop audits and 449 field audits, focusing on commercial lighting upgrades. Included in the 170 desktop audits are seven audits of accredited person's first creations as described in section 4.2.1.

4.4. Audits of accredited persons

At a glance: We completed 14 audits of accredited persons and eight audit investigations.

Our auditing program focuses on both random and risk-based targeted audits of accredited persons.

We completed fourteen audits of accredited persons in 2018, with a focus on replacement of lights under activities 21A to 21E, commercial lighting upgrades under activity 34 and one project-based activities project.

Audits provide a detailed assessment of the accredited person's systems, processes and controls. As part of these audits, we interview key personnel and installers to gain assurance that they are participating in accordance with the program requirements.

The outcomes of these audits identified process and control improvements in the areas of:

- reconciliation for decommissioning of lighting equipment
- quality assurance and internal controls
- evidentiary documents to support installation activities
- engaging independent auditors to undertake field audits.

Once we have audited an accredited person, we provide them with an audit report. This formally communicates any findings of non-compliance and recommendations that will help them create certificates in accordance with the program. We then monitor the accredited person to ensure they implement all the audit recommendations within the set timeframe.

Audit investigations may arise from an audit of an accredited person, or independently of an audit of an accredited person. We completed eight investigations in 2018; four as an escalation of audits of accredited persons, three from specific issues related to the application of discount factor for activity 34, and one relating to a faulty product installation.

We conducted investigations into large certificate creators under activity 34. These investigations highlighted compliance issues in the baseline lamps being claimed for an installation and informed our decision to strengthen our focus and increase the evidentiary requirements for all accredited persons undertaking installations for activity 34.

From 6 October 2018, all accredited persons were required to provide geo-tagged photographic evidence of 75 per cent of all existing inefficient lamps in situ in all upgraded areas. As a result, we have more confidence in the claims of inefficient lamps being replaced.

The onset of these new compliance issues may be, in part, a consequence of two market-relevant developments during 2018; the introduction of a discount factor on certificates that could be created for commercial lighting upgrades (activity 34) on 1 February 2018 and 1 May 2018, and a level of market saturation for activity.

Table 13 summarises our compliance activities in respect of detailed audits and audit investigations.

Table 13: Number of detailed audits and investigations in 2018

Type of compliance	Number	Activity
Detailed audits	14	21, 34 and PBA
Investigations	8	34

These audits and investigations resulted in over 35,000 certificates being surrendered by accredited persons due to non-compliance.

4.5. Consumer complaints

At a glance: Consumer complaints decreased to 63 whilst installation numbers increased to 139,000.

We facilitate resolution of issues between consumers and accredited persons. We investigated 63 compliance-related complaints from consumers in 2018 – a decrease from 76 in 2017.

Of these:

- thirty-five related to replacement of lights activities 21A to 21E, compared to 28 in 2017
- twenty-three related to commercial lighting upgrades (activity 34) compared to 39 in 2017
- two related to water heating installations (activities 1 and 3), compared to five in 2017.

The complaints for activity 21 installations were mainly in respect of accredited providers not meeting installation warranty claims, product lifetime issues and non-compliant installations in outdoor environments.

Activity 34 complaints in 2018 mainly related to faulty or unsuitable products, incomplete lighting upgrades, administrative irregularities and intelligence from the public regarding non-compliance that informed our audit and investigations program.

The small number of complaints associated to water heating installations related to product faults and poor service levels. In both cases, the hot water systems were fixed after we intervened.

We also investigated two complaints related to marketing and advertising practices and faulty stand-by power controllers. The marketing complaint related to calls to consumers on the 'Do Not Call' register. The accredited person concerned responded by making improvements to their existing 'do not call' processes. The matter of one faulty stand-by power controller was referred to Energy Safe Victoria for investigation.

4.6. Audit of obligatory surrender of certificates from energy retailers

At a glance: 6,314,700 certificates were surrendered by energy retailers identified as 'relevant entities'.

The program requires the following entities (known as relevant entities) to surrender certificates:

- energy (electricity and gas) retailers with at least 5,000 residential customers
- retailers with program acquisitions of at least 30,000 MWh of electricity or at least 350,000 GJ of gas in one compliance year.

These retailers must send us an annual energy acquisition statement and an independent audit report detailing the amount of electricity and/or gas acquired during the reporting year. Statements must be submitted, and the required number of certificates surrendered, by 30 April each year.

We use the annual energy acquisition statement and audit report to check that the retailer has accurately calculated its annual liability under the program. In 2018:

- twenty-eight Victorian energy retailers were identified as relevant entities
- one energy retailer had an energy efficiency certificate shortfall
- relevant entities surrendered a total of 6,314,700 certificates in order to meet their liability.

The result of our audits is summarised in Table 14.

Table 14: Details from annual energy acquisition statements

Details	Measure
Relevant entities	28
Relevant entities that had an energy efficiency certificate shortfall	1
Amount of relevant entities' energy efficiency certificate shortfalls	
<i>Energy Australia</i>	170
Number of certificates surrendered by relevant entities for 2018	6,314,700

4.7. Product applications and approvals

At a glance: Lighting products were the main source of submissions and approvals in 2018.

We assess and list products in our Registry of Products to ensure they meet technical specifications and save energy for consumers. The total number of approved products by 31 December 2018 was 14,885.

Table 15 shows the number of products submitted and approved by activity type for 2018. Most of the submissions and approvals were for products used in lighting activities (schedules 21 and 34).

Table 15: Summary of product applications and approvals - 2018

Activity Type	Product applications	Product approvals
Lighting	1,427	1,131
Water heating	655	442
Refrigerator/freezer	73	73
Space heating and cooling	64	44
Weather sealing and insulation	46	25
Low flow shower rose	1	1
Clothes dryer	1	1
Total	2,267	1,717

In 2018, a total of 2,267 energy saving products were submitted to us for approval. We approved 1,717 products for use in the program. The difference includes 45 products rejected for not meeting our requirements, 270 products withdrawn by the applicant and 171 withdrawn by the commission (mainly as a result of the applicant not responding to requests for clarifying information). The remainder 64 products were carried over to be assessed in 2019.

4.8. Independent product testing

At a glance: We continue to undertake safety and performance testing

Our main activity to ensure a broad level of compliance with technical specifications is through assessments of product applications, as explained in section 4.7.

The performance of a product may change with changes in components or throughout the lifetime of a product. This risk is minimized by requiring a new product application process when components change significantly, and standard lifetime tests.

To cater for the low likelihood of inadvertent componentry changes or significant performance drop over time, we deliver a safety and performance product testing program to ensure that products listed on our Register of Products continue to meet the requirements of the VEET Regulations and the VEU specifications after listing.

We choose which products to test based on a number of factors, including:

- the quality of supporting documentation
- reported incidents of failure
- the number of products installed under the program
- the number of recent installations.

Our 2018 product testing was performed by independent accredited laboratories, and focused on 'high risk' products like LED lighting as they were one of the most installed products during the year. They were products used in activity 34 (LED highbays and LED tubes) from major manufacturing brands, as activity 34 was responsible for 84 per cent of certificate creation in 2018.

If we identify problems with a product in these test programs, we may refer it to Energy Safe Victoria for further action and may ultimately suspend it from the Register of Products.

Table 16 shows a summary of outcomes from the 2017-18 product performance and safety testing program. Two products were suspended as a result of the performance tests.

Table 16: Summary of product performance and safety testing program outcomes

Program	Number of products tested	Result
Performance testing	15	2 products suspended
Safety testing	3	No products suspended

At the end of 2018, planning was underway to select products for the next round of independent performance and safety testing, including the development of an in-house check testing process to enable checks of a higher number of products. This is expected to be helpful in identifying lamps requiring further independent testing.

5. Program evolution

At a glance: A large regulatory change program was implemented in 2018 as part of the program's 10 year regulatory review.

The Department of Environment, Land, Water and Planning (DELWP) is responsible for the design of the VEU program and the making of regulations. The Hon. Lily D'Ambrosio MP is the responsible minister as Minister for Energy, Environment and Climate Change.

Table 17 lists all regulatory changes made in 2018 and their start date. The most significant one, and the one that captured most of our efforts, was the remaking of the VEET Regulations as the 2008 VEET Regulations were due to sunset in 2018. Further information on these regulatory changes can be found on the following pages.

Table 17: Summary of regulatory changes in 2018

Commencement date	Regulation reference	Amendments made
1 February 2018	2008 VEET Regulations	Change to discount factor for certain building-based lighting upgrade activities
1 May 2018	2008 VEET Regulations	Further reduction in discount factor for certain building-based lighting upgrade activities
10 December 2018	2008 VEET Regulations	Introduction of new 2018 VEET Regulations and VEU Specifications
11 December 2018	PBA Regulations	Introduction of new benchmark rating method

5.1. Discount factor changes for activity 34 (commercial lighting upgrades)

In December 2017, the Minister for Energy declared discount factors for the calculation of certificates created for building based lighting upgrades, a subset of the commercial lighting upgrades (activity 34). Discount factors are applied to the calculation of eligible certificates for a given installation, essentially reducing the amount of certificates an installation can create.

The discount factor was applied via a staged approach, with different discount factors being applied to upgrades undertaken from 1 February 2018 to 30 April 2018, and then from 1 May 2018 to 9 December 2018. The discount factors applied to upgrades where:

- the upgrade activity undertaken did not need to comply with Part J6 of the Building Code of Australia under building based lighting (commonly referred to as 34 Non J6)
- the lamps replaced (incumbent lamps) were either:
 - T8 or T12 fluorescent lamps (in any environment)
 - high-intensity discharge lamps (metal halide, mercury vapour and high pressure sodium lamps) (only in building based environments).

We developed and released program updates and updated guidance documents, together with changes to our IT systems to apply the relevant discount factor depending on the type of upgrade, the lamps being decommissioned and the date the upgrade occurred.

5.2. Implementing the 2018 VEET Regulations

At a glance: We designed, developed, upgraded and implemented all relevant systems, processes and guidance documents to implement the 2018 VEET Regulations from 10 December 2018.

The VEET Regulations that set the rules to create certificates under the program reached their sunset in December 2018. DELWP released a regulatory impact statement and undertook public consultation process to remake the VEET Regulations.

During the year, we worked closely with DELWP to develop final regulations that would deliver on the desired regulatory outcomes for the program. We provided advice on design aspects of the new regulations and their implementation challenges. Our advice incorporated best-practice regulatory principles and our learnings from the last ten years to ensure development of new regulations that continued to safeguard the integrity of the program.

We delivered an extensive change program during the year to prepare for implementation of the 2018 VEET Regulations. Our work included:

- defining new and/or updated regulatory requirements and processes for all activities
- developing and implementing changes to our IT systems to incorporate new calculations, business rules and fields for eleven new activities and twenty six updated activities
- restructuring and rewriting our guidance documents and forms for all activities to improve accessibility and readability
- restructuring our website content, and migrating the content to the commission website
- consulting with stakeholders (both formally and informally) in developing the regulatory framework for a number of a number of activities that were either technically complex or had the potential for large scale uncontrolled uptake
- releasing a number of program updates advising participants of the scope and timeline of proposed changes prior to their commencement
- outlining the high level proposed changes to our framework to participants at our June 2018 forum, and also seeking feedback on areas of improvement in developing our framework
- providing a detailed briefing on changes to the framework at our November 2018 forum
- releasing the majority of our updated guidance documents and forms (application forms, VEEC creation forms and VEEC assignment form templates) in draft form in November 2018 to help program participants prepare for the change
- preparing commission staff members for the change, including hosting of a number of briefing/training sessions.

Almost all accreditations granted to organisations to undertake activities under the 2008 VEET Regulations were automatically transitioned to remain valid under the 2018 VEET Regulations.

The exception was for the replacement of incandescent GLS or CFL lamp (activity 21A), given the potential risks introduced by the revised definition of the activity under the new regulations. Businesses wanting to undertake installations under this activity under the 2018 VEET regulations had to reapply for accreditation. Twenty-six businesses sought accreditation to undertake this activity in 2018, and six were granted approval during 2018, and continued to approve and assess more applications during early 2019.

5.2.1. Preparing for uptake of replacement of incandescent GLS and CFL lamps (activity 21A)

The 2018 VEET Regulations allowed upgrades to be undertaken at previously upgraded premises for the majority of activities prescribed by the regulations, including for activity 21A (incandescent lighting activity). Activity 21A was also amended to allow for the replacement of CFLs, lamps which were previously defined as the upgrade lamps under the 2008 VEET Regulations.

Given the nature of this activity (anticipated large volumes being undertaken across residential homes and involving rapid technological development for the upgrade lamps), we decided to expand the existing requirements and compliance regime for activity 21A in order to manage the updated activity 21A and ensure integrity of this new activity.

These arrangements aimed to minimise risks associated with:

- installer and consumer safety
- mercury toxicity and waste recycling
- product performance
- consumer protection and satisfaction.

The measures implemented specifically for this activity are listed in Table 18 below.

Table 18: Activity 21A requirements

Product related requirements	Activity related requirements
Omni-directionality requirement for lamps after a specified transition period	Accredited persons having to be re-approved to undertake activity 21A under the 2018 VEET Regulations, including a meeting with the Director, VEU.
Increasing our product performance check testing (commission)	Implementing 'first creation audits' across all accredited persons (commission)
Undertaking laboratory report checking to identify falsified laboratory reports before product approval (commission)	Accredited persons having to comply with recycling and decommissioning requirements prior to certificate creation for mercury-containing products
Accredited persons having to maintain records which include serial numbers of all stock	Accredited persons to collect and maintain geo-tagged photos of installation environments and installer at installation site
	Increased phone and field audit program for the activity (commission)
	Requiring licensed electricians to undertake installations under this activity

We undertook consultation in developing a number of these requirements, in particular, that relating to the training/licensing requirements for this activity and the transition period to be set for the omni-directionality lamp requirement.

5.3. Introducing the benchmark rating method of project-based activities

The PBA Regulations provide energy consumers with new methods for accessing certificates for complex and custom-designed energy efficiency project-based activities. In 2018, DELWP updated the PBA Regulations and released a second project-based activities specifications document to allow for the benchmark rating method.

The new method allows businesses to claim energy efficiency certificates for improvements in National Australian Built Environment Rating System (NABERS) rating in buildings. This method is designed to target commercial buildings and avoids the costs associated with measurement and verification by adopting a validated and independent ratings system, comparing pre and post project NABERS ratings of eligible building types.

Throughout 2018 we worked very closely with DELWP, continuing to assist in the design of the updated PBA Regulations as well as delivering our framework and administration for the new benchmark rating activity.

The updates to the regulations and our administration framework for this method were released on 11 December 2018.

5.4. Implementing other regulatory changes

We regularly review our regulatory settings and evidentiary requirements to ensure they are balanced and proportionate in addressing compliance and program risks. This work also involves integrating the program's regulatory framework with other regulatory frameworks that oversee safety, environmental and consumer protection concerns.

Changes made to the program's regulatory framework, and communicated to stakeholders during the year, included:

- clarification on whether inoperable products are eligible to be upgraded
- changes to our mandatory safety training requirements, which now require:
 - all installers new to the program to hold current mandatory safety training units
 - installers to complete replacement units within a fixed transition period for superseded units
- requiring installers to take geotagged pictures of baseline lighting equipment for building based lighting upgrades (schedule 34)
- requiring accredited persons to recycle mercury-containing lamps at a facility licensed by the Environment Protection Authority (EPA) prior to certificate creation under the 2018 VEET Regulations.

6. Program administration and continuous improvement

We regularly review how we can improve our administrative framework settings to optimise the program's operations for both us and program stakeholders.

6.1. Changes to administration of commercial lighting upgrades

During the year, we implemented a number of process changes in the administration of commercial lighting upgrades (activity 34), including:

- formalising the process allowing accredited persons to submit exemptions to AS/NZS 1680.0:2009 and/or AS/NZS 1680.1:2006 for the activity
- amending the process to allow replacement of previously upgraded lamps and lamps that are emerging technology (i.e. lamps not listed in column 2 of Table 1 of Schedule 34 of the 2008 VEET Regulations)
- publishing a Register of Building Code of Australia (BCA) classification determinations on the VEU Registry website. This register clarifies the BCA classification for accredited persons when claiming for upgrades in space types which are not explicitly listed in the VEET Regulations for the activity

6.2. Administration of the scheduled activity premises list

At a glance: We reviewed the accuracy of the scheduled activity premises list.

Regulation 37 of the 2008 VEET Regulations provides a mechanism for occupiers of scheduled activity premises (SAPs) to voluntarily join the program by providing us with an 'opt in' notice. These facilities were participants in the EPA's Environment and Resource Efficiency Plans (EREP) program that ran from 2008 to 2013.

Accredited persons can generate certificates for installations on scheduled activity premises that have opted in. However, premises that 'opt-in' to the program create liabilities for their energy retailer under the program once a certificate is registered for the site.

We have experienced challenges in arriving at a definitive list, given:

- the historical nature of the EREP program
- challenges identifying site boundaries
- the imprecise nature of 'addresses' as a site identifier in industrial complexes
- changes in site use and site occupation over time.

We conducted a detailed review of these exempted premises during the year. During the review process, we contacted businesses listed as exempt on the register to ask for evidence that they were part of the EREP program. We also asked for the specific addresses of the premises and updated the scheduled activity premises register accordingly.

We published the updated Register of Scheduled Activity Premises on 2 January 2019.

6.3. Enhancements to the IT system

At a glance: We obtained procurement approval and progressed development of the business requirements for a new VEU Registry system

A key focus for us to achieve higher levels of effectiveness and minimise processing times for program participants is the work we have been doing to upgrade our VEU Registry system.

During 2018, we engaged a project team, received endorsement of our procurement plan from the Department of Treasury and Finance and progressed development of the business requirements to support a selected tender procurement process.

Changes made to the existing VEU Registry system during the year focused on changes to support the commencement of the 2018 VEET Regulations and update of PBA Regulations in December 2018. Minor improvements were integrated into development of these changes, particularly for commercial lighting (activity 34 and 35) creation claims. We made changes to the Register of Participants feature to capture the service offerings provided by accredited persons to help tradespeople and organisations find accredited persons who provide 'aggregator' services for a particular activity type.

6.4. Migrating documents from VEU Registry to ESC website

We implemented the following changes to facilitate user experience on 10 December 2018:

- migrated all our guidance documents from the www.veet.vic.gov.au domain to the commission website (www.esc.vic.gov.au/veu)
- renamed our transactional registry website from www.veet.vic.gov.au to www.veu-registry.vic.gov.au

6.5. Working with program participants

At a glance: We held two forums to engage with participants in April and October 2018.

A key principle of our regulatory approach is to actively and regularly engage with our program participants.

We work with program participants to ensure they understand the program's regulatory framework, performance requirements and administrative processes. We also provide prompt responses to telephone and email inquiries, regularly meet with stakeholders, and consult with accredited persons and stakeholders on proposed changes to processes. Stakeholders were also invited to participate in the commission's reputational survey.

We also sought targeted feedback on our risk-based variable target registration pilot from stakeholders involved in building based lighting. Based on their feedback, we will continue to implement our approach that involves a reduction in the number of certificates contained within a registration batch and an increase in the number of installations we assess.

In 2018, we held public information forums in June and November as half day events, which were attended by hundreds of stakeholders. Each forum included presentations on the status of the program, compliance issues, and how to meet program requirements.

In the June forum, we also ran eight workshops to seek feedback on the framework we were building to implement the new regulations and to provide an opportunity for stakeholders to engage with us on a number of our key administrative processes.

The focus of the November forum was informing stakeholders of key changes and requirements to be implemented under the 2018 VEET Regulations and PBA Regulations commencing in December 2018. The Environment Protection Authority (EPA) also presented on their e-waste management framework. All presentations given at public forums, consultation documents and explanatory notes for program participants are available on our website (www.esc.vic.gov.au/veu-publications).

Given the complex framework and method for project-based activities, we have increased our efforts to engage with stakeholders. We engaged with stakeholders on project-based activities at a number of events in 2018, as shown in Table 19.

Table 19: Project-based activities engagement at events

Date	Event	Engagement
29 June 2018	VEU forum	Workshop discussing scenario based questions relating to the measurement and verification method
4 October 2018	Presentation at All-Energy Australia 2018	Conference presentation outlining the benefits and features of project-based activities.
26 November 2018	VEU forum	Workshop introducing the upcoming benchmark rating method, and detailing evidence and requirements for aspects of the measurement and verification method.
3 December 2018	Office of Environment and Heritage of NSW consultation workshop	Participated in a targeted workshop for the equivalent measurement and verification method in NSW, featuring a number of Victorian participants.

We also held two-hour workshops with the ten businesses that became accredited providers for project-based activities during the year to clarify our requirements, answer specific technical questions and seek their feedback. Stakeholder response to our implementation of the project-based activities framework and our engagement has been extremely positive.

6.6. Working with other government agencies

At a glance: We provided assistance and specialist advice to other jurisdictions and the Victorian Government.

During the year, we met and liaised with officers from other state and federal energy efficiency programs, including:

- the Australian Capital Territory Energy Efficiency Improvement Program
- the New South Wales Energy Savings Program
- the South Australian Retailer Energy Efficiency Program

- the Commonwealth's Clean Energy Regulator.

The purpose of these meetings was to share information and experiences, and to coordinate between programs where appropriate. An example was providing assistance in the development of options for an energy efficiency program by the Queensland Government.

We also worked closely with the following Victorian Government agencies:

- Energy Safe Victoria, to link and report non-compliant electrical installations to them
- Environment Protection Authority Victoria and Sustainability Victoria, to inform our determination to recycle mercury-containing lamps at EPA licensed sites.

Glossary

Term	Definition
accredited person (AP)	Person accredited under the VEET program. Once accredited, a person is eligible to create certificates in the VEET program in respect of prescribed activities.
Building Code of Australia (BCA)	The Building Code of Australia (BCA) is a uniform set of technical provisions for the design and construction of buildings and other structures throughout Australia. The BCA is given legal effect through the Building Act 1975.
certificate	Each Victorian energy efficiency certificate (VEECs) created as part of the program represent one tonne of carbon dioxide equivalent of greenhouse gases to be reduced by the prescribed activity.
commission	Essential Services Commission, established under the Essential Services Commission Act 2001.
compliance year	Period over which each annual target must be achieved, which is a full calendar year.
DELWP	Department of Environment, Land, Water and Planning (the policy setting was previously part of the former Department of Economic Development, Jobs, Transport and Resources)
energy acquisition statement	Annual statement by a relevant entity about the amounts of electricity and gas acquired under program acquisitions during the year.
energy efficiency certificate shortfall	Number of certificates for which a relevant entity has failed to acquit its share of the program target.
energy efficiency shortfall penalty	Civil pecuniary penalty for which a relevant entity is liable in the event of an energy efficiency certificate shortfall.
GJ	Gigajoule
greenhouse gas	Carbon dioxide, methane, nitrous oxide, sulphur hexafluoride, hydrofluorocarbons, perfluorocarbons and any other gas prescribed to be a greenhouse gas.
greenhouse gas reduction rates	Rates, fixed annually by ministerial order, in respect of electricity and gas for a particular compliance year.
guidelines	The program guidelines made by the commission.
liability	The liability of relevant entities to surrender certificates under the program.
MWh	Megawatt hour
prescribed activity	An activity, prescribed under the Act, resulting in a reduction in greenhouse gas emissions that would not otherwise have occurred if the activity was not undertaken.

Term	Definition
prescribed greenhouse gas program	Voluntary offset program or mandatory greenhouse gas program or any other arrangement that promotes the reduction of greenhouse emissions and is prescribed by the program.
Register of Accredited Persons	Public register, maintained by the commission, containing the names and certain other particulars of accredited persons.
Register of Victorian Energy Efficiency Certificates	Public register, maintained by the commission, containing information about energy efficiency certificates as required by the program.
Register of Products	Public register, maintained by the commission, containing particulars of certain allowable products that may be used for the purposes of prescribed activities.
relevant entity	Entity that sells electricity or gas, or both, to at least 5,000 Victorian customers, or makes a program acquisition of 30,000 MWh or more of electricity, or 350,000 GJ or more of gas in one compliance year.
scheme acquisition	Purchase by a relevant entity, for on-sale to Victorian customers, of electricity or gas, or both, within the provisions of the program.
the PBA Regulations	The Victorian Energy Efficiency Target (Project-Based Activities) Regulations 2018
the VEET Regulations	The Victorian Energy Efficiency Target Regulations 2008, or the Victorian Energy Efficiency Target Regulations 2018, made under the Act
the Act	Victorian Energy Efficiency Target Act 2007
Victorian Energy Upgrade program	The public facing name of the VEET scheme established under the Act
VEU accounts	Accounts used by participants to carry out transactions in the VEET program.
VEU program target	Program target set by legislation.

Appendix A: VEU program framework

Overview

We administer the Victorian Energy Efficiency Target Act 2007 (the Act) and regulates the creation of certificates by participants in the Victorian Energy Efficiency Target (VEET) scheme. The scheme started in 2009 and is currently publicly promoted as the Victorian Government's Victorian Energy Upgrades (VEU) program, designed by the Department of Environment, Land, Water and Planning (DELWP).

The Act promotes the reduction of greenhouse gas emissions by encouraging the efficient use of electricity and gas in the residential and commercial sectors. To achieve the Act's purpose, the program is designed to make energy efficiency improvements more affordable for consumers.

The program operates as a market-based economic mechanism trading Victorian energy efficiency certificates (certificates) and is the flagship energy efficiency program in Victoria. For each tonne of carbon dioxide equivalent (CO₂-e) abated as a result of activities undertaken under the program, one certificate is created.

We regulate the creation of certificates under the program. To create certificates under the program, a person needs to satisfy our process requirements, product requirements, installation requirements and compliance requirements. We apply an integrated risk-based framework to our regulatory functions and regularly engage with stakeholders to discuss improvements.

Certificates are created by businesses accredited by us to undertake a range of prescribed activities specified under regulations, and referred to in the Act as 'accredited persons'.

The types of activities and their requirements were outlined in the schedules of the Victorian Energy Efficiency Target Regulations 2008 (2008 VEET Regulations) and the Victorian Energy Efficiency Target (Project-Based Activities) Regulations 2018 (PBA Regulations) until 10 December 2018. From 10 December 2018, the Victorian Energy Efficiency Target Regulations 2018 (2018 VEET Regulations) replaced the 2008 VEET Regulations.

In addition, from 11 December 2018 the PBA Regulations were updated to incorporate the addition of the benchmark rating method, which allow businesses to claim certificates for improvements in National Australian Built Environment Rating System (NABERS) rating in buildings.

The program operates by placing a liability on large energy retailers in Victoria to surrender a specified number of Victorian energy efficiency certificates (certificates) every year. Energy retailers with a liability under the program are known as 'relevant entities'. They can create certificates directly or purchase certificates in a competitive market.

We also ensure that all energy retailers captured by the program surrender the right amount of certificates every year, which depends on the certificates target set for the year and how much electricity or gas they sell.

The revenue generated through certificate sales enables accredited persons to pass on benefits to households and businesses, which makes these energy saving activities more affordable. As the program is market based, the level of incentive offered to consumers varies depending on the market activity and certificate price.

For the first three-year phase of the program (2009-11), the program target was 2.7 million certificates per annum. The target was increased to 5.4 million certificates per annum for the second three-year phase of the program (2012 to 2014), and maintained in 2015 and 2016. In 2018, the target was 5.9 million certificates. This has increased further to 6.1 million for 2018, 6.3 million in 2019, and 6.5 million in 2020.

Legislative framework

The VEET program is governed by the Act, the regulations, the specifications and the guidelines.

The Act

The Act came into operation on 1 January 2009. It is the primary legislation establishing the program and enables the authority of regulations and guidelines to be made.

We administer the Act and discharge our regulatory responsibilities as set in regulations and guidelines. One of our main functions is to enforce the imposition of energy efficiency shortfall penalties on retailers captured by the program if they fail to surrender sufficient certificates in any given compliance year.

The Act also requires certain matters relating to the program to be specified through an Order in Council published in the Government Gazette.

The Regulations

The Act is supported by the Victorian Energy Efficiency Target Regulations 2008 (the VEET Regulations) and the Victorian Energy Efficiency Target (Project-Based Activities) Regulations 2018 (PBA Regulations). The VEET Regulations were remade in December 2018.

The VEET Regulations specify what activities can create certificates, and include details regarding the products that can be installed, installation requirements and the greenhouse gas abatement for each activity.

The VEET Regulations have been updated 19 times over the years since the commencement of the program on 1 January 2009. Amendments to the regulations have included:

- setting new targets for the second phase of the program (2012 to 2014) of 5.4 million certificates per annum
- expansion of the scope of the program to include non-residential premises
- addition of new prescribed activities
- deletion of prescribed activities
- amendments to the nature and/or abatement value for existing prescribed activities
- the introduction of scheduled activity premises
- the separation of regulations and technical specifications.

The PBA Regulations were introduced on 19 June 2018. They set out the requirements for project-based activities and introduced the first method of calculating energy efficiency savings – measurement and verification.

The Specifications

In remaking the VEET Regulations in December 2018, DELWP introduced a new legal instrument, known as the VEU Specifications. The VEU Specifications contain the technical requirements for activities prescribed in the VEET Regulations and the methods and variables for determining the

amount of greenhouse gas equivalent emissions reduced by each activity prescribed in the VEET Regulations.

Under the PBA Regulations, there are two separate specification documents:

- The Measurement and Verification in the Victorian Energy Upgrades Program - Specifications which sets out the rules for defining the methods and variables to be used when calculating the abatement of a prescribed activity using the Measurement and Verification method

The Benchmark Rating in Victorian Energy Upgrades - Specifications'. sets out the rules for defining the methods and variables to be used when calculating the abatement of a prescribed activity using the Benchmark Rating method

The VEET guidelines

We issue guidelines to provide a framework for regulatory and administrative processes under the program. This includes, but is not limited to:

- how program participants can become accredited
- how certificates can be created, registered, transferred, withdrawn or surrendered
- details on how to undertake some prescribed activities
- what occupational health and safety training is required for installers
- the process that retailers captured under the program need to follow to surrender certificates
- how we undertake our validation, compliance and enforcement responsibilities
- the records that accredited persons and relevant entities need to keep and provide
- what information we collect for our registers of accredited persons and certificates
- any other matters relevant for us to discharge our duties under the program.

Role and functions of the commission

The commission is responsible for administering the Act and regulating the creation of certificates under the program. Our responsibilities include to:

- accredit persons who may create certificates
- monitor and enforce compliance of the creation of certificates,
- administer registration, transfer and surrender of certificates
- approve energy efficient products that can be installed under the program
- monitor compliance with the Act, VEET Regulations, PBA Regulations and guidelines
- issue shortfall statements and enforce energy efficiency shortfall penalties
- maintain electronic registers¹⁵

¹⁵ The registers are maintained at www.veet.vic.gov.au

Accredited persons

Individuals and companies must be accredited under the program to create certificates. Each business or person that we accredit (known as accredited person) under the program is allocated a unique registration number that is publicly available on the Register of Participants on the VEU Registry. We charge a once-only \$500 fee to cover some of the administrative costs of assessing and accrediting an applicant.

We also process applications for account holders in the program. An account holder may trade (that is, buy and sell) certificates but may not create them. All accredited persons must hold accounts. We do not charge a fee to become an account holder.

Creation, registration, transfer and surrender of certificates

Certificates are created electronically by accredited persons and we assess their validity before registering them. We adopt a risk-based assessment approach. During the assessment process we may issue a request for further information to the accredited persons that created the certificates based on the risk ratings of the accredited person and the activity. We also use 'risk flags' and trends analysis that direct our assessment on claimed certificates.

Our compliance checks include:

- requests for further information seeking supporting evidence for certificates claimed
- random consumer phone audits
- requests for internal field and phone audit results.

Where the information provided by an accredited person is insufficient to demonstrate that certificates have been properly created, we give the accredited person the option of withdrawing the certificates.

For certificates to be registered, the accredited person must pay a \$1 fee per certificate. This fee covers the administrative costs of assessing, registering, transferring, surrendering and auditing certificates. Once paid, the created certificates are registered and available for transfer by its creator. We maintain a publicly accessible register on our website that records the creation, transfer of ownership and surrender of certificates.

Energy retailers captured by the program (known as relevant entities) are required to surrender certificates to acquit their required energy efficiency liabilities for a compliance year. They need to offer to surrender sufficient certificates by 30 April of the following year. We require a third-party verified audit of their acquisition statements.

Approval of energy efficient products

Before certificates can be created, we must have approved the product and listed it in our Register of Products. This approval process is intended to provide accredited persons with assurance that the products they intend to install meet program requirements. It also streamlines the process for registration of certificates following the installation of the products.

Applications can be made by account holders and must be accompanied by documentary evidence that a product meets the criteria set out in the principal Regulations. We assess applications and write back to applicants explaining the outcome. If we approve the product, we add it to the Register of Products and accredited persons may use these products to create certificates.

Compliance and enforcement

Our key goal is to safeguard the integrity of the program by maintaining confidence in the energy efficiency upgrades delivered to consumers, and providing confidence to participants on a fair and level-playing field.

We implement an integrated risk-based framework to all our regulatory activities and to regularly engage with stakeholders to discuss improvements.

We seek to continuously improve the integrity of the program while managing its expansion and added risks.

We build the program's integrity through an effective and integrated risk-based compliance program before and after certificate creation and registration.

Our tools to build system-wide compliance levels are participant accreditation, participant audits, certificate registration audits and product registration. Our tools to address specific compliance issues are targeted investigations, field audits and independent product testing.

The compliance-driven functions we undertake are:

- audits on relevant entity statements to ensure they surrender enough certificates to match their liabilities under the program
- interviews and audits of proposed program participants before becoming accredited persons or when extending their accreditation
- audits of accredited persons to ensure their systems and processes remain robust and provide confidence in the installations they undertake
- risk-based validations of representative activity batches (maximum 10,000 certificates per batch)
- risk-based audits (phone, desktop or field audits) of the installations undertaken to ensure consumers have received the upgrades registered with us
- registration of products and independent testing of high-volume products that can be installed under the program, to ensure they meet the required performance and installation standards.

As per our published compliance and enforcement policy, our approach to enforcement is to resolve any performance issues using administrative tools, where possible and appropriate. This means the largest outcome of our compliance activities is the voluntary withdrawal or surrender of certificates by accredited persons. If we believe that non-compliance has occurred and that an administrative solution is not appropriate or an administrative solution has not been complied with, we may commence enforcement action.

Enforcement action may include:

- warning or imposing conditions on an accredited person's accreditation
- requiring an accredited person to surrender certificates found to be improperly created
- suspending or revocation of an accredited person's accreditation to create certificates
- seeking declarations and orders from a court for a failure to pay a shortfall penalty or a failure to comply with a certificate surrender notice

- initiating a prosecution if a participant fails to comply with certain provisions that are offences under the Act.

Shortfall statements and enforced energy efficiency shortfall penalties

Relevant entities determine the number of certificates they are required to surrender each year by calculating their annual greenhouse gas emissions liability. This liability is calculated by multiplying each of that year's electricity and gas acquisitions with the relevant greenhouse gas reduction rate. For 2018, the greenhouse gas reduction rates were fixed at 0.16222 for electricity and 0.00818 for gas.

We may issue a shortfall statement imposing an energy efficiency shortfall penalty on a relevant entity if it fails to surrender sufficient certificates to acquit its liability in a given year. This civil penalty is determined by multiplying the relevant entity's certificate shortfall (in tonnes of carbon dioxide equivalent of greenhouse gases) for that year by the prescribed shortfall penalty. In accordance with section 28 of the Act, for 2018 the shortfall penalty rate was fixed at \$47.75 per tonne of carbon dioxide equivalent of greenhouse gases.

Maintain electronic registers

We maintain the following electronic registers associated with operating the program as required by the Act, VEET Regulations and PBA Regulations:

- Register of Participants – contains the names and details of accredited persons and account holders
- Register of Victorian Energy Efficiency Certificates – contains information about certificates
- Register of Products – contains information of products that may be used
- Register of Approved Projects Plans – contains information on projects that have been approved in principle under the project-based activities method
- Register of Approved Measurement and Verification professionals – contains the names and details of professionals that can undertake project impact assessment validation functions for project-based activities

We also maintain a Register of Scheduled Activity Premises (a register which contains the sites classified as scheduled activity premises) to provide transparency and clarity for program participants in order to determine which premises are SAPs.

These registers are publicly accessible on the VEU registry website www.veu-registry.vic.gov.au

Appendix B: Certificates created and registered

Table 20: Activities undertaken – installations, certificates created and certificates registered

Activity type	Installations	VEECs created	VEECs registered	Installations	VEECs created	VEECs registered
Water heating activities	1 Jan 2018 – 31 Dec 2018			1 Jan 2009 – 31 Dec 2018		
1A - Water heating - Gas/LPG storage replacing electric resistance	93	3,782	3,982	4,966	198,116	197,178
1B - Water heating - Gas/LPG instantaneous replacing electric resistance	1,138	49,427	49,641	21,675	926,542	918,862
1C(08) - Water heating - Electric boosted solar replacing electric resistance (revoked)	-	-	-	19,171	812,166	811,226
1D(08) - Water heating - Gas/LPG boosted solar replacing electric resistance (revoked)	-	-	-	6,505	393,007	387,623
1D(18) - Water heating - Heat pump replacing electric resistance	4	215	-	4	215	-
1E(08) - Water heating - Electric boosted solar replacing electric resistance (revoked)	5,028	232,251	249,210	18,899	864,803	833,972
1F - Water Heating - Gas/LPG boosted solar replacing electric resistance	49	2,916	2,732	813	48,193	46,797
2(08) - Water heating - Solar retro-fit kit (revoked)	-	-	-	7	155	155
3A - Water heating - Solar replacing gas/LPG (revoked)	-	-	-	8,711	91,084	90,715
3B - Water heating - Gas/LPG boosted solar replacing gas/LPG	41	435	413	923	9,885	9,786
4(08) - Water heating - Solar pre-heater (revoked)	-	-	-	3	21	21
Space heating & cooling activities	1 Jan 2018 – 31 Dec 2018			1 Jan 2009 – 31 Dec 2018		
5(08) - Space heating - Ducted gas replacing ducted gas (revoked)	423	5,645	5,581	5,519	69,940	69,615
5(18) - Space heating - Ducted gas heater	2	31	-	2	31	-

Activity type	Installations	VEECs created	VEECs registered	Installations	VEECs created	VEECs registered
6(08) - Space heating - Ducted gas replacing central electric resistance heater (revoked)	66	17,831	16,463	2,360	665,414	641,886
7(08) - Space heating - Ducted air heat pump replacing ducted air heat pump (revoked)	-	-	-	1	6	6
8(08) - Space heating - Ducted air heat pump replacing central electric heater (revoked)	4	801	676	42	6,914	6,315
9(08) - Space heating - Gas/LPG space heater (revoked 9/12/18)	133	1,514	1,199	2,981	25,315	24,955
10(08) - Space heating - Space air to air heat pump (revoked)	105	1,071	979	164	1,717	1,589
20(08) - High efficiency ducted gas heater (revoked)	26	142	142	632	3,712	3,708
23 – Decommissioning refrigerative air conditioner and installing evaporative cooler	-	-	-	-	-	-
28 - Gas heating ductwork	2	30	30	859	16,308	538
Space conditioning activities	1 Jan 2018 – 31 Dec 2018			1 Jan 2009 – 31 Dec 2018		
11(08) - Ceiling insulation (revoked)	-	-	-	1,168	56,918	56,918
12 - Underfloor insulation	-	-	-	1	17	17
13 - Double glazed window	-	-	-	1	81	81
14 - Retrofit of external window	-	-	-	-	-	-
15 - Weather sealing	656	2,444	2,655	342,974	1,169,020	1,076,862
Lighting activities	1 Jan 2018 – 31 Dec 2018			1 Jan 2009 – 31 Dec 2018		
16 - Lighting (revoked)	-	-	-	555,181	5,270,067	5,107,907
21A(08) - Lighting - Incandescent GLS lamp replacement (revoked)	9,018	106,881	101,482	416,912	4,142,765	3,656,820
21A(18) - Lighting - Incandescent GLS or CFL replacement	2	3	-	2	3	-
21B - Lighting - Incandescent reflector lamp replacement	78,010	334,504	223,707	195,388	851,099	682,768
21C - Lighting - 12V halogen lamp	4,479	88,009	93,630	356,717	7,839,096	7,655,669

Activity type	Installations	VEECs created	VEECs registered	Installations	VEECs created	VEECs registered
replacement						
21D - Lighting - 12V downlight and transformer replacement	829	12,941	17,265	43,542	737,158	718,524
21E - Lighting - Mains voltage GU10 halogen lamp replaced with GU10 lamp	1,495	22,721	23,351	26,686	353,126	336,905
21F – Installing a low energy lamp in place of an existing mains voltage halogen fitting	-	-	-	-	-	-
34 Non J6(08) - Building based lighting upgrade (revoked)	19,275	5,425,787	5,453,752	64,314	18,552,501	16,218,973
34 J6(08) - Building based lighting upgrade (revoked)	4	6,513	6,513	19	25,580	24,800
34 Non J6(18) - Building based lighting upgrade	25	7,734	-	25	7,734	-
27 - Public lighting	-	-	-	-	-	-
35(18) - Non-building based lighting	-	-	-	-	-	-
Refrigerator/freezer activities	1 Jan 2018 – 31 Dec 2018			1 Jan 2009 – 31 Dec 2018		
18 - Purchasing HE refrigerator or freezer (revoked)	-	-	-	1	1	1
19 - Destruction of pre-1996 refrigerator or freezer	9,886	49,359	46,650	107,978	497,683	485,011
22 - High efficiency refrigerator and freezer	3	6	6	263	509	505
32 - Refrigerated display cabinet	160	55,455	48,602	326	119,829	104,785
Standby power controller activities	1 Jan 2018 – 31 Dec 2018			1 Jan 2009 – 31 Dec 2018		
29(08) - Standby power controller (revoked)	2,353	7,744	6,066	1,412,633	11,396,859	10,171,949
Water efficiency activities	1 Jan 2018 – 31 Dec 2018			1 Jan 2009 – 31 Dec 2018		
17 - Low flow shower rose	4,460	15,093	16,564	394,176	1,214,215	1,139,377
35(08) – Low flow trigger nozzle (revoked)	-	-	-	-	-	-
36 - Water efficient pre-rinse spray valve	-	-	-	7	59	-
Appliances	1 Jan 2018 – 31 Dec 2018			1 Jan 2009 – 31 Dec 2018		
24 - High efficiency television	-	-	-	25,116	129,387	125,358

Activity type	Installations	VEECs created	VEECs registered	Installations	VEECs created	VEECs registered
25 - Energy efficient clothes dryer	2	8	8	79	323	323
26 - High efficiency pool pump	-	-	-	899	7,298	7,282
30 - In-home display unit	1,271	3,275	3,099	54,740	124,204	121,851
Motors	1 Jan 2018 – 31 Dec 2018			1 Jan 2009 – 31 Dec 2018		
31 – Installing a high efficiency motor	-	-	-	-	-	-
33 – Refrigeration /ventilation fan motor	-	-	-	39	3,078	1,737
Project-based activities (PBA)	1 Jan 2018 – 31 Dec 2018			1 Jan 2009 – 31 Dec 2018		
PBA measurement and verification	1	136	136	1	136	136
PBA benchmark rating	-	-	-	-	-	-
Total	139,043	6,454,704	5,940,872	4,093,425	56,632,290	52,411,591

NOTE: After creation, certificates are assessed against criteria in the legislation before being validated and registered, which accounts for apparent discrepancies in the table between created and registered certificates. The status of all certificates, including those pending registration validation, pending registration payment and withdrawn, are listed on the VEU website at www.veu-registry.vic.gov.au and updated daily.