



Water Heating and Space Heating and Cooling Product Application Guide

3 June 2025



Acknowledgement

We acknowledge the Traditional Owners of the lands and waterways on which we work and live.

We acknowledge all Aboriginal and Torres Strait Islander communities, and pay our respects to Elders past and present.

As the First Peoples of this land, belonging to the world's oldest living cultures, we recognise and value their knowledge, and ongoing role in shaping and enriching the story of Victoria.

An appropriate citation for this paper is:

Essential Services Commission 2025, Water Heating and Space Heating and Cooling Product Application Guide, 3 June

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Contents

Guide overview	3
1. Product requirements	5
1.1. Product criteria and documentation	5
1.2. Applying for product to be listed on the VEU Register of Products	5
1.3. Electrical Equipment Safety System requirements	5
2. Water heating product performance and documentation requirements	7
2.1. Electric boosted solar and heat pump water heater product requirements	7
2.2. Modelling load sizes in accordance with VEU requirements	9
2.3. Supporting evidence	10
2.4. Required Documentary Evidence and Naming conventions	13
3. Space heating/cooling product performance and documentation requirements	17
3.1. High efficiency air conditioner product requirements	17
3.2. Gas heating ductwork	21
Appendix A: Annual Solar Energy Calculation Method for Domestic Solar and Heat Pump Water Heaters	24
Appendix B: User over-ride of time-limited boosting and one-shot boosting for solar water heating	27
Appendix C: AS/NZS 5125 reporting requirements	28
Appendix D: List of refrigerants (including alternative refrigerants) with their global warming potential (GWP) values	30
Appendix E: Anomalous TCSPF values and implications for category 6 products	32
Glossary	33

Guide overview

This guide provides product applicants with guidance on how to apply for water heating and space heating/cooling products so that they are eligible to be installed and create Victorian Energy Efficiency Certificates (VEECs) under the Victorian Energy Upgrades (VEU) program.

About this guide

This guide provides instructions on how to apply for approval of the following products:

- Water heating products
- Electric boosted solar water heater (VEU product categories 1C(i) and 3D(i),
- Heat pump water heater (VEU product categories 1D(i) and 3C (i),
- Space heating/cooling products
- Space heating and cooling products – high efficiency air conditioner (VEU product category 6)
- Gas heating ductwork (VEU product category 28).

Products approved for use under the VEU program will be listed on the VEU Register or Products at <https://veu.esc.vic.gov.au/vpr/s/productregister>

This guide is divided into the following sections:

- Section 1 – general information on product applications.
- Section 2 – the performance criteria and documentary evidence required for water heating products.
- Section 3 – the performance criteria and documentary evidence required for space heating/cooling products.

You should also read the commission's [Application Guide for Product Applicants](#), which provides additional information on:

- the application and assessment process, including things to bear in mind throughout the process.
- product application functionality in the VEU Registry.
- the VEU Register of Products.
- the fees payable for applying to add product(s) to the VEU Registry.

Who should use this guide

You should use this guide if you are:

- applying for water heating products to be approved for installation under the VEU program
- applying for space heating and/or cooling products to be approved and/or listed on our Register of Products under the VEU program
- interested in understanding the product application requirements for water heating and space heating/cooling products under the VEU program.

You must hold a VEU account in the [VEU Registry](#) to apply for product approval/listing for the above products. Find out more about creating a VEU account at www.esc.vic.gov.au/become-veu-accredited.

Seeking assistance

If you have questions about your application that are not covered in this guide, please contact us: Phone (03) 9032 1310, by email: veu@esc.vic.gov.au or via the 'Contact Us' form in the [VEU Registry](#).

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

View these documents 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. While the commission has made every effort to provide current and accurate information, you should obtain professional advice if you have any specific concern, before relying on the accuracy, currency or completeness of this information. In the event of inconsistency between this guide and the source documents, the content in the source documents apply.

1. Product requirements

1.1. Product criteria and documentation

Products must meet the specified requirements to be listed on the VEU Register of Products to create Victorian energy efficiency certificates (VEECs).

No deviations from the listed standards will be accepted.

The product categories listed in the VEU Register of Products are prescribed by the VEET Regulations and VEU Specifications, and are a matter for the Department of Energy, Environment and Climate Action.

You must review and familiarise yourself with the product performance and documentation requirements for each type of product before testing products and submitting product applications. You must 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.

If you are unable to provide sufficient evidence that a product meets the minimum specified requirements, the product will not be approved.

Consult the relevant sections of the VEET Regulations and VEU Specifications when preparing evidence for your application.

1.2. Applying for product to be listed on the VEU Register of Products

Applicants must submit a product application form for the relevant product category and supporting documentation as detailed in Section 2 of this guide.

You should read the Application Guide for Product Applicants for more information on the product application process, including product application fees which may apply.

Product application forms and the guide are available for download from the [commission website](#).

1.3. Electrical Equipment Safety System requirements

The Electricity Safety Act 1998 requires compliance with [Electrical Equipment Safety System \(EESS\)](#), which regulates the supply of [in-scope electrical equipment](#) (low voltage equipment for household, personal or similar use) in Victoria.

Persons importing or manufacturing in-scope electrical equipment must comply with the requirements of the EESS and register themselves as a responsible supplier. The EESS requires

risk levels 2 and 3 in-scope electrical equipment to be registered on the [EESS database](#). This registration also requires risk level 3 equipment to be certified by a [Recognised External Certification Scheme \(RECS\) or a Regulatory Authority \(RA\)](#).

As at the date of publication of this product guide, the following risk level classifications of the EESS apply:

- Heat pump water heaters without a heating element are classified as risk level 1 in-scope electrical equipment
- Air conditioners incorporating non-flammable or low flammable refrigerants are classified as risk level 2 in-scope electrical equipment
- Electric boosted solar water heaters, heat pump water heaters with a heating element, and air-conditioners incorporating flammable refrigerant are classified as risk level 3 in-scope electrical equipment

In Victoria, the Electrical Equipment Safety System is regulated by Energy Safe Victoria. Accredited persons are responsible for understanding and complying with their obligations under the EESS. Certificates under the VEU program cannot be created in relation to a prescribed activity under the VEU program if the product installed is not in compliance with the EESS.

We note the commission may remove a product from the VEU Register of Products if satisfied that the product may be unsafe. Where electrical equipment is not registered in the EESS as required, this may raise safety concerns that may result in the product being removed from the VEU Register of Product

2. Water heating product performance and documentation requirements

2.1. Electric boosted solar and heat pump water heater product requirements

We assess products to check whether solar and heat pump water heating products meet the minimum eligibility requirements of the VEET Regulations and VEU Specifications

These performance requirements are published on the VEU Register of Products¹

All water heater products must:

- meet their definition per AS/NZS 4234 for each of the product categories
- comply with AS/NZS 2712 as certified by an accredited body
- have an insulated storage volume not exceeding 700 litres
- meet the specific requirements based on the activity outlined in Table 1

A product does not need to apply across all climate zones, in some instances it may not achieve ≥60% annual energy savings in each climate zone. However, it will only be able to claim certificates for installations in climate zones where it has met the ≥60% annual energy savings threshold.

In your application, please identify any differences (even minor) in the models you submit. This will help with efficient and timely processing of your application.

Table 1: Product criteria water heater products

Product category number	Product	Product criteria
1C / 3D	Electric boosted solar water heater	A product must: <ul style="list-style-type: none">• be certified by an accredited body as complying with AS/NZS 2712.

¹ With transition to the new VEU Registry system, the performance requirements may not be published in the new system's [VEU Register of Products](#) until Q3 2025. The performance requirements of products approved on or before 23 May 2025 are published in the previous system's [VEU Register of Products](#).

Product category number	Product	Product criteria
		<ul style="list-style-type: none"> • have an insulated storage volume not exceeding 700 litres. • achieve ≥60% annual energy savings determined in accordance with AS/NZS 4234:2021 and the calculation method described in Appendix A when modelled in climate zone 4.² • be modelled based on two load sizes. Product to be used for a medium upgrade, must be modelled under ‘medium’ and ‘small’ load conditions based on AS/NZS 4234:2021. Product intended for a small upgrade must be modelled under ‘small’ and ‘very small’ load conditions based on AS/NZS4234:2021.³
1D / 3C	Heat pump water heater	<p>A product must:</p> <ul style="list-style-type: none"> • be certified by an accredited body as complying with AS/NZS 2712. • achieve ≥60% annual energy savings determined in accordance with AS/NZS 4234:2021 and the calculation method described in Appendix A when modelled in climate zone HP4-AU for products installed in climatic zone 4 ^{2, 4} • achieve ≥60% annual energy savings determined in accordance with AS/NZS 4234:2021 and the calculation method described in Appendix A when modelled in climate zone HP5-AU for products installed in climatic zone 5 ^{2, 4} • use a refrigerant that has a global warming potential (GWP) of less than 700⁵

³ Modelling for two load sizes is required as the VEU Specifications provide that the Bs and Be values to be used in calculating the emission reduction for a ‘medium upgrade’ is to be determined when modelled with the ‘small’ load as defined in the AS/NZS 4234:2021 standard, and that the Bs and Be values for a ‘small upgrade’ is to be determined when modelled with the ‘very small’ load as defined in the AS/NZS 4234:2021 standard.

⁴ Climate zones for a Victorian postcode to be determined in accordance the Location Variable List table in the VEU Specifications 2018.

⁵ A requirement for products installed under the VEU program from 1 July 2024. See appendix D for list of refrigerants with their GWP values.

Product category number	Product	Product criteria
		<ul style="list-style-type: none"> be modelled based on two load sizes. Products to be used for a medium upgrade must be modelled under 'medium' and 'small' load conditions based on the AS/NZS 4234: 2021. Products to be used for a small upgrade must be modelled under 'small' and 'very small' load conditions based on AS/NZS4234:2021.³ be covered by a manufacturer warranty against defects for a period of at least five-years from the date of installation, purchase or supply (as applicable).⁶ The warranty must comply with Australian Consumer Law requirements and must include the contact details of who to contact regarding product warranty obligations in Australia in the event of a product failure.

2.2. Modelling load sizes in accordance with VEU requirements

The AS/NZS 4234:2021 – Heater water systems – calculation of energy consumption was updated in June 2021. Modelling must be completed under the defined load sizes in accordance with AS/NZS 4234:2021.

2.2.1. VEU modelling load size requirements

When submitting applications for use under the VEU program, you must ensure products are modelled based on two load sizes.

- TRNSYS performance modelling under two system load sizes are identified as 'system load size' and 'step-down load size'.
- For a medium size system, enter the percentage annual energy savings, Be and Bs values when modelled with the:
 - 'medium' load in the fields labelled 'system load size'
 - 'small' load in the fields labelled 'step download size'.

⁶ This warranty requirement is applicable for products installed under the VEU program from 31 March 2025.

- For a small size system, enter the percentage annual energy savings, Bs and Be values with the:
 - 'small' load in the fields labelled 'system load size'
 - 'very small' load in the fields labelled 'step down load size'.

2.3. Supporting evidence

Product brand and model numbers, as well as model numbers for tanks, heat pump units and solar collectors where applicable, must reconcile precisely for the online VEU Registry, AS/NZS 2712 certification, and the product data plates.

All supporting documents must specify the product brand and model number. All brands and models must reconcile precisely with the brands and the models on the supporting documents. The proposed products, components, brands, and models must reconcile with the brand and the models shown on the supporting documents.

2.3.1. Test Report Requirements

All test reports must be produced by National Association of Testing Authorities (NATA) accredited (or equivalent) test laboratories. Australian manufacturers can test their products in their own in-house NATA accredited laboratories.

Tests must be conducted:

- on the products as they are intended to be installed,
- to specifications in the associated standards, and in accordance with the latest updates to those standards, and
- test conditions must be included in the reports provided

We will accept a representative test report⁷ for tanks and collectors if the differences between the tested product and the products represented by the report are unlikely to affect the performance of the products. The same principle applies if a prototype product is tested to represent a production unit. If the performance is different between the tested prototype and the production unit, we require

⁷ Test reports should be less than 10 years old from the date of product application.

test reports for the production unit to confirm the performance of the production unit and this should be further confirmed in the declaration.

2.3.2. Manufacturer Declarations

Manufacturer declarations are required to reconcile product information in some instances. If supporting documents contain different brands and/or model numbers, the applicant must submit a manufacturer's declaration clearly reconciling the different product brands and/or model numbers used across supporting documents with the brands and model numbers proposed under the schedule. A manufacturer's declaration will not be accepted for AS/NZS 2712 certification, EESS registration or product data plates.

Any supporting document with unexplained model variations will not be accepted.

The applicant must submit a manufacturer's declaration that includes a comparison of product specifications between the tested model and the model applied in the application. .

The comparison should cover detailed information about the specifications listed below and any other specifications which might affect the performance of the components referred to in the declaration.

Product specifications for tanks:

- the insulation material and thickness
- the tank dimensions
- the water container material and wall thickness
- the position of fittings (element, thermostat, and openings for water in and out).

Product specifications for heat pumps:

- the compressor model - comparison of the performance of the prototype and the production unit the evaporator coil area
- the evaporator air flow rate
- the inner diameter of coil tubing
- the length of coil/condenser strip
- the coil tube wall thickness
- type of refrigerant
- control settings of the unit
- quantity of refrigerant

Product specifications for collectors:

- the glass type (specify thickness, transmissivity, and surface treatment)
- the absorber surface, material, and design
- the collector insulation material and thickness
- collector dimensions.

We will use this information to determine whether a representative test report is acceptable. We will accept a product test report if the product specifications remain the same since the test.

If the performance is different between the tested prototype and the production unit, you will need to submit test reports for the production unit to confirm the performance of the production unit.

You do not need to submit modelling outputs for all climate zones for a product when applying for approval.

2.3.3. Controller Declaration

Applicants must submit a controller declaration for each heat pump product model applied for. The declaration needs to contain sufficient detail to describe the operation and control logic of the product. The declaration must be signed by an authorised representative of the company.

A detailed description of the controller algorithm is required, information should include:

- Heat pump control set points including any seasonal changes to settings
- Modes of operation including default mode and mode used for TRNSYS modelling
- If present, how and when an electric booster element is used under each mode
- Legionella control method
- User adjustable settings and how they are returned to default (manual/automatic)

2.3.4. User Manuals

Installation and operation manuals must be provided for all products applied for. The manuals should:

- clearly list the brand and model of the product/s within the application
- provide information consistent with other evidentiary documentation
- include sufficient and clear instructions and information for installers and users to be able to install products correctly and operate them as intended.

2.4. Required Documentary Evidence and Naming conventions

The documents identified in Table 2 are required for all water heating product applications. Table 3 provides additional document that are required for heat pump water heaters. Applicants must apply the naming conventions shown in the tables.

Table 2: Required documentary evidence and naming conventions for water heating product applications

Product category	Document requirement	Documentary evidence	Naming convention and upload format
Electric boosted solar 1C(i) / 3D Heat pump water heater 1D(i) / 3C	TRNSYS model	TRNSYS model for the product, including decks and all input and output files.	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: 2021 reports produced by modelers that include simulations as specified by the commission (including the appropriate tables from Appendix C, AS/NZS 4234). The Australian standard AS/NZS 4234 was updated in 2021. The new version is AS/NZS 4234: -2021. VEU will only accept product performance established according to the AS/NZS 4234 -2021.	PDF document Brandname_model number.pdf
	Accreditation certificate	AS/NZS 2712	PDF document Brandname_ModelNo_2712.pdf
	Thermal performance of solar collector	Test report: AS/NZS 2535.1 or equivalent (only required for systems incorporating a solar collector).	PDF document Brandname_CollectorModelNo_2535.pdf
	Thermal performance of heat pump (COP and	Test report: AS/NZS 5125.1 (only required for systems incorporating heat pumps).	PDF document Brandname_HeatPumpModelNo_5125.pdf

Product category	Document requirement	Documentary evidence	Naming convention and upload format
	power correlations)	The test report shall require all the reporting requirements specified in the standard. See Appendix C of this document for additional clarification.	
	Thermal performance of all tanks including electric heated tanks	Test report: AS/NZS 4692 or equivalent. AS/NZS 1056.1 was superseded on 19 March 2021. This standard will no longer be accepted from that date.	PDF document Brandname_TankModelNo_4692.pdf
	Pump specifications	Test report: AS/NZS 4234 including test report for measured flow rate and power measured flow rate in standard configuration. For variable flow systems include a description of the flow rate control algorithm.	PDF document PumpBrandname_PumpModelNo.pdf
	Controller specifications	Description of the thermostat controller algorithm and all the pump control set points, information about different modes and algorithms including user adjustable settings that impact on the energy use. Include the legionella control method. If there is a built-in electrical booster element, provide details on how and when the booster is used to heat the water. As described in the controller declaration section 2.2.3 above.	PDF document 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 (solar systems only).	PDF document Brandname_NoLoadModelNo_2712.pdf
	Schematic of the system and bill of materials	Parts list including insulation included or specified for piping etc. schematic diagram including all relevant control valves and flow meter if appropriate, solar or heat pump flow and return pipes and temperature sensor location/s.	PDF document Brandname_ModelNo_schematic.pdf

Product category	Document requirement	Documentary evidence	Naming convention and upload format
	Dimensioned diagram of the tank	Dimensioned inner tank drawing including cold inlet and hot outlet positions, element position (if fitted), flow and return positions for auxiliary heater (if appropriate), solar or heat pump flow and return ports and temperature sensor location/s.	PDF document Brandname_TankModelNo_dimension.pdf
	Photograph of relevant data plate(s)	Photo of the product data plate for integrated heat pumps. For split or separate heat pumps photo of the tank data plate and heat pump unit data plate.	PDF document Brandname_TankModelNo_DataPlates.pdf
	Manufacturer's installation instructions	Manufacturer's installation instructions including installation instructions consistent with the Plumbing Regulations 2008 (as amended from time to time).	PDF document Brandname_modelNo_Installation Instructions.pdf
	EESS registration	Evidence of EESS registration (for risk level 2 and 3 water heaters) Screenshot of listing on EESS database clearly showing brand/model and risk level. For products with risk level 3, a copy of the certificate of conformity	PDF document Brandname_modelNo_EESSregistration.pdf Certificate Brandname_modelNo_CertificateofConformity.pdf

Table 3: Required documentary evidence and naming conventions for heat pump water heating applications only

Product category	Document requirement	Document evidence	Naming convention and upload format
Heat pump water heater 1D & 3C	Warranty against defects for a minimum period of 5 years ⁸	A copy of the warranty which: <ul style="list-style-type: none"> is written in language that is easy read and understand states a minimum warranty period of at least five years from the date of installation, purchase or supply (as applicable) 	PDF document Brandname_modelNo_Warranty.pdf

⁸ This warranty requirement applies to heat pump water heater products installed under the program from 31 March 2025.

- includes the contact details (name, business address, telephone number, email address (if any) of who to contact regarding product warranty obligations in Australia in the event of a product failure
- complies with the Australian Consumer Law (Victoria), including stating:
- what the consumer must do to claim the warranty
- who will bear the expense of claiming the warranty
- the following text: “Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.”

3. Space heating/cooling product performance and documentation requirements

3.1. High efficiency air conditioner product requirements

3.1.1. Product criteria for air conditioners

Products must be registered to the Greenhouse and Energy Minimum Standards (Air Conditioners up to 65kW) Determination 2019 (Cth) (GEMS Determination).

- For products registered to the GEMS Determination after 1 August 2024 that do have a HSPF and TCSPF for the specified GEMS Residential or Commercial Cold Zone, the product must⁹:
 - achieve the minimum HSPF and TCSPF for the specified GEMS Residential Cold Zone (categories 6A, 6B, 6D, 6E and 6F) specified in Table.3
 - achieve the minimum HSPF and TCSPF for the specified GEMS Commercial Cold Zone (categories 6C and 6G) specified in Table 6.3
 - be registered to the relevant class (or classes) under that GEMS Determination, specified in Table 3.
- For products registered to the GEMS Determination on or before 1 August 2024 that do have a HSPF and TCSPF for the specified GEMS Residential or Commercial Cold Zone, the product must:
 - achieve the minimum HSPF and TCSPF for the specified GEMS Residential Cold Zone (categories 6A, 6B, 6D, 6E and 6F) OR the minimum ACOP and AEER specified in Table 3
 - achieve the minimum HSPF and TCSPF for the specified GEMS Commercial Cold Zone (categories 6C and 6G) OR the minimum ACOP and AEER specified in Table 3
 - be registered to the relevant class (or classes) under that GEMS Determination, specified in Table 6.3.

⁹ Standards Australia has advised the commission of an issue in the application of certain formulae in the relevant Australian Standard (AS/NZS 3823.4.1:2014, Performance of electrical appliances) that can lead to the generation of anomalous TCSPF values. See Appendix E for further information.

- For products registered to the Greenhouse and Energy Minimum Standards (Air Conditioners up to 65kW) Determination 2019 (Cth) that does not have a HSPF and TCSPF for the specified GEMS Residential or Commercial Cold Zone, the product must:
 - achieve the minimum ACOP and AEER specified in Table 3;
 - be registered to the relevant class (or classes) under that GEMS Determination, specified in Table 3.

The global warming potential (GWP) of the refrigerant used in an air conditioner product with a rated cooling capacity below 15kW must be less than 700¹⁰.

For products belonging to product categories 6A, 6B, 6D, 6E and 6F which are to be installed in residential premises, the product must be covered by manufacturer warranty against defects for a period of at least five-years from the date of installation, purchase or supply (as applicable)¹¹.

The warranty must:

- comply with Australian Consumer Law requirements
- include the contact details of who to contact regarding product warranty obligations in Australia in the event of a product failure.

Products belonging to product categories 6A, 6B, 6D, 6E and 6F which do not meet the above warranty requirement will only be eligible to be installed in commercial premises under the VEU program.

Table 4 – Minimum efficiency requirements for air conditioners to be installed

VEU product category	Product description ¹²	GEMS 2019 Class	GEMS 2019 min HSPF	GEMS 2019 min TCSPF	GEMS 2019 ACOP	GEMS 2019 AEER
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¹⁰ See Appendix D for list of refrigerant types with their GWP values.

¹¹ This warranty requirement is applicable for products installed under the VEU program from 31 March 2025.

¹² "R" refers to the standard rated standard cooling full capacity as defined in the Greenhouse and Energy Minimum Standards (Air Conditioners up to 65kW) Determination 2019.

6A	Ducted air to air $R < 10 \text{ kW}$	Classes 10, 15, 18 or 19 ¹³	3.6	4.4	3.9	3.5
6B(i)	Ducted air to air $10 \text{ kW} \leq R < 25 \text{ kW}$	Classes 6 (ducted units only), 11, 16 or 20 ¹³	3.4	4.2	3.7	3.4
6B(ii)	Ducted air to air $25 \text{ kW} \leq R \leq 39 \text{ kW}$	Classes 6 (ducted units only), 11, 16 or 20 ¹³	3.2	3.6	3.7	3.4
6C	Ducted air to air $39 \text{ kW} < R \leq 65 \text{ kW}$	Classes 7 (ducted units only), 12, 17 or 21 ¹³	3.2	4.8	3.5	3.2
6D	Non-ducted air to air $R < 4 \text{ kW}$	Classes 8, 13 or 18	4.2	5.4	4.4	4.1
6E(i)	Non-ducted air to air $4 \text{ kW} \leq R < 7 \text{ kW}$	Classes 9, 14 or 19	3.7	5.0	4.0	3.7
6E(ii)	Non-ducted air to air $7 \text{ kW} \leq R < 10 \text{ kW}$	Classes 9, 14 or 19	3.6	4.8	3.9	3.7
6F	Non-ducted air to air $10 \text{ kW} \leq R \leq 39 \text{ kW}$	Classes 6 (non-ducted units only), 11, 16 or 20 ¹³	3.6	4.6	3.9	3.6

¹³ Products in classes 6, 7, 11, 12, 16, 17, 18, 19, 20 and 21 listed on the GEMS register as “both” under Configuration can be applied for separately as ducted and non-ducted under the same model number. The application fee would be waived for the second application under the same model number in this instance.

6G	Non-ducted air to air 39kW < R ≤ 65kW	Classes 7 (non-ducted units only), 12, 17 or 21 ¹³	2.7	5.3	3.8	3.4
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3.1.2. Documentary evidence

- Evidence of GEMS registration
 - downloadable product list (Excel file) from GEMS (www.energyrating.gov.au) – please highlight the product models proposed under the application.
- AS/NZS 3823 test report produced by a NATA accredited laboratory (or equivalent) confirming the product characteristics or values listed below. Manufacturers may test their products in their own in-house NATA (or equivalent) accredited laboratories.¹⁴
 - Product brand and model
 - Product description including GEMS product class¹⁵
 - Rated standard cooling and heating capacities
 - HSPF and TCSPF values specified for residential and commercial cold and mixed climate zones
 - Rated ACOP and AEER values
 - Refrigerant type
 - Name, address, and contact details of the laboratory
 - Signature and designation of the person signing the report
- Evidence of EESS registration which includes a screenshot of the listing on EESS database clearly showing brand/model and risk level or a copy of the certificate of conformity.
- For products 6A, 6B, 6D, 6E, and 6F, a copy of the warranty¹⁶ which:
 - is written in language that is easy read and understand

¹⁴ The commission will, at its discretion, accept evidence of eligibility in the form of manufacturer's in-house test reports (that are not NATA or equivalent accredited), where that manufacturer has a base of operations in Australia. Where the required product characteristics are not included in such a test report, this information may alternatively be provided in the form of a signed declaration from a senior officer of the manufacturer.

¹⁵ According to Greenhouse and Energy Minimum Standards (Air Conditioners up to 65kW) Determination 2019 (Cth).

¹⁶ This warranty requirement applies to products installed under the program from 31 March 2025 which are to be installed in residential premises.

- states a minimum warranty period of at least five years from the date of installation, purchase or supply (as applicable)
- includes the contact details (name, business address, telephone number, email address (if any) of who to contact regarding product warranty obligations in Australia in the event of a product failure
- complies with the Australian Consumer Law (Victoria), including stating:
 - what the consumer must do to claim the warranty
 - who will bear the expense of claiming the warranty
 - the following text: “Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.”
- For products with the same performance characteristics (i.e. those that are in the same family of products), we can accept a representative test report which covers all products within the family. This can only be accepted where the test report lists all product brand/model numbers applicable, or where a signed declaration from a senior officer of the manufacturer is provided, listing each individual product brand/model number in that family and declares that their performance is the same. Each product within the family must be registered individually. We do not accept model names that cover more than one product.

3.2. Gas heating ductwork

Table 5 – Product criteria and required documentary evidence for gas heating ductwork products

VEU product Category	Product criteria	Documentary evidence
Flexible ductwork (28A)	Flexible ductwork that: <ul style="list-style-type: none"> • is tested and certified by an approved laboratory as complying with AS 4254.1 and is labelled in accordance with that standard • is insulated using bulk insulation that is certified by an accredited body or an approved laboratory as complying with AS/NZS 4859.1 	Test report by a NATA accredited laboratory or equivalent body showing compliance with the product criteria.

- achieves a minimum R-value of R1.5 when measured in accordance with AS/NZS 4859.1
- is constructed and installed in accordance with AS 4254.1 and uses fittings that:
 - if installed in a class 1 or 10 Building under Part A6 of Volume One of the BCA, achieves at least the R-value specified by Table 3.12.5.2 of Volume Two of the BCA
 - if installed in a class 2 to 9 Building under Part A6 of Volume One of the BCA, achieves the minimum total R value specified by Specification J5.2b of Volume One of the BCA

Rigid ductwork (28A)

Rigid ductwork that:

- is tested and certified by an approved laboratory as complying with AS 4254.2
- is insulated using bulk insulation that is certified by an accredited body or approved laboratory as complying with AS/NZS 4859.1
- achieves a minimum R-value of R1.5 when measured in accordance with AS/NZS 4859.1
- is longitudinally labelled at intervals of no more than 1.5 meters in characters that are clearly legible and at least 18mm high and state the duct manufacturers or assembler's name, the diameter of the duct core, the R-value of the bulk insulation and whether the ductwork complies with AS 4254.2

Test report by a NATA accredited laboratory or equivalent body showing compliance with the product criteria.

- is constructed and installed in accordance with AS 4254.2 and uses fittings that:
 - if installed in a class 1 or 10 building under Part A6 of Volume One of the BCA, achieves at least the R-value specified by Table 3.12.5.2 of Volume Two of the BCA
 - if installed in a class 2 to 9 building under Part A6 of Volume One of the BCA, achieves the minimum total R value specified by Specification J5.2b of Volume One of the BCA

Appendix A: Annual Solar Energy Calculation Method for Domestic Solar and Heat Pump Water Heaters

TRNSYS

Modelling must be conducted in accordance with AS/NZS 4234 and SA/SNZ MP 104:2021¹⁷ using the TRNSYS program or extensions of the software in the TRNSYS modelling package.

TRNAUS15 V24.6 or later must be used for modelling.

Templates provided with TRNAUS15 must be used with minimal changes. Where changes are made to the template decks, a clear description of the reason for the change shall be included in the TRNSYS deck.

The first two lines of the template output file shall remain unchanged, if the modeller wishes to report more information, an additional printer unit can be incorporated below the existing units.

It is required to ensure that the product can deliver the selected load, and to determine the annual energy savings in:

- climate zone 4 for solar water heaters in Victoria
- climate zone HP4-Au and/or HP5-Au for heat pumps in Victoria,

The heat pump's full operational logic must be modelled, with the TRNSYS deck adapted to match the product's control logic. The heat loss values in the model must match the AS/NZS 4692.1 test reports.

Modelling should be carried out using a simulation time step of 0.1 hour or less.

Modelling must employ either the very small, small, or medium load size as described in AS/NZS 4234.

The modeller must state in which mode the modelling is carried out and whether that mode is the default mode when installing the hot water heat pump. This mode must correspond with a mode described in the control logic documentation and the user manual.

¹⁷ SA/SNZ MP 104:2021 Modelling of heated water systems in accordance with AS/NZS 4234:2021, using TRNSYS

Integral heat pump water heaters with wrap around, micro channel and submerged condensers must be modelled using type 104 tanks. Types 138 and 238 are no longer acceptable.

Key model parameters

The calculation of energy consumption must use the method set out below.

Collector inclination = 25°, azimuth = 0° North (as per the 'North Orientation' in AS/NZS 4234).

Note the alternative 'representative average installation' collector inclination = 20°, azimuth = 45 can also be used.

Weather data to be used in the simulation must be:

- climate zone 4 for solar water heaters in Victoria
- climate zones HP4-Au and/or HP5-Au for heat pumps in Victoria

Boosting regime

The boosting regime modelled must be consistent with the way the product will be installed.

The capacity of the electric element in the drawings submitted must be consistent with the data plates and EESS certificate.

See Appendix B for further guidance on user override of time limited boosting for solar water heaters.

Variable thermostats

Products with variable thermostats which facilitate user override are acceptable. The thermostat should be set at the temperature that is stated in the control declaration. Please ensure that:

- the model achieves the following related Australian Standards requirements; and
- the thermostat settings are the same for both modelled sizes
 - minimum delivery temperature of 45°C;
 - the product must control for legionella according to AS 3498 (various options are available), and
 - products must comply with legionella requirements under each available heat pump setting
 - Settings must be clear and consistent across the test reports, control declaration and the user manual.

Load delivery

The system must report the minimum delivery temperature under the selected load¹⁸ as specified in AS/NZS 4234. The purpose of this requirement is to ensure the consumer has sufficient hot water through periods of low solar gain or low ambient temperatures.

The modelling procedure allows for one-shot boosting for solar hot water systems where installations connected to off-peak supply will enable this to occur as outlined in the Boosting Regime section above. If the product fails to meet this condition, a lower load should be selected. If the product fails to meet this condition under the small load, the product is not eligible.

Solar water heater products must be capable of delivering hot water above 45°C and performance must be evaluated for climate zone 4 to be installed in Victoria.

Special considerations for air-source heat pump storage water heaters

The heat pump water heater performance for products to be installed in Victoria must be evaluated for climate zones HP4-Au and/or HP5-Au. Products must achieve:

- 60% annual energy savings at the system load size in climate zone HP4-Au to be installed in climate zone 4
- 60% annual energy savings at the system load size in climate zone HP5-Au to be installed in climate zone 5. Note zone HP5-Au corresponds to Australian Building Code zones 7 and 8.

Refer to the Location Variable List table in the VEU Specifications for the climate zones of Victorian postcodes.

Presentation of results

Annual purchased energy consumption data should be entered into the product application form with a precision of four significant figures. The result of 'annual purchased energy savings (%)' is published with a precision of two significant figures.

¹⁸ Both modelled load sizes for Victoria.

Appendix B: User over-ride of time-limited boosting and one-shot boosting for solar water heating

One-shot boosting is a manual control that allows a default boost mode (such as off-peak boosting) to be overridden so that the user can satisfy a short term high demand for hot water.

Where the system automatically resets to the default boosting mode within 24 hours of the user changing the boost mode, the one-shot boosting can be ignored.

Where the system does not automatically reset to the default boosting mode within 24 hours of the user changing the boost mode, the boosting mode activated by the manual control must be taken to be active at all times.

Appendix C: AS/NZS 5125 reporting requirements

When testing heat pump water heaters, Appendix F of AS/NZS 5125 specifies the minimum data reporting required in the test report. Test reports must have Coefficient of Performance (COP) and power graphs that are consistent with the values submitted in the TRNSYS modelling.

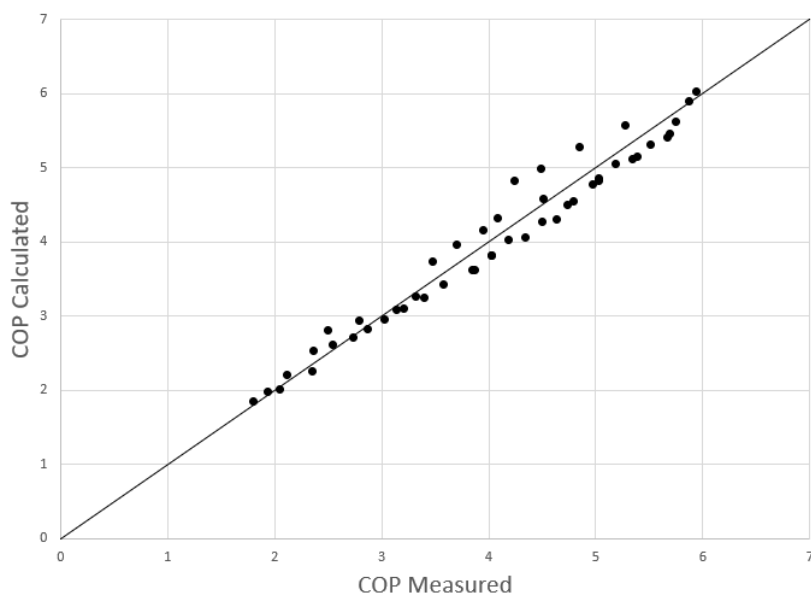
Test reports should include the “Start and Finish Point Measured Data” from the test to show the end temperature of the test and prove the heat pump can heat up water temperature appropriately.

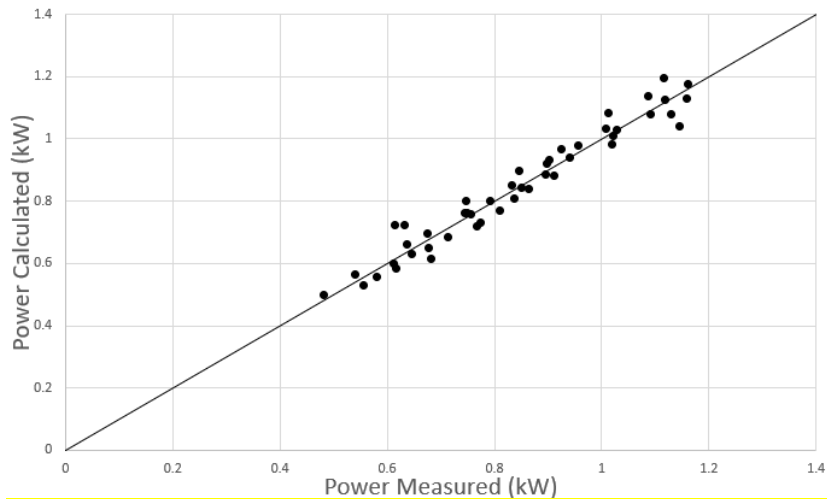
Please note:

Clause F6.2 of AS/NZS 5125 requires graphs of measured values(test) against the values established through regression analysis are included in the report. Measurements should be linear. The regression must be a reasonable representation of actual performance. If there are any outliers or significant differences this must be clearly explained in the test report. The graphs must show appropriate behaviour for the products submitted.

Where issues are found, further information, such as test data from the laboratory may be requested. In some circumstances products may need to be retested or we may request the application to be withdrawn.

Examples are shown below.





Appendix D: List of refrigerants (including alternative refrigerants) with their global warming potential (GWP) values

Table 6: List of refrigerant types with global warming potentials (GWP) values*

Refrigerant Type	Substance name/HFC Blend	GWP	Refrigerant Type	Substance name/HFC Blend	GWP
R-1234yf	HFO-1234yf	5	R-447A	HFC-447A	582
R-1234ze(E)	HFO-1234ze	5	R-450A	HFC-450A	601
R-1270	HC-1270	5	R-451A	HFC-451A	146
R-12A	HC-12A	5	R-451B	HFC-451B	160
R-152A	HFC-152a	124	R-452B	HFC-452B	697
R-170	HC-170	5	R-454A	HFC-454A	236
R-22A	HC-22A	5	R-454B	HFC-454B	465
R-245CA	HFC-245CA	693	R-454C	HFC-454C	145
R-290	HC-290	3	R-455A	HFC-455A	145
R-32	HFC-32	675	R-456A	HFC-456A	684
R-41	HFC-41	92	R-457A	HFC-457A	136
R-429A	HFC-429A	13	R-502A	HC-502A	5
R-430A	HFC-430A	94	R-512A	HFC-512A	189
R-431A	HFC-431A	36	R-513A	HFC-513A	629
R-435A	HFC-435A	26	R-513B	HFC-513B	593
R-440A	HFC-440A	144	R-515A	HFC-515A	386
R-444A	HFC-444A	87	R-600	HC-600	5
R-444B	HFC-444B	293	R-600a	HC-600a	3
R-445A	HFC-445A	129	R-601A	HC-601a	5
R-446A	HFC-446A	459	R-717	HC-717	0
			R-744	HC-744	1

- * Sources: [Intergovernmental Panel on Climate Change \(IPCC\) fourth assessment report, 2007](#) and [the Department of Agriculture, Water and the Environment website](#).

Appendix E: Anomalous TCSPF values and implications for category 6 products

Standards Australia has advised the commission of an issue in the application of certain formulae in the relevant Australian Standard (AS/NZS 3823.4.1:2014, Performance of electrical appliances) that can lead to the generation of anomalous TCSPF values. They also provided a test to identify anomalous values.

Standards Australia has also advised that work is taking place to update AS/NZS 3823.4.1 to address the anomalous values issue, which is contingent on updates to the parent international standard ISO 16358-1:2013. There is currently no estimated date for the revised standards to be published.

In the interim, the commission are assessing eligibility for impacted products and publication of the TCSPF values for these products, as outlined below.

Which products are affected?

All category 6 products that are the subject of an application to be listed on the VEU Register of Products are being tested by commission staff using the test provided by Standards Australia.

What happens if anomalies are identified?

Where anomalous TCSPF values are identified for a product and the minimum TCSPF value forms part of the eligibility criteria, the commission will not rely on these values for the purpose of eligibility and instead consider eligibility by reference to whether the product achieves the minimum Annual Energy Efficiency Ratio (AEER) as specified in Table 6.3 of the Victorian Energy Upgrades Specifications 2018.

Where anomalous TCSPF values are identified for a product that do not form part of the eligibility criteria, the anomaly will not impact on eligibility, but the commission will not publish that value on the VEU Register of Products. The applicant will be requested to set the specific individual anomalous TCSPF value(s) to zero in their product application form and resubmit through an RFI. Greenhouse gas equivalent reduction calculations for these specific values only will then be derived by multiplying the product's AEER values using the conversion factors listed in Table 6.15 and 6.16 of the Specifications.

Glossary

Term	Definition
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. Annual Coefficient of Performance has the same meaning as in AS/NZS 3823.2.
AEER	Annual Energy Efficiency Ratio and has the same meaning as in AS/NZS 3823.2. This metric is used to determine the energy efficiency of a product for cooling.
AGA	Australian Gas Association
AGA product directory	The AGA publishes a Product Directory of all type tested products that are currently certified by AGA. Available at: https://www.aga.asn.au/product_directory
BCA	Building Code of Australia, forming part of the National Construction Code.
commission	Essential Services Commission
ESS Rule	Energy Savings Scheme Rule of 2009
ESV	Energy Safe Victoria

Term	Definition
GEMS	Greenhouse and Energy Minimum Standards
GEMS Act	Greenhouse and Energy Minimum Standards Act 2012 (Cth)
GEMS Determination	Greenhouse and Energy Minimum Standards (Air Conditioners up to 65kW) Determination 2019 (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/
GWP	Global warming potential
NATA	National Association of Testing Authorities
residential premises	A building classified under part A3 of the Building Code of Australia as a class 1, 2, 3, or 4 building.
HSPF	Means the Heating Seasonal Performance Factor which is the ratio of the total annual amount of heat, including make-up heat, that the equipment can add to the conditioned space when operated for heating in active mode to the total annual amount of energy consumed by the equipment during the same period.
RTHC	Rated total heating capacity
TCSPF	Means the Total Cooling Seasonal Performance Factor which is the ratio of the total annual amount of heat that the equipment can remove from the

Term	Definition
	conditioned space to the total annual amount of energy consumed by the equipment, including the active and inactive energy consumption.
TRNSYS	This is a brand of modelling software commonly used for establishing performance of solar and heat pump hot water systems.
VEEC	Victorian energy efficiency certificate. Each VEEC represents one tonne of carbon dioxide equivalent (CO ₂ -e) abated by the prescribed activity.
VEET Act	Victorian Energy Efficiency Target Act 2007
VEET Regulations	The Victorian Energy Efficiency Target Regulations 2018
VEU program	Victorian Energy Upgrades program
VEU Specifications	Specifications published by the Secretary under regulation 35 of the VEET Regulations

Document version control

The CM reference for this document is: C/18/24089

Version	Amendments made	Date published
1.0	First release	10 December 2018
2.0	<ul style="list-style-type: none">• Inclusion of new reporting requirements for performance of heat pump products in climate zone HP5-Au as defined in the 2018 VEU Specifications.• Update on requirements regarding brand/model reconciliation.• Incorporation of the former “Annual Solar Energy Calculation Method for Domestic Solar and Heat Pump Water Heater” into Appendix A and Appendix B (with minor amendments for clarification).• Removal of maximum threshold for peak (day rate) boost energy for off-peak electric boost systems.	10 June 2019
2.1	<p>Update to:</p> <ul style="list-style-type: none">• the gas storage (activity 1A) water heater and instantaneous water heater (activity 1B) product requirements• guidance on supporting evidence for heat pump and solar hot water systems• to guidance on supporting evidence for space heaters and ducted gas heaters.	11 March 2020
2.1	Update to section 1.2 and included missing GEMS product categories	23 April 2021
2.2	Update to section 2.2 to include further guidance on using test reports and representative tests	13 August 2021

Version	Amendments made	Date published
2.3	Update to section 3.4 to clarify that product with ACOP of less than 4.2 is not eligible for use under activity scenarios 10A(iii) and (v)	11 November 2021
2.4	Update to integrate water heating product applications with NSW's Energy saving scheme	1 April 2022
2.5	Clarified that VEU program will accept only solar and heat pump water heating products approved under the AS/NZS 4234 -2008.	22 April 2022
2.6	Clarified the process for adding GEMS-listed products to the commission's Register of Products'. Introduced updates to product application process for solar or heat pump hot water products.	06 September 2022
2.7	Minor update to gas heating ductwork product criteria to align with VEU Specifications – 13.0	19 September 2022
2.8	Provided further clarification on accreditation of laboratories. All test reports must be produced by NATA accredited (or equivalent) test laboratories. Australian manufacturers can test their products in their own inhouse NATA accredited laboratories. Updated section 2.2.1 to clarify requirements for AS/NZS 5125 test reports. Added Appendix C to demonstrate those requirements.	15 December 2022
2.9	Updated to reflect release of VEU Specifications 15.0.	31 May 2023
2.10	Updated wording in Activity 6 section 3.1.2 to clarify evidentiary requirements.	14 August 2023
2.11	Update to reflect updated product requirements for multi-split products in VEU Specifications V16.0	16 November 2023
2.12	Updated wording in Activity 6 to clarify eligibility of multi-split system products and added Appendix E to address anomalous TCSPF values issue.	23 May 2024
2.13	Update to reflect change in product eligibility requirements in VEU Specifications V17.0	1 August 2024

Version	Amendments made	Date published
2.14	Update to reflect introduction of product warranty requirements for certain water heating and space heating and cooling products (as per VEU Specifications V 18.0)	13 December 2024
2.15	Update to product warranty requirement to reflect VEU Specifications 19.1 release	18 February 2025
2.16	Minor update to product warranty requirements for space heating and cooling products	31 March 2025
3.0	Update to reflect removal of NSW requirements and new VEU Registry system and process.	3 June 2025