



Water Heater Product Acceptance –
HEER – V1.3

Guide

September 2026

ESS »



Empowered Communities By proud Gomeroi woman, Caitlin Trindall

This specially commissioned artwork tells the story of IPART's responsibility in working with Aboriginal peoples to support and strengthen outcomes across NSW.

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ESS enquiries (02) 9290 8452

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About this document

This guide provides product applicants with application guidance for acceptance of eligible water heating products under the Energy Security Safeguard schemes (**Safeguard**) in New South Wales.

Overview

The Safeguard provides financial incentives to install, upgrade or replace equipment to use less energy, and reduce electricity use at peak times. Where the activity involves installation of new or replacement water heating products, these must be on the list of products 'accepted' by the Scheme Administrator ([Accepted Products List](#)).

Water heaters must be accepted prior to the registration of energy savings certificates.

This document provides information on the requirements and process to get products published on the list.

Purpose

The purpose of this document is to help businesses or individuals planning to supply or install water heating products under the Safeguard. It offers guidance on the product requirements outlined in the [Energy Savings Scheme Rule of 2009 \(ESS Rule\)](#). It also provides instructions to apply for acceptance.

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

- Heat pump water heaters (Activity definitions D17 and D19)
- Electric boosted solar water heaters (Activity definitions D18 and D20)

Different standards and evidence are required depending on the product type.

The guide only provides general information and should not be relied on as legal advice specific to your circumstances.

Is this guide for you?

You should use this guide if you are an:

- **Accredited Certificate Provider (ACP):** to understand product acceptance and ensure your implementations comply with the Safeguard's requirements.
- **Equipment manufacturer and/or distributor:** to supply equipment for use in the Safeguard, you need to understand product acceptance procedures and requirements.



You must [hold a TESSA account](#) to apply for product acceptance.

You must be an authorised signatory to complete the declaration section of the application form. You must provide authority evidence for this, either at initial TESSA account registration, or later when adding users to your account.

If you are an **individual or business interested in activities** under the Safeguard, while not essential, understanding the product acceptance process can provide you with valuable insights into acceptable equipment and contribute to informed decision-making.

How to use this document

Before you apply for acceptance, you should read and understand all the relevant sections of this guide that apply to your water heater type. A good understanding of the application process and our requirements will assist you to lodge a complete application and aid a smoother application process.

- Section 1 – Equipment and performance requirements
- Section 2 – Evidence requirements and supporting documentation
- Section 3 – Water heater application form
- Section 4 – How to apply for product acceptance



If you do not provide complete documentation showing that your product meets all requirements, or you lodge inconsistent or incorrect documentation, we will not accept your product.

Document Control

Version Number	Change Description	Date Published
V1.0	Initial publication after ending the combined application process with the Essential Services Commission via the VEU Registry. Applications must be submitted directly through TESSA. Information in the guide was adapted from the Commission's <i>Water Heating and Space Heating and Cooling Product Application Guide</i> which included NSW requirements. Changes include: • NSW specific requirements for electrical safety • Applying in TESSA • Updated modelling requirements to incorporate new (Type 104) model released in TRNAUS 24.6 version • Use of template declarations for all applications • Requiring a User Manual • Warranty requirement to comply with relevant legislation	23 June 2025
V1.1	Minor changes to authorised signatory requirements for application submissions	27 June 2025

Version Number	Change Description	Date Published
V1.2	Changes to clarify requirements on quality and consistency of applications	12 March 2026
V2.0	Removal of Heat Pumps under Activity D21 (no longer eligible) Updates to Guidance as part of Products Process Reform Project. Changes include: • introduction of water heater application form • removal for the requirement to use template Manufacturer and Prototype Declarations and Controller declaration • update to Modelling Requirements in Appendix A • updates for clarity • clarification for COP and Power requirements	29 September 2026

1 Product equipment requirements

This section provides general information on product eligibility that must be provided as part of your application.



Your application must meet all product performance, safety and evidence requirements to be listed on the Accepted Products List.

Detailed equipment requirements are specified in each activity definition of the ESS Rule.

Products must meet the specified requirements in the ESS Rule to be listed on IPART's [Accepted Products List](#) and be eligible to create Energy Savings Certificates (**ESCs**).

We assess products to check whether they meet the minimum equipment requirements of the ESS Rule.

All water heater products installed under Activity Definitions D17-D21 must:

- Meet their definition per AS/NZS 4234 for the relevant product category
- Comply with AS/NZS 2712 as certified by an accredited body
- Have an insulated storage volume not exceeding 700 litres, and
- Meet the specific requirements based on the activity definition outlined in Table 1.1 and the ESS Rule.

Table 1.1 Product performance requirements

Product category / Activity definition	Product criteria
Heat pump water heaters Activity definitions: D17 D19	Be determined in accordance with AS/NZS 4234 and the calculation method in Appendix A must: • achieve ≥60% annual energy savings for products installed in BCA climate zone 2,3,4,5 or 6 when modelled in climate zone HP3-AU, or for products installed in BCA climate zone 7 or 8 when modelled in climate zone HP5-AU¹ • be modelled using either a small or medium peak hot water load size.²
Electric boosted solar water heaters Activity definitions: D18 D20	Be determined in accordance with AS/NZS 4234 and the calculation method in Appendix A must: • achieve ≥60% annual energy savings when modelled in climate zone 3¹ • be modelled using either a small or medium peak hot water load size.²

¹ Refer to the [Australian Building Codes Board Climate Zone Map](#) to identify the relevant BCA climate zones.

² Refer to section 2.5 – Modelling requirements for further information

You can choose to apply for acceptance for one or both climate zones. In the instance where your product does not achieve $\geq 60\%$ annual energy savings in a particular climate zone, the product may still be accepted for the other climate zone.

Products are only eligible to create certificates for installations in the climate zone where it was accepted.

Modelling procedures are outlined in Appendix A and discussed further in section 2.6.

2 Evidence requirements

This section provides further details on the evidence requirements for specific activity definitions.



Some requirements apply to all water heating products, while each activity definition also has its own requirements to be met.

Documents submitted must match the product brand and model you apply for or be covered by appropriate declarations.

Specific evidence is required on safety, product testing, user manuals, and energy savings modelling.

Consult the relevant sections of the ESS Rule and this guide when preparing evidence for your application.

The evidence and information submitted in your application must be accurate and verifiable. Clauses 61 and 130 of Schedule 4A to the *Electricity Supply Act 1995* impose a maximum penalty of \$11,000 and/or 6 months imprisonment for knowingly providing false or misleading information to the Scheme Administrator in NSW.

2.1 2712 Certification

All products must be certified by an accredited body as complying with *AS/NZS 2712: Solar and heat pump water heaters – Design and construction*. Product brands and model numbers entered in TESSA must reconcile precisely with the AS/NZS 2712 certificate and product data plates.

2.2 Electrical safety

Under the *Gas and Electricity (Consumer Safety) Act 2017 (Consumer Safety Act)*, some water heaters are identified as declared articles in NSW.³ Declared articles must be approved by NSW Fair Trading or an approved equivalent, have the appropriate approval mark and follow the relevant safety standard before they can be sold in NSW.⁴ You must demonstrate that your product complies with the NSW electrical safety requirements. At the time this document was published, all water heaters with electric elements were classified as declared articles. Pressure storage water heaters must comply with AS/NZS 60335.2.21, while electric heat pump water heaters must comply with AS/NZS 60335.2.40.

³ Refer: NSW Government Gazette [No 347 of 06 September 2024](#)

⁴ Refer: NSW Fair Trading, [Approved electrical articles register](#)

ACPs and product applicants are responsible for understanding and complying with their obligations under the Consumer Safety Act.

We may remove a product from the Accepted Products List if we determine the product may be unsafe.

The product brand(s) and model number(s) entered in TESSA must match the submitted Certificate of Approval in an application.

2.3 Test reports

Test reports demonstrate product performance specifications as tested by an authorised laboratory. Independent test reports help determine if a product meets ESS requirements. You must submit an independent third-party verification of the product performance against established safety and performance standards. The test reports will need to be under the standard(s) relevant to the type of water heater for which you are applying, and can be one or more of the following:

- *AS/NZS4692.1*: Electric water heaters, Part 1: Energy consumption, performance and general requirements
- *AS/NZS 2535.1*: Test methods for solar collectors, Part 1: Thermal performance of glazed liquid heating collectors including pressure drop (ISO 9806-1:1994, MOD)
- *AS/NZS 5125.1*: Heat pump water heaters - Performance assessment, Part 1: Air source heat pump water heaters
- *AS/NZS 2712*: Solar and heat pump water heaters - Design and construction

Refer to Table 2.1 and Table 2.2 for information on which test reports are required for your product type.

All test reports must be produced by National Association of Testing Authorities (**NATA**) accredited (or equivalent) test laboratories and be less than 10 years old at the time of product application. 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 report for components if the differences between the tested component and those represented by the report are unlikely to affect the performance of the product(s).

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

In some instances, we may require test report data directly from the laboratory.

2.4 Manufacturer and prototype declarations

A manufacturer declaration or equivalent manufacturer documentation may be required where the model numbers in the test report(s) differ from the model number(s) included in the TESSA application. Applicants are encouraged to explain these differences in the *Application Details* sheet of the Water Heater Application Form. However, if the differences can be better explained by providing additional documentation to clearly demonstrate the relationship between the models, applicants should submit this with their application.

This type of documentation will not be accepted for AS/NZS 2712 certification or electrical safety certificates, unless it is to explain wildcard naming conventions on these certificates (that cover the model number submitted in TESSA). It is only accepted to reconcile laboratory reports with different model numbers to what is submitted in TESSA.

Similarly, in some cases additional documentation may be required in the instance where prototypes have been tested – to explain more clearly differences between tested prototype and production models.

2.5 User manuals

Installation and operation manual(s) must be provided for all product applications. The manual(s) need to be high resolution, digitally searchable documents (not scans or images), cover all brands/models applied for, and be consistent with other documentation. All text and diagrams must be in English.

What we assess in manuals

- Sufficient and clear instructions for users to be able to operate products without trouble.
- Descriptions of the products, and their components, specifications and operation.
- Information about controller features and the operating modes. Default factory settings need to be clear and consistent with the controller logic in the WH application form.
- Information about user adjustable settings, how they can be changed, recommended temperature values/ranges listed for these settings, processes for when/if it goes offline and the impact on user experience.
- A description for legionella control, listed temperatures and recommended actions for users after long shutdown periods.
- Information on warranties that comply with Australian Consumer Law.

2.6 Modelling requirements

Product modelling uses product specifications to simulate performance under standard conditions. It is used to determine whether a product meets ESS requirements and calculates potential energy savings.

The AS/NZS 4234 – Heater water systems – calculation of energy consumption was updated in June 2021, with a further amendment on 26 June 2026. Modelling must be completed in accordance with the latest version of AS/NZS 4234. The modelling requirements include:

- automated legionella checks for each climate zone and load, and
- the modelling must demonstrate how legionella risk is managed for each zone even when hot water use is very low (very low load).

Refer to Appendix A for more information.

2.6.1 Load sizes

When submitting applications for use under the ESS, you must ensure products are modelled based on one load size. If you submit (additional) TRNSYS files that do not match the data you entered in TESSA, we will send you an RFI or may reject your application.

As noted above, you will need to model very small loads to demonstrate your product meets legionella requirements in all load conditions.

2.6.2 Climate zones

A product does not need to meet the $\geq 60\%$ annual energy savings threshold for both climate zones (HP5 and HP3). If a product does not meet this requirement in one climate zone, you can apply for acceptance in the other climate zone. However, certificate creation will only be allowed for installations in the accepted climate zone.

You only need to submit modelling outputs for climate zones you are applying for. Do not submit climate zones that are applicable to Victoria only (zone 4).

2.6.3 Modelling reports

AS/NZS 4234 recommends information to be included in modelling reports. Although it is not a requirement to produce or provide this report, it is strongly encouraged. The modelling report presents information in a more accessible way and simplifies the assessment of your products.

Where applicable, the AS/NZS 4234 report should include a summary outlining the calculation of the frost point penalty parameter FP1 and pump specifications

2.7 Document requirements

The documents identified in Table 2.1 are required for all HEER water heater applications. Additional documents required for specific product types are detailed in Table 2.2.



You must ensure that your documents are **consistent, correct and complete** before you lodge your application. This includes:

- model numbers in documents across the application (or where applicable reconciled in the HEER Water Heater Application Form/supported by Manufacturer declarations)
- model numbers and values in TESSA
- values in Laboratory reports
- values in TRNSYS .dck and .out files.

It is your responsibility to conduct quality assurance on your application to ensure consistency and accuracy. If your there are significant inconsistencies across your documents and the values entered in TESSA, we will reject your application.

Table 2.1 Documentary evidence for all water heater product applications

Document	Evidence requirement	Consistency requirements
TRNSYS model decks, lists and outputs	TRNSYS files showing all input decks¹, list files generated while modelling and output files showing final modelling results. If appropriate, include a file describing incident angle modifier. An AS/NZS 4234 modelling report is not a required evidence document, however they present modelling data clearly and concisely allowing for a more efficient application process. It is recommended to provide this report if possible. Include modelling files for very small loads to demonstrate compliance with legionella requirements in all load conditions (AS3498)	Values in TRNSYS files must match test reports and control declarations
AS/NZS 2712 certificate	Identifies conformity with AS/NZS 2712.	The model number on the certificate must exactly match the product name on the data plate and application
AS/NZS 4692.1 for heat pumps or AS/NZS 2535.1 for solar collectors (or equivalent) test report	Identifies the thermal performance of all tanks including electric heated tanks in accordance with AS/NZS 4692.1 for heat pumps and AS/NZS 2535.1 for solar collectors. Test report must be digitally signed (verifiable signature) by testing lab.	Values in test reports must match corresponding values in TRNSYS files
Declarations	Additional declarations may be required where explanation above that provided in the <i>Application details</i> sheet of the Application form is needed to either: - reconcile model numbers between test reports and the application - explain differences between tested prototypes and production models. See section 2.4 for further details.	The brand model applied for must match the brand and model number in TESSA. The equivalent model must match the model number in the relevant test report(s).
User Manual	This document should be a digitally searchable document and include all the information identified in section 2.5. The information must be provided in English so a consumer can understand how the system works and the implications of changing modes/settings.	Product information must match TRNSYS files, 4234 report and controller operation and variables stated in the Application Form
Schematic of the system and bill of materials	Parts list including insulation or specified piping etc. The schematic diagram must include all relevant control valves and flow meter if appropriate, solar or heat pump flow and return pipes and temperature sensor location/s.	Product information must match TRNSYS decks
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.	Product information, including sensor locations must match TRNSYS decks

Document	Evidence requirement	Consistency requirements
Photograph of relevant data plate(s)	For integrated heat pumps, a photo of the product data plate. For split or separate heat pumps, a photo of the tank data plate and the heat pump unit data plate.	The product brand and model number must match AS/NZS 2712 certificate
Electrical Safety	Certificate of Approval demonstrating compliance with AS/NZS 60335.2.21:2013 +A1-2 (until 1 December 2026) or AS/NZS 60335.2.21:2023.	The product brand and model on the certificate number must match TESSA or be reconciled by a manufacturer declaration for wildcard naming conventions.

Note 1: Template files are available on the [Water heaters section](#) of the ESS website

Table 2.2 Additional required documentary evidence for specific activity definitions

Product category	Document	Document requirement	Consistency requirements
Heat pump water heater Activity definitions: • D17 • D19	AS/NZS 5125.1 test report	The test report must contain all reporting requirements specified in the standard, including thermal performance of heat pump Coefficient of Performance (COP) and power correlations. Test report must be digitally signed (verifiable signature) by testing lab. See Appendix B for additional clarification.	Values must match TRNSYS files and AS/NZS 4234 (if provided)
Solar water heaters Activity definitions: • D18 • D20	AS/NZS 2535.1 or equivalent test report	The test report must include performance of solar collector. Test report must be digitally signed (verifiable signature) by testing lab.	Values must match TRNSYS files
	AS/NZS 2712 test report	The test report must include the no load system operation test result for the system or family of systems applied for. Test report must be digitally signed (verifiable signature) by testing lab.	
	AS/NZS 4234 modelling report (or other report)	The test report must include pump specifications for measured flow rate and power measured flow rate in standard configuration. For variable flow systems, it must include a description of the flow rate control algorithm.	

2.8 Naming conventions

It is important you apply clear naming conventions when preparing your application. Clear naming conventions facilitate more efficient and timely document assessment.

Table 2.3 provides a list of recommended naming conventions that clearly describe what a document contains.



The naming conventions in Table 2.3 are not prescriptive and can be varied slightly provided the names facilitate easy identification of each document.

Failure to provide clearly labelled documents may significantly increase the time it takes to process your application.

We recommend the use of the following standard document naming convention:

Brandname_ModelNumber_XYZ

Where XYZ is a suffix from the table below that clearly describes the document.

Table 2.3 Required naming conventions for your documents

Document	Suffix (_XYZ)	Document type(s)
TRNSYS model(s)	_[load size]_[climate zone] i.e.: _Medium_Z3 _Medium_Z5 _Small_Z3 _Small_Z5	.lst .DCK .out .txt
Standard test reports or certifications	_[Insert standard number] i.e.: _4234 _2712 _2535 _5125 _4692 _4552	.pdf
Pump specifications	_PumpSpecs	.pdf
Controller specifications	_ControllerSpecs	.pdf
User Manual	_Manual	.pdf
No load system operation test result	_NoLoad	.pdf
Schematic of the system and bill of materials	_Schematic	.pdf
Dimensioned diagram of the tank	_Dimension	.pdf
Photograph of relevant data plate(s) including tanks, heat pumps, boosters etc.	_DataPlate	.pdf
Manufacturer's installation instructions	_InstallationInstructions	.pdf
Electrical Safety	_ElectricalSafety	.pdf

3 Water heater application form

The [Water heater application form](#) is a mandatory document required for all applications (it replaces the Application and Controller declaration). This form must be completed comprehensively for all applications prior to opening a case on TESSA. All parts of the form must be populated for the application to be accepted for processing. The application form includes two main tabs or worksheets that the applicant needs to complete, as outlined below.

Detailed instructions on how to use the form are included in the *Instructions & Version Control* and at the top of each sheet in the form.

3.1 Application details

The purpose of the application details sheet is twofold.

1. Outline product types and reconcile prototypes and model numbers

The first part of this sheet facilitates the applicant providing basic information on the products included in the application including:

- product and system type, and any relationship between models including in the application
- any prototypes subject to laboratory testing, and the relationship between such prototypes and production models applied for
- reconciliation of any differences in model numbers and brands across documentation and explain the reason for those differences.

In relation to the latter two, this replaces the Manufacturer and Prototype Declaration Form previously in use, although in some cases applicants may need to submit additional supporting documentation (refer to Section 2.4).

2. Declaration from authorised signatory

The declaration confirms the applicant has read and understood this guidance, and that the information provided in the Application details and Product Details is complete, true and not misleading in any way, including the reconciliation of product details.

The person that completes this part of the form must be a [TESSA authorised signatory](#).

3.2 Product details

The product details sheet is designed to:

- consolidate all important information and data on each product in the applications into one place (including information on the controller operation and variables for each product, Sections 4 and 6)
- assist you to check that evidence is consistent, correct and complete before you lodge your application.

This sheet includes a high-level overview of the requirements for each document type (Column F), for which you can find more detail in this Guidance document.

It is your responsibility as an applicant to:

- check each of the values you enter into the application form match the corresponding evidence
- provide additional comments or documentation required to explain any issues, context or explain specific characteristics of your products.

The latter may include attaching company documentation such as manufacturer declarations explaining model characteristics and differences, or more detailed information on control logic where there is not sufficient space within the form.

4 Submit your application



Ensure you have all required documents and information prior to applying.

Similar products (e.g. from the same series) can be submitted together.

4.1 How to apply

It is essential you complete these steps for a quick and smooth application process.

1. Read this guide to become familiar with the acceptance process.
2. Review the requirements that apply to your calculation method and activity definition.
3. Get your authorised signatory set up in TESSA.
4. Gather all required evidence for your water heaters.
5. Name your documents in accordance with the naming conventions in Table 2.3.
6. Complete the HEER Water heater application form, including the "Application Details" and "Product Details" sections. Refer to the [Information Paper](#) for further guidance. While you are completing this form, use the prompts and this Guide to check the following:
 - a. all documents are consistent with each other (see Section 2.7).
 - b. your evidence matches the model(s) you apply for and meets requirements of Chapter 2

Note: If evidence doesn't match, it will impact the acceptance process. This will result in a Request for Information (RFI) or rejection of your application.

7. Open and submit a case in [TESSA](#), as follows:
 - a. copy the product data from the 'TESSA Data Table' of the application form into the TESSA fields.
 - b. attach all required supporting documents.
 - c. submit the TESSA case.



Ensure all data entered in TESSA matches your supporting evidence. Duplicate model numbers are automatically rejected by TESSA.

For security reasons **TESSA does not accept .zip files**. Individual file uploads are required.

Applications require several attachments to be uploaded with your initial application. TESSA is limited to allow up to **75 attachments** in your initial application. Only submit documents required for your NSW application.

In addition, TESSA:

- allows a **maximum of 8 products** per application
- allows files sizes **up to 20MB** per attachment, and
- **may run slow** when processing many attachments.

*We require you to limit your initial application to **only 4 products** where each product has unique modelling files.*

4.2 Information requests and application reviews

We will issue an RFI if we identify issues that require clarification, explanation or if information is missing/inconsistent. We issue RFIs through TESSA.

We generally give you up to 2 RFIs to provide the required information. We will reject your application if:

- you are unable to demonstrate that the product meets requirements, or
- there are remaining errors, conflicting documentation or inconsistencies.

You must respond to RFIs within 90 days. We may reject your application if you do not respond within this timeframe. We may also request information if requirements change (e.g. the ESS or PDRS Rule is amended) while we process your application.

You may withdraw your application at any time and reapply when ready.

Our timeline for application reviews can vary. It depends on application volumes, information quality, and RFIs needed.

4.3 Applying for multiple products

You may include up to 4 model numbers per application for products that have unique modelling, and up to 8 model numbers for products that share modelling. Related products can be **one** of the following:

- have the same characteristics, modes and control settings (evidence documents shared across all products):
 - different branding with no technical differences
 - different cosmetic/physical variations (e.g. finishing paint material) with no impact on energy performance
 - one variant with booster and one without (element off).

- have the same components (stand-alone systems only):
 - same heat pump but different tanks/number of tanks (shared AS/NZS 5125 report)
 - same tank model (shared AS/NZS 4692 report).

In such cases, you may be eligible for a joint application and where applicable, you can submit the same:

- AS/NZS 5125.1 test reports
- AS/NZS 4692 test reports
- AS/NZS 2712 safety certification (if all models are contained in one certificate)
- electrical safety evidence (if applicable)
- TRNSYS modelling, and associated AS/NZS 4234 report
- schematic and tank diagram
- user manuals (all models must be listed in the document).

Note that where test reports/certification are common across a number of products, the test reports need to match the model numbers or

- be covered by the reconciliation cells in Application details worksheet of the [Water heater application form](#) (Refer Section 3.1), and
- if relevant, be accompanied by an appropriate manufacturer declaration (Refer to Section 2.4).

If you are considering a joint submission, please contact us directly prior to lodgement to discuss how to group your products. If you fail to group your products appropriately, we may reject your application(s) and request you to re-submit.

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

4.4 Duplicate models

You cannot apply for duplicate models in TESSA. The system will automatically reject your application.

We do not process applications for products that are already accepted for the relevant activity definition in the equivalent version of AS 4234. For example, if your product was already accepted under AS/NZS 4234:2021, we will not accept a new application with different values.

However, if your product requires acceptance across different calculation methods, please contact our team to discuss the next steps.

Please note there are different requirements and values to submit for HEER and IHEAB calculation methods. These cannot be submitted jointly.

Appendices

A Annual Energy Calculation Method for Water Heaters

This section provides details on how to carry out product modelling to provide all necessary information about your product.

A.1 TRNSYS

Modelling must be conducted in accordance with AS/NZS 4234:2021, Amendment 1 and SA/SNZ MP 104:2021⁵ including:

1. Use the TRNSYS program or extensions of the software in the TRNSYS modelling package. TRNAUS V26.2 or later⁶ must be used for modelling.⁷
2. Templates provided with this version of TRNAUS must be used with minimal changes. Where changes are made to the template decks, a clear description of the reason for the change must be included in the TRNSYS deck.
3. The first two lines of the output file must 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 above 45°C, and to determine the annual energy savings in:

- climate zone 3 for solar water heaters
- climate zones HP3-Au and/or HP5-Au for heat pumps.

The product's full operational logic must be modelled, with the TRNSYS deck must be adapted to match the product's control logic. The heat loss values in the model must match the AS/NZS 4692.1 test reports. Heat pump performance in the model must match the AS/NZS5125.1 test reports.

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.

Modelling should be carried out using a simulation time step of 0.02 hour or less.

Modelling must employ either the small or medium load size as described in AS/NZS 4234, along with the very small load as outlined in Section A.5.

⁵ SA/SNZ MP 104: 2021 is the Miscellaneous Publication for the Modelling of heated water systems in accordance with AS/NZS 4234, using TRNSYS

⁶ Template files are available from [Thermal Design Pty Ltd \(Thermal Design\)](#)'s website, the developer of the TRNAUS extension package,

⁷ Product applicants will be given a 2-month transition period from release of the AS4234: Amendment 1 (Standard was released on 26 June 2026)

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.

Weather data to be used in the simulation must be:

- climate zone 3 for solar water heaters
- climate zones HP3-Au and/or HP5-Au for heat pumps.

For solar water heaters the calculation of energy consumption must use the collector inclination and orientation set out below:

- Collector inclination = 25°, azimuth = 0° North (as per the 'North Orientation' in AS/NZS 4234).
- The alternative 'representative average installation' collector inclination = 20°, azimuth = 45° can also be used.

A.2 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 the modelling:

- is conducted on the systems default setting, unless the system does not reset after boost mode (refer Section A.4)
- accounts for any auxiliary boosting regime
- settings are within the range of settings available for the actual product
- achieves the following related Australian Standards requirements:
 - minimum delivery temperature of 45°C is achieved, and
 - products must comply with legionella requirements under AS 3498 for all settings.

Settings must be clear and consistent across the test reports, control declaration and the User Manual.

If a user manually activates boosting and the system resets to its default boost mode within 24 hours, that manual boost can be ignored in modelling. If it doesn't reset automatically, the boosted mode must be treated as active in modelling.

A.3 Load delivery

The system must report the minimum delivery temperature under the selected load 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.

Water heaters must be capable of delivering all hot water above 45°C. Products with large deadbands may be at risk of failing to meet this requirement. If your product has a large deadband that would allow the temperature to fall below 45°C, you must provide information that describes how the product can still meet this requirement.

The modelling procedure allows for the use of auxiliary boosting to meet this requirement.

A.4 User controlled boosting

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

The input parameters and control strategies used to calculate the annual energy use for step 2 in the method in Appendix A.1 are subject to modification if the product allows users to manually boost the heating capacity.

User controlled boosting allows a user to manually override the default boost mode to satisfy a short-term high demand for hot water. This feature may only operate once per day.

Where the system:

- automatically resets to the default boosting mode within 24 hours of the user changing it, the boosting can be ignored
- does not automatically reset to the default boosting mode within 24 hours of the user changing it, the boosting mode activated by the manual control must be considered always active.

A.5 Legionella compliance

Your modelling must include automated legionella checks for each climate zone and load (SANFail functionality included within TRNAUS template decks). In addition, products must also demonstrate they meet legionella requirements for very small loads. You will need to include TRNSYS deck and output files for very small loads to show your product meets this requirement.

A.6 Physical temperature sensors

Where a temperature-based control feature is claimed, your application must demonstrate that the control is based on a physical temperature sensor located within the storage tank. The sensor must directly measure the water temperature in the tank and be integrated with the control logic.

Controls based on inferred, estimated, or remote temperature signals (e.g. ambient or system-level inputs not measured at the tank) will not be accepted for the purpose of claiming this feature.

For example, where weekly sanitisation is claimed (e.g. heating 90% of the tank to 60°C), a sensor must be located at the bottom of the tank to confirm this is achieved. Without a sensor at this location, it cannot be demonstrated that the required portion of the tank reaches the target temperature.

This requirement ensures that claimed control functions reflect actual operating conditions of the water heater and can be independently verified. Applicants must provide clear evidence of the sensor location and its role in the control strategy as part of the application documentation.

A.7 Presentation of results

Results from your modelling and the associated test reports must be entered into TESSA accurately. You must enter values for all relevant fields.

The following values must be rounded to 4 decimal places:

- Zone 3 annual supplementary energy used by the equipment (Bs)
- Zone 3 annual electrical energy used by the auxiliary equipment (Be)
- Zone 5 Bs
- Zone 5 Be.

All other energy savings values must be rounded to 2 decimal places.

Total thermal capacity is the sum of the thermal capacity of all heat pumps and booster elements. For example, a system comprised of a 60kW heat pump and a 10kW electric element would have a total thermal capacity of 70kW.

A.8 Refrigerant Global Warming Potentials (GWP)

A list of refrigerants (including alternative refrigerants) and their global warming potential (GWP) values can be found in the Intergovernmental Panel on Climate Change (IPCC) fourth assessment report, 2007 and the [Department of Climate Change, Energy, the Environment and Water website](#).

B 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 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.

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 and the reported regression r-squared value. 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. Test runs (each ambient temperature) should be plotted in a different colour.

As a general guide, R^2 values should be approximately 0.95 or higher. Where R^2 values fall below 0.95, applicants must provide a clear explanation in their application outlining the reasons for the lower correlation. Where R^2 values are below 0.85, the test results may not be accepted, as they are unlikely to provide sufficient confidence in the accuracy and reliability of the modelling.

Where issues are found we may request further information, get test data directly from the labs, or require products to be re-tested. If issues cannot be resolved, we may reject your application. Examples are shown below.

Figure B.1 Example COP regression graph

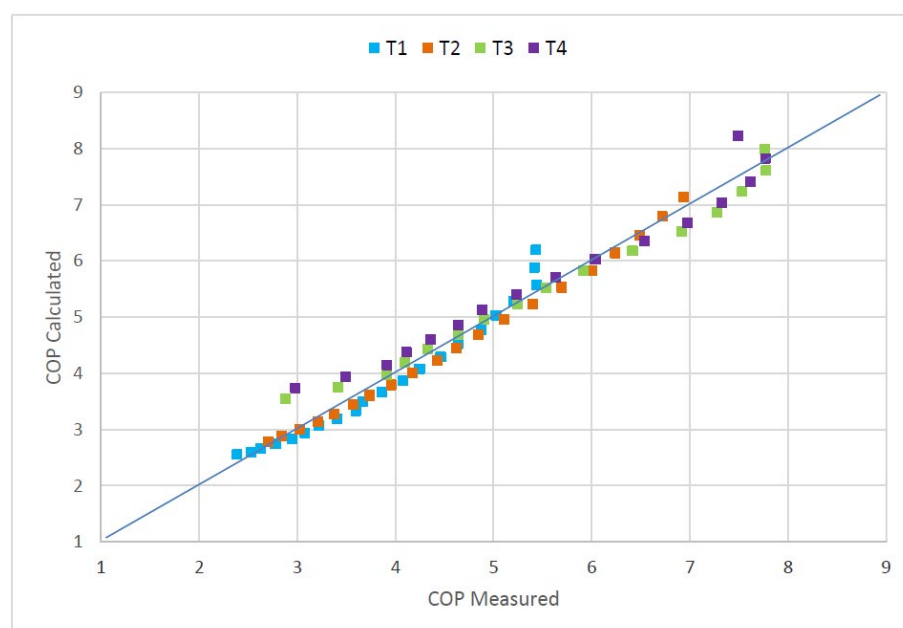


Figure B.2 Example Power regression graph

