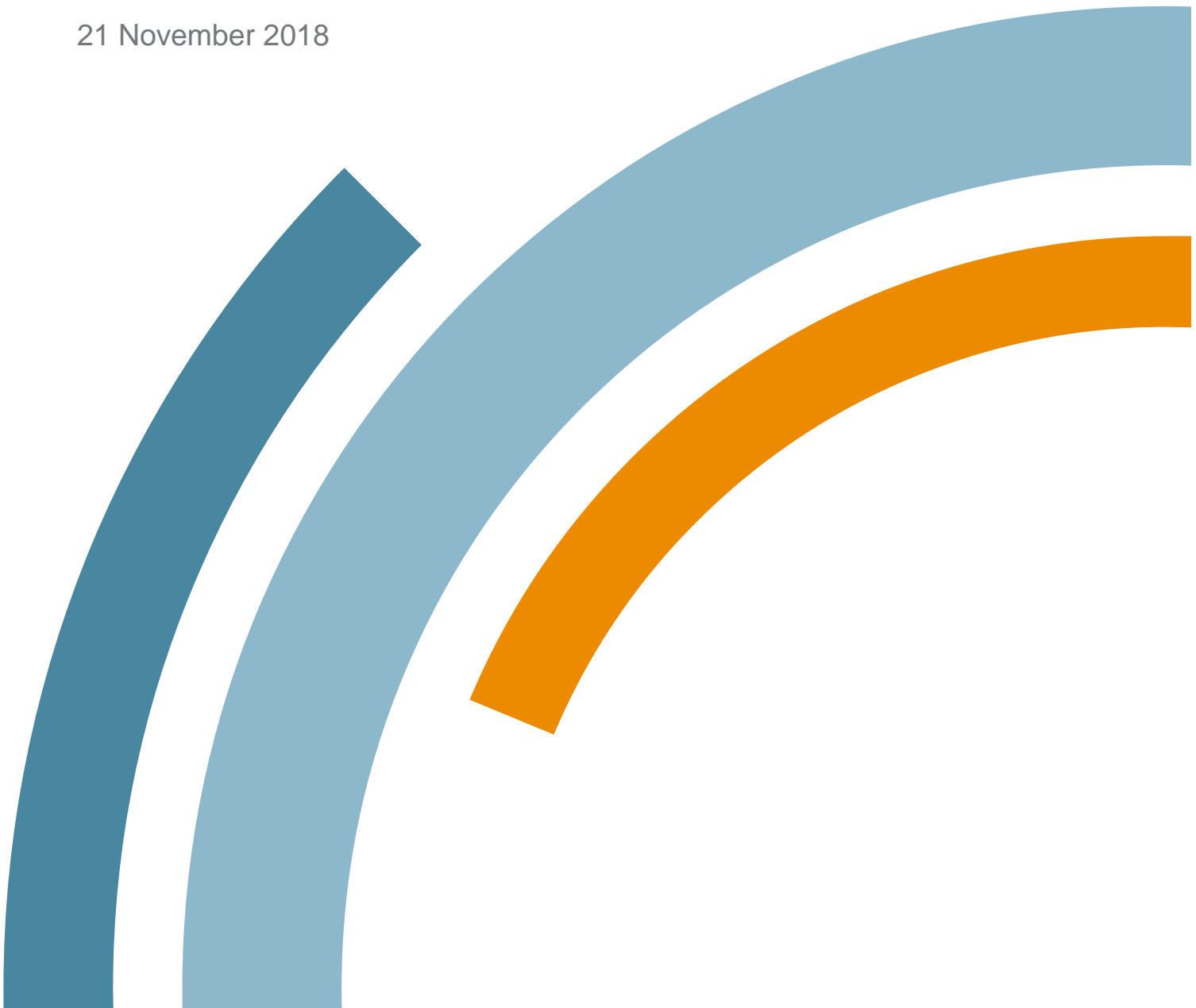




Water Heating and Space Heating/Cooling Product Application Guide

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About this guide

This guide provides product applicants (whether they be accredited persons (APs), product manufacturers or other stakeholders) with instructions and our documentation requirements for applying for a lighting product to be registered on our Register of Products.

The product categories which are covered by this guide are:-

- Water heating products
 - Product category 1A: Gas or LPG storage water heater
 - Product category 1B: Gas or LPG instantaneous water heater
 - Product category 1C: Electric boosted solar water heater
 - Product category 1D: Heat pump water heater
 - Product category 1F& 3B: Gas or LPG boosted solar water heater
- Space heating/cooling products
 - Product category 5A: High-efficiency ducted gas
 - Product category 7A: Ducted air to air heat pump
 - Product category 9A: Gas or LPG space heater
 - Product category 10A: Space air to air heat pump
 - Product category 23A: Ducted evaporative cooler

This guide is divided into two sections:

- Section 1 provides information on GEMS products under the program
- Section 2 provides information on how to use our product criteria and evidentiary tables
- Section 3 provides detail of the documentary evidence required for water heating products.
- Section 4 provides detail of the documentary evidence required for space heating/cooling products.

This guide must be read in conjunction with our Application Guide for Product Applicants which provides product applicants with information on:

- our Register of Products
- our product application and assessment process, including things to bear in mind throughout the process
- some product application functionality

Who should use this guide

You should use this guide if you are

- seeking to apply for lighting products to be listed on our Register of Products under the Victorian Energy Upgrades program.
- interested in understanding the product application requirements for lighting products under the VEU program

You will need to hold a VEU account in order to apply for listing of products under the program. A link to create a new VEU account can be found at www.esc.vic.gov.au/veu-become-accredited

Register of Products

We are required by the VEET Regulations to maintain a register of energy saving products that, if listed in the register, products may be installed under a prescribed activity to enable the creation of Victorian energy efficiency certificates (VEECs).

To be listed on our Register of Products, a product must be capable of performing to the minimum criteria specified in the relevant activity of the VEET Regulations.

The Register of Products is published at www.veu-registry.vic.gov.au/register-products. The register provides businesses accredited to participate in the Victorian Energy Upgrades (VEU) program with a list of products that may be installed for each relevant prescribed activity. The register includes functionality for users to refine their search based on product brand, model, performance specifications, application status and effective date. The register also allows users to export the register for external reference.

APs are not required to submit applications to install products that are already listed on the Register of Products.

APs should note that we must remove a product from the Register of Products if we are satisfied the product does not meet the product criteria listed in the VEET Regulations and/or the minimum energy efficiency requirements in the VEU specifications.

We may remove a product if Energy Safe Victoria gives us written notice that a product is unsafe. We may remove or modify a product listing in the register further to a request from stakeholders – see Section 3.2 of the Application Guide for Product Applicants.

Upon its removal from the register, installations involving that product will not be eligible for the creation of VEECs.

All users of the Register of Products should familiarise yourselves with the terms and conditions of listing a product on the register and the VEU Registry disclaimer (see <http://www.veu-registry.vic.gov.au/>).

Seeking assistance

We appreciate the time and effort that businesses put into their applications and product officers will endeavour to work with you during the assessment process. If you encounter difficulties preparing your application, the commission website should be your starting point. If your question remains unanswered, or if you encounter technical difficulties with the portal, contact VEU support on (03) 9032 1310 or VEU@esc.vic.gov.au

If you have submitted a product application, please use the designated 'notes' field in the online product assessment tool to communicate directly with the product officer responsible for assessing your application.

Legal context for this guide

We have prepared this guide as a general summary of relevant parts of:-

- Victorian Energy Efficiency Target Act 2007 (the Act)
- Victorian Energy Efficiency Target Regulations 2018 (the VEET Regulations)
- Victorian Energy Upgrades Specifications 2018 (the VEU specifications)
- Victorian Energy Efficiency Target Guidelines (the guidelines)

All above legislative documents are available at www.esc.vic.gov.au/veu-legislation

This guide should not be relied upon as substitute for legal advice and should be read in conjunction with the above source documents. In the event of inconsistency between this guide and the source documents, the content in the source documents apply.

1. GEMS products under the program

The Greenhouse and Energy Minimum Standards (GEMS) Regulator is based in the Commonwealth Department of the Environment and Energy and is responsible for administering the GEMS Act, maintaining the GEMS Register, and monitoring and enforcing compliance with the GEMS Act. The specific requirements for each product regulated under the GEMS Act, including Minimum Energy Performance Standards (MEPS) and Energy Rating Labelling (ERL) requirements, are set out in a further legislative instrument specific to that product type called a GEMS Determination.

Products regulated for energy efficiency in Australia and New Zealand must be registered and meet a number of legal requirements before they can be sold or offered for supply.

1.1. GEMS products eligible under the VEU program without commission approval

For some activities with products which are listed on the GEMS Register (including the product categories listed below), the VEET Regulations and VEU Specifications provide that the products only need to be listed on the GEMS Register at the time of installation and creation of VEECs:

- Product category 7A: Ducted air to air heat pump
- Product category 10A: Room air to air heat pump

However, from an IT systems perspective, all products need to be recorded in our Register of Products in order to create VEECs in our registry system. We will be populating our register on a periodic basis (at least annually) with eligible products from the GEMS Register. In most circumstances, you should not need to apply to us to have a product listed on our register for these activities. However, if an update has been made to the GEMS Register which has yet to be reflected in our register, you will be able to apply to us to have this product listed on our register (with minimal supporting documentation).

1.2. Adding a GEMS product to the Register of products

If a product which is listed in the GEMS Register is not listed on our register, you will be able to apply to us, using the online product application tool, to have this product listed on our register. Minimal supporting documentation is required to be provided as part of your application. The product will need to meet the minimum eligibility

To add GEMS products to our Register of Products, the following requirements must be met:

- The brand and model of the product must comply with the relevant GEMS determination and be registered on the GEMS Register.
- The product category must meet the product criteria specified in the VEET Regulations and the minimum energy efficiency requirements specified in the VEU specifications.
- Evidence of GEMS registration must be submitted by submitting a screenshot of the product listed in the GEMS Register showing the minimum performance criteria to demonstrate compliance (accessible via https://reg.energyrating.gov.au/comparator/product_types/)

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2. Our product criteria and evidentiary tables

Sections 3 and 4 of this document details:

- the program's minimum product performance requirements,
- the product's eligibility criteria
- the program's evidentiary requirements

for each product category that must be submitted to us in support of your application to have a product listed on the Register of Products.

Each table corresponds to the relevant product category to which the product belongs and lists the minimum requirements and the documentary evidence that must be submitted to demonstrate compliance.

For most of the product categories listed below, you will be required to submit an independent third party verification of the product performance against established safety and performance standards, such as a test report from an accredited laboratory.

The capacity of a product to perform to specified standards is a requirement of listing on the Register of Products and the valid creation of Victorian energy efficiency certificates (VEECs). We do not accept deviations from the listed standards. If you are unable to provide sufficient evidence that a product is capable of meeting the minimum criteria, the product will not be approved.

3. Requirements for water heating products

3.1. Product categories 1A and 1B: Gas water heaters

Product category number	Product category	Product criteria	Documentary evidence
1A	Gas or LPG storage water heater	Gas or liquefied petroleum gas storage water heater certified by an accredited body as achieving a minimum 5 star rating when tested in accordance with AS/NZS 5263.1.2.	AGA Certificate or listing on AGA directory demonstrating compliance with the product criteria.
1B	Gas/LPG instantaneous water heater	Gas or liquefied petroleum gas instantaneous water heater certified by an accredited body as achieving a minimum 5 star rating when tested in accordance with AS/NZS 5263.1.2.	AGA Certificate or listing on AGA directory demonstrating compliance with the product criteria.

3.2. Product categories 1C, 1D, 1F, and 3B: Electric boosted solar and heat pump water heaters

We work with an external service provider to assess whether solar water heating products meet the minimum eligibility requirements of the VEET Regulations. We also publish additional solar water heater specifications on our Register of Products, which are not relevant to the calculation of VEECs, but which assist licenced plumbers and builders to identify which solar water heater products are capable of complying with the *Plumbing Regulations 2008 (Vic)*.

Product category number	Product	Product criteria
1C	Electric boosted solar water heater	<ul style="list-style-type: none"> • Certified to AS/NZS 2712. • Achieves 60% annual energy savings when determined in accordance with AS/NZS 4234 and the ESC guidance document on annual solar calculations, when modelled in climate zone 4 (Melbourne). • All certifications and test reports must show the exact brand and models proposed under the schedule.

Product category number	Product	Product criteria
		<ul style="list-style-type: none"> • The proposed products, components, brands and models must reconcile with the brand and the models shown on the supporting documents. <ul style="list-style-type: none"> – If a representative model had been tested, an independent organisation—such as an NATA accredited test laboratory, JAS-ANZ accredited approval provider or equivalent—must make a declaration that proposed models are the same as the product tested. – Alternatively, a suitability accredited laboratory can also make the declaration after inspecting the products.
1D	Heat pump water heater	<ul style="list-style-type: none"> • Certified to AS/NZS 2712 • Achieve 60% annual energy savings when determined in accordance with AS/NZS 4234 and the ESC guidance document on annual solar calculations, when modelled in climate zone 4 (Melbourne). • All certifications and test reports must show the exact brand and models proposed under the schedule. • The proposed products, components, brands and models must reconcile with the brand and the models shown on the supporting documents. <ul style="list-style-type: none"> – If a representative model had been tested, an independent organisation—such as an NATA accredited test laboratory, JAS-ANZ accredited approval provider or equivalent—must make a declaration that proposed models are the same as the product tested. – Alternatively, a suitability accredited laboratory can also make the declaration after inspecting the products.
1F & 3B	Gas or LPG boosted solar water heater	<ul style="list-style-type: none"> • Certified to AS/NZS 2712. • Achieves 60% annual energy savings when determined in accordance with AS/NZS 4234 and the ESC guidance on annual solar calculations, and when modelled in climate zone 4 (Melbourne). • All certifications and test reports must show the exact brand and models proposed under the schedule. • The proposed products, components, brands and models must reconcile with the brand and the models shown on the supporting documents. <ul style="list-style-type: none"> – If a representative model had been tested, an independent organisation—such as an NATA accredited test laboratory, JAS-

Product category number	Product	Product criteria
		<p>ANZ accredited approval provider or equivalent—must make a declaration that proposed models are the same as the product tested.</p> <ul style="list-style-type: none"> – Alternatively, a suitability accredited laboratory can also make the declaration after inspecting the products.

Product Category number	Product	Required template / guidance documents
1C/1D	Water heating – electric boosted solar or heat pump	<ul style="list-style-type: none"> • Template - application spreadsheet • Explanatory note – annual solar energy calculation methodology for domestic solar water heaters
1F/3B	Water heating – gas / LPG boosted solar	<ul style="list-style-type: none"> • Template - application spreadsheet • Explanatory note – annual solar energy calculation methodology for domestic solar water heaters

Applicants must follow the naming conventions shown below. The proposed brands and models must reconcile precisely with the brands and the models on the supporting documents. Any supporting document with unexplained model variations will not be accepted.

A range of supporting evidence must be provided with your application in order for the service provider to assess whether the solar water heater product meets the minimum eligibility requirements listed in the Principal Regulations.

The commission website provides various templates and guidance documents to assist manufacturers when modelling solar water heater products. The following templates and guidance documents must be used by applicants.

All supporting evidence must be uploaded via the online product application tool in the **correct format** and with the **correct naming conventions** as stipulated in the following table.

Product Category Number	Product	Requirement	Documentary evidence	Format	Naming convention and upload format
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1C 1D 1F/3B	Electric boosted solar	Application spreadsheet	You can apply for multiple products under the one application. Please provide one completed application spreadsheet listing specifications for each model being applied for as part of the current application.	excel	As more than one product can be included in the excel spreadsheet the name needs to include the date and the brand(s) of product(s) in the following format: BrandName_YYYYMMDD_commission.xls. e.g. for a solar water heater from Brand ABC provided on 2 January 2014 the filename would be ABC_20140102_ESC.xls
	Heat pump water heater				
	Gas / LPG boosted solar				
		TRNSYS model	TRNSYS model for the product, including decks and all input and output files.	text file	Input (deck), output, and list files and, if appropriate, file describing incident angle modifier. Brandname_model number_ESC.lst, Brandname_model number_ESC.DCK, Brandname_model number_ESC.out and if appropriate Brandname_ModelNumber_IAM.txt
	TRNSYS modelling reports (If available)	AS/NZS 4234:2008 Reports produced by modellers that include simulations as specified by the commission (including the appropriate tables from AS/NZS 4234 Appendix C).	pdf	Brandname_model number.pdf	
	Accreditation	AS/NZS 2712	pdf	Brandname_ModelNo_2712.pdf	

	certificate			
	Thermal performance of solar collector	Test report: AS/NZS 2535.1 or equivalent (only required for systems incorporating a solar collector).	pdf	Brandname_CollectorModelNo_2535.pdf
	Thermal performance of heat pump (COP and power correlations)	Test report: AS/NZS 5125.1 (only required for systems incorporating heat pumps).	pdf	Brandname_HeatPumpModelNo_5125.pdf
	Thermal performance of all tanks including electric heated tanks	Test report: AS/NZS 4692 or equivalent.	pdf	Brandname_TankModelNo_4692.pdf
	Test report for all storage and in-line gas heaters	Test report: AS 4552 or equivalent Including as appropriate; start up capacity, maintenance rate, burner capacity and efficiency.	pdf	Brandname_ModelNo_4552.pdf
	Pump specifications	Test report: AS/NZS 4234:2008 section 2.2.5 including test report for	pdf	PumpBrandname_PumpModelNo.pdf

	measured flow rate and power measured flow rate in standard configuration. For variable flow systems include a description of the flow rate control algorithm.		
Controller specifications	Description of the thermostat controller algorithm and the pump control set points or algorithm. Must include legionella control method.	pdf	ControllerBrandname_ControllerModelNo.pdf
No load system operation test result	AS/NZS 2712:2007 No load system operation test report for the system or family of systems applied for (<i>solar systems only</i>).	pdf	Brandname_NoLoadModelNo_2712.pdf
Schematic of the system and bill of materials	Parts list including insulation included or specified for piping etc. schematic diagram	pdf	Brandname_ModelNo_schematic.pdf

		including all relevant control valves and flow meter if appropriate, solar or heat pump flow and return pipes and temperature sensor location/s.		
	Dimensioned diagram of the tank	Dimensioned inner tank drawing including cold inlet and hot outlet positions, element position (<i>if fitted</i>), flow and return positions for auxiliary heater (<i>if appropriate</i>), solar or heat pump flow and return ports and temperature sensor location/s.	pdf	Brandname_TankModelNo_dimension.pdf

4. Requirements for space heating/cooling products

4.1. Product category 5: High efficiency ducted gas

Product category number	Product	Product criteria	Documentary evidence
5	Ducted gas space heater	<p>A product that:</p> <ul style="list-style-type: none"> is certified by an accredited body to achieve a minimum 5 star rating when tested and rated in accordance with AS/NZS 5263.1.6 has a minimum thermal output (or capacity) of 10 kW as determined in accordance with AS/NZS 5263.1.6 	AGA certificate or listing on AGA directory demonstrating compliance with the product criteria.

4.2. Product category 7: Ducted air to air heat pump

Product category number	Product	Product criteria	Documentary evidence
7	Ducted air to air heat pump	<p>A product that:</p> <ul style="list-style-type: none"> complies with the GEMS (Air Conditioners and Heat Pumps) Determination 2013 (Cth) has a minimum RTHC of 10kW at the H1 temperature condition has a minimum ACOP of: <ul style="list-style-type: none"> 3.7, if the RTHC is less than 19kW 3.9 if the RTHC is 19kW or greater 	Evidence of GEMS registration - downloadable product list (CSV file) from GEMS (www.energyrating.gov.au)

4.3. Product category 9: Gas or LPG space heater

Product category number	Product	Product criteria	Documentary evidence
9	Room gas or LPG heater	<p>A product that:</p> <ul style="list-style-type: none"> is certified by an accredited body to achieve a minimum 4 star rating when tested and rated in accordance with AS/NZS 5263.1.3 has a minimum thermal output (or capacity) of 2kW as determined in accordance with AS/NZS 5263.1.3. 	AGA certificate or screen shot of listing on AGA directory demonstrating compliance with the product criteria.

4.4. Product category 10: Room air to air heat pump

Product category number	Product	Product criteria	Documentary evidence
10	Room air to air heat pump	<p>A product that:</p> <ul style="list-style-type: none"> complies with the GEMS (Air Conditioners and Heat Pumps) Determination 2013 (Cth) achieves minimum RTHC is of 2 kW at the H1 temperature condition has a minimum ACOP of: <ul style="list-style-type: none"> 4.2, if the RTHC is less than 3kW 4 if the RTHC is 3kW or greater 	Evidence of GEMS registration - downloadable product list (CSV file) from GEMS (www.energyrating.gov.au).

4.5. Product category 23: Ducted evaporative cooler replacing a refrigerative air conditioner

Product category number	Product	Product criteria	Documentary evidence
23	Ducted evaporative cooler	<p>A product that:</p> <ul style="list-style-type: none"> complies with and is tested in accordance with AS 2913 has a minimum 7 kW rated output has a minimum effective energy efficiency ratio (EER) of 20 based on measurements of nominal rating (kW) and electricity consumption undertaken according to AS 2913, and calculated according to the formula: $EER = 0.2 \times EER_{FL} + 0.3 \times EER_{50\%} + 0.5 \times EER_{20\%}$ <p>Where:</p> <ul style="list-style-type: none"> EER_{FL} is the nominal rating (kW) ÷ electricity consumption (kW) at rated airflow $EER_{50\%}$ is the nominal rating (kW) ÷ electricity consumption (kW) at 50% rated airflow $EER_{20\%}$ is the nominal rating (kW) ÷ electricity consumption (kW) at 20% rated airflow. 	<p>Test report showing compliance with AS 2913-2000.</p> <p>Note that the test report must show all the performance variables (EER_{FL}, $EER_{50\%}$, and $EER_{20\%}$).</p>

Glossary

Term	Definition
(the) Act	Victorian Energy Efficiency Target Act 2007
Accredited body	In relation to a product, this means a body accredited under the Joint Accreditation System of Australia and New Zealand to give product certification or component certification of a product.
ACOP	Annual coefficient of performance is the ratio of a product's rated heating capacity to its effective power input at its rated heating capacity.
AGA	Australian Gas Association
AGA product Directory	The AGA publishes a Directory of all type tested products that are currently certified by AGA. Available at: https://www.aga.asn.au/product_directory
AP	An accredited person is a business that has been accredited by the commission to operate within the VEU program. An AP is entitled to create VEECs through the undertaking of energy efficient activities which are prescribed under the Principal Regulations.
Business premises	Under the VEU program, business premises are defined as: (i) the premises that is not registered as a residential premises (see definition below), and (ii) the premises not registered as a 'scheduled activity premises' unless it has been 'opted in' to the VEU program pursuant to Regulation 10AA of the Principal Regulations.
ESC	Essential Services Commission
ESV	Energy Safe Victoria
GEMS	Greenhouse and Energy Minimum Standards
GEMS Act	Greenhouse and Energy Minimum Standards Act 2012 (Cth)
GEMS Register	Means the register kept by the Greenhouse and Energy Minimum Standards Regulator under the GEMS Act and made available to the public at http://reg.energyrating.gov.au/comparator/
NATA	National Association of Testing Authorities
VEET Regulations	The Victorian Energy Efficiency Target Regulations 2018

Term	Definition
Residential Premises	A building classified under part A3 of the Building Code of Australia as a class 1, 2, 3, or 4 building.
RFI	Request for further information
RTHC	Rated total heating capacity
VEEC	Victorian energy efficiency certificate. Each VEEC represents one tonne of carbon dioxide equivalent (CO ₂ -e) abated by the prescribed activity.
VEU	Victorian Energy Upgrades program
VEU specifications	Specifications published by the Secretary under regulation 35 of the VEET Regulations

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