ESSENTIAL SERVICES COMMISSION

Commercial and Industrial Heat Pump Water Heater Activity Guide

24 July 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.

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Guide overview

Accredited persons (APs) and their installers under the Victorian Energy Upgrades (VEU) program must comply with program requirements when undertaking commercial and industrial heat pump water heater activities to create Victorian energy efficiency certificates (VEECs).

About this guide

Use this guide for assistance in meeting the specific requirements (products, installation, decommissioning, recommissioning, training, safety and evidence) for commercial and industrial heat pump water heater activity upgrades. We have split the guide into seven key sections:

- Section 1: Introduction to commercial and industrial heat pump water heater activity
- Section 2: Calculating Victorian energy efficiency certificates (VEECs)
- Section 3: Requirements for personnel undertaking commercial and industrial heat pump water heater activities
- Section 4: Activity requirements for commercial and industrial heat pump water heater activities
- Section 5: Record-keeping requirements for accredited persons
- Section 6: Minimum record-keeping requirements
- Section 7: Commercial and industrial heat pump water heater activity process.

You should read this guide in conjunction with our Obligations and Program Guide for Accredited Persons for:

- overarching information about the Victorian Energy Upgrades program
- your obligations under the program
- guidance on how to create VEECs under the program.

Access this document at www.esc.vic.gov.au/veu-accredited-persons

Who should use this guide

You should use this guide if you are:

- seeking accreditation to undertake commercial and industrial heat pump water heater activities under the program
- accredited to undertake commercial and industrial heat pump water heater activities under the program
- an installer seeking to undertake installations for this activity under the program.

This guide will help you to understand the activity, your responsibilities, and evidentiary requirements you must meet to create and register VEECs.

To apply for accreditation for this activity, access the required documents at www.esc.vic.gov.au/become-veu-accredited

Seeking assistance

If you are unsure about any aspects of undertaking this activity and cannot find the answer in this guide or the documents listed above, contact VEU support on (03) 9032 1310 or veu@esc.vic.gov.au.

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. Introduction to commercial and industrial heat pump water heater activity

The Department of Energy, Environment and Climate Action (DEECA) introduced the commercial and industrial heat pump water heater activity to the VEU program under Part 44 of the VEET Regulations.

The VEET Regulations provide for three separate upgrade scenarios for installation of new commercial and industrial heat pump water heaters under the VEU program (as listed in Table 1)

Table 1: Summary of eligible commercial and industrial heat pump water heater activity scenarios

Activity scenario	Summary description
44A(i)	Decommissioning one or more gas-fired hot water boilers or gas-fired water heaters and installing an air source heat pump water heater
44A(ii)	Decommissioning one or more electric resistance hot water boilers or electric resistance water heaters and installing an air source heat pump water heater
44A(iii)	Installing an air source heat pump water heater

This activity is based on a deemed method for calculating VEECs under the program. If your commercial and industrial heat pump water heater upgrade is complex or linked to another upgrade, we recommend you consider the suitability of the measurement and verification method for project-based activities in accessing certificates under the program.

Find out how to participate in project-based activities at www.esc.vic.gov.au/project-based-activities

1.1. Which activities are eligible

For the commercial and industrial heat pump water heater upgrade to be eligible under the VEU program:

- the upgrade must take place in an eligible site
- the product installed must be eligible
- you must be accredited to undertake the commercial and industrial heat pump water heater activity
- the upgrade must be undertaken in accordance with the personnel requirements (see Section 3), activity requirements (see Section 4) and record-keeping requirements (see Section 5) for this activity

1.1.1. Eligible sites

To be eligible, the upgrade must be undertaken at:

- a business/non-residential premises, or
- the common areas of a building that is classified under Part A6 of Volume One of the Building Code as a Class 2 building (i.e., common area of a multi-unit residential building).

1.1.2. Eligible products

Any product installed as part of this activity must be listed as an approved product on the VEU Register of Products at the time of VEEC creation.

Learn more about applying for product approvals, by reading our Commercial and Industrial Air Source Heat Pump Water Heater Product Application Guide available at www.esc.vic.gov.au/veu-product-applicants

An installed product must meet the product criteria listed in Table 2 to be eligible to create VEECs under the program.

Table 2: Product criteria for commercial and industrial heat pump water heater activity scenarios

Activity	Product criteria
44A(i), 44A(ii), and 44A(iii)	One or more air source heat pump water heaters a) that each: • have an average insulated storage volume greater than 700 litres; and • provide a minimum delivery temperature of 45°C; and • are installed by a licensed or registered plumber; and • achieves the specified minimum annual energy savings; and • is modelled against the specified heat pump modelling requirements b) that each: • have an average insulated storage volume equal to or less than 700 litres but greater than 425 litres; and • have an average heat pump thermal capacity greater than 20 kilowatts; and • are certified by an accredited body as complying with AS/NZS 2712; and • provide a minimum delivery temperature of 45°C; and • are installed by a licensed or registered plumber; and • achieves the specified minimum annual energy savings and • is modelled against the specified heat pump modelling requirements

Activity	Product criteria
44A(i), 44A(ii),	Where an existing storage tank is to be used in the place of a modelled tank component, the storage tank must: • have been manufactured less than 10 years before the existing product is decommissioned • have a volume that is greater than or equal to the volume of the modelled component • be insulated.
44A(i), 44A(ii) and 44A(iii)	For products with an average insulated storage volume not exceeding 700 litres, the product must be covered by a warranty against defects for a period of at least five years from the date of installation, purchase or supply (as applicable).[1]

1.1.3. Appropriate accreditation

You must be accredited by us to create VEECs for this activity. Find the relevant application form and how to become accredited at https://www.esc.vic.gov.au/become-veu-accredited.

1.2. Common activity requirements

Accredited persons and scheme participants must ensure that they undertake activities in accordance with the program rules as listed in the VEET Act, VEET Regulations (including the code of conduct provisions), VEU Specifications and VEET Guidelines.

In addition, all activities under the VEU program must be undertaken in accordance with the provisions of the *Australian Consumer Law*, the *Electricity Safety Act 1998*, the *Gas Safety Act 1997*, the *Occupational Health and Safety Act 2004* or the *Building Act 1993* or the regulations under any of those Acts.

Marketing and lead generation requirements

Accredited persons and scheme participants (such as lead generators) must comply with all relevant laws when undertaking lead generation and marketing activities under the program including:

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

- the VEU code of conduct provisions in Schedule 6 of the VEET Regulations, including the ban on 'cold-call' telemarketing and doorknocking lead generation or marketing practices under the VEU program.
- Australian Consumer Law (Victoria) when engaging in lead generation and marketing practices permitted under the program.
- Telecommunications (Telemarketing and Research Calls) Industry Standard 2017 when engaging in telemarketing practices permitted under the program.
- Spam Act 2003 and the Spam Regulations 2021 when sending email or sms text messages for lead generation or marketing under the program. A summary of obligations is provided by the Australian Communications and Media Authority.

For further information on meeting your obligations under the VEU code of conduct, please review the code of conduct guideline and various supporting resources (including fact sheets, industry guides, compliance checklists and consumer resources) we have developed which are published on the commission website.

2. Calculating Victorian energy efficiency certificates

The number of Victorian energy efficiency certificates (VEECs) you receive for a given commercial and industrial heat pump water heater upgrade is based on the deemed abatement associated with the activity.

The deemed abatement is calculated using assumptions about an upgrade situation's key variables, such as the efficiency of a representative baseline product (electric or gas fired water heater or boiler), the expected lifetime of the new heat pump, and the pattern of demand for hot water required of the new heat pump.

Due to these assumptions, the deemed abatement calculated may vary from the actual abatement achieved for a particular upgrade. If you wish to claim VEECs using a more accurate abatement value, the measurement and verification method for project-based activities is an available option.

The key variables used to calculate the number of VEECs for the commercial and industrial heat pump water heater activity are:

- Lifetime
- EEF - electricity emissions factor
- GEF - gas emissions factor
- Capacity factor
- Load Factor - ratio of 42MJ/day to the ComPeakLoad
- ComPeakLoad - peak daily winter load
- RFE – refrigerant emissions factor
- GWP - Global warming potential
- RfrgCharge (Kg) - Refrigerant charge
- HPElec (GJ/a) – annual electricity consumption of the new heat pump water heater system as modelled in TRNSYS
- HPGas (GJ/a) – annual gas consumption of the new heat pump water heater system as modelled in TRNSYS
- RefElec (GJ/a) – reference electricity consumption of incumbent product
- RepEff – efficiency of gas boiler being replaced
- NewEff – efficiency of a hypothetical new gas boiler

The VEEC calculation method is detailed further in part 44 of the VEU Specifications made by the Secretary of the Department of Energy, Environment and Climate Action.

Appendix B includes examples of how to calculate VEECs for this activity.

An explanation of the key calculation variables is provided below.

2.1. Calculation variables

2.1.1. Lifetime

The asset lifetime values (measured in years) provided for upgrades across activity scenarios for the commercial and industrial heat pump water heater activity are as follows:

- For upgrades using an existing storage tank with a new system, the lifetime is 10 years.[2]
- For upgrades using a new storage tank with a new system, the lifetime is 15 years.[1]

2.1.2. Electricity emissions factor

The electricity emissions factor (EEF) represents emissions intensity of electricity drawn from the grid and is used to calculate greenhouse gas equivalent emissions reduction. The electricity emissions factor is in units of tonnes of carbon dioxide equivalent emissions per megawatt hour of electricity used and takes the following values:

- From 1 February 2024 to 31 January 2025, the EEF is 0.433
- From 1 February 2025, the EEF is 0.393

2.1.3. Gas emissions factor

The gas emissions factor (GEF) represents emissions intensity of natural gas drawn from the gas network and is used to calculate greenhouse gas equivalent emissions reduction. The gas emissions factor for this activity is 0.05523 tonnes of carbon dioxide equivalent emissions per gigajoule of energy used.

2.1.4. Capacity factor (for activity scenarios 44A(i) and 44A(ii) only)

The capacity factor is a ratio of the thermal capacity of the baseline product to be decommissioned and the thermal capacity of the heat pump installed.

If the baseline thermal capacity is greater than or equal to the upgrade thermal capacity, the capacity factor is 1.

If the baseline thermal capacity is lower than the upgrade thermal capacity, the capacity factor is calculated by dividing the baseline by the upgrade, to arrive at a capacity factor that is less than 1.

[2] The lifetime input value is based on assumptions of remaining life and does not amount to a warranty on the product.

- Where multiple baseline units are decommissioned under an upgrade, the baseline thermal capacity is the sum of the thermal capacities of the decommissioned baseline units.

2.1.5. Load Factor

LoadFactor is the ratio of 42 MJ/day to the winter peak daily load (see, ComPeakLoad) registered for each product, limited to a maximum ratio value of 1, for products with an average thermal heat pump capacity less than 10kW.

2.1.6. ComPeakLoad

ComPeakLoad is the peak daily winter load as defined by the TRNSYS modeler (in the deck file), such that the system meets the performance requirements

2.1.7. Refrigerant emissions factor (RFE)

The refrigerant emissions factor (RFE) represents the refrigerant fugitive emissions through the life of the product, including end-of-life. This term is a combination of static factors which acts to

- sum these losses over the lifetime of the product, and
- convert from units of kilograms to tonnes.
- The RFE in every instance is 5 x 10-4

2.1.8. Global warming potential (GWP)

The Global Warming Potential (GWP) is based on the refrigerant used in the upgrade product and is a measure of how climate polluting the refrigerant is. It is represented as a ratio of the global warming potential of the refrigerant used to charge the heat pump water heater and the global warming potential of carbon dioxide for a 100-year time horizon.

2.1.9. Refrigerant charge (RfgCharge)

The refrigerant charge (RfrgCharge) is the mass of refrigerant present in the evaporator and condenser of the air source heat pump water heater. This does not include the refrigerant required to charge the pipework which connects these working components of the system to each other. This is measured in kilograms.

2.1.10. Annual electrical energy use (HPElec)

The annual electrical energy use (HPElec) of the heat pump water heater and associated pumps and auxiliary product as modelled in TRNSYS. This variable is a TRNSYS modelling output measured in gigajoules per year (GJ/a).

2.1.11. Annual gas energy use (HPGas)

The annual gas energy use (HPGas) of a heat pump water heating system as modelled in TRNSYS. This value will be zero unless gas fired booster equipment is used in the system. This variable is a TRNSYS modelling output measured in gigajoules per year (GJ/a).

2.1.12. Reference annual electrical energy use (RefElec)

The reference annual electrical energy use (RefElec) represents the energy consumption of a theoretical electric resistance boiler supplying the same hot water load as the heat pump water heater being installed. This is measured in gigajoules per year (GJ/a) and is calculated based on the peak daily winter load output of the TRNSYS simulation.

2.1.13. Replaced Efficiency (for activity scenarios 44A(i) and 44A(ii) only)

Replaced efficiency (RepEff) is the assumed efficiency of the gas boiler or water heater being replaced. The value is 0.788 in every instance, representing a combustion efficiency of 78.8 per cent.

2.1.14. New efficiency (NewEff) (for activity scenario 44A(iii) only)

New efficiency (NewEff) represents the assumed efficiency of a hypothetical modern gas water heater for activities not involving the decommissioning of an existing product. The value is 0.85 in every instance, representing a combustion efficiency of 85 per cent.

2.2. Determining the thermal capacity for baseline and upgrade products

2.2.1. Baseline (existing system) thermal capacity

For gas-fired water heater baseline products, the thermal capacity is either:

- the thermal capacity or “output capacity” displayed on the nameplate converted to kW
- calculated using the nameplate nominal gas flow (often in MJ/hour, older units may be in BTU/hour) converted to kW using the following equation:

$$〚\text{thermal capacity (kW)}〛_{gas} = \text{nominal gas flow} \times \text{RepEff}$$

For electric resistance baseline products, the thermal capacity is either:

- displayed on the nameplate in kW
- calculated using the nameplate current by multiplying the current by a nominal voltage of 230V for single phase products.

〖thermal capacity (kW)〗_elec = nominal electrical current × 230

2.2.2. Upgrade (new heat pump) thermal capacity

The thermal capacity for the upgrade product is modelled and approved as part of the approval process for the product and can be determined by reviewing the details of the product in the VEU Register of Products.

2.3. Upgrades with multiple baseline and/or upgrade products

This activity allows for upgrades to be claimed involving single or multiple baseline and upgrade products.

Upgrades under this activity may involve the replacement of:

- one baseline product with one heat pump system (one to one replacement).
- two or more baseline products with one heat pump system (multiple to one replacement)
- one baseline product with two or more heat pump systems (one to multiple replacement).
- two or more baseline products with two or more heat pump systems (multiple to multiple replacement).

An upgrade could also involve the carrying out of different activity scenarios (44A(i), 44A(ii) and/or 44A(iii)) at the one premises and/or the installation of more than one type of heat pump system.

The examples outlined below provides guidance on how VEEC creation claims for different type of upgrade activities should be made.

2.3.1. Replacing one baseline product with two or more heat pump water heater system(s)

For upgrades replacing one baseline product with multiple heat pumps with **different** thermal capacities, the baseline thermal capacity should be apportioned in the "Baseline Thermal Capacity" fields in the VEEC creation form and allocated in proportion to the thermal capacities of each heat pump water heater system installed.

Example 1: Replacing a 60kW gas -fired water heater with a 40kW and 20kW heat pump water heater system

Activity scenario (VEEC creation form entry)	Baseline thermal capacity (VEEC creation form entry)	Upgrade system thermal capacity (from VEU Register of products)	Quantity (VEEC creation form entry)

44A(i) - Replacing gas-fired boiler/ heater	40	40	1
44A(i) - Replacing gas-fired boiler/ heater	20	20	1

Example 2: Replacing a 50kW gas -fired water boiler with a 40kW and 20kW heat pump water heater system

Activity scenario (VEEC creation form entry)	Baseline thermal capacity (VEEC creation form entry	Upgrade system thermal capacity (from VEU Register of Products)	Quantity (VEEC creation form entry)
44A(i) - Replacing gas-fired boiler/ heater	33 (i.e. 40/60*50)	40	1
44A(i) - Replacing gas-fired boiler/ heater	17 (i.e. 20/60*50)	20	1

Example 3: Replacing a 60kW electric resistance water boiler with a 60kW and 20kW heat pump system

Activity scenario (VEEC creation form entry)	Baseline thermal capacity (VEEC creation form entry	Upgrade system thermal capacity (from VEU Register of Products)	Quantity (VEEC creation form entry)
44A(ii) - Replacing electric resistance boiler/heater	60	60	1
44A(iii) - Installing an air source heat pump water heater	0	20	1

Example 4: Replacing a 60kW gas -fired water heater with three 20kW heat pump systems (i.e. three of the same product)

Activity scenario (VEEC creation form entry)	Baseline thermal capacity (VEEC creation form entry)	Upgrade system thermal capacity (from VEU Register of Products)	Quantity (VEEC creation form entry)	Total installed thermal capacity (Registry calculated value)

44A(i) - Replacing gas-fired boiler/ heater	60	20	3	60

2.3.2. Replacing two or more baseline products with the one upgrade product

For upgrades involving the replacement of two or more baseline products with the one heat pump system, you must include the sum of the thermal capacities of all the products being replaced in the 'Baseline thermal capacity' field in the VEEC creation form for the upgrade.

Example 5: Replacing two 25kW gas -fired water boilers with a 40kW heat pump water heater system

Activity scenario (VEEC creation form entry)	Baseline thermal capacity (VEEC creation form entry	Upgrade system thermal capacity (from VEU Register of Products)	Quantity (VEEC creation form entry)
44A(i) - Replacing gas-fired boiler/ heater	50 (i.e. 2 * 25)	40	1

2.3.3. Replacing two or more baseline products with two or more upgrade products

The sum of the baseline thermal capacities should be entered into the VEEC creation form for upgrades replacing multiple baseline products.

If multiples of the same heat pump products are installed, the number of products installed should be reflected in the Quantity field in the VEEC creation form.

Example 6: Replacing two 40kW gas-fired water heaters with four 20kW heat pumps (i.e. four of the same product)

Activity scenario (VEEC creation form entry)	Baseline thermal capacity (VEEC creation form entry)	Upgrade system thermal capacity (from VEU Register of Products)	Quantity (VEEC creation form entry)	Total installed thermal capacity (Registry calculated value)
44A(i) - Replacing gas-fired boiler/ heater	80	20	4	80

If multiple heat pumps with **different** thermal capacities are being installed, the sum of all baseline thermal capacities should be allocated in proportion to the thermal capacities of each heat pump installed.

Example 7: Replacing two 40kW baseline gas water heaters with a 60kW and 30kW heat pump system

Activity scenario (VEEC creation form entry)	Baseline thermal capacity (VEEC creation form entry)	Upgrade system thermal capacity (from VEU Register of Products)	Quantity (VEEC creation form entry)
44A(i) - Replacing gas-fired boiler/ heater	53.4 (i.e. 60/90 * 80)	60	1
44A(i) - Replacing gas-fired boiler/ heater	26.7 (i.e. 30/90 * 80)	30	1

3. Requirements for personnel undertaking commercial and industrial heat pump water heater upgrades

3.1. Compliance with legislation and managing safety risks

A certificate cannot be created if the prescribed activity is not undertaken in accordance with provisions of the *Australian Consumer Law*, the *Electricity Safety Act 1998*, the *Gas Safety Act 1997*, the *Occupational Health and Safety Act 2004*, the *Building Act 1993* and regulations made under those acts.

An accredited person is responsible for ensuring any installers doing work on its behalf is complying with this legislation. The commission takes non-compliance with these requirements seriously, particularly due to the potential safety risks associated with non-compliance. Accredited persons found creating certificates where the installation of the heat pump water heater is not consistent with those requirements may be the subject of enforcement action.

To minimise risk and ensure a safe work environment, you and your installers should be aware of the risks applicable to commercial and industrial building environments including:

risks relating to installers working in constricted places and the use of specialist equipment
risks associated with the handling of equipment with water at high temperatures and refrigerant gasses.

3.2. Required training and qualifications

3.2.1. Licensing and registration requirements

All commercial and industrial heat pump water heater upgrades, including work undertaken to decommission the replaced system, must comply with legal requirements and be undertaken by personnel holding the correct registration or licenses as required by legislation.

See below links which provides further details of the registration/licensing requirements in relation to the installation of heat pump water heaters of these bodies:

- Registration/licensing requirements for plumbing work under the *Building Act 1993* and regulations under that Act as administered by the Victorian Building Authority (VBA): Heat pump installations : VBA webpage

- Registration/licensing requirements for electrical work under the Energy Safet Act 1998 and regulations under that Act as administered by Energy Safe Victoria (ESV) : Hot water system installation information for Solar Homes and VEU program installers | Energy Safe Victoria

- Refrigerant handling license requirements under the Ozone Protection and Synthetic Greenhouse Gas Management Act 1989 and regulations under that Act as administered by Australian Refrigeration Council (ARC). https://www.arctick.org/refrigerant-handling-licence/licence-types/

3.2.2. Licensing and registration record-keeping requirements

Accredited persons must maintain a register of personnel qualifications (plumbing licence, electrical licence, refrigerant handling licence, and/or gas fitting licence as required) to confirm all personnel involved have the relevant qualifications needed to decommission the baseline product and/or install the upgrade product.

3.3. Role of the upgrade manager

For each upgrade, you should nominate a single person (referred to as the upgrade manager) to legally represent your business to verify the documentation for the upgrade, including but not limited to the VEEC assignment form and documentation outlined in the evidence requirements.

This should be the person who is responsible for overseeing the installation and commissioning of the commercial and industrial heat pump water heater upgrade.

4. Activity requirements for commercial and industrial heat pump water heater activities

Accredited persons should be aware of, and adhere to, below activity requirements to ensure that you comply with legislation

4.1. Assignment of rights to create VEECs

A consumer may assign their right to create VEECs to an accredited person. A VEEC assignment form must be completed for an accredited person to create VEECs and demonstrate compliance with the legislation.

Download the VEEC assignment form template for this activity at www.esc.vic.gov.au/commercial-and-industrial-heat-pump-water-heater

Energy consumers must be provided a copy of the VEEC assignment form at the time of signing (for written forms) or within 10 business days of signing (for electronic forms). Installers and accredited persons must take steps to ensure that all personal information collected in the VEEC assignment form is held in accordance with the Information Privacy Principles under the Privacy and Data Protection Act 2014 (Vic).

More information on the principles can be found at https://ovic.vic.gov.au/privacy.

4.2. Commercial and industrial heat pump water heater modelling requirements

All products to be installed under this activity of the VEU program must be modelled in TRNSYS in accordance with the Commercial and Industrial Air Source Heat Pump Water Heater Product Application Guide so that minimum annual energy savings are determined for both HP4-Au and HP5-Au climate zones. The TRNSYS files must be provided to the commission for approval.

The product must be installed using components as modelled. The only exception is that an existing storage tank may be used in place of a modelled tank if the tank:

- was manufactured less than 10 years before the existing product is decommissioned
- has a volume that is greater than or equal to the volume of the modelled tank component
- is insulated.

4.3. Decommissioning requirements

Activity scenarios 44A(i) and 44A(ii) need to meet relevant baseline and decommissioning requirements.

The baseline product – i.e. hot water boiler or heater to be decommissioned - must be in working order and at least 10 years old at the date it is decommissioned based on its manufacturing year. If the product's storage tank is less than 10 years old, the boiler or heater is still an eligible baseline product.

If your upgrade involves decommissioning a baseline product, you must decommission that product prior to certificate creation. Details of your decommissioning practices must be supplied to us as part of your accreditation application for this activity.

Record-keeping requirements for the decommissioning of the baseline product is set out in section 6 below.

4.3.1. Meeting your decommissioning declaration requirements

Accredited persons, their associates, or an entity under their instructions, must not alter the baseline environment for a given installation for the purposes of inflating a VEEC claim.

For commercial and industrial heat pump water heater activities involving decommissioning (activity 44A(i) and 44A(ii)), accredited persons, their installer, and the consumer will need to provide a declaration to us stating that the decommissioned product was not installed for the purposes of decommissioning it as part of this activity under the program. This declaration must be made by the installer and the energy consumer as part of the activity's VEEC assignment form.

4.3.2. Meeting EPA's waste management requirements

You must manage your waste in accordance with the Victorian environment protection framework, established by the Environment Protection Act 2017 (EP Act) and Environment Protection Regulations 2021 (EP Regulations). This includes complying with the relevant waste duties.

Under the EP Act and EP Regulations, waste duties apply to all business that generate, transport or receive industrial waste. In summary, businesses managing industrial waste must:

- classify all waste streams to determine the relevant waste code and waste type (industrial, priority or reportable priority waste). For instance, a decommissioned water heater or space heater is likely to be classified as waste code T300 (E-waste) which is priority waste.
- ensure waste is safely contained during transportation and provide the transporter with enough information about the waste.

- ensure waste goes to a place that is lawfully authorised to receive it, which is called a lawful place. Some common types of lawful places are permissioned resource recovery facilities, transfer stations and landfills. Sites with an Environment Protection Authority (EPA) permission are listed on a public register maintained by the EPA. Note: e-waste is banned from landfill in Victoria.

Find out more about your waste duties on EPA's website.

If waste is to temporarily stored before it is collected and further transported for disposal, it must be stored properly and in accordance with relevant EP Act requirements, including any required EPA permissions. Up to 5m3 of non-priority industrial waste or e-waste (excluding batteries) can be stored temporarily requiring an EPA permission.[3]

4.4. Co-payment requirements[4]

The energy consumer must have paid the accredited provider or scheme participant a minimum co-payment amount of $1,000 (including GST) per installed product. The co-payment must be paid by the energy consumer before VEECS can be created for the activity.

The co-payment amount cannot be reimbursed, in part or in full, to the energy consumer in any form, including money, goods or services.

4.5. Consumer information provision requirements

Table 3 below provides a summary of the records and information that must be provided to the consumer:

Table 3: Information to be provided to consumer for all commercial and industrial heat pump water heating activities

Activity stage	Document or information
Prior to undertaking the installation	• VEET Scheme Consumer Factsheet. • Information as set out in the VEU Code of Conduct, including clear and accurate information on the activity (e.g. product performance and suitability of the product to that person and premises), information about your rights and obligations under the VEU program, terms and conditions of the contract, and contact details of the person to be undertaking the installation.
On completion of the installation	• Tax invoice. • VEEC Assignment Form.

[3] See schedule 1 and regulation 63 of the Environment Protection Regulations 2017.

[4] The co-payment requirement only applies to products installed under this activity from 1 February 2025

Activity stage	Document or information
	• Victorian Building Authority (VBA) Compliance Certificate and/or Certificate of Electrical Safety (as applicable to the installation). • Information as set out in the VEU Code of Conduct including dispute resolution information, manufacturer's instructions, and contact details of the accredited person and/or scheme participant who undertook the installation. • A minimum 5 year warranty against defects document containing the business's name, address, email address and phone number of who to contact regarding product warranty obligations in Australia in the event of a product failure.[5]

4.6. Prohibition on claiming dual benefits

Accredited persons are not able to claim VEECs for upgrades undertaken under the program's commercial and heat pump water heater activity (activity 44), as well as small scale technology certificates (STCs) under the Renewable Energy Target scheme (established under the Renewable Energy (Electricity) Act 2000 of the Commonwealth.

As part of an application for accreditation, accreditation applicants are required to undertake not to claim any benefit under a prescribed greenhouse gas scheme (which includes the Renewable Energy Target scheme) if that would result in a benefit being obtained under both that scheme and the VEU program in respect of the same activity.

We may take enforcement action against accredited persons who claim benefits under both the VEU program and the Renewable Energy Target scheme, including requiring surrender of VEECs and/or commencing civil penalty proceedings.

4.7. Clarification on eligibility of certain types of upgrades

In response to queries from stakeholders, we note our position on eligibility of upgrades which requires additional heating to heat water above the temperature the products registered under this activity is able to achieve (for example for pasteurisation, sterilisation of other industrial process purposes) are as follows:

- Upgrades where installers are decommissioning some of the electrical capacity but leaving some heating elements in place and installing a new registered heat pump product (partial decommissioning upgrade) are not eligible under activity scenarios 44A(i) and (ii). These upgrades may be eligible under activity scenario 44A(iii) where accredited persons and installers are able to satisfy the installation requirements of the product, including those stated in Table 44.3 of the VEU Specifications, i.e. the product must be installed as modelled except

[5] This warranty provision requirement applies only to products installed from 31 March 2025.

that an existing storage tank may be used as storage in place of a modelled component if evidence as set out in the table is provided to the commission.

- Upgrades where installers are decommissioning the whole heater and installing a new registered heat pump product and an additional finishing tank (modification upgrade) are not eligible under any scenarios under activity 44.

We may take compliance and enforcement action against accredited persons who create VEECs that do not comply with the VEU program rules, including:

- requiring surrender of certificates for activities deemed by the commission to be ineligible.
- suspending, cancelling or not renewing accreditation.
- imposing conditions on accreditation.

We also note that any actions taken by accredited persons or scheme participants to modify an upgrade after VEECs have been created for the upgrade may also result in compliance and enforcement actions taken by the commission for breaches of the code of conduct. We note that the code regulates the behaviour of accredited persons, including requiring accredited persons and scheme participants to:

- ensure that their work is carried out in a professional and ethical manner.
- protect the interests of energy consumers and promote confidence in the VEU program.
- meet high standards of conduct in their dealings with energy consumers and others.
- comply with the program's regulatory framework.

5. Record-keeping requirements for accredited persons

Accredited persons must collect evidence to demonstrate that each upgrade has been undertaken in accordance with the VEET Regulations and VEU Specifications. Accredited persons are also required to maintain documentation for each commercial and industrial heat pump water heater upgrade and provide it to us upon request.

5.1. Record-keeping obligations

Accredited persons must keep appropriate records to verify all details of the upgrade which relate to the calculation of greenhouse gas abatement and the creation of VEECs.

We may ask to review these records prior to VEECs being registered, or up to six years after they are registered, as evidence that your upgrade complies with the legislation.

Your records must be an auditable record of the work undertaken. If your documentation fails to provide an auditable record of the work undertaken, you may be required to surrender VEECs equivalent to those which we cannot verify or be subject to other compliance and enforcement actions.

5.2. Geo-tagged photograph obligations

Accredited persons are required to collect geo-tagged photographs to verify that the installation of all parts has been performed in accordance with the Victorian Energy Efficiency Target Regulations. Geo-tagged photographs must:

- be clear and in focus.
- include any relevant markings.
- include a date stamp showing the date the photographs were taken.
- include the GPS derived latitude and longitude coordinates. This should be stored in the metadata and generated automatically by the device used to take the geo-tagged photographs.

5.3. Minimum record-keeping requirements

5.3.1. Decommissioning a gas product and installing an air source heat pump water heater (activity 44A(i))

Table 3: Record-keeping requirements for decommissioning a gas water heater or boiler and installing an air source heat pump water heater (activity 44A(i))

Requirements	Documentation	Description
Eligibility	VEEC assignment form	A declaration, signed by the accredited person or the upgrade manager, declaring that: • the building where the activity takes place is a Class 2 building (as per the Building Code of Australia) or a non-residential premises, and • the product was installed as modelled except where an existing storage tank is used as storage in place of a modelled component for activity 44A(i) and 44A(ii)
Proof of commercial transaction and energy consumer	Tax invoice	A valid tax invoice for the work carried out including: • the name, address, and Australian Business Number (ABN)/Australian Company Number (ACN) of the energy consumer • the date of issue of the invoice • the installation address • the amount paid by the energy consumer • the name, address, and ABN of the upgrade manager business • the itemised list of installed components including brand(s) and model(s) names.
Baseline product(s)	Geo-tagged photographs of the baseline heater/boiler and tank name plates and/or Manufacturer document(s)	The photographs must clearly show: • the model number • the serial number • the thermal capacity or gas consumption • the year of manufacture of the heater or boiler showing that the heater or boiler is at least 10 years old • the year of manufacture of the tank • the volume of the tank. Where the above information is not legible or available in the nameplates, manufacturer document(s) or data sheet(s) that contains this information must be provided

Upgrade Product(s)	Geo-tagged photographs of the upgrade heat pump nameplate(s)	The photographs must clearly show: • the brand(s) • the model number(s) • the serial number(s) • the insulated storage volume of the tank(s).
	Geo-tagged photographs	The photograph must clearly show the heat pump, booster, and tank after installation.
Decommissioning	Geo-tagged photographs of the baseline product or Recycling invoice	The photographs must clearly show the baseline product(s) having been decommissioned or the recycling invoice for the decommissioned product.
Compliance	Victorian Building Authority (VBA) compliance certificate	VBA compliance certificate must be provided if required by law and must include: • the address details of the heat pump upgrade(s) • the type and quantity of products installed. If the plumber undertakes wholly or any part of decommissioning, the certificate must also include: • the type, brand, and model baseline product(s) decommissioned • the method of decommissioning.
	Certificate of electrical safety (CoES)	A CoES must be provided if one is required by law and must include: • the address details of the heat pump upgrade(s) • the type and quantity of products installed. If the electrician undertakes wholly or any part of decommissioning, the CoES must also include: • The type, brand, and model of each baseline product decommissioned • The method of decommissioning.

5.3.2. Decommissioning an electric product and installing an air source heat pump water heater (activity 44A(ii))

Table 4: Record-keeping requirements for decommissioning an electric product and installing an air source heat pump (activity 44A(ii))

Requirements	Documentation	Description
Eligibility	VEEC assignment form	A declaration, signed by the accredited person or the upgrade manager, declaring that: • the building where the activity takes place is a Class 2 building (as per the Building Code of Australia) or a non-residential premises, and • the product was installed as modelled except where an existing storage tank is used as storage in place of a modelled component for activity 44A(i) and 44A(ii)
Proof of commercial transaction and energy consumer	Tax invoice	A valid tax invoice for the work carried out including: • the name, address, and Australian Business Number (ABN)/Australian Company Number (ACN) of the energy consumer • the date of issue of the invoice • the installation address • the amount paid by the energy consumer • the name, address, and ABN of the upgrade manager business • the itemised list of installed components including brand(s) and model(s) names.
Baseline product(s)	Geo-tagged photographs of the baseline heater/boiler and tank name plates and/or Manufacturer document(s)	The photographs must clearly show: • the model number • the serial number • the thermal capacity or input power • the year of manufacture of the heater or boiler showing that the heater or boiler is at least 10 years old • the year of manufacture of the tank • the volume of the tank. Where the above information is not legible or available in the nameplates, manufacturer document(s) or data sheet(s) that contains this information must be provided.

Upgrade product(s)	Geo-tagged photographs of the upgrade heat pump nameplate(s)	The photographs must clearly show: • the brand(s) • the model number(s) • the serial number(s) • the insulated storage volume of the tank(s).
	Geo-tagged photographs	The photograph must clearly show the heat pump, booster, and tank after installation.
Decommissioning	Geo-tagged photographs of the baseline product or Recycling invoice	The photographs must clearly show the baseline product(s) having been decommissioned or the recycling invoice for the decommissioned product.
Compliance	Victorian Building Authority (VBA) compliance certificate	VBA compliance certificate must be provided if required by law and must include: • the address details of the heat pump upgrade(s) • the type and quantity of products installed. If the plumber undertakes wholly or any part of decommissioning, the certificate must also include: • the type, brand, and model baseline product(s) decommissioned • the method of decommissioning.
	Certificate of electrical safety (CoES)	A CoES must be provided if one is required by law and must include: • the address details of the heat pump upgrade(s) • the type and quantity of products installed. If the electrician undertakes wholly or any part of decommissioning, the CoES must also include: • The type, brand, and model of each baseline product decommissioned • The method of decommissioning.

5.3.3. Installing an air source heat pump water heater (activity 44A(iii))

Table 5: Record-keeping requirements for installing an air source heat pump water heater (activity 44A(iii))

Requirements	Documentation	Description
Eligibility	VEEC assignment form	A declaration, signed by the accredited person or the upgrade manager, declaring that: • the building where the activity takes place is a Class 2 building (as per the Building Code of Australia) or a non-residential premises, and • the product was installed as modelled
Proof of commercial transaction and energy consumer	Tax invoice	A valid tax invoice for the work carried out including: • the name, address, and Australian Business Number (ABN)/Australian Company Number (ACN) of the energy consumer • the date of issue of the invoice • the installation address • the amount paid by the energy consumer • the name, address, and ABN of the upgrade manager business • the itemised list of installed components including brand(s) and model(s) names.
Upgrade product(s)	Geo-tagged photographs of the upgrade heat pump nameplate(s)	The photographs must clearly show: • the brand(s) • the model number(s) • the serial number(s) • the insulated storage volume of the tank(s).
	Geo-tagged photographs	The photograph must clearly show the heat pump, booster, and tank after installation.
Compliance	Victorian Building Authority (VBA) compliance certificate	VBA compliance certificate must be provided if required by law and must include: • the address details of the heat pump upgrade(s) • the type and quantity of products installed. If the plumber undertakes wholly or any part of decommissioning, the certificate must also include: • the type, brand, and model baseline product(s) decommissioned • the method of decommissioning.

	Certificate of electrical safety (CoES)	A CoES must be provided if one is required by law and must include: • the address details of the heat pump upgrade(s) • the type and quantity of products installed. If the electrician undertakes wholly or any part of decommissioning, the CoES must also include: • the type, brand, and model of each baseline product decommissioned • the method of decommissioning.

6. Commercial and industrial heat pump water heater activity process

This section provides you with the process for undertaking a commercial and industrial heat pump water heater activity under the program.

6.1. Become accredited

You must be accredited/approved to undertake this activity to create VEECs for this activity. Visit www.esc.vic.gov.au/become-veu-accredited for information on how to become accredited.

6.2. Get product approved (if not already approved)

To create VEECs for this activity, the product installed must be listed as an approved product on the VEU Register of Products. Accredited persons should check the register to see if the product you wish to install has already been approved as another organisation may have submitted the product for approval (e.g. product manufacturer/supplier).

Learn more about getting products approved in our Commercial and Industrial Air Source Heat Pump Water Heater Product Application Guide at www.esc.vic.gov.au/veu-product-applicants.

6.3. Register installers as scheme participants in the VEU Registry

Accredited persons need to register installers as scheme participants in the VEU Registry prior to creating VEECs for activities undertaken by the installer. You can register an installer as a scheme participant via the VEU Registry under 'My Account'.

For cold room activity, you must record the following personnel as scheme participants in the VEEC creation form for the activity:

- An electrician licence registered with Energy Safe Victoria or a Restricted Electrical Worker registered by Energy Safe Victoria with suitable training in water heating appliances
- A plumber licence registered with the Victorian Building Authority (where upgrade involves work required to be undertaken by a registered or licensed plumber under the Plumbing Regulations 2018)
- A person holding a refrigerant handling licence issued by the Australian Refrigerant Council (where upgrade involves handling of fluorocarbon refrigerant under the Ozone Protection and Synthetic Greenhouse Gas Management Regulations 1995)

6.4. Gather baseline information

Accredited persons or installers must verify the baseline environment by collecting any necessary information needed for certificate creation prior to performing the upgrade. Record-keeping requirements are outlined in sections 5 and 6.

6.5. Undertake the upgrade and collect records

Installers must comply with the program rules and other relevant legislation, including the Electricity Safety Act 1998, the Gas Safety Act 1997, the Occupational Health and Safety Act 2004, and the Building Act 1993 (and any regulations made under any of those Acts) when undertaking the upgrade, and must collect records as outlined sections 5 and 6 of this document.

6.6. Assignment of rights

An important part of the certificate creation process is the valid assignment of the right to create VEECs from the consumer to an accredited person. Ensure the signatory has the legal authority to sign on behalf of the consumer entity.

6.7. Decommission baseline product

For activities 44A(i) and 44A(ii), the baseline product that is replaced or removed must be decommissioned in accordance with the VEET Regulations (see section 4.3). See section 5.3 for record-keeping requirements.

6.8. Create VEECs in the VEU Registry

Prior to creating VEECs for an activity, accredited persons must have collected the required records for the upgrade as specified in section 6. The commission may ask for these records as part of our certificate assessment process.

To create VEECs in the VEU Registry, you can upload the activity using either bulk submissions completed through an Application Programming Interface (API) connector or activity submission form in the VEU Registry. Different activity types have different data input requirements, so it is important that you input the correct data in the relevant fields.

After you press the 'submit' button, the VEECs associated with your activities are created and assigned a unique identifier.

A certificate creation fee of $2.33 per certificate applies to all VEECs created by an accredited person. We issue invoices on Tuesdays and Thursdays each week for VEECs created by accredited persons. If you identify an issue with activities you have submitted for creation, to avoid being charged a creation fee for VEECs you have created, you will need to withdraw the VEECs before 6am on Tuesday and Thursdays.

6.8.1. Guidance on recording pricing and payment information when creating VEECs

For each activity, you must complete the following pricing information in the VEEC creation form:[6]

[6] With transition to the new VEU Registry, you may not be required to record this information in the VEEC creation form for an interim period.

- Price of Product(s) inc GST ($): Enter the total price for products installed at the premises (including labour/installation costs) before VEEC incentives are applied.
- Consumer Payment for Product(s) inc GST ($): Enter the amount paid by the consumer for all products installed at the premises (including labour/installation costs) after VEEC incentives are applied.

6.9. VEEC assessment

Once you have paid your certificate creation fees, we will assess the created VEECs for eligibility for registration. This process involves checks to verify that VEECs have been created in accordance with the VEET Act and VEET Regulations. Given the complex nature of these upgrades and the potential VEEC volumes involved for a single installation, a detailed assessment of each activity submitted for VEEC creation may be conducted. We may require you submit to us record evidence as part of that assessment process.

6.10. Commission registers VEECs (if eligible)

Once your VEEC creation claims have been validated, we will register your VEECs and notify you that the VEECs are available to be traded and/or surrendered to us.

Appendix A: VEEC calculation and worked examples for creating VEECs[7]

The upgrade product to be used in the following three examples is a heat pump water heater product with the following product characteristics: has a thermal capacity of 60kW, uses refrigerant type R410A, has a refrigerant charge of 20 kg, has a zone 5 HPElec of 128.35GJ/year, has a zone 5HPGas of 0, and a zone 5 peak load of 1100MJ/day.

This appendix is intended to provide guidance to stakeholders on potential value for an upgrade under activity 44. You should refer to the VEU Specifications when calculating VEECs for this activity.

Activity 44A(i) - Decommissioning a gas water heater/boiler and installing an electric boosted air source heat pump water heater

GHG Eq. Reduction = ∑systems [GEF x (RefElec/RepEff) – GEF x HPGas - EEF x (HPELec/3.6)] x CapacityFactor x Load Factor x Lifetime + ∑systems [(1430 – GWP) x RFE x RfrgCharge]

Example: Replacing a 13kW gas boiler with 13.4kW heat pump with new tank in postcode metropolitan, climate zone 5.

Input values from upgrade product:

- RefElec is 251.11307
- Zone 5 HPElec is 62.64 GJ/a
- Zone 5 HPGas is 0
- GWP is 1 (given refrigerant type is R744)
- RfrgCharge is 2.07
- Load factor is 0.05801105

Input values from table 44.4 of the VEU Specifications:

- GEF is 0.05523

[7] Examples in this appendix are for demonstrating calculations only and may not reflect actual baseline and upgrade products.

- RepEff is 0.788
- EEF is 0.393
- Capacity Factor is 0.970149
- Lifetime is 15 years (for new tank)
- RFE is 0.0005

Table 6: VEECs generated for activity scenario 44A(i) worked example

Activity	Greenhouse Gas Equivalent Reduction Equation	VEECs
44A(i)	[GEF x (RefElec/RepEff) – GEF x HPGas – EEF x (HPELec/3.6)] x CapacityFactor x Load Factor x Lifetime + [(1430 – GWP) x RFE x RfrgCharge] [0.0552 x (251.11307/0.788) – 0.05523 x 0 – 0.393 x (62.64/3.6)] x 1 x 0.970149 x 15 + [(1430 – 0.05801105) x 0.0005 x 2.07]	11

Activity 44A(ii) – Decommissioning an electric water heater/boiler and installing an electric boosted air source heat pump water heater

GHG Eq. Reduction = ∑systems [EEF x (RefElec/3.6)– GEF x HPGas – EEF x (HPELec/3.6)] x CapacityFactor x Load Factor x Lifetime + ∑systems [(1430 – GWP) x RFE x RfrgCharge]

Example: Replacing a 13kW electric resistant water heater with a 13.4kW heat pump with a new tank in postcode regional, climate zone 5.

Input values from upgrade product:

- RefElec is 251.113065
- Zone 5 HPElec is 62.64
- Zone 5 HPGas is 0
- GWP is 1 (given refrigerant type is R774)
- RfrgCharge is 2.07 kg

Input values from table 44.5 of the VEU Specifications:

- EEF is 0.393
- GEF is 0.0552
- Load Factor 0.05801105
- ComPeak Load 62.64
- Capacity Factor is 0.970149254 (i.e. baseline thermal capacity = upgrade thermal capacity)
- Lifetime is 15 years (for new tank)
- RFE is 0.0005

Table 7: VEECs generated for activity scenario 44A(ii) worked example

Activity	Greenhouse Gas Equivalent Reduction Equation	VEECs
44A(ii)	[EEF x (RefElec/3.6)– GEF x HPGas – EEF x (HPELec/3.6)] x CapacityFactor x Load Factor x Lifetime + [(1430 – GWP) x RFE x RfrgCharge] [0.393 x (251.113065 /3.6)– 0.0552 x 0 – 0.393 x (62.64 /3.6)] x 1 x 0.05801105 x 15 + [(1430 – 1) x 0.0005 x 2.07]	18.84

Activity 44A(iii) – Installing an electric boosted air source heat pump water heater in climate zone 5

GHG Eq. Reduction = ∑systems [GEF x (RefElec/NewEff) – GEF x HPGas - EEF x (HPELec/3.6)] x Lifetime x Load Factor + ∑systems [(1430 – GWP) x RFE x RfrgCharge]

Example: Installing a 13.4kW heat pump with a new tank in postcode regional, climate zone 5.

Input values from upgrade product:

- RefElec is 251.113065
- Zone 5 HPElec is 62.64
- Zone 5 HPGas is 0
- GWP is 1 (given refrigerant type is R774)
- RfrgCharge is 2.07 kg

Input values from table 44.6 of the VEU Specifications:

- GEF is 0.0552
- NewEff is 0.85
- EEF is 0.393
- Load Factor 0.05801105
- Lifetime is 10 years (for new tank)
- RFE is 0.0005

Table 8: VEECs generated for activity scenario 44A(iii) worked example

Activity	Greenhouse Gas Equivalent Reduction Equation	VEECs
44A(iii)	[GEF x (RefElec/NewEff) – GEF x HPGas - EEF x (HPELec/3.6)] x Lifetime x Load Factor + [(1430 – GWP) x RFE x RfrgCharge] [0.0552 x (251.113065/0.85) – 0.0552 x 0 – 0.393 x (62.64/3.6)] x 10 x 0.05801105 + [(1430 – 1) x 0.0005 x 2.07]	6.97

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

Table 9: List of refrigerant types (including alternative refrigerants) with global warming potentials (GWP) values[8]

Refrigerant type	Substance name	GWP
R-1234yf	HFO-1234yf	5
R-1234ze(E)	HFO-1234ze	5
R-125	HFC-125	3500
R-1270	HC-1270	5
R-12A	HC-12A	5
R-134A	HFC-134A	1430
R-143A	HFC-143a	4470
R-152A	HFC-152a	124
R-170	HC-170	5
R-227EA	HFC-227EA	3220
R-22A	HC-22A	5
R-23	HFC-23	14800
R-236CB	HFC-236CB	1340
R-236EA	HFC-236EA	1370
R-236FA	HFC-236FA	9810
R-245CA	HFC-245CA	693
R-245FA	HFC-245FA	1030
R-290	HC-290	3

Refrigerant type	Substance name	GWP
R-32	HFC-32	675
R-365MFC	HFC-365MFC	794
R-404A	HFC-404A	3922
R-407A	HFC-407A	2107
R-407B	HFC-407B	2804
R-407C	HFC-407C	1774
R-407D	HFC-407D	1627
R-407E	HFC-407E	1552
R-407F	HFC-407F	1825
R-407G	HFC-407G	1463
R-41	HFC-41	92
R-410A	HFC-410A	2088
R-410B	HFC-410B	2229
R-413A	HFC-413A	2053
R-417A	HFC-417A	2346
R-417B	HFC-417B	3027
R-417C	HFC-417C	1809
R-419A	HFC-419A	2967

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

Refrigerant type	Substance name	GWP
R-419B	HFC-419B	2384
R-421A	HFC-421A	2631
R-421B	HFC-421B	3190
R-422A	HFC-422A	3143
R-422B	HFC-422B	2526
R-422C	HFC-422C	3085
R-422D	HFC-422D	2729
R-422E	HFC-422E	2592
R-423A	HFC-423A	2280
R-424A	HFC-424A	2440
R-425A	HFC-425A	1505
R-426A	HFC-426A	1508
R-427A	HFC-427A	2138
R-428A	HFC-428A	3607
R-429A	HFC-429A	13
R-430A	HFC-430A	94
R-43-10MEE	HFC-43-10MEE	1640
R-431A	HFC-431A	36
R-434A	HFC-434A	3245
R-435A	HFC-435A	26
R-437A	HFC-437A	1805
R-438A	HFC-438A	2264
R-439A	HFC-439A	1983
R-440A	HFC-440A	144
R-442A	HFC-442A	1888
R-444A	HFC-444A	87
R-444B	HFC-444B	293
R-445A	HFC-445A	129

Refrigerant type	Substance name	GWP
R-446A	HFC-446A	459
R-447A	HFC-447A	582
R-447B	HFC-447B	739
R-448A	HFC-448A	1386
R-449A	HFC-449A	1396
R-449B	HFC-449B	1411
R-449C	HFC-449C	1250
R-450A	HFC-450A	601
R-451A	HFC-451A	146
R-451B	HFC-451B	160
R-452A	HFC-452A	2139
R-452B	HFC-452B	697
R-452C	HFC-452C	2219
R-453A	HFC-453A	1765
R-454A	HFC-454A	236
R-454B	HFC-454B	465
R-454C	HFC-454C	145
R-455A	HFC-455A	145
R-456A	HFC-456A	684
R-457A	HFC-457A	136
R-458A	HFC-458A	1650
R-500	HFC-500	8077
R-502A	HC-502A	5
R-503	HFC-503	14560
R-507A	HFC-507A	3985
R-508A	HFC-508A	13214
R-508B	HFC-508B	13396
R-512A	HFC-512A	189

Refrigerant type	Substance name	GWP
R-513A	HFC-513A	629
R-513B	HFC-513B	593
R-515A	HFC-515A	386
R-600	HC-600	5

Refrigerant type	Substance name	GWP
R-600A	HC-600A	3
R-601A	HC-601a	5
R-717	HC-717	0
R-744	HC-744	1

Document version control

Version	Amendments made	Date published
1.0	First release	1 February 2022
1.1	Updated for error in calculation equation for activity 44A(i) in Appendix A	23 February 2022
1.2	Update to clarify requirement for hot water boiler or heater to be in working order and 10 years old	17 March 2023
1.3	Update to reflect consistency with VEU Specifications – 15.0 and other clarifications (including addition of section 4.4)	29 June 2023
1.4	Revision to reflect changes to VEEC creation fee process	1 November 2023
1.5	Revision to remove an error in record-keeping requirement for activity 44A(iii) for baseline product photos	19 January 2024
1.6	Revision to reflect a VEET regulations banning cold-calling telemarketing and doorknocking under the program	1 May 2024
1.7	Update to table 2 to make clear that existing storage tanks can't be used under activity 44A(iii)	1 July 2024
1.8	Revision to reflect warranty requirements introduced in VEU Specifications 18.0	25 October 2024
1.9	Update to clarify licencing requirements and to provide guidance on recording pricing and payment information	20 January 2025
1.10	• Update to product warranty requirement to reflect VEU Specifications 19.1 release • Minor clarification to co-payment information requirement • Update to clarify eligibility of upgrades under this activity (see section 4.7)	18 February 2025
1.11	Update to reflect transition to new VEU Registry system	3 June 2025
1.12	Update to reflect VEU Specification V20	24 July 2025