

# Victorian Energy Upgrades Specifications 2018 Version 21.0

Specifications 2018 – Version 21.0

## Author

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## Document Version

Version 21.0 comes into effect from 29 September 2025. Versions 0.1 to 20.0 are no longer in effect as at 29 September 2025.

| Version | Amendments                                                                                                                                                                                                                                                                                                                                                                                | In effect from    |
|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|
| 21.0    | Added new Part 47 activity – commercial and industrial solar photovoltaic system.<br>Amended end date of June 2026 for Part 46.<br>Added minimum co-payments for Part 31.<br>Amended Part 31 to include an IE3 efficiency level for category 31B products.<br>Introduced minor amendments on incentive calculations for Part 31.                                                          | 29 September 2025 |
| 20.0    | Revised Part 44 minimum product requirements, incentive calculations and minimum co-payment amount.                                                                                                                                                                                                                                                                                       | 25 July 2025      |
| 19.1    | Amended Part 1, Part 3, Part 6 and Part 44 to extend the start date and increase the flexibility to meet warranty requirements.<br>Amended Part 46 to increase the flexibility to meet warranty requirements.                                                                                                                                                                             | 31 January 2025   |
| 19.0    | Revised Part 22, Part 24 and Part 25 activities – High efficiency refrigerators and freezers, High efficiency televisions and Energy efficient (low greenhouse intensity) clothes dryers.                                                                                                                                                                                                 | 17 December 2024  |
| 18.0    | Added new Part 46 activity – induction cooktops.<br>Added minimum co-payments for Part 1, Part 3, Part 6, Part 43 and Part 44.<br>Added minimum warranty requirements for Part 1, Part 3, Part 6 and Part 44.                                                                                                                                                                             | 25 October 2024   |
| 17.0    | Expanded air conditioner product eligibility and revised business incentives under Part 6.<br>Included clarification and allowance of upgrades from solar water heaters under Part 1 and Part 3.<br>Removed transitional calculations for AS/NZS 4234:2008 which were end dated 30 June 2024 from Part 1 and Part 3.<br>Revised Part 43 activity to adjust incentives for cold room size. | 1 August 2024     |
| 16.0    | Revised Part 6 activity – Space heating and cooling<br>Introduced minor amendments on incentive calculations for multi-split air conditioners.<br>Removed superseded activity scenarios and activities which expired in June 2023 (Part 5, Part 7, Part 9, Part 10 and Part 23).                                                                                                          | 1 January 2024    |
| 15.0    | Revised Part 1 and Part 3 water heating activities.<br>Added new Part 6 activity – Space heating and cooling.<br>Added end date of 30 June 2023 for Part 5, Part 7, Part 9, Part 10 and Part 23.<br>Added new Part 45 activity – Home energy rating assessment.<br>Introduced minor amendments to scenario numbers for Part 44 activity.                                                  | 31 May 2023       |
| 14.0    | Removed Part 21 activity – Incandescent lighting.<br>Revised Part 27 and Part 35 activities to remove mercury vapour lamp upgrades.<br>Revised Part 34 activity to remove incentives for certain types of building-based lighting upgrades and reduce some asset lifetimes for lamp replacements.                                                                                         | 1 February 2023   |

We acknowledge and respect Victorian Traditional Owners as the original custodians of Victoria's land and waters, their unique ability to care for Country and deep spiritual connection to it.

We honour Elders past and present whose knowledge and wisdom has ensured the continuation of culture and traditional practices.

DEECA is committed to genuinely partnering with Victorian Traditional Owners and Victoria's Aboriginal community to progress their aspirations.



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# Introduction

Publication of these specifications is authorised by the Secretary of the Department of Energy, Environment and Climate Action under regulation 35 of the Victorian Energy Efficiency Target Regulations 2018 (the Regulations).

It sets out:

- how prescribed activities under regulation 10 of the Regulations can be carried out in a manner that achieves additional abatement, thereby making them eligible for incentives
- how to determine the amount of carbon dioxide equivalent (in tonnes) of greenhouse gas emissions that is reduced by carrying out an activity prescribed in the Regulations
- any other matters left to it by the Regulations.

## Legislation and responsibilities

The Victorian Energy Upgrades program is enabled by the Victorian Energy Efficiency Target Act 2007 (the Act), the Regulations, and the Victorian Energy Efficiency Target (Project-Based Activities) Regulations 2017.

The Department of Energy, Environment and Climate Action (the department) supports the Minister in overseeing this legislation and further developing the policy that underpins it. This includes developing the prescribed activities. Prescribed activities set out the types of energy efficiency upgrades that can be undertaken as part of the Victorian Energy Upgrades program.

The Essential Services Commission (ESC) is the administrator of the Victorian Energy Upgrades program and is responsible for the Victorian Energy Efficiency Target Guidelines. Participants must comply with these Guidelines as well as the other requirements published by the ESC on their website at [www.esc.vic.gov.au/victorian-energy-upgrades-program](http://www.esc.vic.gov.au/victorian-energy-upgrades-program).

In accordance with the Regulations, this document specifies:

- minimum energy efficiency requirements for upgrade technology
- the type of technology that can be upgraded in accordance with a prescribed activity, where this is not set out in the Regulations
- methods and variables for determining abatement (the amount of carbon dioxide equivalent, in tonnes, of greenhouse gas emissions reduced by a prescribed activity)
- other matters, as left for it by the Regulations.

This document also summarises information contained in the Regulations concerning prescribed activities. The authoritative requirements are contained in the Regulations, and take precedence over summary information provided for ease of reference in this document. This document should be read in conjunction with the Act, Regulations and material published by the ESC.

Information contained in the Grey Box at the start of each Part of this document, entitled “Activity description (Guidance)”, is guidance material only to assist in reading and understand this document, and does not form part of the Specifications.

## Using this document

This document is divided into three sections: Definitions, Activity Requirements, and a Location Variable List.

The Definitions section sets out additional definitions not specified in the Act or Regulations and is to be used in interpreting this document.

The Activity Requirements section sets out for each prescribed activity:

- minimum energy efficiency requirements for upgrade technology
- the type of technology that can be used for the upgrade
- other matters that need to be specified
- methods for calculating the abatement
- variable inputs to each method.

The Location Variable List specifies whether the site at which a prescribed activity is undertaken is located in metropolitan or regional Victoria, the climatic region and the climatic zone applicable to the site, and if the site is in a gas-reticulated area. These details impact the values of the Regional Factor, GHG Savings and other variables in GHG equivalent emissions reduction calculations used for prescribed activities.

To accommodate transitional arrangements, parts of this document only operate at specific times. Please refer to the beginning of a Part to determine whether it has any commencement or expiry date.

## Standards

This document incorporates numerous standards, both Australian and international, to assist in explaining technical terms and to set out methodologies for calculating product performance.

Users of the document should note that any reference to a standard in this document should be taken as a reference to that standard as in force at the time these Specifications were last published, unless a contrary intent is shown.

# Definitions

**ACOP** means the Annual Coefficient of Performance and has the same meaning as in AS/NZS 3823.2. This metric is used to determine the energy efficiency of a product for heating;

**AEER** means the Annual Energy Efficiency Ratio and has the same meaning as in AS/NZS 3823.2. This metric is used to determine the energy efficiency of a product for cooling;

**AEF** means the auxiliary energy factor of a solar or heat pump water heater and converts  $B_e$  into kg of greenhouse gas emissions;

**AEMO's NEM load table** means the Australian Energy Market Operator's (AEMO) National Electricity Market Load Tables for Unmetered Connection Points referenced by regulation 16(3) of the Regulations;

**air conditioned** for the purpose of determining the AM in Table 34.3 and Table 34.4 means a service that actively cools or heats the air within a space, but does not include a service that directly maintains specialised conditions for equipment, processes or products, where this is the main purpose of the service;

**AM** means the air conditioner multiplier used to determine the GHG equivalent emissions reduction for lighting upgrades under Part 34 of Schedule 2 of the Regulations;

**AS/NZS 4234:2021** means the combination of both AS/NZS 4234:2021 Heated water systems – calculation of energy consumption and SA/SNZ MP 104:2021 Miscellaneous Publication – Modelling of heated water system in accordance with AS/NZS 4234:2021, using TRNSYS, published on 25 June 2021.

**Average heat pump thermal capacity** means the total heat pump thermal capacity (as determined in accordance with the Commercial and Industrial Air Source Heat Pump Water Heater Product Application Guide in kilowatts) of a registered product, divided by the number of heat pumps for that registered product .

**Average insulated storage volume** means the total insulated storage volume (in litres) of a registered product, divided by the number of separate insulated storage volumes for that registered product.

**ballast** means a unit inserted between the electricity supply and one or more discharge lamps which, by means of inductance, capacitance, or a combination of inductance and capacitance, serves mainly to limit the current of lamp(s) to the required value. The ballast may consist of one or more separate components. It may also include means for transforming the supply and voltage, and arrangements which help provide the starting voltage, preheating current, prevent cold starting, reduce stroboscopic effects, correct the power factor and/or suppress radio interference;

**BCA** means the Building Code as defined by the Regulations;

**$B_e$  2021** means the annual electrical energy used by the auxiliary equipment of a solar or heat pump water heater system measured in accordance with AS/NZS 4234:2021 when modelled in climate zone 4 for a solar water heater, and when modelled in climate zone HP4-Au for a heat pump water heater installed in climatic zone 4 or climate zone HP5-Au for a heat pump water heater installed in climatic zone 5. See the Location Variables list to determine what climatic zone applies to any premises;

**$B_s$  2021** means the annual supplementary energy used by a solar or heat pump water heater measured in accordance with AS/NZS 4234:2021 when modelled in climate zone 4 for a solar water heater, and when modelled in climate zone HP4-Au for a heat pump water heater installed in climatic zone 4 or climate zone HP5-Au for a heat pump water heater installed in climatic zone 5. See the Location Variables list to determine what climatic zone applies to any premises;

**BS 845-1** means BS 845-1:2016. Methods for assessing thermal performance of boilers for steam, hot water and high temperature heat transfer fluids – Part 1: Concise procedure, published by the British Standards Institution on 1 June 2016

**BS 845-2** means BS 845-2:1987. Methods for assessing thermal performance of boilers for steam, hot water and high temperature heat transfer fluids – Part 2: Comprehensive procedure, published by the British Standards Institution on 30 June 1987;

**BS 7190** means BS 7190:1989. Method for assessing thermal performance of low temperature hot water boilers using a test rig, published by the British Standards Institution on 31 December 1989;

**capacitor** means a two-terminal circuit device characterised by its capacitance, which is used in circuitry for the operation and power factor correction of gas discharge lamps;

**CEC** means the comparative energy consumption specified on the relevant energy rating label;

**CFL** means a compact fluorescent lamp as defined by the Regulations;

**circular fluorescent lamp** means a double capped fluorescent lamp that is of tubular form and circular shape;

**climatic region** means the geographical area identified by postcodes that are specified as belonging to either a mild, cold or hot climate region in the Location Variable List section of this document;

**climatic zone** means the geographical area identified by postcodes that are specified as belonging to climatic zone 4 or 5 in the Location Variable List section of this document;

**CM** means the control multiplier for a light source;

**Commercial and Industrial Air Source Heat Pump Water Heater Product Application Guide** means the commercial and industrial air source heat pump water heater product application guide published by the Essential Services Commission as amended from time to time;

**condensing boiler** means a boiler that is designed so that, under normal operating conditions, the water vapour in the combustion products is partially condensed, in order to make use of the latent heat of this water vapour for heating purposes, and includes a condensing steam boiler, condensing hot water boiler or condensing water heater;

**connection alteration** has the same meaning as it has in the National Electricity Rules under Chapter 5A – Electricity connection for retail customers as made under the National Electricity (South Australia) Act 1996 and as amended from time to time;

**cooking zone** means a heating unit that produces heat using electric inductive heating that can be independently controlled;

**daylight-linked control** means a product that, using a photoelectric cell, is able to automatically vary the light output of a luminaire to compensate for the availability of daylight;

**DEI** means the default efficiency improvement, in the context of a gas boiler upgrade;

**EEF** means the smoothed electricity emissions factor to be used in greenhouse gas equivalent emissions reduction calculations as follows—

From 1 February 2024 to 31 January 2025  $EEF = 0.5334$

From 1 February 2025  $EEF = 0.393$

**EEF<sub>m</sub>** means the modelled electricity emissions factor to be used in greenhouse gas equivalent emissions reduction calculations as follows—

From 1 February 2024 to 31 January 2025  $EEF_m = 0.433$

From 1 February 2025  $EEF_m = 0.393$

**EEL** means the energy efficiency index within the meaning of AS/NZS 4783.2;

**ELC** means extra low voltage lighting converter as defined in the Regulations;

**electric resistance water heater** means, for the purpose of decommissioning:

- a. a system that heats water solely using an electric resistance element; or
- b. an electric boosted solar water heater which only provides heat from the electric resistance element due to a non-functional solar heater exchanger and associated solar heating components where those components are no longer within the relevant warranty period, and at least 5 years has lapsed since the system was installed;

**ESC** means the Essential Services Commission;

**fluorescent lamp** means a discharge lamp of a low-pressure mercury type where most of the light is emitted by one or more layers of phosphors excited by the ultraviolet radiation of the discharge;

**gas or LPG water heater** means, for the purpose of decommissioning:

- a. a system that heats water solely using gas or LPG combustive heating; or
- b. a gas or LPG boosted solar water heater which only heats water from gas or LPG combustive heating due to a non-functional solar heater exchanger and associated solar heating components where those components are no longer within the relevant warranty period, and at least 5 years has lapsed since the system was installed;

**gas reticulated area** means a geographical area identified as such by the Location Variable List section of this document;

**GEF** means the gas emissions factor to be used in greenhouse gas equivalent emissions reduction calculations;

**GEMS Act** means the *Greenhouse and Energy Minimum Standards Act 2012 (Cth)*;

**GEMS Register** means the register kept by the Greenhouse and Energy Minimum Standards Regulator under the GEMS Act and made available to the public at [http://reg.energyrating.gov.au/comparator/product\\_types/](http://reg.energyrating.gov.au/comparator/product_types/);

**GHG** means greenhouse gas;

**GHG equivalent** means the carbon dioxide equivalent (in tonnes) of greenhouse gases;

**Gross thermal efficiency** means the difference between 100% and the total percentage losses based on the gross calorific value of the fuel, as determined in accordance with British Standards BS 845-2 or BS 845-1;

**GWP** means the global warming potential of a refrigerant gas used in a product as listed in:

- the Intergovernmental Panel on Climate Change (IPCC) fourth assessment report, 2007 (AR4), or
- where the global warming potential of the refrigerant gas is not listed in the Intergovernmental Panel on Climate Change (IPCC) fourth assessment report, 2007 (AR4), the Commercial and Industrial Air Source Heat Pump Water Heater Product Application Guide;

**high pressure sodium lamp** means a discharge lamp classified as a high-pressure sodium vapour lamp as defined by IEC 60662;

**HSPF** means the Heating Seasonal Performance Factor which is the ratio of the total annual amount of heat, including make-up heat, that the equipment can add to the conditioned space when operated for heating in active mode to the total annual amount of energy consumed by the equipment during the same period;

**induction lamp** means a gas discharge lamp where the power required to generate light is transferred from outside the lamp envelope to the gas via electromagnetic induction;

**lamp circuit power**, in relation to a non-integrated luminaire, means—

- the power drawn by the lamp, and
- the power losses of any associated control gear, which are divided equally between the lamp and any other lamps associated with the control gear;

**lamp circuit power**, in relation to an LED integrated luminaire, means the power drawn by the whole luminaire;

**LCD** means lighting control device as defined in the *Regulations*;

**LCP** means the lamp circuit power for a light source;

**legacy control gear** means the control gear that was used to operate any lighting components that were present prior to an upgrade being carried out pursuant to the Victorian Energy Efficiency Target Regulations 2018;

**LF** means the loss factor which represents efficiency losses in space heating or cooling equipment which distribute heat through ductwork;

**linear fluorescent lamp** means a fluorescent lamp that has two separate caps and is of linear shape;

**LPG** means liquid petroleum gas;

**LUF** means the load utilisation factor, in the context of a gas boiler upgrade;

**MEPS** means a minimum energy performance standard regulated by the GEMS Act;

**magnetic ballast** means a mains frequency ballast that incorporates an electromagnetic (wire-wound) component;

**maintained emergency lighting** means an exit sign or always-on maintained emergency luminaire as defined in AS 2293.1;

**metal halide lamp** means a discharge lamp classified as a metal halide lamp as defined by IEC 61167;

**metropolitan Victoria** means a geographical area identified as 'Metropolitan' by the Location Variable List section of this document;

**new connection** has the same meaning as it has in the National Electricity Rules under Chapter 5A – Electricity connection for retail customers as made under the National Electricity (South Australia) Act 1996 and as amended from time to time;

**NFIP** means the input power (in Watts) of the new motor that powers a fan once upgraded under Part 33 of Schedule 2 of the Regulations;

**nominal lamp power (NLP)** means the manufacturer's rated value for power drawn by a light source (in Watts);

**non-gas reticulated area** means a geographical area identified as such by the Location Variable List section of this document;

**PAEC** means the projected annual energy consumption in kWh/y and is listed on the energy rating label;

**R** means the rated capacity of the product in kg;

**regional factor** means the factor used in the GHG equivalent emissions reduction method that, given upgrades are undertaken at sites located in different geological areas of Victoria, accounts for fluctuations in average energy usage due to different distribution losses and climates;

**regional Victoria** means a geographical area identified as 'Regional' by the Location Variable List section of this document;

**remote driver** means the external control gear used to operate a non-integrated LED lamp;

**RTHC** means rated total heating capacity;

**RfrgCharge** means the amount of refrigerant, in kilograms, that is used in a product;

**SA** means the area of the screen of a television in cm<sup>2</sup> determined in accordance with AS/NZS 62087.2.2;

**SEF** means the supplementary energy factor of a solar or heat pump water heater and converts the Bs into kg of greenhouse gas emissions;

**Solar Panel Validation Initiative** means the Solar Panel Validation Initiative verification database managed by the Australian Government Clean Energy Regulator

**SRI** means star rating index;

**TCSPF** means the Total Cooling Seasonal Performance Factor which is the ratio of the total annual amount of heat that the equipment can remove from the conditioned space to the total annual amount of energy consumed by the equipment, including the active and inactive energy consumption;

**the Regulations** means the Victorian Energy Efficiency Target Regulations 2018;

**VEEC** means a Victorian Energy Efficiency Certificate created under section 17 of the Victorian Energy Efficiency Target Act 2007.

**V<sub>ff</sub>** means the volume in litres of the fresh food compartment of a refrigerator;

**V<sub>fr</sub>** means the volume of the freezer compartment of a two-door refrigerator or freezer;

**Warranty against defects** has the same meaning as it has in the Australian Consumer Law (Victoria);

**Water Heating and Space Heating/Cooling Product Application Guide** means the water heating and space heating/cooling product application guide published by the Essential Services Commission as amended from time to time;

**WERS** means the Window Energy Rating Scheme managed by the Australian Window Association;

**ZigBee Smart Energy Profile Specification** means the ZigBee Smart Energy Profile Specification published by the ZigBee Standards Organisation on December 2008;

**ZigBee Smart Energy Standard** means the ZigBee Smart Energy Standard version 1.2a published by the ZigBee Standards Organisation of 3 December 2014

# Activity Requirements

This section summarises the eligible prescribed activities, as set out in Schedule 2 to the Regulations.

The authoritative requirements for eligible prescribed activities are contained in Schedule 2 to the Regulations, and take precedence over the summaries provided here for ease of reference.

This section specifies the minimum energy efficiency requirements for these activities.

This section specifies other matters for these activities, where required by the Regulations.

This section also specifies the methods and variables required to determine the amount of GHG equivalent emissions reduced by each prescribed activity.

# 1. Part 1 Activity– Water heaters, replacing electric resistance water heater

## Activity description (Guidance)

Part 1 of Schedule 2 of the Regulations prescribes the upgrade of an electric resistance water heater as an eligible activity for the purposes of the Victorian Energy Upgrades program.

Table 1.1 lists the eligible products that may be installed, upgraded or replaced. Each type of upgrade is known as a scenario. Each scenario has its own method for determining GHG equivalent reduction.

Over time, the department may determine that there are other water heating technologies that reduce GHG equivalent emissions when replacing an electric resistance water heater. In such a case, product requirements and installation requirements for emerging technology will be listed by the department as scenario number 1E once specified.

VEECs cannot be created for this activity unless products installed are listed on the ESC Register by the time VEECs are created. Products already on the register at the time of installation can be taken as satisfying all those product requirements that can be determined prior to the installation of a product.

**Table 1.1 – Eligible Part 1 water heating scenarios**

| Product category number | Scenario number    | Decommissioning requirements <sup>1</sup> | Product to be installed <sup>2</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Historical schedule number* |
|-------------------------|--------------------|-------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|
| 1C                      | 1C(i) <sup>3</sup> | Electric resistance water heater          | An electric boosted solar water heater that— <ul style="list-style-type: none"> <li>a. is certified by an accredited body as complying with AS/NZS 2712; and</li> <li>b. achieves the specified minimum annual energy savings; and</li> <li>c. has an insulated storage volume not exceeding 700 litres.</li> </ul>                                                                                                                                                                                   | 1E                          |
| 1D                      | 1D(i) <sup>4</sup> | Electric resistance water heater          | A heat pump water heater that— <ul style="list-style-type: none"> <li>a. has an insulated storage volume not exceeding 700 litres; and</li> <li>b. is certified by an accredited body as complying with AS/NZS 2712; and</li> <li>c. achieves the specified minimum annual energy savings; and</li> <li>d. is modelled against the specified heat pump modelling requirements; and</li> <li>e. uses a refrigerant that meets the specified refrigerant requirements (see Table 1.3 below).</li> </ul> | 1E                          |

\*This is the corresponding schedule number for this type of product in the lapsed 2008 VEET Regulations

<sup>1</sup> The authoritative decommissioning requirements are contained in Part 1 of Schedule 2 to the Regulations, and take precedence over summary information provided for ease of reference in this document.

<sup>2</sup> The authoritative product requirements are contained in Part 1 of Schedule 2 to the Regulations, and take precedence over summary information provided for ease of reference in this document.

<sup>3</sup> See Table 1.2 setting out additional product requirements.

<sup>4</sup> See Table 1.2 setting out additional product requirements.

## Specified Minimum Energy Efficiency

The product installed must meet the additional requirements set out in Table 1.2

**Table 1.2 - Additional requirements for water heating equipment to be installed**

| Scenario number | Requirement type              | Efficiency requirement <sup>5</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-----------------|-------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1C(i)           | Minimum annual energy savings | 60%, determined in accordance with AS/NZS 4234:2021 and the Water Heating and Space Heating/Cooling Product Application Guide, when modelled in climate zone 4.<br><br>For the purposes of demonstrating compliance with this requirement, a VEU product used for a 'medium upgrade' under this scenario must be modelled at the 'medium' load in AS/NZS 4234:2021 and a VEU product used for a 'small upgrade' under this scenario must be modelled at the 'small' load in AS/NZS 4234:2021.                                                                                                                                         |
| 1D(i)           | Minimum annual energy savings | 60%, determined in accordance with AS/NZS 4234:2021 and the Water Heating and Space Heating/Cooling Product Application Guide when modelled in climate zone:<br><br>a. HP4-Au, if the product is installed in climatic zone 4*; or<br>b. HP5-Au, if the product is installed in climatic zone 5*.<br><br>For the purposes of demonstrating compliance with this requirement, a VEU product used for a 'medium upgrade' under this scenario must be modelled at the 'medium' load under AS/NZS 4234:2021 and a VEU product used for a 'small upgrade' under this scenario must be modelled at the 'small' load under AS/NZS 4234:2021. |

\*See the Location Variables list to determine what climatic zone applies to any premises

## Other specified matters

The product installed must meet the additional requirements set out in Table 1.3

**Table 1.3 – Other specified matters for water heaters**

| Product category number | Requirement type                                                                                         | Specification details <sup>6</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|-------------------------|----------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1D                      | Heat pump modelling requirements                                                                         | The product must be modelled in accordance with AS/NZS 4234:2021 so that minimum annual energy savings are determined for both HP4-Au and HP5-Au climate zones. These must be provided to the ESC.*                                                                                                                                                                                                                                                                               |
| 1D                      | Refrigerant requirements                                                                                 | The GWP of the refrigerant used in the heat pump water heater to be installed must be less than 700.                                                                                                                                                                                                                                                                                                                                                                              |
| 1C and 1D               | Pre-installation and installation requirements – appropriate sizing ( <b>residential premises only</b> ) | In addition to the applicable requirements set out under the Code of Conduct (at Schedule 6 of the Regulations), the accredited person or scheme participant carrying out a prescribed Part 1 activity for an energy consumer at a residential premises must, before the energy consumer agrees to undertake that activity:<br><br>a. provide the energy consumer with a copy of the current VEU Water Heating Consumer Fact Sheet, as published on the department's website; and |

<sup>5</sup> The Secretary is empowered to specify these efficiency requirements under Part 1 of Schedule 2 to the Regulations.

<sup>6</sup> The Secretary is empowered to specify these modelling requirements under Part 1 of Schedule 2 to the Regulations.

| Product category number | Requirement type                                  | Specification details <sup>6</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-------------------------|---------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                         |                                                   | <p>b. give clear and accurate information to the energy consumer about the suitability of the product to be installed for the hot water needs of the consumer, having regard to the consumer's premises; and</p> <p>c. advise the energy consumer on whether the size of the product to be installed is consistent with the size recommended in the VEU Water Heating Consumer Fact Sheet</p> <p>For upgrades of a solar water heater with a non-functional solar component, the accredited person or scheme participant must also assess the operation of the solar water heater component and determine it to be non-functional.</p> |
| 1C and 1D               | Installation requirements – manifold systems      | The product must not be installed together (in-line) with an additional hot water storage tank or hot water system e.g. a 'manifold system'.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| 1C and 1D               | Decommissioning and product disposal requirements | <p>The decommissioned product must be decommissioned in a practical and safe manner to ensure it cannot be re-used again.</p> <p>Any waste or debris generated from the activity, including the decommissioned product (where it is practical and safe to remove the decommissioned product), must be removed from the consumer's premises and disposed of in accordance with all applicable waste management requirements under the Environment Protection Act 2017 and its regulations.</p>                                                                                                                                          |
| 1C and 1D               | Minimum co-payment amount**                       | A minimum co-payment amount of \$200 (including GST) must be made per installed product.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 1D                      | Product warranty requirements***                  | <p>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).</p> <p>In addition to the requirements of a warranty against defects under the ACL (Victoria), the warranty must also include the contact details of who to contact regarding product warranty obligations in Australia in the event of a product failure, if the person who gives the warranty is not in Australia.</p>                                                                                                                                           |

\* See the Location Variables list to determine what climatic zone applies to any premises.

\*\* Applicable from 1 February 2025

\*\*\* Applicable from 31 March 2025

## Method for Determining GHG Equivalent Reduction

### Scenario 1C(i): Decommissioning Electric and Installing Electric Boosted Solar

The GHG equivalent emissions reduction for this scenario is given by Equation 1.1, using the variables listed in Table 1.4 for products determined in accordance with AS/NZS 4234:2021.

#### Equation 1.1 – GHG equivalent emissions reduction calculation for Scenario 1C(i)

$$\text{GHG Eq. Reduction} = \text{EEF} \times (\text{Abatement Factor} - (\text{SEF} \times B_{s\ 2021}) - (\text{AEF} \times B_{e\ 2021}))$$

**Table 1.4 – GHG equivalent emissions reduction variables for Scenario 1C(i)**

| <p>Small upgrade: upgrade product is a small system as determined in accordance with AS/NZS 4234:2021 based on the system's peak daily thermal energy load capability characteristics as used to demonstrate compliance with the additional requirements outlined in Table 1.2</p> <p>Medium upgrade: upgrade product is a medium system as determined in accordance with AS/NZS 4234:2021 based on the system's peak daily thermal energy load capability characteristics as used to demonstrate compliance with the additional requirements outlined in Table 1.2</p> |                                       |                                                                                                                                   |       |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|-------|
| Input type                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Condition                             | Input value                                                                                                                       |       |
| Abatement Factor                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | For upgrades in Metropolitan Victoria | Small upgrade                                                                                                                     | 30.42 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                       | Medium upgrade                                                                                                                    | 41.75 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | For upgrades in Regional Victoria     | Small upgrade                                                                                                                     | 32.29 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                       | Medium upgrade                                                                                                                    | 44.30 |
| SEF                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | For upgrades in Metropolitan Victoria | 4.08                                                                                                                              |       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | For upgrades in Regional Victoria     | 4.33                                                                                                                              |       |
| B <sub>s 2021</sub>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Small upgrade                         | as determined in accordance with AS/NZS 4234:2021 in GJ/year when modelled with the "very small" load as defined in that standard |       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Medium upgrade                        | as determined in accordance with AS/NZS 4234:2021 in GJ/year when modelled with the "small" load as defined in that standard      |       |
| AEF                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | For upgrades in Metropolitan Victoria | 4.08                                                                                                                              |       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | For upgrades in Regional Victoria     | 4.33                                                                                                                              |       |
| B <sub>e 2021</sub>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Small upgrade                         | as determined in accordance with AS/NZS 4234:2021 in GJ/year when modelled with the "very small" load as defined in that standard |       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Medium upgrade                        | as determined in accordance with AS/NZS 4234:2021 in GJ/year when modelled with the "very small" load as defined in that standard |       |



## Scenario 1D(i): Decommissioning Electric and Installing Heat Pump

The GHG equivalent emissions reduction for this scenario is given by Equation 1.2, using the variables listed in Table 1.5 for products determined in accordance with AS/NZS 4234:2021.

### Equation 1.2 – GHG equivalent emissions reduction calculation for Scenario 1D(i)

$$GHG \text{ Eq. Reduction} = (Abatement \text{ Factor} - (SEF \times B_{s \text{ 2021}}) - (AEF \times B_{e \text{ 2021}})) \times EEF$$

**Table 1.5 – GHG equivalent emissions reduction variables for Scenario 1C(ii)**

| <p>Small upgrade: upgrade product is a small system as determined in accordance with AS/NZS 4234:2021 based on the system's peak daily thermal energy load capability characteristics as used to demonstrate compliance with the additional requirements outlined in Table 1.2</p> <p>Medium upgrade: upgrade product is a medium system as determined in accordance with AS/NZS 4234:2021 based on the system's peak daily thermal energy load capability characteristics as used to demonstrate compliance with the additional requirements outlined in Table 1.2</p> |                                       |                |                                                                                                                                   |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|----------------|-----------------------------------------------------------------------------------------------------------------------------------|
| Input type                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Condition                             |                | Input value                                                                                                                       |
| Abatement Factor                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | For upgrades in Metropolitan Victoria | Small upgrade  | 24.34                                                                                                                             |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                       | Medium upgrade | 33.40                                                                                                                             |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | For upgrades in Regional Victoria     | Small upgrade  | 25.83                                                                                                                             |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                       | Medium upgrade | 35.44                                                                                                                             |
| SEF                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | For upgrades in Metropolitan Victoria |                | 3.27                                                                                                                              |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | For upgrades in Regional Victoria     |                | 3.47                                                                                                                              |
| B <sub>s 2021</sub>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Small upgrade                         |                | as determined in accordance with AS/NZS 4234:2021 in GJ/year when modelled with the "very small" load as defined in that standard |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Medium upgrade                        |                | as determined in accordance with AS/NZS 4234:2021 in GJ/year when modelled with the "small" load as defined in that standard      |
| AEF                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | For upgrades in Metropolitan Victoria |                | 3.27                                                                                                                              |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | For upgrades in Regional Victoria     |                | 3.47                                                                                                                              |
| B <sub>e 2021</sub>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Small upgrade                         |                | as determined in accordance with AS/NZS 4234:2021 in GJ/year when modelled with the "very small" load as defined in that standard |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Medium upgrade                        |                | as determined in accordance with AS/NZS 4234:2021 in GJ/year when modelled with the "small" load as defined in that standard      |

\*\*\*There is no Part 2 Activity

### 3. Part 3 Activity– Water heaters, replacing gas/LPG

#### Activity description (Guidance)

Part 3 of Schedule 2 of the Regulations prescribes the upgrade of a gas or LPG water heater as an eligible activity for the purposes of the Victorian Energy Upgrades program.

Table 3.1 lists the eligible products that may be installed, upgraded or replaced. Each type of upgrade is known as a scenario. Each scenario has its own Method for Determining GHG Equivalent Reduction.

Over time, the department may determine that there are other water heating technologies that reduce GHG equivalent emissions when replacing Gas or LPG water heaters. In such a case, product requirements and installation requirements for emerging technology will be listed by the department as scenario number 3A once specified.

VEECs cannot be created for this activity unless products installed are listed on the ESC Register by the time VEECs are created. Products already on the register at the time of installation can be taken as satisfying all those product requirements that can be determined prior to the installation of a product.

**Table 3.1 – Eligible Part 3 water heating scenarios**

| Product category number | Scenario number | Decommissioning requirements <sup>7</sup> | Product to be installed <sup>8</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Historical schedule number* |
|-------------------------|-----------------|-------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|
| 3C                      | 3C              | Gas or LPG water heater                   | A heat pump water heater that— <ol style="list-style-type: none"> <li>has an insulated storage volume not exceeding 700 litres; and</li> <li>is certified by an accredited body as complying with AS/NZS 2712; and</li> <li>achieves the specified minimum annual energy savings; and</li> <li>is modelled against the specified heat pump modelling requirements; and</li> <li>uses a refrigerant that meets the specified refrigerant requirements (see Table 3.3 below).</li> </ol> | N/A                         |
| 3D                      | 3D              | Gas or LPG water heater                   | An electric boosted solar water heater that— <ol style="list-style-type: none"> <li>is certified by an accredited body as complying with AS/NZS 2712; and</li> <li>achieves the specified minimum annual energy savings; and</li> <li>has an insulated storage volume not exceeding 700 litres.</li> </ol>                                                                                                                                                                             | N/A                         |

\* This is the corresponding schedule number for this type of product in the lapsed 2008 VEET Regulations

<sup>7</sup> The authoritative decommissioning requirements are contained in Part 3 of Schedule 2 to the Regulations, and take precedence over summary information provided for ease of reference in this document.

<sup>8</sup> The authoritative product requirements are contained in Part 3 of Schedule 2 to the Regulations, and take precedence over summary information provided for ease of reference in this document.

## Specified Minimum Energy Efficiency

The product installed must meet the additional requirements set out in Table 3.2.

**Table 3.2 - Additional requirements for water heating equipment to be installed**

| Product category number | Requirement type              | Efficiency requirement <sup>9</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|-------------------------|-------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3C                      | Minimum annual energy savings | 60%, determined in accordance with AS/NZS 4234:2021 and the Water Heating and Space Heating/Cooling Product Application Guide when modelled in climate zone:<br>a. HP4-Au, if the product is installed in climatic zone 4*; or<br>b. HP5-Au, if the product is installed in climatic zone 5*.<br>For the purposes of demonstrating compliance with this requirement, a VEU product used for a 'medium upgrade' under this scenario must be modelled at the 'medium' load under AS/NZS 4234:2021. |
| 3D                      | Minimum annual energy savings | 60%, determined in accordance with AS/NZS 4234:2021 and the Water Heating and Space Heating/Cooling Product Application Guide, when modelled in climate zone 4.<br>For the purposes of demonstrating compliance with this requirement, a VEU product used for a 'medium upgrade' under this scenario must be modelled at the 'medium' load in AS/NZS 4234:2021.                                                                                                                                  |

\*See the Location Variables list to determine what climatic zone applies to any premises

## Other specified matters

The product installed must meet the additional requirements set out in Table 3.3.

**Table 3.3 – Other specified matters for water heaters**

| Product category number | Requirement type                                                                                          | Specification Details                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-------------------------|-----------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3C                      | Heat pump modelling requirements                                                                          | The product must be modelled in accordance with AS/NZS 4234:2021 so that minimum annual energy savings are determined for both HP4-Au and HP5-Au climate zones. These must be provided to the ESC.*                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 3C                      | Refrigerant Requirements**                                                                                | The GWP of the refrigerant used in the heat pump water heater to be installed must be less than 700.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 3C-3D                   | Pre-installation and installation requirements – appropriate sizing<br><b>(residential premises only)</b> | In addition to the applicable requirements set out under the Code of Conduct (at Schedule 6 of the Regulations), the accredited person or scheme participant carrying out a prescribed Part 3 activity for an energy consumer at a residential premises must, before the energy consumer agrees to undertake that activity:<br>a. provide the energy consumer with a copy of the current VEU Water Heating Consumer Fact Sheet, as published on the department's website; and<br>b. give clear and accurate information to the energy consumer about the suitability of the product to be installed for the hot water needs of the consumer, having regard to the consumer's premises; and |

<sup>9</sup> The Secretary is empowered to specify these efficiency requirements under Part 3 of Schedule 2 to the Regulations.

| Product category number | Requirement type                                  | Specification Details                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-------------------------|---------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                         |                                                   | <p>c. advise the energy consumer on whether the size of the product to be installed is consistent with the size recommended in the VEU Water Heating Consumer Fact Sheet.</p> <p>For upgrades of a solar water heater with a non-functional solar component, the accredited person or scheme participant must also assess the operation of the solar water heater and determine it to be non-functional.</p>                                                                                  |
| 3C-3D                   | Installation requirements – manifold systems      | The product must not be installed together (in-line) with an additional hot water storage tank or hot water system e.g. a 'manifold system'.                                                                                                                                                                                                                                                                                                                                                  |
| 3C-3D                   | Decommissioning and product disposal requirements | <p>The decommissioned product must be decommissioned in a practical and safe manner to ensure it cannot be re-used again.</p> <p>Any waste or debris generated from the activity, including the decommissioned product (where it is practical and safe to remove the decommissioned product), must be removed from the consumer's premises and disposed of in accordance with all applicable waste management requirements under the Environment Protection Act 2017 and its regulations.</p> |
| 3C-3D                   | Minimum co-payment amount**                       | A minimum co-payment amount of \$200 (including GST) must be made per installed product.                                                                                                                                                                                                                                                                                                                                                                                                      |
| 3C                      | Product warranty requirements***                  | <p>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).</p> <p>In addition to the requirements of a warranty against defects under the ACL (Victoria), the warranty must also include the contact details of who to contact regarding product warranty obligations in Australia in the event of a product failure, if the person who gives the warranty is not in Australia.</p>  |

\*See the Location Variables list to determine what climatic zone applies to any premises

\*\* Applicable from 1 February 2025

\*\*\* Applicable from 31 March 2025

## Method for Determining GHG Equivalent Reduction

### Scenario 3C: Decommissioning Gas and installing Heat Pump

The GHG equivalent emissions reduction for this scenario is given by Equation 3.1, using the variables listed in Table 3.4 for products determined in accordance with AS/NZS 4234:2021.

#### Equation 3.1 – GHG equivalent emissions reduction calculation for Scenario 3C

$$GHG\ Eq.\ Reduction = Abatement\ Factor - ((SEF \times B_{s\ 2021}) + (AEF \times B_{e\ 2021})) \times EEF_m$$

**Table 3.4 – GHG equivalent emissions reduction variables for Scenario 3C**

| Medium upgrade: upgrade product is a medium system as determined in accordance with AS/NZS 4234:2021 based on the system's peak daily thermal energy load delivery characteristics as used to demonstrate compliance with the additional requirements outlined in Table 3.2. |                   |                                                                                                                              |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|------------------------------------------------------------------------------------------------------------------------------|
| Input Type                                                                                                                                                                                                                                                                   | Condition         | Input Value                                                                                                                  |
| Abatement Factor                                                                                                                                                                                                                                                             | Medium upgrade    | 13.23                                                                                                                        |
| SEF                                                                                                                                                                                                                                                                          | In every instance | 4.17                                                                                                                         |
| B <sub>s 2021</sub>                                                                                                                                                                                                                                                          | Medium upgrade    | as determined in accordance with AS/NZS 4234:2021 in GJ/year when modelled with the "small" load as defined in that standard |
| AEF                                                                                                                                                                                                                                                                          | In every instance | 4.17                                                                                                                         |
| B <sub>e 2021</sub>                                                                                                                                                                                                                                                          | Medium upgrade    | as determined in accordance with AS/NZS 4234:2021 in GJ/year when modelled with the "small" load as defined in that standard |

### Scenario 3D: Decommissioning Gas and installing Electric Boosted Solar

The GHG equivalent emissions reduction for this scenario is given by Equation 3.2, using the variables listed in Table 3.5.

**Equation 3.2 – GHG equivalent emissions reduction calculation for Scenario 3D**

$$GHG\ Eq.\ Reduction = Abatement\ Factor - ((SEF \times B_{s\ 2021}) + (AEF \times B_{e\ 2021})) \times EEf_m$$

**Table 3.5 – GHG equivalent emissions reduction variables for Scenario 3D**

| Medium upgrade: upgrade product is a medium system as determined in accordance with AS/NZS 4234:2021 based on the system's peak daily thermal energy load delivery characteristics as used to demonstrate compliance with the additional requirements outlined in Table 3.2. |                   |                                                                                                                              |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|------------------------------------------------------------------------------------------------------------------------------|
| Input Type                                                                                                                                                                                                                                                                   | Condition         | Input Value                                                                                                                  |
| Abatement Factor                                                                                                                                                                                                                                                             | Medium upgrade    | 13.23                                                                                                                        |
| SEF                                                                                                                                                                                                                                                                          | In every instance | 4.17                                                                                                                         |
| B <sub>s 2021</sub>                                                                                                                                                                                                                                                          | Medium upgrade    | as determined in accordance with AS/NZS 4234:2021 in GJ/year when modelled with the "small" load as defined in that standard |
| AEF                                                                                                                                                                                                                                                                          | In every instance | 4.17                                                                                                                         |
| B <sub>e 2021</sub>                                                                                                                                                                                                                                                          | Medium upgrade    | as determined in accordance with AS/NZS 4234:2021 in GJ/year when modelled with the "small" load as defined in that standard |

\*\*\*There is no Part 4 or Part 5 Activity

## 6. Part 6 Activity– Space heating and cooling, installing a high efficiency air conditioner

### Activity description (Guidance)

Part 6 of Schedule 2 of the Regulations prescribes the upgrade to a high efficiency air conditioner as an eligible activity for the purposes of the Victorian Energy Upgrades program.

Table 6.1 lists the eligible products that may be decommissioned, upgraded or replaced in any premises. Each type of upgrade is known as a scenario. Each scenario has its own method for determining GHG equivalent reduction.

Over time, the department may determine that there are other space heating or cooling technologies that reduce GHG equivalent emissions. In such a case, product requirements and installation requirements for emerging technology will be listed by the department as scenario number 6H once specified.

VEECs cannot be created for this activity unless products installed are listed on the ESC Register by the time VEECs are created. Products already on the register at the time of installation can be taken as satisfying all those product requirements that can be determined prior to the installation of a product.

**Table 6.1 – Eligible space heating and cooling scenarios**

| Product category number | Scenario number | Decommissioning requirements <sup>10</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Product to be installed <sup>11</sup>                                                                                                                                                                               | Historical schedule number |
|-------------------------|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|
| 6A-G                    | (i)             | Hard-wired resistance electric room heater only (no refrigerative air conditioner) which is the main form of heating any premises.                                                                                                                                                                                                                                                                                                                                                         | Any eligible product belonging to product categories 6A to 6G that is installed in accordance with the specified pre-installation and specified installation requirements set out in Table 6.4 below. <sup>12</sup> | N/A                        |
|                         | (ii)            | <ul style="list-style-type: none"> <li>Hard-wired resistance electric heater which is the main form of heating any premises; and</li> <li>Refrigerative air conditioner (whether ducted or not) that is not located in: <ul style="list-style-type: none"> <li>in the case of an air conditioner in residential premises, a bedroom; or</li> <li>in the case of an air conditioner in business or non-residential premises, a room with an area of less than 20 m2.</li> </ul> </li> </ul> |                                                                                                                                                                                                                     |                            |
|                         | (iii)           | Central electric resistance that provides heating to a space with a floor area of at least 100 m2 or slab heater only (no refrigerative air conditioner) which is the main form of heating any premises.                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                     |                            |
|                         | (iv)            | <ul style="list-style-type: none"> <li>Central electric resistance that provides heating to a space with a floor area of at least 100 m2 or slab heater which is the main form of heating any premises; and</li> <li>Refrigerative air conditioner (whether ducted or not) that is not located in:</li> </ul>                                                                                                                                                                              |                                                                                                                                                                                                                     |                            |

<sup>10</sup> The authoritative decommissioning requirements are contained in Part 6 of Schedule 2 to the Regulations, and take precedence over summary information provided for ease of reference in this document.

<sup>11</sup> The authoritative product requirements are contained in Part 6 of Schedule 2 to the Regulations, and take precedence over summary information provided for ease of reference in this document.

<sup>12</sup> Note: Product categories 6C and 6G are eligible in business premises only.

| Product category number | Scenario number | Decommissioning requirements <sup>10</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                     | Product to be installed <sup>11</sup> | Historical schedule number |
|-------------------------|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|----------------------------|
|                         |                 | <ul style="list-style-type: none"> <li>– in the case of an air conditioner in residential premises, a bedroom; or</li> <li>– in the case of an air conditioner in business or non-residential premises, a room with an area of less than 20 m2.</li> </ul>                                                                                                                                                                                                                     |                                       |                            |
|                         | (v)             | Ducted air conditioner - reverse cycle – which is the main form of heating any premises.                                                                                                                                                                                                                                                                                                                                                                                       |                                       |                            |
|                         | (vi)            | Non-ducted air conditioner - reverse cycle.                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                       |                            |
|                         | (vii)           | Ducted gas heater only (no refrigerative air conditioner) which is the main form of heating any premises.                                                                                                                                                                                                                                                                                                                                                                      |                                       |                            |
|                         | (viii)          | <ul style="list-style-type: none"> <li>• Ducted gas heater which is the main form of heating any premises; and</li> <li>• Refrigerative air conditioner (whether ducted or not) that is not located in: <ul style="list-style-type: none"> <li>– in the case of an air conditioner in residential premises, a bedroom; or</li> <li>– in the case of an air conditioner in business or non-residential premises, a room with an area of less than 20 m2.</li> </ul> </li> </ul> |                                       |                            |
|                         | (ix)            | Non-ducted gas heater only (no refrigerative air conditioner).                                                                                                                                                                                                                                                                                                                                                                                                                 |                                       |                            |
|                         | (x)             | <ul style="list-style-type: none"> <li>• Non-ducted gas heater; and</li> <li>• Refrigerative air conditioner (whether ducted or not) that is not located in: <ul style="list-style-type: none"> <li>– in the case of an air conditioner in residential premises, a bedroom; or</li> <li>– in the case of an air conditioner in business or non-residential premises, a room with an area of less than 20 m2.</li> </ul> </li> </ul>                                            |                                       |                            |
|                         | (xi)            | No decommissioning                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                       |                            |

## Specified Minimum Energy Efficiency

The product (or products) installed must meet the relevant additional requirements set out in Table 6.2.

**Table 6.2 - Additional requirements for air conditioners to be installed**

| Product category number | Requirement type                 | Efficiency requirement                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|-------------------------|----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 6A-G                    | Minimum Performance Requirements | <ul style="list-style-type: none"> <li>a. For products registered to the Greenhouse and Energy Minimum Standards (Air Conditioners up to 65kW) Determination 2019 (Cth) after 1 August 2024 that has a HSPF and TCSPF for the specified GEMS Residential or Commercial Cold Zone, the product must: <ul style="list-style-type: none"> <li>i. achieve the minimum HSPF and TCSPF for the specified GEMS Residential Cold Zone (categories 6A, 6B, 6D, 6E and 6F) specified in Table 6.3;</li> <li>ii. achieve the minimum HSPF and TCSPF for the specified GEMS Commercial Cold Zone (categories 6C and 6G) specified in Table 6.3; and</li> <li>iii. be registered to the relevant class (or classes) under that determination, specified in Table 6.3.</li> </ul> </li> <li>b. For products registered to the Greenhouse and Energy Minimum Standards (Air Conditioners up to 65kW) Determination 2019 (Cth) on or before 1 August 2024 that has a HSPF and TCSPF for the specified GEMS Residential or Commercial Cold Zone, the product must: <ul style="list-style-type: none"> <li>i. achieve the minimum HSPF and TCSPF for the specified GEMS Residential Cold Zone (categories 6A, 6B, 6D, 6E and 6F) OR the minimum ACOP and AEER specified in Table 6.3;</li> <li>ii. achieve the minimum HSPF and TCSPF for the specified GEMS Commercial Cold Zone (categories 6C and 6G) OR the minimum ACOP and AEER specified in Table 6.3; and</li> <li>iii. be registered to the relevant class (or classes) under that determination, specified in Table 6.3.</li> </ul> </li> <li>c. For products registered to the Greenhouse and Energy Minimum Standards (Air Conditioners up to 65kW) Determination 2019 (Cth) that does not have a HSPF and TCSPF for the specified GEMS Residential or Commercial Cold Zone, the product must: <ul style="list-style-type: none"> <li>i. achieve the minimum ACOP and AEER specified in Table 6.3; and</li> <li>ii. be registered to the relevant class (or classes) under that determination, specified in Table 6.3.</li> </ul> </li> </ul> |

**Table 6.3 – Minimum efficiency requirements for air conditioners to be installed\***

| Cat.   | Product Description                      | GEMS 2019 Class                                 | GEMS 2019 min HSPF | GEMS 2019 min TCSPF | GEMS 2019 ACOP | GEMS 2019 AEER |
|--------|------------------------------------------|-------------------------------------------------|--------------------|---------------------|----------------|----------------|
| 6A     | Ducted air to air<br>R < 10 kW           | Classes 10, 15, 18 or 19                        | 3.6                | 4.4                 | 3.9            | 3.5            |
| 6B(i)  | Ducted air to air<br>10 kW ≤ R < 25 kW   | Classes 6 (ducted units only), 11, 16 or 20     | 3.4                | 4.2                 | 3.7            | 3.4            |
| 6B(ii) | Ducted air to air<br>25 kW ≤ R ≤ 39 kW   | Classes 6 (ducted units only), 11, 16 or 20     | 3.2                | 3.6                 | 3.7            | 3.4            |
| 6C     | Ducted air to air<br>39 kW < R ≤ 65 kW   | Classes 7 (ducted units only), 12, 17 or 21     | 3.2                | 4.8                 | 3.5            | 3.2            |
| 6D     | Non-ducted air to air R < 4kW            | Classes 8, 13 or 18                             | 4.2                | 5.4                 | 4.4            | 4.1            |
| 6E(i)  | Non-ducted air to air 4 kW ≤ R < 7 kW    | Classes 9, 14 or 19                             | 3.7                | 5.0                 | 4.0            | 3.7            |
| 6E(ii) | Non-ducted air to air 7 kW ≤ R < 10 kW   | Classes 9, 14 or 19                             | 3.6                | 4.8                 | 3.9            | 3.7            |
| 6F     | Non-ducted air to air<br>10kW ≤ R ≤ 39kW | Classes 6 (non-ducted units only), 11, 16 or 20 | 3.6                | 4.6                 | 3.9            | 3.6            |
| 6G     | Non-ducted air to air<br>39kW < R ≤ 65kW | Classes 7 (non-ducted units only), 12, 17 or 21 | 2.7                | 5.3                 | 3.8            | 3.4            |

\*For the purposes of Table 6.3, "R" refers to the rated standard cooling full capacity as defined in the Greenhouse and Energy Minimum Standards (Air Conditioners up to 65kW) Determination 2019.

## Other specified matters

The product installed must meet the relevant additional requirements listed in Table 6.4.

**Table 6.4 – Other specified matters for space heating equipment to be installed**

| Product category number | Requirement type                                                                                | Specification Details                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-------------------------|-------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 6A-B, 6D-6F             | Pre-installation and installation requirements – appropriate sizing (residential premises only) | <p>In addition to the applicable requirements set out under the Code of Conduct (at Schedule 6 of the Regulations), the accredited person or scheme participant carrying out a prescribed Part 6 activity for an energy consumer at a residential premises must, before the energy consumer agrees to undertake that activity:</p> <ol style="list-style-type: none"> <li>provide the energy consumer with a copy of the current VEU Space Heating and Cooling Consumer Fact Sheet, as published on the department's public website; and</li> <li>give clear and accurate information to the energy consumer about the suitability of the product to be installed for the heating and cooling needs of the consumer having regard to the consumer's premises; and</li> <li>advise the energy consumer on whether the size of the product to be installed is consistent with the size recommended in the VEU Space Heating and Cooling Consumer Fact Sheet.</li> </ol> |

| Product category number | Requirement type                                                       | Specification Details                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|-------------------------|------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 6A-G                    | Decommissioning and product disposal requirements                      | <p>The decommissioned product must be:</p> <ol style="list-style-type: none"> <li>decommissioned in a practical and safe manner to ensure it cannot be re-used again; and</li> <li>decommissioned so that any refrigerant contained in the product is disposed of in accordance with the requirements set out under the Ozone Protection and Synthetic Greenhouse Gas Management Act 1989 (Cth) and regulations made under that Act.</li> </ol> <p>Any waste or debris generated from the activity, including the decommissioned product (where it is practical and safe to remove the decommissioned product), must be removed from the consumer's premises and disposed of in accordance with all applicable waste management requirements under the Environment Protection Act 2017 and its regulations.</p>                    |
| 6A-G                    | Refrigerant requirements                                               | The GWP of the refrigerant used in an air-conditioner to be installed with a rated cooling capacity below 15kW must be less than 700.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| 6A-G                    | Multi-split air conditioners, manufacturer of indoor and outdoor units | All indoor units installed as part of a multi-split air conditioner must be from the same original equipment manufacturer as the connected outdoor unit.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| 6A-G                    | Minimum co-payment amount**                                            | <p>For all multi-split air conditioners, the energy consumer must pay a minimum co-payment of \$1000 (including GST) per installed product for this activity (6A-6G).</p> <p>For all ducted air conditioners, the energy consumer must pay a minimum co-payment of \$1000 (including GST) per installed product for this activity (6A-6C).</p> <p>For all other non-ducted air conditioners with a total rated cooling capacity equal to or above 10kW, the energy consumer must pay a minimum co-payment of \$1000 (including GST) per installed product for this activity (6F, 6G).</p> <p>For all other non-ducted air conditioners with a total rated cooling capacity below 10kW, the energy consumer must pay a minimum co-payment of \$200 (including GST) per installed product for this activity (6D, 6E(i), 6E(ii)).</p> |
| 6A-B, 6D-F              | Product warranty requirements (residential premises only)**            | <p>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).</p> <p>In addition to the requirements of a warranty against defects under the ACL (Victoria), the warranty must also include the contact details of who to contact regarding product warranty obligations in Australia in the event of a product failure, if the person who gives the warranty is not in Australia.</p>                                                                                                                                                                                                                                                                                                                                       |

\* Applicable from 1 February 2025

\*\* Applicable from 31 March 2025

## Method for Determining GHG Equivalent Reduction

### Scenario 6A to 6G (i-xi): Installing a high efficiency air-conditioner

The equation used to calculate emissions savings for the space heating and cooling activity is given by Equation 6.1 below, using the variables listed in Table 6.5.

#### Equation 6.1 – GHG equivalent emissions reduction calculation for Scenarios 6A to 6G (i-xi)

$$GHG\ Eq.\ Reduction = ((Heating\ Savings + Cooling\ Savings) \times Lifetime)$$

**Table 6.5 – GHG equivalent emissions reduction variables for Scenarios 6A to 6G (i-xi)**

| Input type      | Condition            | Input value                                                |
|-----------------|----------------------|------------------------------------------------------------|
| Heating savings | In every instance    | Given by Equation 6.2, using variables listed in Table 6.6 |
| Cooling savings | In every instance    | Given by Equation 6.4, using variables listed in Table 6.8 |
| Lifetime        | Scenarios (i) to (x) | 12 years                                                   |
| Lifetime        | Scenarios (xi)       | 15 years                                                   |

#### Equation 6.2 – Heating savings calculation

$$Heating\ Savings = GSF_{heat} \times BTL_{heat} \times Heating\ Capacity$$

**Table 6.6 – Heating savings calculation inputs**

| Input type       | Condition                             | Input value                                                                                                                                                                                                                                        |
|------------------|---------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| $GSF_{heat}$     | In every instance                     | Is the greenhouse savings factor for heating Given by Equation 6.3, using variables listed in Table 6.7.                                                                                                                                           |
| $BTL_{heat}$     | In every instance                     | The deemed building heating load in MWh per kW rated heating capacity, using variables listed in Table 6.14.                                                                                                                                       |
| Heating capacity | Scenarios (i) to (ii) <sup>13</sup>   | The rated heating capacity of the unit installed in kW as listed on the ESC register, up to a maximum of 2.4 kW.                                                                                                                                   |
| Heating capacity | Scenarios (iii) to (iv) <sup>14</sup> | The rated heating capacity of the unit installed in kW as listed on the ESC register, up to a maximum of 15 kW.                                                                                                                                    |
| Heating capacity | Scenarios (v) to (xi)                 | The rated heating capacity of the unit installed in kW as listed on the ESC register.                                                                                                                                                              |
| Heating capacity | Multi-split air conditioners          | The sum of the rated heating capacity of all indoor units installed in kW, up to a maximum of the rated heating capacity of the outdoor unit installed, as listed on the ESC register.<br>Heating capacity limits for scenarios (i) to (iv) apply. |

<sup>13</sup> Although a unit with a heating capacity larger than 2.4kW can be installed, the maximum input for this scenario is 2.4 kW

<sup>14</sup> Although a unit with a heating capacity larger than 15 kW can be installed, the maximum input for this scenario is 15 kW.

**Equation 6.3 – Deemed greenhouse savings factor for heating (GSF<sub>heat</sub>) calculation**

$$GSF_{heat} = \left( \frac{GIH_{base}}{HSPF_{base}} \right) - \left( \frac{GIH_{upgrade} \times LF}{HSPF_{upgrade}} \right)$$

**Table 6.7 – Greenhouse savings factor for heating input**

| Input type              | Condition         | Input value                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-------------------------|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| GIH <sub>base</sub>     | In every instance | The greenhouse gas intensity heating factor for the baseline heater listed in<br><br>Table 6.11.                                                                                                                                                                                                                                                                                                                                                                                                          |
| HSPF <sub>base</sub>    | In every instance | The deemed HSPF for the baseline heater listed in<br><br>Table 6.11 for the relevant GEMS 2019 climate zone determined by Table 6.10.                                                                                                                                                                                                                                                                                                                                                                     |
| GIH <sub>upgrade</sub>  | In every instance | The greenhouse gas intensity factor for the upgrade heater listed in<br><br>Table 6.11                                                                                                                                                                                                                                                                                                                                                                                                                    |
| HSPF <sub>upgrade</sub> | In every instance | The HSPF for the upgrade air-conditioner using as listed on the ESC register: <ul style="list-style-type: none"> <li>the relevant GEMS 2019 Climate Zone determined by Table 6.10.</li> <li>the relevant residential HSPF for residential upgrades</li> <li>the relevant commercial HSPF for business/non-residential upgrades</li> <li>If HSPF is not listed, HSPF is to be derived by multiplying the product's ACOP value with the relevant conversion factor in Table 6.15 and Table 6.16.</li> </ul> |
| LF                      | In every instance | The upgrade heater loss factor, listed in Table 6.13                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

**Equation 6.4 – Deemed cooling savings calculation**

$$Cooling\ Savings = GSF_{cool} \times BTL_{cool} \times Cooling\ Capacity$$

**Table 6.8 – Cooling savings calculation inputs**

| Input type          | Condition                    | Input value                                                                                                                                                                                                                                            |
|---------------------|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| GSF <sub>cool</sub> | In every instance            | Is the greenhouse savings factor for cooling Given by Equation 6.5, using variables listed in Table 6.9.                                                                                                                                               |
| BTL <sub>cool</sub> | In every instance            | The deemed building cooling load in MWh per kW rated cooling capacity, using variables listed in Table 6.14.                                                                                                                                           |
| Cooling capacity    | Scenarios (i) to (ii)        | The rated cooling capacity of the unit installed in kW as listed on the ESC register, up to a maximum of 2.4 kW.                                                                                                                                       |
| Cooling capacity    | Scenarios (iii) to (iv)      | The rated cooling capacity of the unit installed in kW as listed on the ESC register, up to a maximum of 15 kW.                                                                                                                                        |
| Cooling capacity    | Scenarios (v) to (xi)        | The rated cooling capacity of the unit installed in kW as listed on the ESC register.                                                                                                                                                                  |
| Cooling capacity    | Multi-split air conditioners | The sum of the rated cooling capacity of all indoor units installed in kW, up to a maximum of the rated cooling capacity of the outdoor unit installed, as listed on the ESC register.<br><br>Cooling capacity limits for scenarios (i) to (iv) apply. |

**Equation 6.5 – Deemed greenhouse savings factor for cooling (GSF<sub>cool</sub>) calculation**

$$GSF_{cool} = \left( \frac{GIC_{base}}{TCSPF_{base}} \right) - \left( \frac{(GIC_{upgrade} \times LF)}{TCSPF_{upgrade}} \right)$$

**Table 6.9 – Cooling savings calculation inputs**

| Input type               | Condition         | Input value                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|--------------------------|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| GIC <sub>base</sub>      | In every instance | The greenhouse gas intensity cooling factor for the baseline cooling equipment using variables listed in<br><br>Table 6.11.                                                                                                                                                                                                                                                                                                                                                                                    |
| TCSPF <sub>base</sub>    | In every instance | The deemed TCSPF for the baseline cooling equipment listed in Table 6.11 for the relevant GEMS 2019 Climate Zone determined by Table 6.10.                                                                                                                                                                                                                                                                                                                                                                     |
| GIC <sub>upgrade</sub>   | In every instance | The greenhouse gas intensity factor for the upgrade cooling equipment listed in<br><br>Table 6.11.                                                                                                                                                                                                                                                                                                                                                                                                             |
| TCSPF <sub>upgrade</sub> | In every instance | The TCSPF for the upgrade air-conditioner using as listed on the ESC register: <ul style="list-style-type: none"> <li>the relevant GEMS 2019 Climate Zone determined by Table 6.10.</li> <li>the relevant residential TCSPF for residential upgrades</li> <li>the relevant commercial TCSPF for business/non-residential upgrades</li> <li>If TCSPF is not listed, TCSPF is to be derived by multiplying the product's AEER value with the relevant conversion factor in Table 6.15 and Table 6.16.</li> </ul> |
| LF                       | In every instance | The upgrade product system loss factor, listed in Table 6.13.                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

**Table 6.10 – VEU Climatic regions and GEMS 2019 Climate Zones**

| VEU Climatic Region                                          | GEMS 2019 Climate Zone |
|--------------------------------------------------------------|------------------------|
| For upgrades in Metropolitan Victoria – Climatic region mild | COLD                   |
| For upgrades in Metropolitan Victoria – Climatic region cold | COLD                   |
| For upgrades in Regional Victoria – Climatic region mild     | COLD                   |
| For upgrades in Regional Victoria – Climatic region cold     | COLD                   |
| For upgrades in Regional Victoria – Climatic region hot      | MIXED                  |

**Table 6.11 - Incumbent System  $GIH_{base}$  and  $GIC_{base}$  (t CO<sub>2</sub>-e/MWh) and Deemed Baseline  $HSPF_{Base}$  and  $TCSPF_{Base}$  Factors**

| Scenario | Heating      |                                                                  | Cooling                                       |              |                                                                  |                                                | $GIH_{upgrade}$<br>and<br>$GIC_{upgrade}$ |
|----------|--------------|------------------------------------------------------------------|-----------------------------------------------|--------------|------------------------------------------------------------------|------------------------------------------------|-------------------------------------------|
|          | $GIH_{base}$ | Deemed<br>$HSPF_{Base}$<br>GEMS<br>Cold Zone                     | Deemed<br>$HSPF_{Base}$<br>GEMS<br>Mixed Zone | $GIC_{base}$ | Deemed<br>$TCSPF_{Base}$<br>GEMS<br>Cold Zone                    | Deemed<br>$TCSPF_{Base}$<br>GEMS<br>Mixed Zone |                                           |
| (i)      | EEF          | 1.000                                                            | 1.000                                         | EEF          | Given in<br>Table 6.12 (residential) or<br>Table 6.13 (business) |                                                | EEF                                       |
| (ii)     | EEF          | 1.000                                                            | 1.000                                         | EEF          | 3.290                                                            | 3.264                                          | EEF                                       |
| (iii)    | EEF          | 0.847                                                            | 0.847                                         | EEF          | Given in<br>Table 6.12 (residential) or<br>Table 6.13 (business) |                                                | EEF                                       |
| (iv)     | EEF          | 0.847                                                            | 0.847                                         | EEF          | 2.788                                                            | 2.766                                          | EEF                                       |
| (v)      | EEF          | 2.358                                                            | 2.594                                         | EEF          | 2.788                                                            | 2.766                                          | EEF                                       |
| (vi)     | EEF          | 2.892                                                            | 3.268                                         | EEF          | 4.053                                                            | 3.932                                          | EEF                                       |
| (vii)    | 0.198        | 0.551                                                            | 0.551                                         | $EEF_M$      | Given in<br>Table 6.12 (residential) or<br>Table 6.13 (business) |                                                | $EEF_M$                                   |
| (viii)   | 0.198        | 0.551                                                            | 0.551                                         | $EEF_M$      | 2.788                                                            | 2.766                                          | $EEF_M$                                   |
| (ix)     | 0.198        | 0.760                                                            | 0.760                                         | $EEF_M$      | Given in<br>Table 6.12 (residential) or<br>Table 6.13 (business) |                                                | $EEF_M$                                   |
| (x)      | 0.198        | 0.760                                                            | 0.760                                         | $EEF_M$      | 4.053                                                            | 3.932                                          | $EEF_M$                                   |
| (xi)     | EEF          | Refer to Table 6.12<br>(residential) or Table 6.13<br>(business) |                                               | EEF          | Given in<br>Table 6.12 (residential) or<br>Table 6.13 (business) |                                                | EEF                                       |

**Table 6.12 – Deemed Baseline HSPF and TCSPF Factors According to Upgrade (Scenario) Type – Residential\***

| Cat.   | Upgrade Product                           | Deemed<br>HSPF <sub>Base</sub><br>GEMS Cold<br>Zone | Deemed<br>HSPF <sub>Base</sub><br>GEMS Mixed<br>Zone | Deemed<br>TCSPF <sub>Base</sub><br>GEMS Cold<br>Zone | Deemed<br>TCSPF <sub>Base</sub><br>GEMS Mixed<br>Zone | Loss<br>Factor |
|--------|-------------------------------------------|-----------------------------------------------------|------------------------------------------------------|------------------------------------------------------|-------------------------------------------------------|----------------|
| 6A     | Ducted air to air<br>R < 10 kW            | 3.03                                                | 3.42                                                 | 3.66                                                 | 3.59                                                  | 1.18           |
| 6B(i)  | Ducted air to air<br>10 kW ≤ R < 25 kW    | 2.86                                                | 3.25                                                 | 3.42                                                 | 3.35                                                  | 1.18           |
| 6B(ii) | Ducted air to air<br>25 kW ≤ R ≤ 39 kW    | 2.86                                                | 3.22                                                 | 3.22                                                 | 3.05                                                  | 1.18           |
| 6D     | Non-ducted air to air<br>R < 4kW          | 3.89                                                | 4.36                                                 | 5.38                                                 | 5.23                                                  | 1.0            |
| 6E(i)  | Non-ducted air to air<br>4 kW ≤ R < 7 kW  | 3.62                                                | 4.17                                                 | 4.91                                                 | 4.73                                                  | 1.0            |
| 6E(ii) | Non-ducted air to air<br>7 kW ≤ R < 10 kW | 3.50                                                | 4.17                                                 | 4.80                                                 | 4.73                                                  | 1.0            |
| 6F     | Non-ducted air to air<br>10kW ≤ R ≤ 39kW  | 3.43                                                | 3.98                                                 | 4.44                                                 | 4.35                                                  | 1.0            |

\*For the purposes of Table 6.12, “R” refers to the rated standard cooling full capacity as defined in the Greenhouse and Energy Minimum Standards (Air Conditioners up to 65kW) Determination 2019.

**Table 6.13 - Deemed Baseline HSPF and TCSPF Factors According to Upgrade (Scenario) Type – Business\***

| Cat.   | Upgrade Product                           | Deemed<br>HSPF <sub>Base</sub><br>GEMS Cold<br>Zone | Deemed<br>HSPF <sub>Base</sub><br>GEMS Mixed<br>Zone | Deemed<br>TCSPF <sub>Base</sub><br>GEMS Cold<br>Zone | Deemed<br>TCSPF <sub>Base</sub><br>GEMS Mixed<br>Zone | Loss<br>Factor |
|--------|-------------------------------------------|-----------------------------------------------------|------------------------------------------------------|------------------------------------------------------|-------------------------------------------------------|----------------|
| 6A     | Ducted air to air<br>R < 10 Kw            | 3.24                                                | 3.61                                                 | 4.49                                                 | 4.24                                                  | 1.18           |
| 6B(i)  | Ducted air to air<br>10 kW ≤ R < 25 kW    | 3.08                                                | 3.46                                                 | 4.30                                                 | 4.04                                                  | 1.18           |
| 6B(ii) | Ducted air to air<br>25 kW ≤ R ≤ 39 kW    | 3.08                                                | 3.22                                                 | 4.15                                                 | 3.73                                                  | 1.18           |
| 6C     | Ducted air to air<br>39 kW < R ≤ 65 kW    | 2.88                                                | 3.22                                                 | 3.56                                                 | 3.39                                                  | 1.18           |
| 6D     | Non-ducted air to air<br>R < 4kW          | 4.13                                                | 4.54                                                 | 7.85                                                 | 6.79                                                  | 1.0            |
| 6E(i)  | Non-ducted air to air<br>4 kW ≤ R < 7 kW  | 3.93                                                | 4.44                                                 | 6.62                                                 | 5.93                                                  | 1.0            |
| 6E(ii) | Non-ducted air to air<br>7 kW ≤ R < 10 kW | 3.80                                                | 4.44                                                 | 6.50                                                 | 5.93                                                  | 1.0            |
| 6F     | Non-ducted air to air<br>10kW ≤ R ≤ 39kW  | 3.77                                                | 4.31                                                 | 5.98                                                 | 5.52                                                  | 1.0            |
| 6G     | Non-ducted air to air<br>39kW < R ≤ 65kW  | 2.80                                                | 3.30                                                 | 5.30                                                 | 4.94                                                  | 1.0            |

\*For the purposes of Table 6.13, “R” refers to the rated standard cooling full capacity as defined in the Greenhouse and Energy Minimum Standards (Air Conditioners up to 65kW) Determination 2019.

**Table 6.14 – Deemed Building Thermal Loads – BTL<sub>Heat</sub> and BTL<sub>Cool</sub> for VEU Climatic Regions**

| VEU Climatic Region                                          | Residential                     |                                 | Business                        |                                 |
|--------------------------------------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|
|                                                              | Heating                         | Cooling                         | Heating                         | Cooling                         |
|                                                              | BTL <sub>Heat</sub><br>(MWh/kW) | BTL <sub>Cool</sub><br>(MWh/kW) | BTL <sub>Heat</sub><br>(MWh/kW) | BTL <sub>Cool</sub><br>(MWh/kW) |
| For upgrades in Metropolitan Victoria – Climatic region mild | 1.3144                          | 0.2696                          | 0.7866                          | 0.7175                          |
| For upgrades in Metropolitan Victoria – Climatic region cold | 1.4458                          | 0.2696                          | 0.8652                          | 0.7175                          |
| For upgrades in Regional Victoria – Climatic region mild     | 1.3144                          | 0.2696                          | 0.7866                          | 0.7175                          |
| For upgrades in Regional Victoria – Climatic region cold     | 1.4458                          | 0.2696                          | 0.8652                          | 0.7175                          |
| For upgrades in Regional Victoria – Climatic region hot      | 0.7211                          | 0.4296                          | 0.5915                          | 0.8910                          |

**Table 6.15 – Conversion factors (CF) to derive seasonal performance factors from ACOP and AEER – Residential\***

| Cat.   | Upgrade Product                           | VEU Cold and Mild Climatic Regions |             | VEU Hot Climatic Region |             |
|--------|-------------------------------------------|------------------------------------|-------------|-------------------------|-------------|
|        |                                           | Heating CFH                        | Cooling CFC | Heating CFH             | Cooling CFC |
| 6A     | Ducted air to air<br>R < 10 kW            | 0.934                              | 1.242       | 1.058                   | 1.218       |
| 6B(i)  | Ducted air to air<br>10 kW ≤ R < 25 kW    | 0.912                              | 1.211       | 1.039                   | 1.187       |
| 6B(ii) | Ducted air to air<br>25 kW ≤ R ≤ 39 kW    | 0.912                              | 1.211       | 1.039                   | 1.187       |
| 6D     | Non-ducted air to air<br>R < 4kW          | 0.925                              | 1.371       | 1.037                   | 1.332       |
| 6E(i)  | Non-ducted air to air<br>4 kW ≤ R < 7 kW  | 0.953                              | 1.382       | 1.096                   | 1.333       |
| 6E(ii) | Non-ducted air to air<br>7 kW ≤ R < 10 kW | 0.953                              | 1.382       | 1.096                   | 1.333       |
| 6F     | Non-ducted air to air<br>10kW ≤ R ≤ 39kW  | 0.892                              | 1.285       | 1.035                   | 1.258       |

\*For the purposes of Table 6.15, “R” refers to the rated standard cooling full capacity as defined in the Greenhouse and Energy Minimum Standards (Air Conditioners up to 65kW) Determination 2019.

**Table 6.16 – Conversion factors (CF) to derive seasonal performance factors from ACOP and AEER – Business\***

| Cat.   | Upgrade Product                                                    | VEU Cold and Mild Climatic Regions |             | VEU Hot Climatic Region |             |
|--------|--------------------------------------------------------------------|------------------------------------|-------------|-------------------------|-------------|
|        |                                                                    | Heating CFH                        | Cooling CFC | Heating CFH             | Cooling CFC |
| 6A     | Ducted air to air<br>$R < 10 \text{ kW}$                           | 1.001                              | 1.598       | 1.114                   | 1.490       |
| 6B(i)  | Ducted air to air<br>$10 \text{ kW} \leq R < 25 \text{ kW}$        | 0.983                              | 1.524       | 1.105                   | 1.433       |
| 6B(ii) | Ducted air to air<br>$25 \text{ kW} \leq R \leq 39 \text{ kW}$     | 0.983                              | 1.524       | 1.105                   | 1.433       |
| 6C     | Ducted air to air<br>$39 \text{ kW} < R \leq 65 \text{ kW}$        | 0.968                              | 1.263       | 1.115                   | 1.190       |
| 6D     | Non-ducted air to air<br>$R < 4 \text{ kW}$                        | 0.983                              | 2.001       | 1.081                   | 1.729       |
| 6E(i)  | Non-ducted air to air<br>$4 \text{ kW} \leq R < 7 \text{ kW}$      | 1.035                              | 1.864       | 1.170                   | 1.672       |
| 6E(ii) | Non-ducted air to air<br>$7 \text{ kW} \leq R < 10 \text{ kW}$     | 1.035                              | 1.864       | 1.170                   | 1.672       |
| 6F     | Non-ducted air to air<br>$10 \text{ kW} \leq R \leq 39 \text{ kW}$ | 0.981                              | 1.731       | 1.122                   | 1.598       |
| 6G     | Non-ducted air to air<br>$39 \text{ kW} < R \leq 65 \text{ kW}$    | 0.747                              | 1.563       | 0.866                   | 1.462       |

\*For the purposes of Table 6.15, “R” refers to the rated standard cooling full capacity as defined in the Greenhouse and Energy Minimum Standards (Air Conditioners up to 65kW) Determination 2019.



\*\*\*There is no Part 7, Part 8, Part 9, Part 10 or Part 11 Activities.

## 12. Part 12 Activity– Underfloor insulation

### Activity description (Guidance)

Part 12 of Schedule 2 of the Regulations prescribes the upgrade of underfloor insulation as an eligible activity for the purposes of the Victorian Energy Upgrades program.

Table 12.1 lists the types insulation that may be installed. Each upgrade combination is known as a scenario. Each scenario has its own method for determining GHG equivalent reduction.

VEECs cannot be created for this activity unless products installed are listed on the ESC Register by the time VEECs are created. Products already on the register at the time of installation can be taken as satisfying all those product requirements that can be determined prior to the installation of a product.

**Table 12.1 – Eligible underfloor insulation scenarios**

| Product category number | Scenario number | Decommissioning requirements | Other requirements <sup>15</sup>                                                                                                                                                                                                                                                                    | Product to be installed <sup>16</sup>                                                                                                                                                                                                                                                                                                                                                                                            | Historical schedule number |
|-------------------------|-----------------|------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|
| 12A                     | 12A             | None                         | <p>Installing a product, or 2 or more products, where the product or products:</p> <ul style="list-style-type: none"> <li>a. are installed in respect of a floor area that is not insulated; and</li> <li>b. are installed for a minimum of 20 m<sup>2</sup> in accordance with AS 3999.</li> </ul> | <p>A product, or two or more products:</p> <ul style="list-style-type: none"> <li>a. that is or are designed so that when installed, or installed together, they comply with the performance requirements of AS/NZS 4859.1 (insulation material); and</li> <li>b. that achieves or together achieve, a minimum R-value when measured and declared in accordance with AS/NZS 4859.1, as specified in Table 12.2 below.</li> </ul> | 12A                        |

<sup>15</sup> The authoritative requirements are contained in Part 12 of Schedule 2 to the Regulations, and take precedence over summary information provided for ease of reference in this document.

<sup>16</sup> The authoritative product requirements are contained in Part 12 of Schedule 2 to the Regulations, and take precedence over summary information provided for ease of reference in this document.

## Specified Minimum Energy Efficiency

The product (or products) installed must meet the additional requirements set out in Table 12.2.

**Table 12.2 - Additional requirements for insulation to be installed**

| Product category number | Requirement type | Efficiency requirement <sup>17</sup>                              |
|-------------------------|------------------|-------------------------------------------------------------------|
| 12A                     | Minimum R-value  | Winter value of R2.5, determined in accordance with AS/NZS 4859.1 |

## Other specified matters

None.

## Method for Determining GHG Equivalent Reduction

### Scenario 12A: Installing underfloor insulation

The GHG equivalent emissions reduction for this scenario is given by Equation 12.1, using the variables listed in Table 12.3.

**Equation 12.1 – GHG equivalent emissions reduction calculation for Scenario 12A**

$$GHG\ Eq.\ Reduction = GHG\ Savings \times Lifetime \times Regional\ Factor \times Area$$

**Table 12.3 – GHG equivalent emissions reduction variables for Scenario 12A**

| Input           | Condition                                                    | Input value                                              |
|-----------------|--------------------------------------------------------------|----------------------------------------------------------|
| GHG Savings     | In every instance                                            | $2.49 \times 10^{-3} + (1.35 \times 10^{-3} \times EEf)$ |
| Lifetime        | In every instance                                            | 25.00                                                    |
| Regional Factor | For upgrades in Metropolitan Victoria – Climatic region Mild | 1.06                                                     |
|                 | For upgrades in Metropolitan Victoria – Climatic region Cold | 1.22                                                     |
|                 | For upgrades in Regional Victoria – Climatic region Mild     | 0.88                                                     |
|                 | For upgrades in Regional Victoria – Climatic region Cold     | 1.25                                                     |
|                 | For upgrades in Regional Victoria – Climatic region Hot      | 0.82                                                     |
| Area            | In every instance                                            | The area of insulation in m2                             |

<sup>17</sup> The Secretary is empowered to specify these efficiency requirements under Part 12 of Schedule 2 to the Regulations.

## 13. Part 13 Activity– Double glazed windows

### Activity description (Guidance)

Part 13 of Schedule 2 of the Regulations prescribes the upgrade of windows through replacement with glazing as an eligible activity for the purposes of the Victorian Energy Upgrades program.

Table 13.1 lists the type of glazing product(s) that may replace an old window. Each type of upgrade is known as a scenario. Each scenario has its own method for determining GHG equivalent reduction.

VEECs cannot be created for this activity unless products installed are listed on the ESC Register by the time VEECs are created. Products already on the register at the time of installation can be taken as satisfying all those product requirements that can be determined prior to the installation of a product.

**Table 13.1 – Eligible thermally efficient window scenarios**

| Scenario number | Decommissioning / other requirement <sup>18</sup>                                                                                                                               | Product to be installed <sup>19</sup>                                                                                                                                                                                                                                                     |
|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 13A             | Installing a glazing product where the product:<br>a. is installed in place of one or more windows in an external wall; and<br>b. is installed for a minimum 5 m <sup>2</sup> . | A glazing product that:<br>a. achieves a maximum Total U-value as specified in Table 13.2 below; and<br>b. is WERS rated and labelled to a minimum star rating for heating as specified in Table 13.2 below; and<br>c. complies with the performance requirements of AS 2047 and AS 1288. |

### Specified Minimum Energy Efficiency

The product (or products) installed must meet the additional requirements set out in Table 13.2.

**Table 13.2 - Additional requirements for windows to be installed**

| Product category number | Requirement type                | Efficiency requirement <sup>20</sup>            |
|-------------------------|---------------------------------|-------------------------------------------------|
| 13A                     | Maximum total U-value           | 4, determined in accordance with AS 2047        |
|                         | Minimum star rating for heating | 4 stars, determined in accordance with the WERS |

### Other specified matters

None.

<sup>18</sup> The authoritative decommissioning and other requirements are contained in Part 13 of Schedule 2 to the Regulations, and take precedence over summary information provided for ease of reference in this document.

<sup>19</sup> The authoritative product requirements are contained in Part 13 of Schedule 2 to the Regulations, and take precedence over summary information provided for ease of reference in this document.

<sup>20</sup> The Secretary is empowered to specify these efficiency requirements under Part 13 of Schedule 2 to the Regulations.

## Method for Determining GHG Equivalent Reduction

### Scenario 13A: Upgrading to a WERS rated thermally efficient window

The GHG equivalent emissions reduction for each scenario is given by Equation 13.1, using the variables listed in Table 13.3.

#### Equation 13.1 – GHG equivalent emissions reduction calculation for Scenario 13A

$$GHG\ Eq.\ Reduction = \sum_{installation} GHG\ Savings \times Lifetime \times Regional\ Factor \times Area$$

**Table 13.3 – GHG equivalent emissions reduction variables for Scenario 13A**

| Input type      | Condition                                                    | Input value                                              |
|-----------------|--------------------------------------------------------------|----------------------------------------------------------|
| GHG Savings     | WERS rating between 4-4.9 stars for heating                  | $9.71 \times 10^{-3} + (5.91 \times 10^{-3} \times EEF)$ |
|                 | WERS rating between 5-5.9 stars for heating                  | $1.21 \times 10^{-2} + (7.38 \times 10^{-3} \times EEF)$ |
|                 | WERS rating of 6 stars for heating or more                   | $1.46 \times 10^{-2} + (8.86 \times 10^{-3} \times EEF)$ |
| Lifetime        | In every instance                                            | 25.00                                                    |
| Regional Factor | For upgrades in Metropolitan Victoria – Climatic region Mild | 1.03                                                     |
|                 | For upgrades in Metropolitan Victoria – Climatic region Cold | 1.39                                                     |
|                 | For upgrades in Regional Victoria – Climatic region Mild     | 0.93                                                     |
|                 | For upgrades in Regional Victoria – Climatic region Cold     | 1.42                                                     |
|                 | For upgrades in Regional Victoria – Climatic region Hot      | 0.76                                                     |
| Area            | In every instance                                            | The area of glazing installed in m <sup>2</sup>          |

## 14. Part 14 Activity– Thermally efficient window products

### Activity description (Guidance)

Part 14 of Schedule 2 of the Regulations prescribes the upgrade of a window by installing glazing product(s) as an eligible activity for the purposes of the Victorian Energy Upgrades program.

Table 14.1 lists the types of glazing products that may be installed on an existing window. Each type of upgrade is known as a scenario. Each scenario has its own method for determining GHG equivalent reduction.

At a later date, the Secretary may specify additional products that meet the requirements for this prescribed activity which will be listed as scenario number 14B once specified.

VEECs cannot be created for this activity unless products installed are listed on the ESC Register by the time VEECs are created. Products already on the register at the time of installation can be taken as satisfying all those product requirements that can be determined prior to the installation of a product.

**Table 14.1 – Eligible glazing product scenarios**

| Product category number | Scenario number | Decommissioning requirements <sup>21</sup> | Installation requirements <sup>22</sup>                                                                                                                                                                                                                                                                                                                               | Product to be installed <sup>23</sup>                                                                                                                                                                            | Historical schedule number |
|-------------------------|-----------------|--------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|
| 14A                     | 14A             | None                                       | Installing a product where the product: <ul style="list-style-type: none"><li>a. is installed on one or more single glazed windows in an external wall; and</li><li>b. is installed for a minimum glazed area of 5 m<sup>2</sup>; and</li><li>c. when installed, results in a still air gap being created between the single glazed window and the product.</li></ul> | A product that, when installed on a single glazed window, results in a still air gap being created between the single glazed window and the product and raises the thermal efficiency performance of the window. | 14A                        |

### Specified Minimum Energy Efficiency

There are no additional requirements that must be met by the product installed.

### Other specified matters

None.

<sup>21</sup> The authoritative decommissioning requirements are contained in Part 14 of Schedule 2 to the Regulations, and take precedence over summary information provided for ease of reference in this document.

<sup>22</sup> The authoritative installation requirements are contained in Part 14 of Schedule 2 to the Regulations, and take precedence over summary information provided for ease of reference in this document.

<sup>23</sup> The authoritative product requirements are contained in Part 14 of Schedule 2 to the Regulations, and take precedence over summary information provided for ease of reference in this document.

## Method for Determining GHG Equivalent Reduction

### Scenario 14A: Installing product that creates air gap on single glazed window

The GHG equivalent emissions reduction for each scenario is given by Equation 14.1, using the variables listed in Table 14.2Table 12.3.

#### Equation 14.1 – GHG equivalent emissions reduction calculation for Scenario 14A

$$GHG\ Eq.\ Reduction = \sum_{installation} GHG\ Savings \times Lifetime \times Regional\ Factor \times Area$$

**Table 14.2 – GHG equivalent emissions reduction variables for Scenario 14A**

| Input type      | Condition                                                    | Input value                                              |
|-----------------|--------------------------------------------------------------|----------------------------------------------------------|
| GHG Savings     |                                                              | $8.74 \times 10^{-3} + (5.31 \times 10^{-3} \times EEF)$ |
| Lifetime        | Glass or acrylic product(s)                                  | 15.00                                                    |
|                 | Window film product(s)                                       | 5.00                                                     |
| Regional Factor | For upgrades in Metropolitan Victoria – Climatic region Mild | 1.03                                                     |
|                 | For upgrades in Metropolitan Victoria - Climatic region Cold | 1.39                                                     |
|                 | For upgrades in Regional Victoria – Climatic region Mild     | 0.93                                                     |
|                 | For upgrades in Regional Victoria – Climatic region Cold     | 1.42                                                     |
|                 | For upgrades in Regional Victoria – Climatic region Hot      | 0.76                                                     |
| Area            | In every instance                                            | The area of glazing installed in m <sup>2</sup>          |

# 15. Part 15 Activity– Weather sealing

## Activity description (Guidance)

Part 15 of Schedule 2 of the Regulations prescribes the upgrade of premises by installing weather sealing products as an eligible activity for the purposes of the Victorian Energy Upgrades program.

Table 15.1 lists the types of weather sealing products that may be installed and what, if any, products they must replace. Each type of upgrade is known as a scenario. Each scenario has its own method for determining GHG equivalent reduction.

At a later date, the Secretary may specify under Item 15.9 of Table 15.1 and under category number 15I under 15.2 contained in Part 15 of Schedule 2 to the Regulations that there are other weather sealing technologies that reduce GHG equivalent emissions by sealing premises. In such a case, product requirements and installation requirements for emerging technology will be specified as scenario number 15I.

VEECs cannot be created for this activity unless products installed are listed on the ESC Register by the time VEECs are created. Products already on the register at the time of installation can be taken as satisfying all those product requirements that can be determined prior to the installation of a product.

**Table 15.1 – Eligible weather sealing scenarios**

| Note: Final upgrade must ensure air change rate at the premises is equal to or more than 0.5 and the premises must comply with Part 3.8.5 of the BCA <sup>24</sup> |                 |                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                     |                            |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|--------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|
| Product category number                                                                                                                                            | Scenario number | Decommissioning requirements <sup>25</sup> | Installation requirements <sup>26</sup>                                                                                                                                                                                                                                                                                                                                                                                        | Product to be installed <sup>27</sup>                                                                                                                                                                               | Historical schedule number |
| 15A                                                                                                                                                                | 15A             | None                                       | Installing a category 15A product, or combination of category 15A products, to the frame of an external door or to each edge of an external door if that installation: <ul style="list-style-type: none"> <li>a. is in accordance with the manufacturer's instructions; and</li> <li>b. restricts airflow along the entire perimeter of the door; and</li> <li>c. does not impair the normal operation of the door.</li> </ul> | A door sealing product or door weather stripping product, or a combination of those products each of which is covered by a warranty against defects for a period of at least 2 years from the date of installation. | 15A                        |
| 15B                                                                                                                                                                | 15B             | None                                       | Installing a category 15B product, or combination of category 15B products, to the frame of an external window if that installation:                                                                                                                                                                                                                                                                                           | A window sealing product or window weather stripping product, or a combination of those products, each of which is covered by a warranty                                                                            | 15B                        |

<sup>24</sup> The authoritative requirements are contained in Part 15 of Schedule 2 to the Regulations, and take precedence over summary information provided for ease of reference in this document.

<sup>25</sup> The authoritative decommissioning requirements are contained in Part 15 of Schedule 2 to the Regulations, and take precedence over summary information provided for ease of reference in this document.

<sup>26</sup> The authoritative installation requirements are contained in Part 15 of Schedule 2 to the Regulations, and take precedence over summary information provided for ease of reference in this document.

<sup>27</sup> The authoritative product requirements are contained in Part 15 of Schedule 2 to the Regulations, and take precedence over summary information provided for ease of reference in this document.

Note: Final upgrade must ensure air change rate at the premises is equal to or more than 0.5 and the premises must comply with Part 3.8.5 of the BCA<sup>24</sup>

| Product category number | Scenario number | Decommissioning requirements <sup>25</sup>                                                                                    | Installation requirements <sup>26</sup>                                                                                                                                                                                                                                                    | Product to be installed <sup>27</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Historical schedule number |
|-------------------------|-----------------|-------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|
|                         |                 |                                                                                                                               | <ul style="list-style-type: none"> <li>a. is in accordance with the manufacturer's instructions; and</li> <li>b. restricts airflow through the window; and</li> <li>c. does not impair the normal operation of the window.</li> </ul>                                                      | against defects for a period of at least 2 years from the date of installation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                            |
| 15C                     | 15C             | Removing and decommissioning a ceiling or wall exhaust fan that does not comply with the criteria for a category 15C product. | Installing, in accordance with the manufacturer's instructions and in the place of the decommissioned fan, a category 15C product.                                                                                                                                                         | A product that: <ul style="list-style-type: none"> <li>a. is a ceiling or wall exhaust fan; and</li> <li>b. expels air either outside or into the roof space of the premises it is installed in; and</li> <li>c. is fitted with a self-closing damper, flap, filter or other sealing product that is designed to:               <ul style="list-style-type: none"> <li>i. allow airflow through the exhaust of the fan when the fan is operating; and</li> <li>ii. restrict airflow when the fan is not operating; and</li> </ul> </li> <li>d. is covered by a warranty against defects for a period of at least 2 years from the date of installation.</li> </ul> | 15C                        |
| 15D                     | 15D             | None                                                                                                                          | Installing a category 15D product: <ul style="list-style-type: none"> <li>a. in accordance with the manufacturer's instructions; and</li> <li>b. on a ceiling or wall exhaust fan that expels air either outside or into the roof space of the premises and on which a category</li> </ul> | A product that: <ul style="list-style-type: none"> <li>a. is a self-closing damper, flap, filter or other sealing product; and</li> <li>b. is designed so that when installed on a ceiling or wall exhaust fan, it allows airflow through the exhaust of the fan</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                        | 15D                        |

Note: Final upgrade must ensure air change rate at the premises is equal to or more than 0.5 and the premises must comply with Part 3.8.5 of the BCA<sup>24</sup>

| Product category number | Scenario number | Decommissioning requirements <sup>25</sup> | Installation requirements <sup>26</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Product to be installed <sup>27</sup>                                                                                                                                                                                                                                                                                                                                                                                                                          | Historical schedule number |
|-------------------------|-----------------|--------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|
|                         |                 |                                            | <p>15D product is not already installed; and</p> <p>c. so that when installed on a ceiling or wall exhaust fan, the product allows airflow through the exhaust of the fan when the fan is operating and restricts airflow when the fan is not operating.</p>                                                                                                                                                                                                                                   | <p>when the fan is operating and restricts airflow when the fan is not operating; and</p> <p>c. is covered by a warranty against defects for a period of at least 2 years from the date of installation.</p>                                                                                                                                                                                                                                                   |                            |
| 15E                     | 15E             | None                                       | <p>Installing a category 15E product:</p> <p>a. in accordance with the manufacturer's instruction; and</p> <p>b. in an unsealed wall vent; and</p> <p>c. with the result that a ventilation opening in an external wall is sealed or closed.</p>                                                                                                                                                                                                                                               | <p>A product that:</p> <p>a. is made of a robust non-shrinking sealing material; and</p> <p>b. is covered by a warranty against defects for a period of at least 2 years from the date of installation.</p>                                                                                                                                                                                                                                                    | 15E                        |
| 15F                     | 15F             | None                                       | <p>Installing a category 15F product:</p> <p>(a) in accordance with the manufacturer's instructions; and</p> <p>(b) in an unsealed chimney or flue of an open fireplace in which category 15F product is not already installed; and</p> <p>(c) so that when fitted to a chimney or flue of an open fireplace used to burn solid fuel, the product:</p> <p>(i) restricts the airflow into or out of the chimney or flue when closed; and</p> <p>(ii) allows the fireplace to operate safely</p> | <p>A product that:</p> <p>(a) is designed so that when fitted to a chimney or flue of an open fireplace used to burn solid fuel, the product:</p> <p>(i) restricts the airflow into or out of the chimney or flue when closed and;</p> <p>(ii) allows the fireplace to operate safely and effectively when open; and</p> <p>(b) is designed to be fitted permanently to the chimney or flue; and</p> <p>(c) is covered by a warranty against defects for a</p> | 15F                        |

Note: Final upgrade must ensure air change rate at the premises is equal to or more than 0.5 and the premises must comply with Part 3.8.5 of the BCA<sup>24</sup>

| Product category number | Scenario number | Decommissioning requirements <sup>25</sup> | Installation requirements <sup>26</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Product to be installed <sup>27</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Historical schedule number |
|-------------------------|-----------------|--------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|
|                         |                 |                                            | and effectively when open; and<br>(d) so that is fitted permanently to the chimney or flue.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | period of at least 5 years from the date of installation.                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                            |
| 15G                     | 15G             | None                                       | <p>Installing a category 15G product (not being the reinstalling of a category 15G product):</p> <ul style="list-style-type: none"> <li>(a) in accordance with the manufacturer's instructions; and</li> <li>(b) to an unsealed chimney or flue of a fireplace in which category 15G product is not already installed; and</li> <li>(c) so that when fitted to a chimney or flue of an open fireplace used to burn solid fuel, the product restricts the airflow into or out of the chimney or flue; and</li> <li>(d) with signage that includes instructions for removing the product.</li> </ul> | <p>A product that:</p> <ul style="list-style-type: none"> <li>(a) is designed so that when fitted to a chimney or flue of an fireplace used to burn solid fuel, the product restricts the airflow into or out the chimney or flue; and</li> <li>(b) is designed to be installed on a temporary or seasonal basis; and</li> <li>(c) is covered by a warranty against defects for a period of at least 2 years from the date of installation; and</li> <li>(d) is not a chimney or flue balloon.</li> </ul> | 15G                        |
| 15H                     | 15H             | None                                       | <p>Installing a category 15H product (not being the reinstalling of a category 15H product):</p> <ul style="list-style-type: none"> <li>(a) in accordance with the manufacturer's instruction; and</li> <li>(b) so that the product covers the ceiling outlet of a ducted evaporative cooling system, the product restricts airflow from inside the residential premises into the evaporative cooling ductwork and</li> <li>(c) that is supplied for installation with instructions regarding: <ul style="list-style-type: none"> <li>(i) the installation and removal of</li> </ul> </li> </ul>   | <p>A product that:</p> <ul style="list-style-type: none"> <li>(a) is designed so that when installed to cover the ceiling outlet of a ducted evaporative cooling system, the product restricts airflow from inside the residential premises into the evaporative cooling ductwork; and</li> <li>(b) is designed to be installed on a temporary or seasonal basis; and</li> <li>(c) is covered by a warranty against defects for a period at least 2 years from the date of installation; and</li> </ul>   | 15H                        |

Note: Final upgrade must ensure air change rate at the premises is equal to or more than 0.5 and the premises must comply with Part 3.8.5 of the BCA<sup>24</sup>

| Product category number | Scenario number | Decommissioning requirements <sup>25</sup> | Installation requirements <sup>26</sup>                                                 | Product to be installed <sup>27</sup>                                                                                                                                                       | Historical schedule number |
|-------------------------|-----------------|--------------------------------------------|-----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|
|                         |                 |                                            | the product; and<br>(ii) the time of year that product should be installed and removed. | (d) is supplied for installation with instructions regarding:<br>(i) the installation and removal of the product<br>(ii) the time of year that the product should be installed and removed. |                            |

## Specified Minimum Energy Efficiency

There are no additional requirements that must be met by the product installed.

## Other specified matters

None.

## Method for Determining GHG Equivalent Reduction

Note: For this activity, if multiple scenarios are carried out at the same site and within the same period, please be aware that the total GHG equivalent emissions equal the sum of the GHG equivalent emissions reductions for all upgrades.

### Scenario 15A: Door sealing upgrade

The GHG equivalent emissions reduction for each scenario is given by Equation 15.1, using the variables listed in Table 15.2.

If multiple installations are carried out at the same site and within the same period, please be aware that the total GHG equivalent emissions equal the sum of the GHG equivalent emissions reductions for all upgrades of the same scenario type.

#### Equation 15.1 – GHG equivalent emissions reduction calculation for Scenario 15A

$$GHG \text{ Eq. Reduction} = \sum_{\text{installation}} GHG \text{ Savings} \times \text{Lifetime} \times \text{Regional Factor}$$

**Table 15.2 – GHG equivalent emissions reduction variables for Scenario 15A**

| Input type      | Condition                                                    | Input value                                              |
|-----------------|--------------------------------------------------------------|----------------------------------------------------------|
| GHG Savings     | In every instance                                            | $3.15 \times 10^{-2} + (2.66 \times 10^{-2} \times EEF)$ |
| Lifetime        | Product warranty of at least 2 years, but less than 5 years  | 5.00                                                     |
|                 | Product warranty of at least 5 years                         | 10.00                                                    |
| Regional Factor | For upgrades in Metropolitan Victoria – Climatic region Mild | 1.05                                                     |
|                 | For upgrades in Metropolitan Victoria – Climatic region Cold | 1.30                                                     |
|                 | For upgrades in Regional Victoria – Climatic region Mild     | 0.84                                                     |
|                 | For upgrades in Regional Victoria – Climatic region Cold     | 1.33                                                     |
|                 | For upgrades in Regional Victoria – Climatic region Hot      | 0.63                                                     |

### Scenario 15B: Window sealing upgrade

The GHG equivalent emissions reduction for each scenario is given by Equation 15.2, using the variables listed in Table 15.3.

If multiple installations are carried out at the same site and within the same period, please be aware that the total GHG equivalent emissions equal the sum of the GHG equivalent emissions reductions for all upgrades of the same scenario type.

**Equation 15.2 – GHG equivalent emissions reduction calculation for Scenario 15B**

$$GHG \text{ Eq. Reduction} = \sum_{\text{installation}} GHG \text{ Savings} \times Lifetime \times Regional \text{ Factor} \times Area$$

**Table 15.3 – GHG equivalent emissions reduction variables for Scenario 15B**

| Input type      | Condition                                                    | Input value                                              |
|-----------------|--------------------------------------------------------------|----------------------------------------------------------|
| GHG Savings     | In every instance                                            | $1.47 \times 10^{-3} + (1.16 \times 10^{-3} \times EEF)$ |
| Lifetime        | Product warranty of at least 2 years, but less than 5 years  | 5.00                                                     |
|                 | Product warranty of at least 5 years                         | 10.00                                                    |
| Regional Factor | For upgrades in Metropolitan Victoria – Climatic region Mild | 1.05                                                     |
|                 | For upgrades in Metropolitan Victoria – Climatic region Cold | 1.30                                                     |
|                 | For upgrades in Regional Victoria – Climatic region Mild     | 0.84                                                     |
|                 | For upgrades in Regional Victoria – Climatic region Cold     | 1.33                                                     |
|                 | For upgrades in Regional Victoria – Climatic region Hot      | 0.63                                                     |
| Area            | In every instance                                            | The area of window in m <sup>2</sup>                     |

## Scenario 15C: Ceiling or wall exhaust fan upgrade

The GHG equivalent emissions reduction for each scenario is given by Equation 15.3, using the variables listed in Table 15.4.

If multiple installations are carried out at the same site and within the same period, please be aware that the total GHG equivalent emissions equal the sum of the GHG equivalent emissions reductions for all upgrades of the same scenario type.

**Equation 15.3 – GHG equivalent emissions reduction calculation for Scenario 15C**

$$GHG\ Eq.\ Reduction = \sum_{installation} GHG\ Savings \times Lifetime \times Regional\ Factor$$

**Table 15.4 – GHG equivalent emissions reduction variables for Scenario 15C**

| Input type      | Condition                                                    | Input value                                              |
|-----------------|--------------------------------------------------------------|----------------------------------------------------------|
| GHG Savings     | In every instance                                            | $5.04 \times 10^{-2} + (3.87 \times 10^{-2} \times EEF)$ |
| Lifetime        | Product warranty of at least 2 years, but less than 5 years  | 5.00                                                     |
|                 | Product warranty of at least 5 years                         | 10.00                                                    |
| Regional Factor | For upgrades in Metropolitan Victoria – Climatic region Mild | 1.05                                                     |
|                 | For upgrades in Metropolitan Victoria – Climatic region Cold | 1.30                                                     |
|                 | For upgrades in Regional Victoria – Climatic region Mild     | 0.84                                                     |
|                 | For upgrades in Regional Victoria – Climatic region Cold     | 1.33                                                     |
|                 | For upgrades in Regional Victoria – Climatic region Hot      | 0.63                                                     |

## Scenario 15D: Damper, flap and filter upgrade

The GHG equivalent emissions reduction for each scenario is given by Equation 15.4, using the variables listed in Table 15.5.

If multiple installations are carried out at the same site and within the same period, please be aware that the total GHG equivalent emissions equal the sum of the GHG equivalent emissions reductions for all upgrades of the same scenario type.

**Equation 15.4 – GHG equivalent emissions reduction calculation for Scenario 15D**

$$GHG\ Eq.\ Reduction = \sum_{installation} GHG\ Savings \times Lifetime \times Regional\ Factor$$

**Table 15.5 – GHG equivalent emissions reduction variables for Scenario 15D**

| Input type      | Condition                                                    | Input value                                              |
|-----------------|--------------------------------------------------------------|----------------------------------------------------------|
| GHG Savings     | In every instance                                            | $9.63 \times 10^{-2} + (7.42 \times 10^{-2} \times EEF)$ |
| Lifetime        | Product warranty of at least 2 years, but less than 5 years  | 5.00                                                     |
|                 | Product warranty of at least 5 years                         | 10.00                                                    |
| Regional Factor | For upgrades in Metropolitan Victoria – Climatic region Mild | 1.05                                                     |
|                 | For upgrades in Metropolitan Victoria – Climatic region Cold | 1.30                                                     |
|                 | For upgrades in Regional Victoria – Climatic region Mild     | 0.84                                                     |
|                 | For upgrades in Regional Victoria – Climatic region Cold     | 1.33                                                     |
|                 | For upgrades in Regional Victoria – Climatic region Hot      | 0.63                                                     |

### Scenario 15E: Robust non-shrinking sealing material upgrade

The GHG equivalent emissions reduction for each scenario is given by Equation 15.5, using the variables listed in Table 15.6.

If multiple installations are carried out at the same site and within the same period, please be aware that the total GHG equivalent emissions equal the sum of the GHG equivalent emissions reductions for all upgrades of the same scenario type.

**Equation 15.5 – GHG equivalent emissions reduction calculation for Scenario 15E**

$$GHG \text{ Eq. Reduction} = \sum_{\text{installation}} GHG \text{ Savings} \times Lifetime \times Regional \text{ Factor}$$

**Table 15.6 – GHG equivalent emissions reduction variables for Scenario 15E**

| Input type      | Condition                                                    | Input value                                              |
|-----------------|--------------------------------------------------------------|----------------------------------------------------------|
| GHG Savings     | In every instance                                            | $1.27 \times 10^{-2} + (9.91 \times 10^{-3} \times EEF)$ |
| Lifetime        | Product warranty of at least 2 years, but less than 5 years  | 5.00                                                     |
|                 | Product warranty of at least 5 years                         | 10.00                                                    |
| Regional Factor | For upgrades in Metropolitan Victoria – Climatic region Mild | 1.05                                                     |
|                 | For upgrades in Metropolitan Victoria – Climatic region Cold | 1.30                                                     |
|                 | For upgrades in Regional Victoria – Climatic region Mild     | 0.84                                                     |
|                 | For upgrades in Regional Victoria – Climatic region Cold     | 1.33                                                     |
|                 | For upgrades in Regional Victoria – Climatic region Hot      | 0.63                                                     |

## Scenario 15F: Permanent chimney sealing upgrade

The GHG equivalent emissions reduction for each scenario is given by Equation 15.6, using the variables listed in Table 15.7.

If multiple installations are carried out at the same site and within the same period, please be aware that the total GHG equivalent emissions equal the sum of the GHG equivalent emissions reductions for all upgrades of the same scenario type.

**Equation 15.6 – GHG equivalent emissions reduction calculation for Scenario 15F**

$$GHG\ Eq.\ Reduction = \sum_{installation} GHG\ Savings \times Lifetime \times Regional\ Factor$$

**Table 15.7 – GHG equivalent emissions reduction variables for Scenario 15F**

| Input type      | Condition                                                    | Input value                                              |
|-----------------|--------------------------------------------------------------|----------------------------------------------------------|
| GHG Savings     | In every instance                                            | $2.83 \times 10^{-1} + (2.19 \times 10^{-1} \times EEF)$ |
| Lifetime        | In every instance                                            | 10.00                                                    |
| Regional Factor | For upgrades in Metropolitan Victoria – Climatic region Mild | 1.05                                                     |
|                 | For upgrades in Metropolitan Victoria – Climatic region Cold | 1.30                                                     |
|                 | For upgrades in Regional Victoria – Climatic region Mild     | 0.84                                                     |
|                 | For upgrades in Regional Victoria – Climatic region Cold     | 1.33                                                     |
|                 | For upgrades in Regional Victoria – Climatic region Hot      | 0.63                                                     |

## Scenario 15G: Temporary chimney sealing upgrade

The GHG equivalent emissions reduction for each scenario is given by Equation 15.7, using the variables listed in Table 15.8.

If multiple installations are carried out at the same site and within the same period, please be aware that the total GHG equivalent emissions equal the sum of the GHG equivalent emissions reductions for all upgrades of the same scenario type.

**Equation 15.7 – GHG equivalent emissions reduction calculation for Scenario 15G**

$$GHG\ Eq.\ Reduction = \sum_{installation} GHG\ Savings \times Lifetime \times Regional\ Factor$$

**Table 15.8 – GHG equivalent emissions reduction variables for Scenario 15G**

| Input type  | Condition         | Input value                                              |
|-------------|-------------------|----------------------------------------------------------|
| GHG Savings | In every instance | $2.83 \times 10^{-1} + (2.19 \times 10^{-1} \times EEF)$ |
| Lifetime    | In every instance | 5.00                                                     |

|                 |                                                              |      |
|-----------------|--------------------------------------------------------------|------|
| Regional Factor | For upgrades in Metropolitan Victoria – Climatic region Mild | 1.05 |
|                 | For upgrades in Metropolitan Victoria – Climatic region Cold | 1.30 |
|                 | For upgrades in Regional Victoria – Climatic region Mild     | 0.84 |
|                 | For upgrades in Regional Victoria – Climatic region Cold     | 1.33 |
|                 | For upgrades in Regional Victoria – Climatic region Hot      | 0.63 |

### Scenario 15H: Ceiling outlet sealing upgrade

The GHG equivalent emissions reduction for each scenario is given by Equation 15.8, using the variables listed in Table 15.9.

If multiple installations are carried out at the same site and within the same period, please be aware that the total GHG equivalent emissions equal the sum of the GHG equivalent emissions reductions for all upgrades of the same scenario type.

#### Equation 15.8 – GHG equivalent emissions reduction calculation for Scenario 15H

$$GHG \text{ Eq. Reduction} = \sum_{\text{installation}} GHG \text{ Savings} \times Lifetime \times Regional \text{ Factor}$$

**Table 15.9 – GHG equivalent emissions reduction variables for Scenario 15H**

| Input type      | Condition                                                    | Input value                                              |
|-----------------|--------------------------------------------------------------|----------------------------------------------------------|
| GHG Savings     | In every instance                                            | $1.31 \times 10^{-2} + (9.85 \times 10^{-3} \times EEF)$ |
| Lifetime        | Product warranty of at least 2 years, but less than 5 years  | 5.00                                                     |
|                 | Product warranty of at least 5 years                         | 10.00                                                    |
| Regional Factor | For upgrades in Metropolitan Victoria – Climatic region Mild | 1.05                                                     |
|                 | For upgrades in Metropolitan Victoria – Climatic region Cold | 1.88                                                     |
|                 | For upgrades in Regional Victoria – Climatic region Mild     | 0.84                                                     |
|                 | For upgrades in Regional Victoria – Climatic region Cold     | 1.93                                                     |
|                 | For upgrades in Regional Victoria – Climatic region Hot      | 0.55                                                     |

\*\*\*There is no Part 16 Activity.

## 17. Part 17 Activity– Low flow shower rose

### Activity description (Guidance)

Part 17 of Schedule 2 of the Regulations prescribes the upgrade of a shower rose as an eligible activity for the purposes of the Victorian Energy Upgrades program.

Table 17.1 lists the types of shower rose products that may replace inefficient shower roses. Each type of upgrade is known as a scenario. Each scenario has its own method for determining GHG equivalent reduction.

VEECs cannot be created for this activity unless products installed are listed on the ESC Register by the time VEECs are created. Products already on the register at the time of installation can be taken as satisfying all those product requirements that can be determined prior to the installation of a product.

**Table 17.1 – Eligible shower rose scenarios**

| Product category number | Scenario number | Decommissioning requirements <sup>28</sup>    | Product to be installed <sup>29</sup>                                                                                                                                                                    | Historical schedule number |
|-------------------------|-----------------|-----------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|
| 17A                     | 17A             | A shower rose with a flow rate above 9 L/min. | A shower rose complying with the requirements of AS/NZS 3662 that achieves a minimum star rating as specified in Table 17.2 below when assessed, registered and labelled in accordance with AS/NZS 6400. | 17A                        |

### Specified Minimum Energy Efficiency

The product installed must meet the additional requirements set out in Table 17.2.

**Table 17.2 – Additional requirements for shower roses to be installed**

| Product category number | Requirement type    | Efficiency requirement <sup>30</sup>                                          |
|-------------------------|---------------------|-------------------------------------------------------------------------------|
| 17A                     | Minimum star rating | 3 stars and a flow rate of range E, determined in accordance with AS/NZS 6400 |

### Other specified matters

None.

<sup>28</sup> The authoritative decommissioning requirements are contained in Part 17 of Schedule 2 to the Regulations, and take precedence over summary information provided for ease of reference in this document.

<sup>29</sup> The authoritative product requirements are contained in Part 17 of Schedule 2 to the Regulations, and take precedence over summary information provided for ease of reference in this document.

<sup>30</sup> The Secretary is empowered to specify these efficiency requirements under Part 17 of Schedule 2 to the Regulations.

## Method for Determining GHG Equivalent Reduction

**Scenario 17A:** A shower rose with a flow rate above 9 L/min replaced with a low flow shower rose

The GHG equivalent emissions reduction for each scenario is given by Equation 17.1, using the variables listed in Table 17.3.

If multiple installations are carried out at the same site and within the same period, please be aware that the total GHG equivalent emissions equal the sum of the GHG equivalent emissions reductions for all upgrades of the same scenario type.

**Equation 17.1 – GHG equivalent emissions reduction calculation for Scenario 17A**

$$GHG\ Eq.\ Reduction = \sum_{installation} (Baseline - Upgrade) \times Lifetime \times Regional\ Factor$$

**Table 17.3 – GHG equivalent emissions reduction variables for Scenario 17A**

| Input Type      | Condition                                            | Input Value                                |
|-----------------|------------------------------------------------------|--------------------------------------------|
| Baseline        | In every instance                                    | $9.78 \times 10^{-2} + (0.223 \times EEF)$ |
| Upgrade         | In every instance                                    | $6.99 \times 10^{-2} + (0.159 \times EEF)$ |
| Lifetime        | In every instance                                    | 15.00                                      |
| Regional Factor | If the product is installed in Metropolitan Victoria | 0.92                                       |
|                 | If the product is installed in Regional Victoria     | 1.21                                       |

\*\*\*There is no Part 18, Part 19, Part 20 or Part 21 Activities.

## 22. Part 22 Activity– High efficiency refrigerators and freezers

### Activity description (Guidance)

Part 22 of Schedule 2 of the Regulations prescribes the upgrade of refrigerator and freezers as an eligible activity for the purposes of the Victorian Energy Upgrades program.

Table 22.1 lists the types of refrigerators and freezers that can be installed. Each type of upgrade is known as a scenario. Each scenario has its own method for determining GHG equivalent reduction.

At a later date, the Secretary may specify that there are other refrigerators and freezers that reduce GHG equivalent emissions when installed. In such a case, product requirements and installation requirements for emerging technology will be specified as scenario number 22E.

Products installed must be listed on the GEMS Register at the time of installation.

**Table 22.1 – Eligible high efficiency refrigerator and freezer scenarios**

| Product category number | Scenario number | Decommissioning requirements | Product to be installed <sup>31</sup>                                                                                                  | Historical schedule number |
|-------------------------|-----------------|------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|----------------------------|
| 22A                     | 22A             | None                         | A single door refrigerator that achieves the minimum performance requirement for a category 22A product specified in Table 22.2 below. | 22A                        |
| 22B                     | 22B             | None                         | A two-door refrigerator that achieves the minimum performance requirement for a category 22B product specified in Table 22.2 below.    | 22B                        |
| 22C                     | 22C             | None                         | A chest freezer that achieves the minimum performance requirement for a category 22C product specified in Table 22.2 below.            | 22C                        |
| 22D                     | 22D             | None                         | An upright freezer that achieves the minimum performance requirement for a category 22D product specified in Table 22.2 below.         | 22D                        |

### Specified Minimum Energy Efficiency

The product installed must meet the additional requirements set out in Table 22.2.

**Table 22.2 – Additional requirements for refrigerators and freezers to be installed**

| Product category number | Requirement type                | Efficiency requirement <sup>32</sup>                                                                                                                                          |
|-------------------------|---------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 22A                     | Minimum performance requirement | a. Group 1 refrigerator, determined in accordance with AS/NZS 4474:2018; and<br>b. A product that does not have a designation of cooled appliance under AS/NZS 4474:2018; and |

<sup>31</sup> The authoritative product requirements are contained in Part 22 of Schedule 2 to the Regulations, and take precedence over summary information provided for ease of reference in this document.

<sup>32</sup> The Secretary is empowered to specify these efficiency requirements under Part 22 of Schedule 2 to the Regulations.

|     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-----|---------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|     |                                 | <ul style="list-style-type: none"> <li>c. A product that does not have any compartment that is designated as a wine storage compartment, cellar compartment or pantry compartment under AS/NZS IEC 62552.1:2018; and</li> <li>d. Total storage volume of not less than 250 litres and not more than 700 litres determined in accordance with AS/NZS IEC 62552.3:2018; and</li> <li>e. Minimum star rating of 5.5, determined in accordance with AS/NZS 4474:2018.</li> </ul>                                                                                                                                                                                                                    |
| 22B | Minimum performance requirement | <ul style="list-style-type: none"> <li>a. Group 4, 5B, 5S or 5T refrigerator/freezer, determined in accordance with AS/NZS 4474:2018; and</li> <li>b. A product that does not have a designation of cooled appliance under AS/NZS 4474:2018; and</li> <li>c. A product that does not have any compartment that is designated as a wine storage compartment, cellar compartment or pantry compartment under AS/NZS IEC 62552.1:2018; and</li> <li>d. Total storage volume of not less than 250 litres and not more than 700 litres determined in accordance with AS/NZS IEC 62552.3:2018; and</li> <li>e. Minimum star rating of 5.5, determined in accordance with AS/NZS 4474:2018.</li> </ul> |
| 22C | Minimum performance requirement | <ul style="list-style-type: none"> <li>a. Group 6C freezer, determined in accordance with AS/NZS 4474:2018; and</li> <li>b. A product that does not have a designation of cooled appliance under AS/NZS 4474:2018; and</li> <li>c. Total storage volume of not less than 250 litres and not more than 700 litres determined in accordance with AS/NZS IEC 62552.3:2018; and</li> <li>d. Minimum star rating of 4.0, determined in accordance with AS/NZS 4474:2018.</li> </ul>                                                                                                                                                                                                                  |
| 22D | Minimum performance requirement | <ul style="list-style-type: none"> <li>a. Group 6U or 7 freezer, determined in accordance with AS/NZS 4474:2018; and</li> <li>b. A product that does not have a designation of cooled appliance under AS/NZS 4474:2018; and</li> <li>c. Total storage volume of not less than 250 litres and not more than 700 litres determined in accordance with AS/NZS IEC 62552.3:2018; and</li> <li>d. Minimum star rating of 4.0, determined in accordance with AS/NZS 4474:2018.</li> </ul>                                                                                                                                                                                                             |

## Other specified matters

None.

## Method for Determining GHG Equivalent Reduction

### Scenario 22A and 22B: Installing a single door refrigerator or a two-door refrigerator

The GHG equivalent emissions reduction for each scenario is given by Equation 22.1, using the variables listed in Table 22.3.

If multiple installations are carried out at the same site and within the same period, please be aware that the total GHG equivalent emissions equal the sum of the GHG equivalent emissions reductions for all upgrades of the same scenario type.

#### Equation 22.1 – GHG equivalent emissions reduction calculation for Scenario 22A and 22B

$$GHG\ Eq.\ Reduction = Lifetime\ savings$$

Table 22.3 – GHG equivalent emissions reduction variables for Scenario 22A and 22B

| Input Type       | Condition         | Input Value |
|------------------|-------------------|-------------|
| Lifetime savings | In every instance | 0.62        |

### Scenario 22C and 22D: Installing a chest freezer or an upright freezer

The GHG equivalent emissions reduction for each scenario is given by Equation 22.2, using the variables listed in Table 22.4.

If multiple installations are carried out at the same site and within the same period, please be aware that the total GHG equivalent emissions equal the sum of the GHG equivalent emissions reductions for all upgrades of the same scenario type.

#### Equation 22.2 – GHG equivalent emissions reduction calculation for Scenario 22C and 22D

$$GHG\ Eq.\ Reduction = Lifetime\ savings$$

Table 22.4 – GHG equivalent emissions reduction variables for Scenario 22C and 22D

| Input Type       | Condition         | Input Value |
|------------------|-------------------|-------------|
| Lifetime savings | In every instance | 0.71        |

\*\*\*There is no Part 23 Activity

## 24. Part 24 Activity– High efficiency televisions

### Activity description (Guidance)

Part 24 of Schedule 2 of the Regulations prescribes the upgrade of a high efficiency television as an eligible activity for the purposes of the Victorian Energy Upgrades program.

Table 24.1 lists the types of televisions that may be installed. Each type of upgrade is known as a scenario. Each scenario has its own method for determining GHG equivalent reduction.

Products installed must be listed on the GEMS Register at the time of installation.

**Table 24.1 – Eligible high efficiency television scenarios**

| Product category number | Scenario number | Decommissioning requirements | Product to be installed <sup>33</sup>                                                         | Historical schedule number |
|-------------------------|-----------------|------------------------------|-----------------------------------------------------------------------------------------------|----------------------------|
| 24A                     | 24A             | None                         | A television that achieves the minimum performance requirement specified in Table 24.2 below. | 24A                        |

### Specified Minimum Energy Efficiency

The product installed must meet the additional requirements set out in Table 24.2.

**Table 24.2 – Additional requirements for televisions to be installed**

| Product category number | Requirement type                | Efficiency requirement <sup>34</sup>                                                                                                                                                                                                                       |
|-------------------------|---------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 24A                     | Minimum performance requirement | <p>a. Minimum star rating of 6 stars; and</p> <p>b. Minimum screen area of 4000 cm<sup>2</sup>.</p> <p>Measurement, testings and ratings must be in accordance with the Greenhouse and Energy Minimum Standards (Television) Determination 2013 (No.2)</p> |

### Other specified matters

None.

<sup>33</sup> The authoritative product requirements are contained in Part 24 of Schedule 2 to the Regulations, and take precedence over summary information provided for ease of reference in this document.

<sup>34</sup> The Secretary is empowered to specify these efficiency requirements under in Part 24 of Schedule 2 to the Regulations.

## Method for Determining GHG Equivalent Reduction

### Scenario 24A: Installing a high efficiency television

The GHG equivalent emissions reduction for each scenario is given by Equation 24.1, using the variables listed in Table 24.3.

Equation 24.1 – GHG equivalent emissions reduction calculation for Scenario 24A

$$GHG\ Eq.\ Reduction = Lifetime\ savings$$

Table 24.3 – GHG equivalent emissions reduction variables for Scenario 24A

| Input Type       | Condition         | Input Value |
|------------------|-------------------|-------------|
| Lifetime savings | In every instance | 0.80        |



## 25. Part 25 Activity– Energy efficient (low greenhouse intensity) clothes dryers

### Activity description (Guidance)

Part 25 of Schedule 2 of the Regulations prescribes the upgrade of clothes dryers as an eligible activity for the purposes of the Victorian Energy Upgrades program.

Table 25.1 lists the types of clothes dryers that may be installed. Each type of upgrade is known as a scenario. Each scenario has its own method for determining GHG equivalent reduction.

At a later date, the Secretary may specify requirements for additional clothes dryers that may be installed as a prescribed activity under Part 25 of Schedule 2 of the Regulations, which will be listed as scenario number 25B once specified.

Products installed must be listed on the GEMS Register at the time of installation.

**Table 25.1 – Eligible clothes dryer scenarios**

| Product category number | Scenario number | Decommissioning requirements | Product to be installed                                                                                                                                                   | Historical schedule number |
|-------------------------|-----------------|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|
| 25A                     | 25A             | None                         | An electric clothes dryer that:<br>a. achieves the minimum performance requirement specified in Table 25.2 below; and<br>b. is not part of a combination washer or dryer. | 25A                        |

### Specified Minimum Energy Efficiency

The product installed must meet the additional requirements set out in Table 25.2.

**Table 25.2 – Additional requirements for clothes dryers to be installed**

| Product category number | Requirement type                | Efficiency requirement <sup>35</sup>                                                                                                                                                                                            |
|-------------------------|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 25A                     | Minimum performance requirement | a. Minimum star rating of 7 stars; and<br>b. Have a capacity ≥ 5kg.<br><br>Measurement, testings and ratings must be in accordance with the Greenhouse and Energy Minimum Standards (Rotary Clothes Dryers) Determination 2015. |

### Other specified matters

None.

<sup>35</sup> The Secretary is empowered to specify these efficiency requirements under Part 25 of Schedule 2 to the Regulations.

## Method for Determining GHG Equivalent Reduction

### Scenario 25A: Installing an energy efficiency clothes dryer

The GHG equivalent emissions reduction for each scenario is given by Equation 25.1, using the variables listed in Table 25.3.

#### Equation 25.1 – GHG equivalent emissions reduction calculation for Scenario 25A

$$GHG\ Eq.\ Reduction = Lifetime\ savings$$

Table 25.3 – GHG equivalent emissions reduction variables for Scenario 25A

| Input Type       | Condition         | Input Value |
|------------------|-------------------|-------------|
| Lifetime savings | In every instance | 0.54        |



## 26. Part 26 Activity– High efficiency pool pumps

### Activity description (Guidance)

Part 26 of Schedule 2 of the Regulations prescribes the upgrade of pool pumps as an eligible activity for the purposes of the Victorian Energy Upgrades program.

Table 26.1 lists the types of pool pumps that may be installed. Each type of upgrade is known as a scenario. Each scenario has its own method for determining GHG equivalent reduction.

At a later date, the Secretary may specify requirements for other types of pool pumps that may be installed as a prescribed activity under Part 25 of Schedule of the Regulations, which will be listed as scenario number 26B once specified.

VEECs cannot be created for this activity unless products installed are listed on the ESC Register by the time VEECs are created. Products already on the register at the time of installation can be taken as satisfying all those product requirements that can be determined prior to the installation of a product.

**Table 26.1 – Eligible pool pump scenarios**

| Product category number | Scenario number | Decommissioning requirements | Product to be installed <sup>36</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Historical schedule number |
|-------------------------|-----------------|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|
| 26A                     | 26A             | None                         | A product for use with a domestic pool or spa that: <ul style="list-style-type: none"><li>a. is single phase, single speed, dual speed, multiple speed, or variable speed pump unit; and</li><li>b. has an input power of not less than 100W and not more than 2500W when tested in accordance with AS 5102.1; and</li><li>c. is listed as part of a labelling scheme determined in accordance with the Equipment Energy Efficiency (E3) Committee's Voluntary Energy Rating Labelling Program for Swimming Pool Pump-units: Rules for Participation, amended in November 2010, and achieves the specified minimum star rating set out in Table 26.2 when determined in accordance with AS 5102.2; or</li><li>d. is registered for energy labelling and achieves the minimum star rating specified in Table 26.2 when determined in accordance with AS 5102.2.</li></ul> | 26A                        |

### Specified Minimum Energy Efficiency

The product installed must meet the additional requirements set out in Table 26.2.

**Table 26.2 – Additional requirements for pool pumps to be installed**

| Product category number | Requirement type    | Efficiency requirement <sup>37</sup>             |
|-------------------------|---------------------|--------------------------------------------------|
| 26A                     | Minimum star rating | 7 stars, determined in accordance with AS 5102.2 |

<sup>36</sup> The authoritative product requirements are contained in Part 26 of Schedule 2 to the Regulations, and take precedence over summary information provided for ease of reference in this document.

<sup>37</sup> The Secretary is empowered to specify these efficiency requirements under Part 26 of Schedule 2 to the Regulations.

## Other specified matters

None.

## Method for Determining GHG Equivalent Reduction

### Scenario 25A: Installing a high efficiency pool or spa pump

The GHG equivalent emissions reduction for each scenario is given by Equation 26.1, using the variables listed in Table 26.3.

#### Equation 26.1 – GHG equivalent emissions reduction calculation for Scenario 26A

$$GHG\ Eq.\ Reduction = (Baseline - Upgrade) \times EEf \times Lifetime \times Regional\ Factor$$

Table 26.3 – GHG equivalent emissions reduction variables for Scenario 26A

| Measurement, testings and ratings must be in accordance with AS 5102.2 |                                       |                                |
|------------------------------------------------------------------------|---------------------------------------|--------------------------------|
| Input Type                                                             | Condition                             | Input Value                    |
| Baseline                                                               | In every instance                     | 1.16                           |
| Upgrade                                                                | In every instance                     | $PAEC \times 1 \times 10^{-3}$ |
| Lifetime                                                               | In every instance                     | 7.00                           |
| Regional Factor                                                        | For upgrades in Metropolitan Victoria | 0.98                           |
|                                                                        | For upgrades in Regional Victoria     | 1.04                           |



## 27. Part 27 Activity– Public lighting upgrade

### Activity description (Guidance)

Part 27 of Schedule 2 of the Regulations prescribes the upgrade of public lighting as an eligible activity for the purposes of the Victorian Energy Upgrades program.

Table 27.1 lists the types of lighting products that may be installed, upgraded or replaced. Each type of upgrade is known as a scenario. Each scenario has its own method for determining GHG equivalent reduction.

VEECs cannot be created for this activity unless products installed under scenario 27A and 27B are listed on the ESC Register by the time VEECs are created or on the AEMO NEM load table by the time products are installed. Products already on the register at the time of installation can be taken as satisfying all those product requirements that can be determined prior to the installation of a product.

**Table 27.1 – Eligible public lighting scenarios**

| Product category number | Scenario number | Decommissioning or removal requirements <sup>38</sup>                                                                                                                                             | Product / installation requirements <sup>39</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Historical schedule number     |
|-------------------------|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|
| 27A                     | 27A             | None*                                                                                                                                                                                             | A lighting control device, other than a voltage reduction unit, that is certified by the manufacturer as appropriate for use with the type of luminaire it will be required to control                                                                                                                                                                                                                                                                                                                                            | 34B                            |
| 27B                     | 27B             | Decommissioning any removed lighting equipment                                                                                                                                                    | Any other lighting equipment that: <ul style="list-style-type: none"> <li>a. Meets the minimum standards determined for the product by the ESC under regulation 36(6) when tested by an approved laboratory in accordance with the laboratory test approved for the equipment by the ESC in determination under that regulation; and</li> <li>b. is not a T5 adaptor.</li> </ul> A category 27B product must be installed so that it meets the minimum power factor determined for the product by the ESC under regulation 36(6). | 34D                            |
| N/A                     | 27C             | Removing and not replacing: <ul style="list-style-type: none"> <li>a. a LED integrated luminaire, or</li> <li>b. the lamp and control gear associated with a non-integrated luminaire.</li> </ul> | None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Regulation 6(2)(d) and 6(3)(d) |

\* It is not envisaged that lighting equipment would be removed as part of this scenario, but if it is, it is required to be decommissioned.

<sup>38</sup> The authoritative decommissioning and removal requirements are contained in Part 27 of Schedule 2 to the Regulations, and take precedence over summary information provided for ease of reference in this document.

<sup>39</sup> The authoritative product and installation requirements are contained in Part 27 of Schedule 2 to the Regulations, and take precedence over summary information provided for ease of reference in this document.

## Specified Minimum Energy Efficiency

There are no additional requirements that must be met by the product installed.

## Other specified matters

None.

## Method for Determining GHG Equivalent Reduction

### Scenario 27A to 27C: Public Lighting Upgrades

The GHG equivalent emissions reduction for each scenario is given by Equation 27.1, using the variables listed in Table 27.2.

#### Equation 27.1 – GHG equivalent emissions reduction calculation for Scenarios 27A to 27C

$$GHG \text{ Eq. Reduction} = (Baseline - Upgrade) \times Lifetime \times Regional \text{ Factor}$$

Table 27.2 – GHG equivalent emissions reduction variables for Scenarios 27A to 27C

| Input Type      | Condition                             | Input Value                                                  |
|-----------------|---------------------------------------|--------------------------------------------------------------|
| Baseline        | In every instance                     | Given by Equation 27.2, using variables listed in Table 27.3 |
| Upgrade         | In every instance                     | Equation 27.3, using variables listed in Table 27.4          |
| Lifetime        | In every instance                     | Equation 27.4 using variables listed in Table 27.5           |
| Regional Factor | For upgrades in Metropolitan Victoria | 0.98                                                         |
|                 | For upgrades in Regional Victoria     | 1.04                                                         |

#### Equation 27.2 – Baseline calculation for all public lighting upgrades

$$Baseline = \sum_{\text{each incumbent light source}} LCP \times CM \times EEF$$

Table 27.3 – Baseline calculation variables for all public lighting upgrades

| Input Type | Condition                                                                                              | Input Value                                                                |
|------------|--------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|
| LCP        | If the Victorian load is listed*                                                                       | The Victorian load (W)*                                                    |
|            | If the Victorian load is not listed*                                                                   | The nominal device rating (W)*                                             |
|            | If the Victorian load or nominal device rating is not listed*                                          | The value determined by Table 27.6 for the relevant incumbent light source |
|            | If the Victorian load or nominal device rating is not listed and the light source is not in Table 27.6 | The value determined by the ESC for that type of incumbent light source    |

|                              |                   |                             |
|------------------------------|-------------------|-----------------------------|
| CM (or 'control multiplier') | In every instance | As determined by Table 27.7 |
|------------------------------|-------------------|-----------------------------|

\*Regulation 15(3) of the Regulations incorporates the latest version of the AEMO Load Table, on which these inputs will be listed.

#### Equation 27.3 – Upgrade calculation for all public lighting upgrades

$$Upgrade = \sum_{\text{each upgrade light source}} LCP \times CM \times EEF$$

**Table 27.4 – Upgrade calculation variables for all public lighting upgrades**

| Input Type                   | Condition                                                                                              | Input Value                                                                |
|------------------------------|--------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|
| LCP                          | If the Victorian load is listed*                                                                       | The Victorian load (W)*                                                    |
|                              | If the Victorian load is not listed*                                                                   | The nominal device rating (W)*                                             |
|                              | If the Victorian load or nominal device rating is not listed*                                          | The value determined by Table 27.6 for the relevant incumbent light source |
|                              | If the Victorian load or nominal device rating is not listed and the light source is not in Table 27.6 | The value determined by the ESC for that type of incumbent light source    |
| CM (or 'control multiplier') | In every instance                                                                                      | As determined by Table 27.7                                                |

\*\* Regulation 15(3) of the Regulations incorporates the latest version of the AEMO Load Table, on which these inputs will be listed

#### Equation 27.4 – Lifetime calculation for all public lighting upgrades

$$Lifetime = Asset Lifetime \times Annual Operating Hours \times 10^{-6}$$

**Table 27.5 – Lifetime calculation variables for all public lighting upgrades**

| Input Type             | Condition         | Input Value                 |
|------------------------|-------------------|-----------------------------|
| Asset Lifetime         | In every instance | As determined by Table 27.8 |
| Annual Operating Hours | In every instance | As determined by Table 27.8 |

## Additional variables for determining GHG reduction

**Table 27.6 – Lamp circuit power (LCP) calculations for baseline and upgrade calculations for public lighting upgrades**

| Type of incumbent or upgrade light source                                                                          | Lamp circuit power for incumbent light source | Lamp circuit power for upgrade light source |
|--------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|---------------------------------------------|
| T8 or T12 linear fluorescent or circular fluorescent lamp with ballast (EEI of A or electronic with no EEI marked) | NLP                                           | NLP                                         |

| Type of incumbent or upgrade light source                                                                                                                                                             | Lamp circuit power for incumbent light source         | Lamp circuit power for upgrade light source |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|---------------------------------------------|
| T8 or T12 linear fluorescent or circular fluorescent lamp with ballast (EEI of > B or magnetic with no EEI marked)                                                                                    | NLP + 6                                               | NLP + 6                                     |
| T5 linear fluorescent lamp with T5 adaptor and magnetic ballast***                                                                                                                                    | $NLP \times 0.94 + 1.78$                              | N/A                                         |
| T5 linear fluorescent or circular fluorescent lamp with ballast                                                                                                                                       | $NLP \times 1.08 + 1.5$                               | $NLP \times 1.08 + 1.5$                     |
| Compact fluorescent lamp with non-integral ballast (EEI of A or electronic with no EEI marked)                                                                                                        | NLP + 1                                               | NLP + 1                                     |
| Compact fluorescent lamp with non-integral ballast (EEI > B or magnetic ballast with no EEI marked)                                                                                                   | NLP + 5                                               | NLP + 5                                     |
| Compact fluorescent lamp with integral ballast                                                                                                                                                        | NLP                                                   | NLP                                         |
| Tungsten incandescent or halogen lamp (mains voltage)                                                                                                                                                 | $NLP \times 0.7$                                      | NLP                                         |
| Tungsten incandescent or halogen lamp with ELC                                                                                                                                                        | $NLP$ (being no greater than 37 watts) $\times 1.163$ | $NLP \times 1.163$                          |
| Metal halide lamp with magnetic ballast                                                                                                                                                               | $NLP \times 1.058 + 18$                               | $NLP \times 1.058 + 18$                     |
| Metal halide lamp with electronic ballast                                                                                                                                                             | $NLP \times 1.096 + 0.9$                              | $NLP \times 1.096 + 0.9$                    |
| High pressure sodium lamp with magnetic ballast                                                                                                                                                       | $NLP \times 1.051 + 13$                               | $NLP \times 1.051 + 13$                     |
| LED lamp with integrated driver with no associated legacy ballast connected                                                                                                                           | NLP                                                   | NLP                                         |
| Non-integrated LED lamp with remote driver or ELC                                                                                                                                                     | $NLP \times 1.1$                                      | $NLP \times 1.1$                            |
| LED lamp with integrated driver, connected with a non-integral legacy ballast used for a T8 or T12 linear or circular fluorescent lamp, marked with EEI of A or electronic ballast with no EEI marked | NLP                                                   | NLP                                         |
| LED lamp with integrated driver, connected with a non-integral legacy ballast used for a T8 or T12 linear or circular fluorescent lamp, marked with EEI of > B or magnetic ballast with no EEI marked | NLP + 6                                               | NLP + 6                                     |
| LED lamp with integrated driver, connected with a legacy ballast used for a T5 linear or circular fluorescent lamp                                                                                    | $NLP \times 1.08 + 1.5$                               | $NLP \times 1.08 + 1.5$                     |
| LED lamp with integrated driver, connected with a legacy ballast used for a CFL, marked with EEI of A or electronic ballast with no EEI marked                                                        | NLP + 1                                               | NLP + 1                                     |
| LED lamp with integrated driver, connected with a legacy ballast used for a CFL, marked with an EEI of >B or a magnetic ballast with no EEI marked                                                    | NLP + 5                                               | NLP + 5                                     |
| LED integrated luminaire                                                                                                                                                                              | NLP                                                   | NLP                                         |
| Non-integrated LED luminaire with remote driver                                                                                                                                                       | $NLP \times 1.1$                                      | $NLP \times 1.1$                            |
| LED lamp with integrated driver, connected with a legacy magnetic ballast used for HID lamps                                                                                                          | $1.033 \times NLP + 11$                               | $1.033 \times NLP + 11$                     |
| LED lamp with integrated driver, connected with a legacy electronic ballast used for HID lamps                                                                                                        | $1.096 \times NLP + 0.9$                              | $1.096 \times NLP + 0.9$                    |
| Induction lamp with integrated ballast                                                                                                                                                                | NLP                                                   | NLP                                         |
| Induction lamp with non-integrated ballast                                                                                                                                                            | $NLP \times 1.056$                                    | $NLP \times 1.056$                          |
| Other                                                                                                                                                                                                 | As determined by the ESC                              | As determined by the ESC                    |

\*\*\* T5 adaptors as a light source are not an eligible type of upgrade lighting equipment for this activity.

**Table 27.7 – CM (or ‘control multiplier’) values for baseline and upgrade calculations for public lighting upgrades, depending on the number and types of lighting control devices (LCDs)**

| Number of LCDs | Type(s) of LCDs                                                                             | Control multiplier                                                                                        |
|----------------|---------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|
| None           | N/A                                                                                         | 1                                                                                                         |
| One            | Occupancy sensor that controls 1 to 2 luminaires                                            | 0.55                                                                                                      |
|                | Occupancy sensor that controls 3 to 6 luminaires                                            | 0.70                                                                                                      |
|                | Occupancy sensor that controls more than 6 luminaires                                       | 0.90                                                                                                      |
|                | Programmable dimmer                                                                         | 0.85                                                                                                      |
| More than one  | A combination of one occupancy sensor that controls 1 to 2 luminaires, and any other LCD(s) | 0.40 or, if greater, the multiple of the two lowest control multiplier values for the combination of LCDs |
|                | A combination of one occupancy sensor that controls 3 to 6 luminaires, and any other LCD(s) | 0.50 or, if greater, the multiple of the two lowest control multiplier values for the combination of LCDs |
|                | Any LCDs, except occupancy sensors that control 1 to 6 luminaires                           | 0.60 or, if greater, the multiple of the two lowest control multiplier values for the combination of LCDs |

**Table 27.8 – Asset lifetime for lifetime calculations for public lighting upgrades**

| Condition met by Lighting Upgrade                                                                                                                                                                               | Asset lifetime (years) |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|
| Luminaire replacement: the existing luminaire is replaced                                                                                                                                                       | 10.00                  |
| Lighting control device: a lighting control device is installed, and no lighting equipment of any other type is installed in the space                                                                          | 5.00                   |
| Luminaire decommissioning: the lamp is removed and not replaced, and either the luminaire or all legacy control gear is removed from the site or from the electrical circuit so that it does not draw any power | 10.00                  |

**Table 27.9 – Annual operating hours for public lighting upgrades**

| Type of area                                                        | Annual operating hours (per year) |
|---------------------------------------------------------------------|-----------------------------------|
| Road, other than the replacement or installation of traffic signals | 4500                              |
| A public or outdoor space that is not a sports field                | 4500                              |



## 28. Part 28 Activity– Gas heating ductwork

### Activity description (Guidance)

Part 28 of Schedule 2 of the Regulations prescribes the upgrade of gas heating ductwork as an eligible activity for the purposes of the Victorian Energy Upgrades program.

Table 28.1 lists the eligible products that may be installed, upgraded or replaced. Each type of upgrade is known as a scenario. Each scenario has its own method for determining GHG equivalent reduction.

VEECs cannot be created for this activity unless products installed are listed on the ESC Register by the time VEECs are created. Products already on the register at the time of installation can be taken as satisfying all those product requirements that can be determined prior to the installation of a product.

**Table 28.1 – Eligible gas heating ductwork scenarios**

| Product category number | Scenario number | Decommissioning requirements <sup>40</sup>                    | Product / installation requirements <sup>41</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Historical schedule number |
|-------------------------|-----------------|---------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|
| 28A                     | 28A             | Gas heating ductwork that is connected to a ducted gas heater | Flexible ductwork that: <ol style="list-style-type: none"> <li>is tested and certified by an approved laboratory as complying with AS 4254.1 and is labelled in accordance with that Standard; and</li> <li>is insulated using bulk insulation that is certified by an accredited body or an approved laboratory as complying with AS/NZS 4859.1 and achieves the specified minimum R-value for that ductwork set out in Table 28.2 below when measured in accordance with that Standard.</li> <li>is constructed and installed in accordance with the requirements set out in AS 4254.1 and uses fittings that               <ol style="list-style-type: none"> <li>for a building classified as a Class 1 or 10 building under Part A6 of Volume One of the Building Code, achieve at least the R-value specified by Table 3.12.5.2 of Volume Two of the Building Code; and</li> <li>for a building classified as a Class 2 to 9 building under Part A6 of Volume 1 of the Building Code, achieve the minimum total R-value specified by Specification J5.2b of Volume One of the Building Code.</li> </ol> </li> </ol> | 28A                        |
| 28B                     | 28B             | Gas heating ductwork that is connected to a ducted gas heater | Rigid ductwork that: <ol style="list-style-type: none"> <li>is tested and certified by an approved laboratory as complying with AS 4254.2; and</li> <li>is insulated using bulk insulation that is certified by an accredited body or approved laboratory as complying with AS/NZS 4859.1 and achieves the specified minimum R-value set out in Table 28.2 for that ductwork when measured in accordance with AS/NZS 4859.7; and</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 28A                        |

<sup>40</sup> The authoritative decommissioning requirements are contained in Part 28 of Schedule 2 to the Regulations, and take precedence over summary information provided for ease of reference in this document.

<sup>41</sup> The authoritative product and installation requirements are contained in Part 12 of Schedule 2 to the Regulations, and take precedence over summary information provided for ease of reference in this document.

- 
- c. is longitudinally labelled at intervals of not more than 1.5 meters, in characters that are clearly legible and at least 18mm high stating:
    - i. the duct manufacturer's or assembler's name; and
    - ii. the diameter of the duct core; and
    - iii. the R-value of the bulk insulation; and
    - iv. whether the ductwork complies with AS 4254.2; and
  - d. is constructed and installed in accordance with the requirements set out in AS 4254.2 and uses fittings that:
    - i. for a building classified as a Class 1 or 10 building under Part A6 of Volume One of the Building Code, achieve at least the R-value specified by Table 3.12.5.2 of Volume Two of the Building Code; and
    - ii. for a building classified as a Class 2 to 9 building under Part A6 of Volume 1 of the Building Code, achieve the minimum total R-value specified by Specification J5.2b of Volume One of the Building Code.
- 

## Specified Minimum Energy Efficiency

The product installed must meet the additional requirements set out in Table 28.2.

**Table 28.2 – Additional requirements for ductwork to be installed**

| Product category number | Requirement type | Efficiency requirement <sup>42</sup>             |
|-------------------------|------------------|--------------------------------------------------|
| 28A                     | Minimum R-value  | 1.5, determined in accordance with AS/NZS 4859.1 |
| 28B                     | Minimum R-value  | 1.5, determined in accordance with AS/NZS 4859.1 |

## Other Specified matters

None.

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<sup>42</sup> The Secretary is empowered to specify these efficiency requirements under Part 28 of Schedule 2 to the Regulations.

## Method for Determining GHG Equivalent Reduction

### Scenario 27A and 28B: Retrofitting gas ductwork with flexible or rigid ductwork

The GHG equivalent emissions reduction for each scenario is given by Equation 28.1, using the variables listed in Table 28.3.

#### Equation 28.1 – GHG equivalent emissions reduction calculation for Scenarios 28A and 28B

$$GHG\ Eq.\ Reduction = (Baseline - Upgrade) \times Lifetime \times Regional\ Factor$$

**Table 28.3 – GHG equivalent emissions reduction variables for Scenarios 28A and 28B**

| Measurements of thermal output (or capacity) of the heater must be in accordance with AS/NZS 5263.1.6                |                                                              |                            |
|----------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|----------------------------|
| Small upgrade: ductwork connected to heater with thermal output (or capacity) of at least 10 and not more than 18 kW |                                                              |                            |
| Medium upgrade: ductwork connected to heater with thermal output (or capacity) over 18 and not more than 28 kW       |                                                              |                            |
| Large upgrade: ductwork connected to heater with thermal output (or capacity) of more than 28 kW                     |                                                              |                            |
| Unknown upgrade: ductwork connected to heater with unknown thermal output (or capacity)                              |                                                              |                            |
| Input Type                                                                                                           | Condition                                                    | Input Value                |
| Baseline                                                                                                             | Small upgrade                                                | $2.59 + (0.26 \times EEF)$ |
|                                                                                                                      | Medium upgrade                                               | $3.27 + (0.33 \times EEF)$ |
|                                                                                                                      | Large upgrade                                                | $4.13 + (0.42 \times EEF)$ |
|                                                                                                                      | Unknown upgrade                                              | $2.59 + (0.26 \times EEF)$ |
| Upgrade                                                                                                              | Small upgrade                                                | $2.04 + (0.20 \times EEF)$ |
|                                                                                                                      | Medium upgrade                                               | $2.57 + (0.26 \times EEF)$ |
|                                                                                                                      | Large upgrade                                                | $3.24 + (0.33 \times EEF)$ |
|                                                                                                                      | Unknown upgrade                                              | $2.04 + (0.20 \times EEF)$ |
| Lifetime                                                                                                             | In every instance                                            | 14.00                      |
| Regional Factor                                                                                                      | For upgrades in Metropolitan Victoria – Climatic region mild | 1.00                       |
|                                                                                                                      | For upgrades in Metropolitan Victoria – Climatic region cold | 1.62                       |
|                                                                                                                      | For upgrades in Regional Victoria – Climatic region mild     | 1.01                       |
|                                                                                                                      | For upgrades in Regional Victoria – Climatic region cold     | 1.63                       |
|                                                                                                                      | For upgrades in Regional Victoria – Climatic region hot      | 0.70                       |

\*\*\*There is no Part 29 Activity

## 30. Part 30 Activity– In-home display unit

### Activity description (Guidance)

Part 30 of Schedule 2 of the Regulations prescribes the upgrade of an in-home display unit as an eligible activity for the purposes of the Victorian Energy Upgrades program.

Table 30.1 lists the types of in-home display units that may be installed. Each type of upgrade is known as a scenario. Each scenario has its own method for determining GHG equivalent reduction.

At a later date, the Secretary may specify requirements for other products that may be installed as a prescribed activity under Part 30 of Schedule 2 to the Regulations, which will be listed as Scenario 30C once specified.

VEECs cannot be created for this activity unless products installed are listed on the ESC Register by the time VEECs are created. Products already on the register at the time of installation can be taken as satisfying all those product requirements that can be determined prior to the installation of a product.

**Table 30.1 – Eligible in-home display unit scenarios**

| Product category number | Scenario number | Decommissioning requirements | Product to be installed <sup>43</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Historical schedule number |
|-------------------------|-----------------|------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|
| 30A                     | 30A             | None                         | <p>An in-home display unit that when installed in relation to an AMI metering installation in residential premises provides information on the total electricity consumption of the residential premises directly to the consumer, and complies with the ZigBee Smart Energy Profile Specification<sup>44</sup> and the ZigBee Smart Energy Standard version 1.2<sup>45</sup>, and when tested<sup>46</sup>:</p> <ul style="list-style-type: none"> <li>a. determines electricity consumption information from the sensing apparatus at least every 30 seconds; and</li> <li>b. stores electricity energy consumption information from the previous 45 days; and</li> <li>c. displays to the consumer (or relays to a device that displays to the consumer) in a numerical format, and in a non-numerical format in a manner that allows the consumer to easily distinguish between low and high consumption the: <ul style="list-style-type: none"> <li>i. electricity energy consumption information from the previous 45 days in intervals no longer than one hour per day of information displayed and one day per week of information displayed</li> <li>ii. average total household electrical power consumption (in Watts) for the displayed period, which must be updated at least every 30 seconds</li> <li>iii. total household electricity energy consumption (in kWh) for the displayed</li> </ul> </li> </ul> | 30A                        |

<sup>43</sup> The authoritative product requirements are contained in Part 30 of Schedule 2 to the Regulations, and take precedence over summary information provided for ease of reference in this document.

<sup>44</sup> Published by Zigbee Standards Organization on 1 December 2008.

<sup>45</sup> Published by the ZigBee Standards Organization on 3 December 2014.

<sup>46</sup> Tested by an approved laboratory in accordance with the laboratory test approved for that display unit by the ESC in a determination under regulation 36(6).

| Product category number | Scenario number | Decommissioning requirements | Product to be installed <sup>43</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Historical schedule number |
|-------------------------|-----------------|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|
|                         |                 |                              | <p>period and the cost of that consumption, which must be updated at least every 30 seconds</p> <p>d. displays to the consumer (or relays to a device that does this) the tariff (in cost per unit of energy consumed) and the total cost of electricity consumed for the period displayed; and</p> <p>e. can permanently erase all consumption and tariff information held by the product including information entered by the consumer</p> <p>f. has an average electric power consumption of not more than 0.6 Watts when operating under normal circumstances</p> <p>g. if battery powered, uses a battery that has a manufacturer's rated lifetime of at least 5 years when operating under normal circumstances.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                            |
| 30B                     | 30B             | None                         | <p>An in-home display unit that when installed in relation to any sensing apparatus in residential premises provides information on the total electricity consumption of the residential premises directly to the consumer, and when tested<sup>47</sup>:</p> <p>a. determines electricity consumption information from the sensing apparatus at least every 30 seconds; and</p> <p>b. stores electricity energy consumption information from the previous 45 days; and</p> <p>c. displays to the consumer (or relays to a device that displays to the consumer) in a numerical format, and in a non-numerical format that allows the consumer to easily distinguish between low and high consumption the:</p> <p>i. electricity energy consumption information from the previous 45 days in intervals no longer than one hour per day of information displayed and one day per week of information displayed; and</p> <p>ii. the average total household electrical power consumption (in Watts) for the displayed period, which must be updated at least every 30 seconds; and</p> <p>iii. the total household electricity energy consumption (in kWh) for the displayed period and the cost of that consumption, which must be updated at least every 30 seconds; and</p> <p>d. displays to the consumer (or relays to a device that does this) the tariff (in cost per unit of energy consumed) and the total cost of electricity consumed, for the period displayed;</p> | 30B                        |

<sup>47</sup> By an approved laboratory in accordance with the laboratory test approved for that display unit by the ESC in a determination under regulation 36(6) for the purposes of this item.

| Product category number | Scenario number | Decommissioning requirements | Product to be installed <sup>43</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Historical schedule number |
|-------------------------|-----------------|------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|
|                         |                 |                              | <ul style="list-style-type: none"> <li>e. can permanently erase all consumption and tariff information held by the product including information entered by the consumer; and</li> <li>f. has an average electric power consumption of not more than 0.6 Watts when operating under normal circumstances ; and</li> <li>g. provides electricity energy consumption information that is accurate to within 5% of actual electricity consumption; and</li> <li>h. if battery powered, uses a battery that has a manufacturer's rated lifetime of at least 5 years when operating under normal circumstances; and</li> <li>i. uses, for its communications with the sensing apparatus and any display device, an encrypted communication protocol that is approved by the ESC.<sup>48</sup></li> </ul> |                            |

## Specified Minimum Energy Efficiency

There are no additional requirements that must be met by the product installed.

## Other Specified matters

None.

<sup>48</sup> In a determination made under regulation 36(6).

# Method for Determining GHG Equivalent Reduction

## Scenario 30A and 30B: Installing an in-home display unit

The GHG equivalent emissions reduction for each scenario is given by Equation 30.1, using the variables listed in Table 30.2.

Equation 30.1 – GHG equivalent emissions reduction calculation for Scenarios 30A and 30B

$$GHG\ Eq.\ Reduction = Electricity\ Savings \times EEF \times Lifetime \times Regional\ Factor$$

Table 30.2 – GHG equivalent emissions reduction variables for Scenarios 30A and 30B

| Input Type          | Condition                                  | Input Value |
|---------------------|--------------------------------------------|-------------|
| Electricity Savings | For upgrades in a gas-reticulated area     | 0.39        |
|                     | For upgrades in a non-gas reticulated area | 0.51        |
| Lifetime            | In every instance                          | 5.00        |
| Regional Factor     | For upgrades in Metropolitan Victoria      | 0.98        |
|                     | For upgrades in Regional Victoria          | 1.04        |



# 31. Part 31 Activity– High efficiency motor

## Activity description (Guidance)

Part 31 of Schedule 2 of the Regulations prescribes the upgrade of motors as an eligible activity for the purposes of the Victorian Energy Upgrades program.

Table 31.1 lists the types of motors which may be installed. Each type of upgrade is known as a scenario. Each scenario has its own method for determining GHG equivalent reduction.

At a later date, the Secretary may specify requirements for another motor or motors that may be installed in accordance with the Secretary's specifications as a prescribed activity under Part 31 of Schedule 2 to the Regulations, which will be listed by the department as scenario number 31C once specified.

VEECs cannot be created for this activity unless products installed with the category number 31B or 31C are listed on the ESC Register by the time VEECs are created. Products already on the register at the time of installation can be taken as satisfying all those product requirements that can be determined prior to the installation of a product. Products installed with product category number 31A must be listed on the GEMS Register at the time of installation.

**Table 31.1 – Eligible high efficiency motor upgrade scenarios**

| Product category number | Scenario number | Decommissioning requirements | Product to be installed <sup>49</sup>                                                                                                                                                                                                                                                                                                                                                                                   | Historical schedule number |
|-------------------------|-----------------|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|
| 31A                     | 31A             | None                         | A three-phase cage induction motor that:<br>a. achieves the minimum performance requirement specified table 31.2; and<br>b. has 2,4,6 or 8 poles.                                                                                                                                                                                                                                                                       | 31A                        |
| 31B                     | 31B             | None                         | A three-phase cage induction motor that:<br>a. has a rated output, as determined in accordance with AS 60034.1-2009 as published on 15 July 2009 of not less than 0.75 and not more than 185 kW; and<br>b. meets the requirements for an IE3 (premium) or IE4 (super-premium) efficiency level motor proposed in Annex A of IEC/TS 60034-31 when tested in accordance with IEC 60034-2-1; and<br>c. has 2,4 or 6 poles. | 31B                        |

## Specified Minimum Energy Efficiency

The product installed must meet the additional requirements set out in Table 31.2.

<sup>49</sup> The authoritative product requirements are contained in Part 31 of Schedule 2 to the Regulations, and take precedence over summary information provided for ease of reference in this document.

**Table 31.2 – Additional requirements for motors to be installed**

| Product category number | Requirement type                | Efficiency requirements                                                                                                                                                                                                                                                                                                                                               |
|-------------------------|---------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 31A                     | Minimum performance requirement | a. GEMS registration<br>b. A rated output of not less than 0.75 and not more than 185 kW in accordance with AS 60034.1<br>c. Labelled as a high efficiency motor<br>d. Measurement, testings and ratings must be in accordance with the <i>Greenhouse and Energy Minimum Standards (Three Phase Cage Induction Motors) Determination 2012</i> unless otherwise stated |
| 31B                     | Not Applicable                  | No additional requirements                                                                                                                                                                                                                                                                                                                                            |

## Other Specified matters

The product installed must meet the relevant additional requirements listed in Table 31.4.

**Table 31.3 – Other specified matters for motors to be installed**

| Product category number | Requirement type          | Specification details                                                                    |
|-------------------------|---------------------------|------------------------------------------------------------------------------------------|
| 31A and 31B             | Minimum co-payment amount | A minimum co-payment amount of \$200 (including GST) must be made per product installed. |

## Method for Determining GHG Equivalent Reduction

### Scenario 31A: High Efficiency MEPS listed motor installation

The GHG equivalent emissions reduction for each scenario is given by Equation 31.1, using the variables listed in Table 31.4.

**Equation 31.1 – GHG equivalent emissions reduction calculation for Scenarios 31A**

$$GHG \text{ Eq. Reduction} = Electricity \text{ Savings} \times EEF \times Lifetime \times Regional \text{ Factor}$$

**Table 31.4 – GHG equivalent emissions reduction variables for Scenarios 31A**

| Measurement, testings and ratings must be in accordance with AS 60034.1 |                                 |                       |
|-------------------------------------------------------------------------|---------------------------------|-----------------------|
| Input Type                                                              | Condition                       | Input Value           |
| Electricity Savings                                                     | Minimum rated output of 0.75 kW | $2.49 \times 10^{-2}$ |
|                                                                         | Minimum rated output of 1.1 kW  | $3.26 \times 10^{-2}$ |
|                                                                         | Minimum rated output of 1.5 kW  | $4.00 \times 10^{-2}$ |
|                                                                         | Minimum rated output of 2.2 kW  | $5.45 \times 10^{-2}$ |
|                                                                         | Minimum rated output of 3 kW    | $6.66 \times 10^{-2}$ |

|                 |                                       |                       |
|-----------------|---------------------------------------|-----------------------|
|                 | Minimum rated output of 4 kW          | $7.92 \times 10^{-2}$ |
|                 | Minimum rated output of 5.5 kW        | $1.02 \times 10^{-1}$ |
|                 | Minimum rated output of 7.5 kW        | $1.22 \times 10^{-1}$ |
|                 | Minimum rated output of 11 kW         | $2.14 \times 10^{-1}$ |
|                 | Minimum rated output of 15 kW         | $2.69 \times 10^{-1}$ |
|                 | Minimum rated output of 18.5 kW       | $3.06 \times 10^{-1}$ |
|                 | Minimum rated output of 22 kW         | $3.61 \times 10^{-1}$ |
|                 | Minimum rated output of 30 kW         | $4.51 \times 10^{-1}$ |
|                 | Minimum rated output of 37 kW         | $5.09 \times 10^{-1}$ |
|                 | Minimum rated output of 45 kW         | $6.20 \times 10^{-1}$ |
|                 | Minimum rated output of 55 kW         | $7.51 \times 10^{-1}$ |
|                 | Minimum rated output of 75 kW         | $9.22 \times 10^{-1}$ |
|                 | Minimum rated output of 90 kW         | 1.15                  |
|                 | Minimum rated output of 110 kW        | 1.32                  |
|                 | Minimum rated output of 132 kW        | 1.57                  |
|                 | Minimum rated output of 150 kW        | 1.78                  |
|                 | Minimum rated output of 185 kW        | 2.28                  |
| Lifetime        | Minimum rated output of 0.75 kW       | 12.00                 |
|                 | Minimum rated output of 1.1 kW        |                       |
|                 | Minimum rated output of 1.5 kW        |                       |
|                 | Minimum rated output of 2.2 kW        |                       |
|                 | Minimum rated output of 3 kW          | 15.00                 |
|                 | Minimum rated output of 4 kW          |                       |
|                 | Minimum rated output of 5.5 kW        |                       |
|                 | Minimum rated output of 7.5 kW        |                       |
|                 | Minimum rated output of 11 kW         | 20.00                 |
|                 | Minimum rated output of 15 kW         |                       |
|                 | Minimum rated output of 18.5 kW       |                       |
|                 | Minimum rated output of 22 kW         |                       |
|                 | Minimum rated output of 30 kW         |                       |
|                 | Minimum rated output of 37 kW         |                       |
|                 | Minimum rated output of 45 kW         | 22.00                 |
|                 | Minimum rated output of 55 kW         |                       |
|                 | Minimum rated output of 75 kW         |                       |
|                 | Minimum rated output of 90 kW         |                       |
|                 | Minimum rated output of 110 kW        | 25.00                 |
|                 | Minimum rated output of 132 kW        |                       |
|                 | Minimum rated output of 150 kW        |                       |
|                 | Minimum rated output of 185 kW        |                       |
| Regional Factor | For upgrades in Metropolitan Victoria | 0.98                  |

### Scenario 31B: Installation of premium and super-premium motors

The GHG equivalent emissions reduction for each scenario is given by Equation 31.2, using the variables listed in Table 31.5.

#### Equation 31.2 – GHG equivalent emissions reduction calculation for Scenarios 31B

$$GHG\ Eq.\ Reduction = Electricity\ Savings \times EEF \times Lifetime \times Regional\ Factor$$

**Table 31.5 – GHG equivalent emissions reduction variables for Scenarios 31B**

| Measurement, testings and ratings must be in accordance with AS 60034.1 |                                 |                       |
|-------------------------------------------------------------------------|---------------------------------|-----------------------|
| Input Type                                                              | Condition                       | Input Value           |
| Electricity Savings (MWh)                                               | Minimum rated output of 0.75 kW | $5.02 \times 10^{-2}$ |
|                                                                         | Minimum rated output of 1.1 kW  | $6.73 \times 10^{-2}$ |
|                                                                         | Minimum rated output of 1.5 kW  | $8.31 \times 10^{-2}$ |
|                                                                         | Minimum rated output of 2.2 kW  | $1.21 \times 10^{-1}$ |
|                                                                         | Minimum rated output of 3 kW    | $1.73 \times 10^{-1}$ |
|                                                                         | Minimum rated output of 4 kW    | $2.08 \times 10^{-1}$ |
|                                                                         | Minimum rated output of 5.5 kW  | $2.63 \times 10^{-1}$ |
|                                                                         | Minimum rated output of 7.5 kW  | $3.29 \times 10^{-1}$ |
|                                                                         | Minimum rated output of 11 kW   | $4.13 \times 10^{-1}$ |
|                                                                         | Minimum rated output of 15 kW   | $5.23 \times 10^{-1}$ |
|                                                                         | Minimum rated output of 18.5 kW | $6.45 \times 10^{-1}$ |
|                                                                         | Minimum rated output of 22 kW   | $7.36 \times 10^{-1}$ |
|                                                                         | Minimum rated output of 30 kW   | $8.89 \times 10^{-1}$ |
|                                                                         | Minimum rated output of 37 kW   | 1.05                  |
|                                                                         | Minimum rated output of 45 kW   | 1.28                  |
|                                                                         | Minimum rated output of 55 kW   | 1.49                  |
|                                                                         | Minimum rated output of 75 kW   | 1.83                  |
|                                                                         | Minimum rated output of 90 kW   | 2.07                  |
|                                                                         | Minimum rated output of 110 kW  | 2.39                  |
|                                                                         | Minimum rated output of 132 kW  | 2.70                  |
|                                                                         | Minimum rated output of 150 kW  | 3.05                  |
|                                                                         | Minimum rated output of 185 kW  | 3.53                  |
| Lifetime                                                                | Minimum rated output of 0.75 kW | 12.00                 |
|                                                                         | Minimum rated output of 1.1 kW  |                       |

|                 |                                       |       |
|-----------------|---------------------------------------|-------|
|                 | Minimum rated output of 1.5 kW        |       |
|                 | Minimum rated output of 2.2 kW        |       |
|                 | Minimum rated output of 3 kW          | 15.00 |
|                 | Minimum rated output of 4 kW          |       |
|                 | Minimum rated output of 5.5 kW        |       |
|                 | Minimum rated output of 7.5 kW        |       |
|                 | Minimum rated output of 11 kW         | 20.00 |
|                 | Minimum rated output of 15 kW         |       |
|                 | Minimum rated output of 18.5 kW       |       |
|                 | Minimum rated output of 22 kW         |       |
|                 | Minimum rated output of 30 kW         |       |
|                 | Minimum rated output of 37 kW         |       |
|                 | Minimum rated output of 45 kW         | 22.00 |
|                 | Minimum rated output of 55 kW         |       |
|                 | Minimum rated output of 75 kW         |       |
|                 | Minimum rated output of 90 kW         |       |
|                 | Minimum rated output of 110 kW        | 25.00 |
|                 | Minimum rated output of 132 kW        |       |
|                 | Minimum rated output of 150 kW        |       |
|                 | Minimum rated output of 185 kW        |       |
| Regional Factor | For upgrades in Metropolitan Victoria | 0.98  |
|                 | For upgrades in Regional Victoria     | 1.04  |



## 32. Part 32 Activity– Refrigerated cabinet

### Activity description (Guidance)

Part 32 of Schedule 2 of the Regulations prescribes the upgrade of a refrigerated cabinet as an eligible activity for the purposes of the Victorian Energy Upgrades program.

Table 32.1 lists the types of refrigerated cabinet that may be installed. Each type of upgrade is known as a scenario. Each scenario has its own method for determining GHG equivalent reduction.

Products installed must be listed on the GEMS Register at the time of installation.

**Scenario 32A expires end of day 30 June 2022.**

**Table 32.1 – Eligible refrigerated cabinet scenarios**

| Product category number | Scenario number | Decommissioning requirements | Product to be installed <sup>50</sup>                                          | Historical schedule number |
|-------------------------|-----------------|------------------------------|--------------------------------------------------------------------------------|----------------------------|
| 32A                     | 32A*            | None                         | A refrigerated display cabinet (RDC)                                           | 32A                        |
| 32A                     | 32A(i)          | None                         | A refrigerated display cabinet (RDC) or a gelato or ice-cream scooping cabinet | 32A**                      |
| 32A                     | 32A(ii)         | None                         | An ice cream freezer cabinet                                                   | -                          |
| 32A                     | 32A(iii)        | None                         | A refrigerated storage cabinet (RSC)                                           | -                          |

\* Scenario 32A expires end of day 30 June 2022

\*\* This Scenario also now includes an expanded range of products

### Specified Minimum Energy Efficiency

The product installed must meet the requirements set out in Table 32.2.

**Table 32.2 - Additional requirements for refrigerated cabinets to be installed**

| Scenario number | Requirement type                | Efficiency requirement <sup>51</sup>                                                                                                                                                                                                                                                  |
|-----------------|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 32A*            | Minimum performance requirement | Achieves the high efficiency level within the meaning of <i>Greenhouse and Energy Minimum Standards (Refrigerated Display Cabinets) Determination 2012</i>                                                                                                                            |
| 32A(i-iii)      | Minimum performance requirement | Achieves an Energy Efficiency Index within the meaning of <i>Greenhouse and Energy Minimum Standards (Refrigerated Cabinets) Determination 2020</i> below the Upgrade Energy Efficiency Index (EEI) specified for the relevant product class in Table 32.4, Table 32.5 or Table 32.6. |

\* Scenario 32A expires end of day 30 June 2022

### Other specified matters

None.

<sup>50</sup> The authoritative product requirements are contained in Part 32 of Schedule 2 to the Regulations, and take precedence over summary information provided for ease of reference in this document.

<sup>51</sup> The Secretary is empowered to specify the minimum performance requirement under Part 32 of Schedule 2 to the Regulations.

## Method for Determining GHG Equivalent Reduction

Scenario 32A: Installing a refrigerated display cabinet – expires end of day 30 June 2022

The GHG equivalent emissions reduction for each scenario is given by Equation 32.2, using the variables listed in Table 32.4.

Equation 32.1 – GHG equivalent emissions reduction calculation for Scenarios 32A

$$GHG \text{ Eq. Reduction} = (\text{Baseline} - \text{Upgrade}) \times \text{Lifetime} \times \text{EEF} \times \text{Regional Factor} \times \text{TDA}$$

Table 32.3 – GHG equivalent emissions reduction variables for Scenario 32A

| Measurement, testings and ratings must be in accordance with the Greenhouse and Energy Minimum Standards (Refrigerated Display Cabinets) Determination 2012 |                      |             |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|-------------|
| Input Type                                                                                                                                                  | Condition            | Input Value |
| Baseline                                                                                                                                                    | RS 1 – unlit shelves | 3.67        |
|                                                                                                                                                             | RS 1 – lit shelves   | 5.19        |
|                                                                                                                                                             | RS 2 – unlit shelves | 3.72        |
|                                                                                                                                                             | RS 2 – lit shelves   | 4.96        |
|                                                                                                                                                             | RS 3 – unlit shelves | 4.34        |
|                                                                                                                                                             | RS 3 – lit shelves   | 5.37        |
|                                                                                                                                                             | RS 4 – glass door    | 2.84        |
|                                                                                                                                                             | RS 6 – gravity coil  | 4.15        |
|                                                                                                                                                             | RS 6 – fan coil      | 4.14        |
|                                                                                                                                                             | RS 7 – fan coil      | 4.32        |
|                                                                                                                                                             | RS 8 – gravity coil  | 3.58        |
|                                                                                                                                                             | RS 8 – fan coil      | 3.85        |
|                                                                                                                                                             | RS 9 – fan coil      | 3.53        |
|                                                                                                                                                             | RS 10 – low          | 5.46        |
|                                                                                                                                                             | RS 11                | 11.14       |
|                                                                                                                                                             | RS 12                | 19.38       |
|                                                                                                                                                             | RS 13 – solid sided  | 5.69        |
|                                                                                                                                                             | RS 13 – glass sided  | 5.72        |
|                                                                                                                                                             | RS 14 – solid sided  | 4.53        |
|                                                                                                                                                             | RS 14 – glass sided  | 10.83       |
|                                                                                                                                                             | RS 15 – glass door   | 10.83       |
|                                                                                                                                                             | RS 16 – glass door   | 11.85       |
|                                                                                                                                                             | RS 18                | 14.20       |
|                                                                                                                                                             | RS 19                | 10.56       |
|                                                                                                                                                             | HC1                  | 3.36        |
|                                                                                                                                                             | HC4                  | 4.53        |
|                                                                                                                                                             | VC1                  | 9.57        |

|         |                      |       |
|---------|----------------------|-------|
|         | VC2                  | 7.67  |
|         | VC4 – solid door     | 5.04  |
|         | VC4 – glass door     | 5.04  |
|         | HF4                  | 7.74  |
|         | HF6                  | 2.34  |
|         | VF4 – solid door     | 12.13 |
|         | VF4 – glass door     | 12.13 |
| Upgrade | RS 1 – unlit shelves | 2.45  |
|         | RS 1 – lit shelves   | 3.11  |
|         | RS 2 – unlit shelves | 2.48  |
|         | RS 2 – lit shelves   | 3.31  |
|         | RS 3 – unlit shelves | 3.02  |
|         | RS 3 – lit shelves   | 3.58  |
|         | RS 4 – glass door    | 1.98  |
|         | RS 6 – gravity coil  | 2.89  |
|         | RS 6 – fan coil      | 2.88  |
|         | RS 7 – fan coil      | 2.88  |
|         | RS 8 – gravity coil  | 2.49  |
|         | RS 8 – fan coil      | 2.68  |
|         | RS 9 – fan coil      | 2.36  |
|         | RS 10 – low          | 3.80  |
|         | RS 11                | 7.75  |
|         | RS 12                | 13.48 |
|         | RS 13 – solid sided  | 3.80  |
|         | RS 13 – glass sided  | 3.98  |
|         | RS 14 – solid sided  | 3.35  |
|         | RS 14 – glass sided  | 3.76  |
|         | RS 15 – glass door   | 8.01  |
|         | RS 16 – glass door   | 8.76  |
|         | RS 18                | 11.61 |
|         | RS 19                | 8.64  |
|         | HC1                  | 2.48  |
|         | HC4                  | 3.33  |
|         | VC1                  | 7.04  |
|         | VC2                  | 5.65  |
|         | VC4 – solid door     | 2.13  |
|         | VC4 – glass door     | 3.13  |
|         | HF4                  | 5.70  |
|         | HF6                  | 1.72  |
|         | VF4 – solid door     | 8.93  |

|                  |                                                            |      |
|------------------|------------------------------------------------------------|------|
| VF4 – glass door |                                                            | 8.93 |
| TDA              | Total display area in m <sup>2</sup> of the installed item |      |
| Lifetime         | In every instance                                          | 8.00 |
| Regional Factor  | For upgrades in Metropolitan Victoria                      | 0.98 |
|                  | For upgrades in Regional Victoria                          | 1.04 |



### Scenario 32A(i): Installing a refrigerated display cabinet or a gelato or ice-cream scooping cabinet

The GHG equivalent emissions reduction for each scenario is given by Equation 32.2, using the variables listed in Table 32.4.

**Equation 32.2 – GHG equivalent emissions reduction calculation for Scenario 32A(i)**

$$GHG \text{ Eq. Reduction} = \left( \frac{Baseline - Upgrade}{1000} \right) \times 365.24 \times Lifetime \times Regional \text{ Factor} \times EEF$$

**Table 32.4 – GHG equivalent emissions reduction variables for Scenarios 32A(i)**

| Measurement, testings and ratings must be in accordance with the Greenhouse and Energy Minimum Standards (Refrigerated Cabinets) Determination 2020 |                                       |                                  |             |                                                                                                 |      |      |                                           |                                           |
|-----------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|----------------------------------|-------------|-------------------------------------------------------------------------------------------------|------|------|-------------------------------------------|-------------------------------------------|
| Where –                                                                                                                                             |                                       |                                  |             |                                                                                                 |      |      |                                           |                                           |
| M and N are the coefficients for the cabinet's product class, as given by Schedule 1 in the GEMS (Refrigerated Cabinets) Determination 2020.        |                                       |                                  |             |                                                                                                 |      |      |                                           |                                           |
| Input Type                                                                                                                                          | Condition                             |                                  |             | Input Value                                                                                     |      |      |                                           |                                           |
| Baseline                                                                                                                                            | In all cases                          |                                  |             | $Baseline \text{ EEI} \times \left( \frac{(M + (N \times TDA))}{100} \right)$                   |      |      |                                           |                                           |
| Upgrade                                                                                                                                             | In all cases                          |                                  |             | TEC                                                                                             |      |      |                                           |                                           |
| Baseline EEI, M and N, Lifetime                                                                                                                     | GEMS 2020 Product class               | GEMS 2020 Characteristics (code) | Upgrade EEI | Baseline EEI                                                                                    | M    | N    | Lifetime (years) (TDA<3.3m <sup>2</sup> ) | Lifetime (years) (TDA≥3.3m <sup>2</sup> ) |
|                                                                                                                                                     | Class 1                               | IRH                              | 81          | 130                                                                                             | 3.7  | 3.5  | 8                                         | 8                                         |
|                                                                                                                                                     | Class 2                               | IFH                              | 81          | 92                                                                                              | 4.2  | 9.8  | 8                                         | 8                                         |
|                                                                                                                                                     | Class 6                               | GSC or ISC                       | 81          | 76                                                                                              | 10.4 | 30.4 | 8                                         | 8                                         |
|                                                                                                                                                     | Class 7                               | IRV                              | 81          | 90                                                                                              | 9.1  | 9.1  | 8                                         | 12                                        |
|                                                                                                                                                     | Class 8                               | IFV                              | 81          | 97                                                                                              | 1.6  | 19.1 | 8                                         | 12                                        |
|                                                                                                                                                     | Class 11                              | IRV-4                            | 81          | 130                                                                                             | 0.69 | 5.97 | 8                                         | 12                                        |
|                                                                                                                                                     | Class 12                              | RRH                              | 81          | 130                                                                                             | 3.7  | 3.5  | 12                                        | 12                                        |
|                                                                                                                                                     | Class 13                              | RFH                              | 81          | 80                                                                                              | 4.2  | 9.8  | 12                                        | 12                                        |
|                                                                                                                                                     | Class 14                              | RRV or RRV-2                     | 81          | 91                                                                                              | 9.1  | 9.1  | 12                                        | 12                                        |
|                                                                                                                                                     | Class 15                              | RFV                              | 81          | 106                                                                                             | 1.6  | 19.1 | 12                                        | 12                                        |
| TDA                                                                                                                                                 |                                       |                                  |             | Total Display Area in m <sup>2</sup> of the installed product as recorded in the GEMS Registry  |      |      |                                           |                                           |
| TEC                                                                                                                                                 |                                       |                                  |             | Total Energy Consumption, in kWh/day, of the installed product as recorded in the GEMS Registry |      |      |                                           |                                           |
| Regional Factor                                                                                                                                     | For upgrades in Metropolitan Victoria |                                  |             | 0.98                                                                                            |      |      |                                           |                                           |
|                                                                                                                                                     | For upgrades in Regional Victoria     |                                  |             | 1.04                                                                                            |      |      |                                           |                                           |

## Scenario 32A(ii): Installing an ice cream freezer cabinet

The GHG equivalent emissions reduction for each scenario is given by Equation 32.3, using the variables listed in Table 32.5.

**Equation 32.3 – GHG equivalent emissions reduction calculation for Scenario 32A(ii)**

$$GHG \text{ Eq. Reduction} = \left( \frac{Baseline - Upgrade}{1000} \right) \times 365.24 \times Lifetime \times Regional \text{ Factor} \times EEF$$

**Table 32.5 – GHG equivalent emissions reduction variables for Scenario 32A(ii)**

| Measurement, testings and ratings must be in accordance with the Greenhouse and Energy Minimum Standards (Refrigerated Cabinets) Determination 2020 |                                       |                                  |             |                                                                                                 |   |       |
|-----------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|----------------------------------|-------------|-------------------------------------------------------------------------------------------------|---|-------|
| Where –                                                                                                                                             |                                       |                                  |             |                                                                                                 |   |       |
| M and N are the coefficients for the cabinet's product class, as given by Schedule 1 in the GEMS (Refrigerated Cabinets) Determination 2020.        |                                       |                                  |             |                                                                                                 |   |       |
| Input Type                                                                                                                                          | Condition                             |                                  |             | Input Value                                                                                     |   |       |
| Baseline                                                                                                                                            | In all cases                          |                                  |             | $Baseline \text{ EEI} \times \left( \frac{M + (N \times V_n)}{100} \right)$                     |   |       |
| Upgrade                                                                                                                                             | In all cases                          |                                  |             | TEC                                                                                             |   |       |
| Baseline EEI, M and N, Lifetime                                                                                                                     | GEMS 2020 Product class               | GEMS 2020 Characteristics (code) | Upgrade EEI | Baseline EEI                                                                                    | M | N     |
|                                                                                                                                                     | Class 5                               | IFH-5                            | 51          | 130                                                                                             | 1 | 0.009 |
| V <sub>n</sub>                                                                                                                                      |                                       |                                  |             | Net Volume, in litres, of the installed product as recorded in the GEMS Registry                |   |       |
| TEC                                                                                                                                                 |                                       |                                  |             | Total Energy Consumption, in kWh/day, of the installed product as recorded in the GEMS Registry |   |       |
| Lifetime                                                                                                                                            | In all cases                          |                                  |             | 8.00                                                                                            |   |       |
| Regional Factor                                                                                                                                     | For upgrades in Metropolitan Victoria |                                  |             | 0.98                                                                                            |   |       |
|                                                                                                                                                     | For upgrades in Regional Victoria     |                                  |             | 1.04                                                                                            |   |       |

## Scenario 32A(iii): Installing a refrigerated storage cabinet

The GHG equivalent emissions reduction for each scenario is given by Equation 32.4, using the variables listed in Table 32.6.

**Equation 32.4 – GHG equivalent emissions reduction calculation for Scenario 32A(iii)**

$$GHG \text{ Eq. Reduction} = \left( \frac{Baseline - Upgrade}{1000} \right) \times Lifetime \times Regional \text{ Factor} \times EEf$$

**Table 32.6 – GHG equivalent emissions reduction variables for Scenario 32A(iii)**

| Measurement, testings and ratings must be in accordance with the Greenhouse and Energy Minimum Standards (Refrigerated Cabinets) Determination 2020 |                                       |                                  |             |                                                                                                 |                       |       |       |
|-----------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|----------------------------------|-------------|-------------------------------------------------------------------------------------------------|-----------------------|-------|-------|
| Where –                                                                                                                                             |                                       |                                  |             |                                                                                                 |                       |       |       |
| M and N are the coefficients for the cabinet's product class, as given by Schedule 1 in the GEMS (Refrigerated Cabinets) Determination 2020.        |                                       |                                  |             |                                                                                                 |                       |       |       |
| Input Type                                                                                                                                          | Condition                             |                                  |             | Input Value                                                                                     |                       |       |       |
| Baseline                                                                                                                                            | In all cases                          |                                  |             | $Baseline \text{ EEI} \times \left( \frac{(N + (M \times Vn))}{100} \right)$                    |                       |       |       |
| Upgrade                                                                                                                                             | In all cases                          |                                  |             | $TEC \times af \times 365.24$                                                                   |                       |       |       |
| Baseline EEI, M and N, Lifetime                                                                                                                     | GEMS 2020 Product class               | GEMS 2020 Characteristics (code) | Upgrade EEI | Baseline EEI                                                                                    |                       | M     | N     |
|                                                                                                                                                     |                                       |                                  |             | Heavy Duty                                                                                      | Normal and Light Duty |       |       |
|                                                                                                                                                     | Class 3                               | SRH                              | 81          | 73                                                                                              | 71                    | 2.555 | 1,790 |
|                                                                                                                                                     | Class 4                               | SFH                              | 81          | 89                                                                                              | 80                    | 5.84  | 2,380 |
|                                                                                                                                                     | Class 9                               | SRV                              | 81          | 91                                                                                              | 79                    | 1.643 | 609   |
|                                                                                                                                                     | Class 10                              | SFV                              | 81          | 96                                                                                              | 80                    | 4.928 | 1,472 |
| Vn                                                                                                                                                  |                                       |                                  |             | Net Volume, in litres, of the installed product as recorded in the GEMS Registry                |                       |       |       |
| TEC                                                                                                                                                 |                                       |                                  |             | Total Energy Consumption, in kWh/day, of the installed product as recorded in the GEMS Registry |                       |       |       |
| af                                                                                                                                                  |                                       |                                  |             | Adjustment factor for refrigerated storage cabinets as determined by Table 32.7                 |                       |       |       |
| Lifetime                                                                                                                                            | In all cases                          |                                  |             | 8.00                                                                                            |                       |       |       |
| Regional Factor                                                                                                                                     | For upgrades in Metropolitan Victoria |                                  |             | 0.98                                                                                            |                       |       |       |
|                                                                                                                                                     | For upgrades in Regional Victoria     |                                  |             | 1.04                                                                                            |                       |       |       |

**Table 32.7 – af input value for Scenario 32A(iii)**

| Input Type | Condition                           | Input Value |
|------------|-------------------------------------|-------------|
| af         | Light Duty (LD) chiller             | 1.2         |
|            | Light Duty (LD) freezer             | 1.1         |
|            | Normal Duty (ND) chiller or freezer | 1.0         |
|            | Heavy Duty (HD) chiller or freezer  | 1.0         |

## 33. Part 33 Activity– Refrigeration fan motor and ventilation fan motor

### Activity description (Guidance)

Part 33 of Schedule 2 of the Regulations prescribes the upgrade of fan motors used for refrigeration or ventilation as an eligible activity for the purposes of the Victorian Energy Upgrades program.

Table 33.1 lists the types of fan motors that may be installed. Each type of upgrade is known as a scenario. Each scenario has its own method for determining GHG equivalent reduction.

At a later date, the Secretary may specify requirements for a fan motor or fan motors that may be installed in accordance with the Secretary's installation specifications as a prescribed activity under Part 33 of Schedule 2 to the Regulations, which will be listed as scenario number 33C once specified.

VEECs cannot be created for this activity unless products installed are listed on the ESC Register by the time VEECs are created. Products already on the register at the time of installation can be taken as satisfying all those product requirements that can be determined prior to the installation of a product.

**Table 33.1 – Eligible fan motor scenarios**

| Product category number | Scenario number | Decommissioning requirements | Product to be installed <sup>52</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Historical schedule number |
|-------------------------|-----------------|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|
| 33A                     | 33A             | None                         | <p>A fan motor, installed into a fan in a refrigerated cabinet or cold room, that:</p> <ul style="list-style-type: none"> <li>a. is an electronically commutated motor (being a permanent magnet motor with electronic commutation) that has: <ul style="list-style-type: none"> <li>i. in the case of an internal rotor motor, has a rated motor output of not more than 600 Watts; or</li> <li>ii. in the case of an external rotor motor, has a rated motor input of not more than 800 Watts; and</li> </ul> </li> <li>b. is designed to be installed into a fan in a refrigerated cabinet or cold room.</li> </ul>                                                                                 | 33A                        |
| 33B                     | 33B             | None                         | <p>A fan motor, installed into a ducted fan or partition fan in an air-handling system as defined in ISO 13349:2010, that:</p> <ul style="list-style-type: none"> <li>a. is an electronically commutated motor (being a permanent magnet motor with electronic commutation) that has: <ul style="list-style-type: none"> <li>i. in the case of an internal rotor motor, has a rated motor output of not more than 600 Watts; or</li> <li>ii. in the case of an external rotor motor, has a rated motor input of not more than 800 Watts; and</li> </ul> </li> <li>b. is designed to be installed into a ducted fan or partition fan in an air-handling system as defined in ISO 13349:2010.</li> </ul> | 33B                        |

<sup>52</sup> The authoritative product and installation requirements are contained in Part 33 of Schedule 2 to the Regulations, and take precedence over summary information provided for ease of reference in this document

## Specified Minimum Energy Efficiency

There are no additional requirements that must be met by the product installed.

## Other Specified matters

None.

## Method for Determining GHG Equivalent Reduction

### Scenario 33A: Installing motored fans in refrigerated cabinet or cold room

The GHG equivalent emissions reduction for each scenario is given by Equation 33.1, using the variables listed in Table 33.2..

#### Equation 33.1 – GHG equivalent emissions reduction calculation for Scenario 33A

$$GHG \text{ Eq. Reduction} = (Baseline - Upgrade) \times EEf \times Lifetime \times Regional \text{ Factor}$$

Table 33.2 – GHG equivalent emissions reduction variables for Scenario 33A

| Input Type      | Condition                             | Input Value                                                                                   |
|-----------------|---------------------------------------|-----------------------------------------------------------------------------------------------|
| Baseline*       | In every instance                     | $4.38 \times 10^{-3} \times (NFIP \times 1.77 + 19.39) \times \left(1 + \frac{1}{COP}\right)$ |
| Upgrade*        | In every instance                     | $4.38 \times 10^{-3} \times NFIP \times \left(1 + \frac{1}{COP}\right)$                       |
| Lifetime        | In every instance                     | 7.00                                                                                          |
| Regional Factor | For upgrades in Metropolitan Victoria | 0.98                                                                                          |
|                 | For upgrades in Regional Victoria     | 1.04                                                                                          |

\*The COP is determined from Table 33.3

Table 33.3 – Coefficient of performance (COP) values for Scenario 33A

| Refrigerator type                         | COP  |
|-------------------------------------------|------|
| Refrigerated cabinet                      | 2.80 |
| Cold Rooms operating below 0oC (freezers) | 1.80 |
| Cold Rooms operating at or above 0oC      | 2.56 |



### Scenario 33B: Installing motored fans in an air-handling system

The GHG equivalent emissions reduction for each scenario is given by Equation 33.2, using the variables listed in Table 33.4

#### Equation 33.2 – GHG equivalent emissions reduction calculation for Scenario 33B

$$GHG\ Eq.\ Reduction = (Baseline - Upgrade) \times EEF \times Lifetime \times Regional\ Factor$$

Table 33.4 – GHG equivalent emissions reduction variables for Scenario 33B

| Input Type      | Condition                             | Input Value                                             |
|-----------------|---------------------------------------|---------------------------------------------------------|
| Baseline        | In every instance                     | $4.38 \times 10^{-3} \times (NFIP \times 1.77 + 19.39)$ |
| Upgrade         | In every instance                     | $4.38 \times 10^{-3} \times NFIP$                       |
| Lifetime        | In every instance                     | 7.00                                                    |
| Regional Factor | For upgrades in Metropolitan Victoria | 0.98                                                    |
|                 | For upgrades in Regional Victoria     | 1.04                                                    |

\*The COP is determined from Table 33.3



## 34. Part 34 Activity– Building based lighting upgrade

### Activity description (Guidance)

Part 34 of Schedule 2 of the Regulations prescribes the upgrade of building based lighting as an eligible activity for the purposes of the Victorian Energy Upgrades program.

Table 34.1 lists the types of lighting products that may be installed, upgraded or replaced. Each type of upgrade is known as a scenario. Each scenario has its own method for determining GHG equivalent reduction.

VEECs cannot be created for this activity unless products installed are listed on the ESC Register by the time VEECs are created. Products already on the register at the time of installation can be taken as satisfying all those product requirements that can be determined prior to the installation of a product.

**Table 34.1 – Eligible building based lighting scenarios**

| Product category number | Scenario number | Decommissioning or removal requirements <sup>53</sup>                                                                                               | Product to be installed and installation requirements <sup>54</sup>                                                                                                                                                                                                                                                                                                                      | Historical schedule number     |
|-------------------------|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|
| 34A                     | 34A             | None*                                                                                                                                               | A lighting control device, other than a voltage reduction unit, that is certified by the manufacturer as appropriate for use with the type of luminaire it will control                                                                                                                                                                                                                  | 34B                            |
| 34B                     | 34B             | None*                                                                                                                                               | A voltage reduction unit that: <ul style="list-style-type: none"> <li>a. has an alternating current output voltage ascertained by an approved laboratory in accordance with the laboratory test approved for the unit by the ESC<sup>55</sup>; and</li> <li>b. is not installed in conjunction with electronic ballasts or drivers, or LED lighting.</li> </ul>                          | 34C                            |
| 34C                     | 34C             |                                                                                                                                                     | Any other lighting equipment that: <ul style="list-style-type: none"> <li>a. when installed, meets the minimum power factor determined by the ESC<sup>56</sup>;</li> <li>b. meets minimum standards determined by the ESC when tested by an approved laboratory in accordance with the laboratory test approved by the ESC<sup>57</sup>; and</li> <li>c. is not a T5 adaptor.</li> </ul> | 34D                            |
| N/A                     | 34D             | Removing and not replacing not more than half the lamps from a luminaire that houses multiple lamps and decommissioning any associated control gear | None                                                                                                                                                                                                                                                                                                                                                                                     | Regulation 6(2)(d) and 6(3)(d) |

<sup>53</sup> The authoritative decommissioning and removal requirements are contained in Part 34 of Schedule 2 to the Regulations, and take precedence over summary information provided for ease of reference in this document.

<sup>54</sup> The authoritative product and installation requirements are contained in Part 34 of Schedule 2 to the Regulations, and take precedence over summary information provided for ease of reference in this document.

<sup>55</sup> In a determination under regulation 36(6).

<sup>56</sup> In a determination under regulation 36(6).

<sup>57</sup> In a determination under regulation 36(6).

| Product category number | Scenario number | Decommissioning or removal requirements <sup>53</sup>                                                                                                                                            | Product to be installed and installation requirements <sup>54</sup> | Historical schedule number     |
|-------------------------|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------|--------------------------------|
| N/A                     | 34E             | Removing and not replacing: <ul style="list-style-type: none"> <li>a. a LED integrated luminaire, or</li> <li>b. the lamp and control gear associated with a non-integrated luminaire</li> </ul> | None                                                                | Regulation 6(2)(d) and 6(3)(d) |

\* It is not envisaged that lighting equipment would be removed as part of this scenario, but if it is, it is required to be decommissioned.

## Specified Minimum Energy Efficiency

There are no additional requirements that must be met by the product installed.

## Other specified matters

None.

## Method for Determining GHG Equivalent Reduction

Scenario 34A to 34E: All building based lighting upgrades

The GHG equivalent emissions reduction for each scenario is given by Equation 34.1 Equation 33.1, using the variables listed in Table 34.2.

### Equation 34.1 – GHG equivalent emissions reduction calculation for Scenarios 34A to 34E

$$GHG \text{ Eq. Reduction} = (Baseline - Upgrade) \times Lifetime \times Regional \text{ Factor}$$

**Table 34.2 – GHG equivalent emissions reduction variables for Scenarios 34A to 34E**

| Input Type      | Condition                                                                                                                             | Input Value                                                  |
|-----------------|---------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|
| Baseline        | Upgrade is not part of a site refurbishment that is required to comply with Part J6 of the Building Code as amended from time to time | Given by Equation 34.2, using variables listed in Table 34.3 |
| Upgrade         | In every instance                                                                                                                     | Given by Equation 34.3, using variables listed in Table 34.4 |
| Lifetime        | In every instance                                                                                                                     | Given by Equation 34.4, using variables listed in Table 34.5 |
| Regional Factor | For upgrades in Metropolitan Victoria                                                                                                 | 0.98                                                         |
|                 | For upgrades in Regional Victoria                                                                                                     | 1.04                                                         |

**Equation 34.2 – Baseline calculation at sites not required to comply with Part J6 of the Building Code**

$$Baseline = \sum_{\text{each incumbent light source}} LCP \times CM \times AM \times EEf$$

**Table 34.3 – Baseline calculation variables for sites not required to comply with Part J6 of the Building Code**

| Input Type                      | Condition                                             | Input Value                 |
|---------------------------------|-------------------------------------------------------|-----------------------------|
| LCP                             | Light source is listed in Table 34.8                  | As determined by Table 34.8 |
| CM<br>(or 'control multiplier') | In every instance                                     | As determined by Table 34.7 |
| AM                              | For an upgrade in a space that is air conditioned     | 1.05                        |
|                                 | For an upgrade in a space that is not air conditioned | 1.00                        |

**Equation 34.3 – Upgrade calculation at sites not required to comply with Part J6 of the Building Code**

$$Upgrade = \sum_{\text{each upgrade light source}} LCP \times CM \times AM \times EEf$$

**Table 34.4 – Upgrade calculation variables for sites not required to comply with Part J6 of the Building Code**

| Input Type                      | Condition                                             | Input Value                                                   |
|---------------------------------|-------------------------------------------------------|---------------------------------------------------------------|
| LCP                             | Light source is listed in Table 34.8                  | As determined by Table 34.8                                   |
|                                 | Light source is not listed in Table 34.8              | The value determined by the ESC for that type of light source |
| CM<br>(or 'control multiplier') | In every instance                                     | As determined by Table 34.7                                   |
| AM                              | For an upgrade in a space that is air conditioned     | 1.05                                                          |
|                                 | For an upgrade in a space that is not air conditioned | 1.00                                                          |

**Equation 34.4 – Lifetime calculation at all sites**

$$Lifetime = Asset Lifetime \times Annual Operating Hours \times 10^{-6}$$

**Table 34.5 – Lifetime calculation variables for all sites**

| Input Type             | Condition                                                                                                                       | Input Value                  |
|------------------------|---------------------------------------------------------------------------------------------------------------------------------|------------------------------|
| Asset Lifetime         | In every instance                                                                                                               | As determined by Table 34.9  |
| Annual Operating Hours | Activity is not part of refurbishment that is required to comply with Part J6 of the Building Code as amended from time to time | As determined by Table 34.10 |

## Additional variables for determining GHG reduction

**Table 34.6 – Annual operating hours for space types determined by reference to the building classification under the Building Code**

| Type of space                                                                                                                                                                                                                                                           | Annual operating hours (per year) |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|
| A space in the common area of a building that is classified as Class 2 under Part A3 of the Building Code as amended from time to time                                                                                                                                  | 7000                              |
| A space in the common area of a building that is classified as Class 3 under Part A3 of the Building Code as amended from time to time                                                                                                                                  | 7000                              |
| A space in a building that is classified as Class 3 under Part A3 of the Building Code as amended from time to time (other than a space in the common area of the building)                                                                                             | 3000                              |
| A space in a building that is classified as Class 5 under Part A3 of the Building Code as amended from time to time                                                                                                                                                     | 3000                              |
| A space in a building that is classified as Class 6 under Part A3 of the Building Code as amended from time to time                                                                                                                                                     | 5000                              |
| A space in an open air car park that is classified as Class 7a under Part A3 of the Building Code as amended from time to time                                                                                                                                          | 4500                              |
| A space in a car park (other than an open air car park) that is classified as Class 7a under Part A3 of the Building Code as amended from time to time                                                                                                                  | 7000                              |
| A space in a building that is classified as Class 7b under Part A3 of the Building Code as amended from time to time                                                                                                                                                    | 5000                              |
| A space in a laboratory or building that is classified as Class 8 under Part A3 of the Building Code as amended from time to time and that is also classified as Division C in the Australian and New Zealand Standard Industrial Classification issued on 26 June 2013 | 5000                              |
| A space in a laboratory or building that is classified as Class 8 under Part A3 of the Building Code as amended from time to time and that is not classified as Division C in the Australian and New Zealand Standard Industrial Classification issued on 26 June 2013  | 3000                              |
| A space in a building that is classified as Class 9a under Part A3 of the Building Code as amended from time to time                                                                                                                                                    | 6000                              |
| A space in a building that is classified as Class 9b under Part A3 of the Building Code as amended from time to time                                                                                                                                                    | 2000                              |
| A space in a building that is classified as Class 9c under Part A3 of the Building Code as amended from time to time                                                                                                                                                    | 6000                              |
| A space in a building that is classified as Class 10a under Part A3 of the Building Code as amended from time to time                                                                                                                                                   | 1000                              |
| A space in a structure that is classified as Class 10b under Part A3 of the Building Code as amended from time to time                                                                                                                                                  | 1000                              |

**Table 34.7 – CM (or ‘control multiplier’) values for baseline and upgrade calculations at all sites, depending on the number and types of lighting control devices (LCDs)**

| Number of LCDs | Types(s) of LCDs                                                                            | Control multiplier                                                                                       |
|----------------|---------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|
| None           | N/A                                                                                         | 1.00                                                                                                     |
| One            | Occupancy sensor that controls 1 to 2 luminaires                                            | 0.55                                                                                                     |
|                | Occupancy sensor that controls 3 to 6 luminaires                                            | 0.70                                                                                                     |
|                | Occupancy sensor that controls more than 6 luminaires                                       | 0.90                                                                                                     |
|                | Daylight-linked control                                                                     | 0.70                                                                                                     |
|                | Programmable dimmer                                                                         | 0.85                                                                                                     |
|                | Manual dimmer                                                                               | 0.90                                                                                                     |
|                | Voltage reduction unit                                                                      | $V^2 \div 240^2$ , where $V$ , is the output voltage of the voltage reduction unit                       |
| More than one  | A combination of one occupancy sensor that controls 1 to 2 luminaires, and any other LCD(s) | 0.4 or, if greater, the multiple of the two lowest control multiplier values for the combination of LCDs |
|                | A combination of one occupancy sensor that controls 3 to 6 luminaires, and any other LCD(s) | 0.5 or, if greater, the multiple of the two lowest control multiplier values for the combination of LCDs |
|                | Any LCDs, except occupancy sensors that control 1 to 6 luminaires                           | 0.6 or, if greater, the multiple of the two lowest control multiplier values for the combination of LCDs |

**Table 34.8 – Lamp circuit power (LCP) calculations for baseline and upgrade calculations at sites not required to comply with Part J6 of the Building Code**

| Type of incumbent or upgrade light source                                                                                                                                                             | Lamp circuit power for incumbent light source | Lamp circuit power for upgrade light source |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|---------------------------------------------|
| T8 or T12 linear fluorescent or circular fluorescent lamp with ballast (EEI of A or electronic with no EEI marked)                                                                                    | NLP                                           | NLP                                         |
| T8 or T12 linear fluorescent or circular fluorescent lamp with ballast (EEI of > B or magnetic with no EEI marked)                                                                                    | NLP + 6                                       | NLP + 6                                     |
| T5 linear fluorescent lamp with T5 adaptor and magnetic ballast                                                                                                                                       | NLP x 0.94 + 1.78                             | N/A                                         |
| T5 linear fluorescent or circular fluorescent lamp with ballast                                                                                                                                       | NLP x 1.08 + 1.5                              | NLP x 1.08 + 1.5                            |
| Compact fluorescent lamp with non-integral ballast (EEI of A or electronic with no EEI marked)                                                                                                        | NLP + 1                                       | NLP + 1                                     |
| Compact fluorescent lamp with non-integral ballast (EEI > B or magnetic ballast with no EEI marked)                                                                                                   | NLP + 5                                       | NLP + 5                                     |
| LED lamp with integrated driver with no associated legacy ballast connected                                                                                                                           | NLP**                                         | NLP                                         |
| Non-integrated LED lamp with remote driver or ELC                                                                                                                                                     | NLP x 1.1**                                   | NLP x 1.1                                   |
| LED lamp with integrated driver, connected with a non-integral legacy ballast used for a T8 or T12 linear or circular fluorescent lamp, marked with EEI of A or electronic ballast with no EEI marked | NLP**                                         | NLP                                         |
| LED lamp with integrated driver, connected with a non-integral legacy ballast used for a T8 or T12 linear or circular fluorescent lamp, marked with EEI of > B or magnetic ballast with no EEI marked | NLP + 6**                                     | NLP + 6                                     |

|                                                                                                                                                    |                               |                          |
|----------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|--------------------------|
| LED lamp with integrated driver, connected with a legacy ballast used for a T5 linear or circular fluorescent lamp                                 | $NLP \times 1.08 + 1.5^{**}$  | $NLP \times 1.08 + 1.5$  |
| LED lamp with integrated driver, connected with a legacy ballast used for a CFL, marked with EEI of A or electronic ballast with no EEI marked     | $NLP + 1^{**}$                | $NLP + 1$                |
| LED lamp with integrated driver, connected with a legacy ballast used for a CFL, marked with an EEI of >B or a magnetic ballast with no EEI marked | $NLP + 5^{**}$                | $NLP + 5$                |
| LED integrated luminaire                                                                                                                           | $NLP^{**}$                    | $NLP$                    |
| Non-integrated LED luminaire with remote driver                                                                                                    | $NLP \times 1.1^{**}$         | $NLP \times 1.1$         |
| LED lamp with integrated driver, connected with a legacy magnetic ballast used for HID lamps                                                       | $1.033 \times NLP + 11^{**}$  | $1.033 \times NLP + 11$  |
| LED lamp with integrated driver, connected with a legacy electronic ballast used for HID lamps                                                     | $1.096 \times NLP + 0.9^{**}$ | $1.096 \times NLP + 0.9$ |

\* T5 adaptors as a light source are not an eligible type of upgrade lighting equipment for this activity.

\*\* The lamp circuit power values for incumbent LED products are only eligible to be used for Scenario 34A.

**Table 34.9 – Asset lifetime for lifetime calculations at all sites**

| Condition met by Lighting Upgrade                                                                                                                                                                                                                                                                            | Asset lifetime (years)                                                                                                                                                                            |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Luminaire replacement: the existing luminaire is replaced                                                                                                                                                                                                                                                    | 10.00                                                                                                                                                                                             |
| Modification: the incumbent lamp is replaced and all legacy control gear not essential for the operation of the upgrade lamp is either removed from the site or from the electrical circuit so that it does not draw any power                                                                               | 4.00                                                                                                                                                                                              |
| Retrofit: the incumbent lamp is replaced and any wiring or structure of the luminaire is kept intact, other than the removal, replacement or modification of the starter and the removal of the legacy capacitor                                                                                             | Lifetime for the upgrade lamp, determined in accordance with ESC's performance requirements (in hours and not exceeding 30,000 hours), divided by annual operating hours, to a maximum of 4 years |
| Delamping: the lamp is removed from a luminaire that houses multiple lamps, where no more than half of the lamps are removed; all legacy control gear not essential for the operation of remaining lamp(s) is either removed from the site or from the electrical circuit so that it does not draw any power | 5.00                                                                                                                                                                                              |
| Lighting control device: a lighting control device is installed and no lighting equipment of any other type is installed in the space                                                                                                                                                                        | 5.00                                                                                                                                                                                              |
| Luminaire decommissioning: the lamp is removed and not replaced, and either the luminaire or all legacy control gear is removed from the site or from the electrical circuit so that it does not draw any power                                                                                              | 10.00                                                                                                                                                                                             |
| In any other case                                                                                                                                                                                                                                                                                            | Manufacturer's rated lifetime (in hours and not exceeding 30,000 hours) for the incumbent lamp divided by annual operating hours, to a maximum of 4 years                                         |

**Table 34.10 - Annual operating hours at sites not required to comply with Part J6 of the Building Code**

| Type of Space                                                                                                                                                                                                                                                                                                                                     | Annual operating hours (per year) |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|
| Auditorium, church and public hall                                                                                                                                                                                                                                                                                                                | 2000                              |
| Board room and conference room                                                                                                                                                                                                                                                                                                                    | 3000                              |
| Carpark—general (undercover) and carpark—entry zone (first 20 m of travel)                                                                                                                                                                                                                                                                        | 7000                              |
| Common rooms, spaces and corridors in a Class 2 building                                                                                                                                                                                                                                                                                          | 7000                              |
| Control room, switch room and the like in a Class 2 building                                                                                                                                                                                                                                                                                      | As determined by Table 34.6       |
| Corridors                                                                                                                                                                                                                                                                                                                                         | As determined by Table 34.6       |
| Courtroom                                                                                                                                                                                                                                                                                                                                         | 2000                              |
| Dormitory of a Class 3 building used for sleeping only or sleeping and study                                                                                                                                                                                                                                                                      | 3000                              |
| Health care – children’s ward and examination room, patient ward, all patient care areas including corridors where cyanosis lamps are used                                                                                                                                                                                                        | 6000                              |
| Kitchen and food preparation area                                                                                                                                                                                                                                                                                                                 | As determined by Table 34.6       |
| Laboratory—artificially lit to an ambient level of 400 lx or more                                                                                                                                                                                                                                                                                 | 3000                              |
| Library—stack and shelving area, reading room and general areas                                                                                                                                                                                                                                                                                   | 3000                              |
| Lounge area for communal use in a Class 3 building or Class 9c aged care building                                                                                                                                                                                                                                                                 | 7000                              |
| Maintained emergency lighting                                                                                                                                                                                                                                                                                                                     | 8500                              |
| Museum and gallery—circulation, cleaning and service lighting                                                                                                                                                                                                                                                                                     | 2000                              |
| Office                                                                                                                                                                                                                                                                                                                                            | 3000                              |
| Plant room                                                                                                                                                                                                                                                                                                                                        | As determined by Table 34.6       |
| A space for the serving and consumption of food or drinks to the public that fall under Division H - Accommodation and food services as defined in the Australian and New Zealand Standard Industrial Classification<br><b>Note:</b> excludes all operations that fall under class 4513 (catering services)                                       | 5000                              |
| A space for the serving and consumption of food or drinks to the public that also fall under Division R – Arts and Recreation Services as defined in the Australian and New Zealand Standard Industrial Classification                                                                                                                            | 2000                              |
| Retail space including a museum and gallery whose purpose is the sale of objects                                                                                                                                                                                                                                                                  | 5000                              |
| School—general purpose learning areas and tutorial rooms                                                                                                                                                                                                                                                                                          | 3000                              |
| Sole-occupancy unit of a Class 3 building                                                                                                                                                                                                                                                                                                         | 3000                              |
| Sole-occupancy unit of a Class 9c aged care building                                                                                                                                                                                                                                                                                              | 6000                              |
| Storage space or a wholesale storage and display area                                                                                                                                                                                                                                                                                             | As determined by Table 34.6       |
| Service area, cleaner’s room and the like                                                                                                                                                                                                                                                                                                         | As determined by Table 34.6       |
| Toilet, locker room, staff room, rest room and the like                                                                                                                                                                                                                                                                                           | As determined by Table 34.6       |
| Health and fitness centres and gymnasias operations, classified as Division R (9111) in the Australian and New Zealand Standard Industrial Classification<br><b>Note:</b> this only includes health and fitness centres and gymnasias operations that are membership based and whose membership’s primary purpose is to frequent these operations | 5100                              |
| A space type that is not listed in Table 34.10                                                                                                                                                                                                                                                                                                    | As determined by Table 34.6       |

## 35. Part 35 Activity– Non-building based lighting upgrade

### Activity description (Guidance)

Part 35 of Schedule 2 of the Regulations prescribes the upgrade of non-building based lighting as an eligible activity for the purposes of the Victorian Energy Upgrades program.

Table 35.1 lists the types of lighting products that may be installed, upgraded or replaced. Each type of upgrade is known as a scenario. Each scenario has its own method for determining GHG equivalent reduction.

VEECs cannot be created for this activity unless products installed are listed on the ESC Register by the time VEECs are created. Products already on the register at the time of installation can be taken as satisfying all those product requirements that can be determined prior to the installation of a product.

**Table 35.1 – Eligible non-building based lighting scenarios**

| Product category number | Scenario number | Decommissioning or removal requirements <sup>58</sup>                                                                                                                                            | Product to be installed and installation requirements <sup>59</sup>                                                                                                                                                                                                                                                                                                 | Historical schedule number |
|-------------------------|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|
| 35A                     | 35A             | None*                                                                                                                                                                                            | A lighting control device, other than a voltage reduction unit, that is certified by the manufacturer as appropriate for use with the type of luminaire it will be required to control                                                                                                                                                                              | 34B                        |
| 35B                     | 35B             | Decommissioning any removed lighting equipment                                                                                                                                                   | Any other lighting equipment that: <ul style="list-style-type: none"> <li>a. when installed, meets the minimum power factor determined by the ESC</li> <li>b. meets minimum standards determined by the ESC when tested by an approved laboratory in accordance with a laboratory test approved by the ESC<sup>60</sup></li> <li>c. is not a T5 adaptor.</li> </ul> | 34D                        |
| N/A                     | 35C             | Removing no more than half the lamps from a luminaire that houses multiple lamps and decommissioning any associated control gear                                                                 | None                                                                                                                                                                                                                                                                                                                                                                | Regulation 6(3)(d)         |
| N/A                     | 35D             | Removing and not replacing: <ul style="list-style-type: none"> <li>a. a LED integrated luminaire, or</li> <li>b. the lamp and control gear associated with a non-integrated luminaire</li> </ul> | None                                                                                                                                                                                                                                                                                                                                                                | Regulation 6(3)(d)         |

\* It is not envisaged that lighting equipment would be removed as part of this scenario, but if it is, it is required to be decommissioned.

<sup>58</sup> The authoritative decommissioning and removal requirements are contained in Part 34 of Schedule 2 to the Regulations, and take precedence over summary information provided for ease of reference in this document.

<sup>59</sup> The authoritative product and installation requirements are contained in Part 34 of Schedule 2 to the Regulations, and take precedence over summary information provided for ease of reference in this document.

<sup>60</sup> In a determination under regulation 36(6).

## Specified Minimum Energy Efficiency

There are no additional requirements that must be met by the product installed.

## Other specified matters

None.

## Method for Determining GHG Equivalent Reduction

### Scenario 35A to 35D: Non-building based lighting upgrades

The GHG equivalent emissions reduction for each scenario is given by Equation 35.1 Equation 33.1, using the variables listed in Table 35.2.

#### Equation 35.1 – GHG equivalent emissions reduction calculation for Scenarios 35A to 35D

$$GHG\ Eq.\ Reduction = (Baseline - Upgrade) \times Lifetime \times Regional\ Factor$$

Table 35.2 – GHG equivalent emissions reduction variables for Scenarios 35A to 35D

| Input Type      | Condition                             | Input Value                                                  |
|-----------------|---------------------------------------|--------------------------------------------------------------|
| Baseline        | In every instance                     | Given by Equation 35.2, using variables listed in Table 35.3 |
| Upgrade         | In every instance                     | Given by Equation 35.3, using variables listed in Table 35.4 |
| Lifetime        | In every instance                     | Given by Equation 35.4, using variables listed in Table 35.5 |
| Regional Factor | For upgrades in Metropolitan Victoria | 0.98                                                         |
|                 | For upgrades in Regional Victoria     | 1.04                                                         |

#### Equation 35.2 – Baseline calculation for all non-building based lighting upgrades

$$Baseline = \sum_{each\ incumbent\ light\ source} LCP \times CM \times EEF$$

Table 35.3 – Baseline calculation variables for all non-building based lighting upgrades

| Input Type | Condition                                | Input Value                                                   |
|------------|------------------------------------------|---------------------------------------------------------------|
| LCP        | Light source is listed in Table 35.6     | As determined by Table 35.6                                   |
|            | Light source is not listed in Table 35.6 | The value determined by the ESC for that type of light source |
| CM         | In every instance                        | As determined by Table 35.7                                   |

**Equation 35.3 – Upgrade calculation for all non-building based lighting upgrades**

$$Upgrade = \sum_{\text{each upgrade light source}} LCP \times CM \times EEF$$

**Table 35.4 – Upgrade calculation variables for all non-building based lighting upgrades**

| Input Type                 | Condition                                | Input Value                                                   |
|----------------------------|------------------------------------------|---------------------------------------------------------------|
| LCP                        | Light source is listed in Table 35.6     | As determined by Table 35.6                                   |
|                            | Light source is not listed in Table 35.6 | The value determined by the ESC for that type of light source |
| CM (or 'control modifier') | In every instance                        | As determined by Table 35.7                                   |

**Equation 35.4 – Lifetime calculation for all non-building based lighting upgrades**

$$Lifetime = Asset Lifetime \times Annual Operating Hours \times 10^{-6}$$

**Table 35.5 – Lifetime calculation variables for all non-building based lighting upgrades**

| Input Type             | Condition         | Input Value                 |
|------------------------|-------------------|-----------------------------|
| Asset Lifetime         | In every instance | As determined by Table 35.8 |
| Annual Operating Hours | In every instance | As determined by Table 35.9 |

## Additional variables for determining GHG reduction

**Table 35.6 – Lamp circuit power (LCP) calculations for baseline and upgrade calculations for non-building based lighting upgrades**

| Type of incumbent or upgrade light source                                                                          | Lamp circuit power for incumbent light source | Lamp circuit power for upgrade light source |
|--------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|---------------------------------------------|
| T8 or T12 linear fluorescent or circular fluorescent lamp with ballast (EEI of A or electronic with no EEI marked) | NLP                                           | NLP                                         |
| T8 or T12 linear fluorescent or circular fluorescent lamp with ballast (EEI of > B or magnetic with no EEI marked) | NLP + 6                                       | NLP + 6                                     |
| T5 linear fluorescent lamp with T5 adaptor and magnetic ballast*                                                   | NLP x 0.94 + 1.78                             | N/A                                         |
| T5 linear fluorescent or circular fluorescent lamp with ballast                                                    | NLP x 1.08 + 1.5                              | NLP x 1.08 + 1.5                            |
| Compact fluorescent lamp with non-integral ballast (EEI of A or electronic with no EEI marked)                     | NLP + 1                                       | NLP + 1                                     |
| Compact fluorescent lamp with non-integral ballast (EEI > B or magnetic ballast with no EEI marked)                | NLP + 5                                       | NLP + 5                                     |
| Compact fluorescent lamp with integral ballast                                                                     | NLP                                           | NLP                                         |
| Tungsten incandescent or halogen lamp (mains voltage)                                                              | NLP x 0.7                                     | NLP                                         |
| Tungsten incandescent or halogen lamp with ELC                                                                     | NLP (being no greater than 37 Watts) x 1.163  | NLP x 1.163                                 |
| Metal halide lamp with magnetic ballast                                                                            | NLP x 1.058 + 18                              | NLP x 1.058 + 18                            |
| Metal halide lamp with electronic ballast                                                                          | NLP x 1.096 + 0.9                             | NLP x 1.096 + 0.9                           |

|                                                                                                                                                                                                       |                          |                          |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|--------------------------|
| High pressure sodium lamp with magnetic ballast                                                                                                                                                       | $NLP \times 1.051 + 13$  | $NLP \times 1.051 + 13$  |
| LED lamp with integrated driver with no associated legacy ballast connected                                                                                                                           | NLP                      | NLP                      |
| Non-integrated LED lamp with remote driver or ELC                                                                                                                                                     | $NLP \times 1.1$         | $NLP \times 1.1$         |
| LED lamp with integrated driver, connected with a non-integral legacy ballast used for a T8 or T12 linear or circular fluorescent lamp, marked with EEI of A or electronic ballast with no EEI marked | NLP                      | NLP                      |
| LED lamp with integrated driver, connected with a non-integral legacy ballast used for a T8 or T12 linear or circular fluorescent lamp, marked with EEI of > B or magnetic ballast with no EEI marked | $NLP + 6$                | $NLP + 6$                |
| LED lamp with integrated driver, connected with a legacy ballast used for a T5 linear or circular fluorescent lamp                                                                                    | $NLP \times 1.08 + 1.5$  | $NLP \times 1.08 + 1.5$  |
| LED lamp with integrated driver, connected with a legacy ballast used for a CFL, marked with EEI of A or electronic ballast with no EEI marked                                                        | $NLP + 1$                | $NLP + 1$                |
| LED lamp with integrated driver, connected with a legacy ballast used for a CFL, marked with an EEI of >B or a magnetic ballast with no EEI marked                                                    | $NLP + 5$                | $NLP + 5$                |
| LED integrated luminaire                                                                                                                                                                              | NLP                      | NLP                      |
| Non-integrated LED luminaire with remote driver                                                                                                                                                       | $NLP \times 1.1$         | $NLP \times 1.1$         |
| LED lamp with integrated driver, connected with a legacy magnetic ballast used for HID lamps                                                                                                          | $1.033 \times NLP + 11$  | $1.033 \times NLP + 11$  |
| LED lamp with integrated driver, connected with a legacy electronic ballast used for HID lamps                                                                                                        | $1.096 \times NLP + 0.9$ | $1.096 \times NLP + 0.9$ |
| Induction lamp with integrated ballast                                                                                                                                                                | NLP                      | NLP                      |
| Induction lamp with non-integrated ballast                                                                                                                                                            | $NLP \times 1.056$       | $NLP \times 1.056$       |
| Other                                                                                                                                                                                                 | As determined by the ESC | As determined by the ESC |

\* T5 adaptors as a light source are not an eligible type of upgrade lighting equipment for this activity.

**Table 35.7 – CM (or ‘control multiplier’) values for baseline and upgrade calculations for non-building based lighting upgrades, depending on the number and types of lighting control devices (LCDs)**

| Number of LCDs | Types(s) of LCDs                                                                            | Control multiplier                                                                                        |
|----------------|---------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|
| None           | N/A                                                                                         | 1.00                                                                                                      |
| One            | Occupancy sensor that controls 1 to 2 luminaires                                            | 0.55                                                                                                      |
|                | Occupancy sensor that controls 3 to 6 luminaires                                            | 0.70                                                                                                      |
|                | Occupancy sensor that controls more than 6 luminaires                                       | 0.90                                                                                                      |
|                | Programmable dimmer                                                                         | 0.85                                                                                                      |
| More than one  | A combination of one occupancy sensor that controls 1 to 2 luminaires, and any other LCD(s) | 0.40 or, if greater, the multiple of the two lowest control multiplier values for the combination of LCDs |
|                | A combination of one occupancy sensor that controls 3 to 6 luminaires, and any other LCD(s) | 0.50 or, if greater, the multiple of the two lowest control multiplier values for the combination of LCDs |
|                | Any LCDs, except occupancy sensors that control 1 to 6 luminaires                           | 0.60 or, if greater, the multiple of the two lowest control multiplier values for the combination of LCDs |

**Table 35.8 – Asset lifetime for lifetime calculations for non-building based lighting upgrades**

| Condition met by Lighting Upgrade                                                                                                                                                                                                                                                                            | Asset lifetime (years)                                                                                                                                                                            |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Luminaire replacement: the existing luminaire is replaced                                                                                                                                                                                                                                                    | 10.00                                                                                                                                                                                             |
| Modification: the incumbent lamp is replaced and all legacy control gear not essential for the operation of the upgrade lamp is either removed from the site or from the electrical circuit so that it does not draw any power                                                                               | 5.00                                                                                                                                                                                              |
| Retrofit: the incumbent lamp is replaced and any wiring or structure of the luminaire is kept intact, other than the removal, replacement or modification of the starter and the removal of the legacy capacitor                                                                                             | Lifetime for the upgrade lamp, determined in accordance with ESC's performance requirements (in hours and not exceeding 30,000 hours), divided by annual operating hours, to a maximum of 5 years |
| Delamping: the lamp is removed from a luminaire that houses multiple lamps, where no more than half of the lamps are removed; all legacy control gear not essential for the operation of remaining lamp(s) is either removed from the site or from the electrical circuit so that it does not draw any power | 5.00                                                                                                                                                                                              |
| Lighting control device: a lighting control device is installed and no lighting equipment of any other type is installed in the space                                                                                                                                                                        | 5.00                                                                                                                                                                                              |
| Luminaire decommissioning: the lamp is removed and not replaced, and either the luminaire or all legacy control gear is removed from the site or from the electrical circuit so that it does not draw any power                                                                                              | 10.00                                                                                                                                                                                             |
| In any other case                                                                                                                                                                                                                                                                                            | Manufacturer's rated lifetime (in hours and not exceeding 30,000 hours) for the incumbent lamp divided by annual operating hours, to a maximum of 5 years                                         |

**Table 35.9 – Annual operating hours for non-building based lighting upgrades**

| Type of area                                                        | Annual operating hours (per year) |
|---------------------------------------------------------------------|-----------------------------------|
| Road, other than the replacement or installation of traffic signals | 4500                              |
| A public or outdoor space that is not a sports field                | 4500                              |
| In any other case                                                   | 1000                              |



## 36. Part 36 Activity– Water efficient pre-rinse spray valve

### Activity description (Guidance)

Part 36 of Schedule 2 of the Regulations prescribes the upgrade of tap equipment through the installation of a high efficiency pre-rinse spray valve as an eligible activity for the purposes of the Victorian Energy Upgrades program.

Table 36.1 lists the eligible products that may be installed, upgraded or replaced. Each type of upgrade is known as a scenario. Each scenario has its own method for determining GHG equivalent reduction.

VEECs cannot be created for this activity unless products installed are listed on the ESC Register by the time VEECs are created. Products already on the register at the time of installation can be taken as satisfying all those product requirements that can be determined prior to the installation of a product.

**Table 36.1 – Eligible pre-rinse spray valve scenarios**

| Product category number | Scenario number | Decommissioning requirements <sup>61</sup>                                                                                                                        | Installation requirements <sup>62</sup>                                                                                                                                                                    | Product to be installed <sup>63</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Historical schedule number |
|-------------------------|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|
| 36A                     | 36A(i)          | Decommissioning a pre-rinse spray valve that is not rated as having a 4 star or higher water efficiency when assessed and labelled in accordance with AS/NZS 6400 | Installing the product in accordance with AS/NZS 3500 and the Plumbing Regulations 2008.                                                                                                                   | A pre-rinse spray valve that: <ul style="list-style-type: none"> <li>a. is rated as having a minimum star rating for water efficiency as specified in Table 36.2 below, when assessed and labelled in accordance with AS/NZ 6400; and</li> <li>b. is tap equipment that is determined to be a WELS product under the Water Efficiency Labelling and Standards Determination 2013 (No.2) made under sections 18, 19 and 26 of the Water Efficiency Labelling Standards Act 2005 of the Commonwealth.</li> </ul> | 36A                        |
|                         | 36A(ii)         | None                                                                                                                                                              | On an existing fitting for a pre-rinse spray valve on which no existing pre-rinse spray valve has been installed, installing the product in accordance with AS/NZS 3500 and the Plumbing Regulations 2008. |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                            |

<sup>61</sup> The authoritative decommissioning requirements are contained in Part 36 of Schedule 2 to the Regulations, and take precedence over summary information provided for ease of reference in this document.

<sup>62</sup> The authoritative installation requirements are contained in Part 36 of Schedule 2 to the Regulations, and take precedence over summary information provided for ease of reference in this document.

<sup>63</sup> The authoritative product requirements are contained in Part 36 of Schedule 2 to the Regulations, and take precedence over summary information provided for ease of reference in this document.

# Specified Minimum Energy Efficiency

The product installed must meet the additional requirements set out in Table 36.2

**Table 36.2 – Additional requirements for pre-rinse spray valve activities**

| Product Category number | Requirement Type    | Efficiency Requirement <sup>64</sup>                               |
|-------------------------|---------------------|--------------------------------------------------------------------|
| 36A                     | Minimum star rating | 6 stars, when assessed and labelled in accordance with AS/NZS 6400 |

## Other specified matters

None.

## Method for Determining GHG Equivalent Reduction

Scenario 36A: Installing a WELS high efficiency pre-rinse spray valve

The GHG equivalent emissions reduction for each scenario is given by Equation 36.1Equation 33.1, using the variables listed in Table 36.3.

**Equation 36.1 – GHG equivalent emissions reduction calculation for Scenarios 36A(i) and 36A(ii)**

$$GHG\ Eq.\ Reduction = (Baseline - Upgrade) \times Lifetime \times Regional\ Factor$$

**Table 36.3 – GHG equivalent emissions reduction variables for Scenarios 36A(i) and 36A(ii)**

| Input Type      | Condition                             | Input Value                  |
|-----------------|---------------------------------------|------------------------------|
| Baseline        | In every instance                     | $0.53 + (1.21 \times EE\!F)$ |
| Upgrade         | In every instance                     | $0.24 + (0.54 \times EE\!F)$ |
| Lifetime        | In every instance                     | 5.00                         |
| Regional Factor | For upgrades in Metropolitan Victoria | 0.92                         |
|                 | For upgrades in Regional Victoria     | 1.21                         |

<sup>64</sup> The Secretary is empowered to specify these efficiency requirements under Part 36 of Schedule 2 to the Regulations.

## 37. Part 37 Activity– Gas-fired steam boiler

### Activity description (Guidance)

Part 37 of Schedule 2 of the Regulations prescribes the upgrade of gas-fired steam boilers as an eligible activity for the purposes of the Victorian Energy Upgrades program.

Table 37.1 lists the eligible products that may be installed, upgraded or replaced. Each type of upgrade is known as a scenario. Each scenario has its own method for determining GHG equivalent reduction.

**Table 37.1 – Eligible steam boiler scenarios**

| Product category number | Scenario number | Decommissioning requirements <sup>65</sup>                                                                                                 | Product to be installed <sup>66</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Historical schedule number |
|-------------------------|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|
| 37A                     | 37A             | Decommissioning one or more gas-fired steam boilers each of which was manufactured at least 10 years before the date it is decommissioned. | Installing one or more new gas-fired steam boilers each of which: <ul style="list-style-type: none"><li>a. is a Type B appliance and meets the minimum thermal efficiency requirements specified in Table 37.2 below; and</li><li>b. if the product has a nominal gas consumption:<ul style="list-style-type: none"><li>i. exceeding 3700 MJ/h but not exceeding 7500 MJ/h, has an electronic gas/air ratio control system; or</li><li>ii. exceeding 7500 MJ/h, has an electronic gas/air ratio control system that receives a signal from a flue gas sensor for combustion trim purposes.</li></ul></li></ul> | N/A                        |

### Specified Minimum Energy Efficiency

The product installed must meet the additional requirements set out in Table 37.2

**Table 37.2 – Additional requirements for steam boiler activities**

| Product Category number | Requirement Type                              | Efficiency Requirement <sup>67</sup>                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-------------------------|-----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 37A                     | Minimum gross thermal efficiency requirements | A product installed under this activity must meet at least one of the following criteria: <ul style="list-style-type: none"><li>a. the product must have a gross thermal efficiency of at least 80% when at a firing rate with an output that is at least 100% but not more than 105% of the manufacturer's rated gross heat output as determined in accordance with:<ul style="list-style-type: none"><li>i. BS 845-2 (pre-commissioning); or</li></ul></li></ul> |

<sup>65</sup> The authoritative decommissioning requirements are contained in Part 37 of Schedule 2 to the Regulations, and take precedence over summary information provided for ease of reference in this document.

<sup>66</sup> The authoritative product requirements are contained in Part 37 of Schedule 2 to the Regulations, and take precedence over summary information provided for ease of reference in this document.

<sup>67</sup> The Secretary is empowered to specify these efficiency requirements under Part 37 of Schedule 2 to the Regulations.

| Product Category number | Requirement Type | Efficiency Requirement <sup>67</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|-------------------------|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                         |                  | <ul style="list-style-type: none"> <li>ii. BS 845-1 (post-commissioning); or</li> <li>iii. another standard that is approved by the Essential Services Commission as being a standard that, in the reasonable opinion of the Essential Services Commission, is equivalent to BS 845-2 or BS 845-1; or</li> </ul>                                                                                                                                                                                                                        |
|                         |                  | <ul style="list-style-type: none"> <li>b. the product must have a gross thermal efficiency that is certified as complying with the thermal efficiency requirements prescribed in Commission Regulation (EU) No 813/2013; or</li> <li>c. the product must be a condensing boiler that has a gross thermal efficiency of at least 80% when at a firing rate with an output that is at least 100% of the manufacturer's rated gross heat output as demonstrated by the manufacturer's technical specification for that product.</li> </ul> |

## Other specified matters

None.

## Method for Determining GHG Equivalent Reduction

### Scenario 37A: Upgrading to a high efficiency gas-fired steam boiler

The GHG equivalent emissions reduction for each scenario is given by Equation 37.1 Equation 33.1, using the variables listed in Table 37.3.

#### Equation 37.1 – GHG equivalent emissions reduction calculation for Scenario 37A

$$GHG\ Eq.\ Reduction = Consumption \times DEI \times LUF \times 8760 \times Lifetime$$

**Table 37.3 – GHG equivalent emissions reduction variables for Scenario 37A**

| Input Type  | Condition                                                                                                                            | Input Value                                                                                                       |
|-------------|--------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|
| Consumption | In every instance                                                                                                                    | the lower of the total nominal gas consumption (MJ/h) of the replacement equipment or of the incumbent equipment; |
| DEI         | Year of manufacture of the incumbent boiler marked as 1989 or earlier, and the burner was installed over 10 years ago                | New steam boiler has a gross thermal efficiency of 80% to less than 85%                                           |
|             |                                                                                                                                      | New steam boiler has a gross thermal efficiency of 85% or greater                                                 |
|             | Year of manufacture of the incumbent boiler marked as 1989 or earlier, and the burner was installed up to and including 10 years ago | New steam boiler has a gross thermal efficiency of 80% to less than 85%                                           |
|             |                                                                                                                                      | New steam boiler has a gross thermal efficiency of 85% or greater                                                 |
|             | Year of manufacture of the incumbent boiler marked as 1990 or later, and the burner was installed over 10 years ago                  | New steam boiler has a gross thermal efficiency of 80% to less than 85%                                           |
|             |                                                                                                                                      | New steam boiler has a gross thermal efficiency of 85% or greater                                                 |
|             | Year of manufacture of the incumbent boiler marked as 1990 or later, and the burner was installed up to and including 10 years ago   | New steam boiler has a gross thermal efficiency of 80% to less than 85%                                           |
|             |                                                                                                                                      | New steam boiler has a gross thermal efficiency of 85% or greater                                                 |
| LUF         | In every instance                                                                                                                    | 0.206                                                                                                             |
| Lifetime    | In every instance                                                                                                                    | 20.00                                                                                                             |



## 38. Part 38 Activity– Gas-fired hot water boiler or gas-fired water heater

### Activity description (Guidance)

Part 38 of Schedule 2 of the Regulations prescribes the upgrade of hot water boilers and water heaters as an eligible activity for the purposes of the Victorian Energy Upgrades program.

Table 38.1 lists the eligible products that may be installed, upgraded or replaced. Each type of upgrade is known as a scenario. Each scenario has its own method for determining GHG equivalent reduction.

**Table 38.1 – Eligible hot water boiler and water heater scenarios**

| Product category number | Scenario number | Decommissioning requirements <sup>68</sup>                                                                                                     | Product to be installed <sup>69</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Historical schedule number |
|-------------------------|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|
| 38A                     | 38A(i)          | Decommissioning one or more gas-fired steam boilers each of which was manufactured at least 10 years before the date it is decommissioned.     | One or more new gas-fired hot water boilers or gas-fired water heaters each of which: <ul style="list-style-type: none"> <li>a. is a Type B appliance and meets the minimum thermal efficiency requirements specified in Table 38.2; and</li> <li>b. if the boiler has a nominal gas consumption: <ul style="list-style-type: none"> <li>i. exceeding 3,700 MJ/h but not exceeding 7,500 MJ/h, has an electronic gas/air ratio control system; or</li> <li>ii. exceeding 7,500 MJ/h, has an electronic gas/air ratio control system that receives a signal from a flue gas sensor for combustion trim purposes.</li> </ul> </li> </ul> | N/A                        |
|                         | 38A(ii)         | Decommissioning one or more gas-fired hot water boilers each of which was manufactured at least 10 years before the date it is decommissioned. |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                            |
|                         | 38A(iii)        | Decommissioning one or more gas-fired water heaters each of which was manufactured at least 10 years before the date it is decommissioned.     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                            |

### Specified Minimum Energy Efficiency

The product installed must meet the additional requirements set out in Table 38.2.

<sup>68</sup> The authoritative decommissioning requirements are contained in Part 38 of Schedule 2 to the Regulations, and take precedence over summary information provided for ease of reference in this document.

<sup>69</sup> The authoritative product requirements are contained in Part 38 of Schedule 2 to the Regulations, and take precedence over summary information provided for ease of reference in this document

**Table 38.2 – Additional requirements for hot water boiler and water heater activities**

| Product Category number | Requirement Type                              | Efficiency Requirement <sup>70</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-------------------------|-----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 38A                     | Minimum gross thermal efficiency requirements | <p>A product installed under this activity must meet at least one of the following criteria:</p> <ul style="list-style-type: none"> <li>a. the product must have a gross thermal efficiency of at least 80% when at a firing rate with an output that is at least 100% but not more than 105% of the manufacturer's rated gross heat output as determined in accordance with: <ul style="list-style-type: none"> <li>i. BS 845-2 (pre-commissioning); or</li> <li>ii. BS 845-1 (post-commissioning); or</li> <li>iii. another standard that is approved by the Essential Services Commission as being a standard that, in the reasonable opinion of the Essential Services Commission, is equivalent to BS 845-2 or BS 845-1; or</li> </ul> </li> <li>b. the product must have a gross thermal efficiency that is certified as complying with the thermal efficiency requirements prescribed in Commission Regulation (EU) No 813/2013; or</li> <li>c. the product must be a condensing boiler that has a gross thermal efficiency of at least 80% when at a firing rate with an output that is at least 100% of the manufacturer's rated gross heat output as demonstrated by the manufacturer's technical specification for that product.</li> </ul> |

## Other specified matters

None.

<sup>70</sup> The Secretary is empowered to specify these efficiency requirements under Part 38 of Schedule 2 to the Regulations.

## Method for Determining GHG Equivalent Reduction

Scenario 38A(i) to 38A(iii): Upgrading to a high efficiency gas-fired hot water boiler or heater

The GHG equivalent emissions reduction for each scenario is given by Equation 38.1 Equation 33.1, using the variables listed in Table 38.3.

**Equation 38.1 – GHG equivalent emissions reduction calculation for Scenarios 38A(i) to 38A(iii)**

$$GHG\ Eq.\ Reduction = Consumption \times DEI \times LUF \times 8760 \times Lifetime$$

**Table 38.3 – GHG equivalent emissions reduction variables for Scenarios 38A(i) to 38A(iii)**

| Input Type  | Condition                                                                                                                                                                                                                                           | Input Value                                                                                                      |
|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|
| Consumption | In every instance                                                                                                                                                                                                                                   | the lower of the total nominal gas consumption (MJ/h) of the replacement equipment or of the incumbent equipment |
| DEI         | Year of manufacture of the incumbent boiler or heater marked as 1989 or earlier, and the burner was installed over 10 years ago                                                                                                                     | New hot water boiler or water heater has a gross thermal efficiency of 85% to less than 90%                      |
|             |                                                                                                                                                                                                                                                     | 2.58 × 10 <sup>-6</sup>                                                                                          |
|             |                                                                                                                                                                                                                                                     | New hot water boiler or water heater has a gross thermal efficiency of 90% or greater                            |
|             |                                                                                                                                                                                                                                                     | 5.34 × 10 <sup>-6</sup>                                                                                          |
|             | Year of manufacture of the incumbent boiler or heater marked as 1989 or earlier, and the burner was installed up to and including 10 years ago                                                                                                      | New hot water boiler or water heater has a gross thermal efficiency of 85% to less than 90%                      |
|             |                                                                                                                                                                                                                                                     | 2.06 × 10 <sup>-6</sup>                                                                                          |
|             |                                                                                                                                                                                                                                                     | New hot water boiler or water heater has a gross thermal efficiency of 90% or greater                            |
|             |                                                                                                                                                                                                                                                     | 4.82 × 10 <sup>-6</sup>                                                                                          |
|             | Year of manufacture of the incumbent boiler or heater marked as 1990 or later, and the burner was installed over 10 years ago                                                                                                                       | New hot water boiler or water heater has a gross thermal efficiency of 85% to less than 90%                      |
|             |                                                                                                                                                                                                                                                     | 2.29 × 10 <sup>-6</sup>                                                                                          |
|             |                                                                                                                                                                                                                                                     | New hot water boiler or water heater has a gross thermal efficiency of 90% or greater                            |
|             |                                                                                                                                                                                                                                                     | 5.06 × 10 <sup>-6</sup>                                                                                          |
|             | Year of manufacture of the incumbent boiler or heater marked as 1990 or later, and the burner was installed up to and including 10 years ago                                                                                                        | New hot water boiler or water heater has a gross thermal efficiency of 85% to less than 90%                      |
|             |                                                                                                                                                                                                                                                     | 1.78 × 10 <sup>-6</sup>                                                                                          |
|             |                                                                                                                                                                                                                                                     | New hot water boiler or water heater has a gross thermal efficiency of 90% or greater                            |
|             |                                                                                                                                                                                                                                                     | 4.54 × 10 <sup>-6</sup>                                                                                          |
|             | Hot water boiler or water heater to be installed is part of an air-conditioning system that services an area upgraded as part of upgrades refurbishment that is required to comply with Part 5.2d of the Building Code as amended from time to time | New hot water boiler or water heater has a gross thermal efficiency of 85% to less than 90%                      |
|             |                                                                                                                                                                                                                                                     | 1.10 × 10 <sup>-6</sup>                                                                                          |
|             |                                                                                                                                                                                                                                                     | New hot water boiler or water heater has a gross thermal efficiency of 90% or greater                            |
|             |                                                                                                                                                                                                                                                     | 3.87 × 10 <sup>-6</sup>                                                                                          |
| LUF         | In every instance                                                                                                                                                                                                                                   | 0.206                                                                                                            |
| Lifetime    | In every instance                                                                                                                                                                                                                                   | 20.00                                                                                                            |

## 39. Part 39 Activity– Electronic gas/air ratio control

### Activity description (Guidance)

Part 39 of Schedule 2 of the Regulations prescribes the upgrade of gas boilers through installing an electronic gas/air ratio control as an eligible activity for the purposes of the Victorian Energy Upgrades program.

Table 39.1 lists the eligible products that may be installed. Each type of upgrade is known as a scenario. Each scenario has its own method for determining GHG equivalent reduction.

**Table 39.1 – Eligible electronic gas/air ration control scenarios**

| Product category number | Scenario number | Decommissioning requirements | Product / installation requirements <sup>71</sup>                                                                                                                                                                                                                                                                                                                                      | Historical schedule number |
|-------------------------|-----------------|------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|
| 39A                     | 39A             | None                         | Installing on the burner of a Type B appliance that is a gas-fired steam boiler, gas-fired hot water boiler or gas-fired water heater an electronic gas/air ratio control that is designed to be installed on a burner of a gas-fired stream boiler, gas-fired water boiler or gas-fired water heater that is a Type B appliance as part of the burner's gas/air ratio control system. | N/A                        |

### Specified Minimum Energy Efficiency

There are no further requirements that must be specified for the installed product.

### Other specified matters

None.

<sup>71</sup> The authoritative product and installation requirements are contained in Part 39 of Schedule 2 to the Regulations, and take precedence over summary information provided for ease of reference in this document

## Method for Determining GHG Equivalent Reduction

### Scenario 39A: Installing an electronic gas/air ratio control

The GHG equivalent emissions reduction for each scenario is given by Equation 39.1, using the variables listed in Table 39.2.

#### Equation 39.1 – GHG equivalent emissions reduction calculation for Scenario 39A

$$GHG\ Eq.\ Reduction = Consumption \times DEI \times LUF \times 8760 \times Lifetime$$

Table 39.2 – GHG equivalent emissions reduction variables for Scenario 39A

| Input Type  | Condition                                                                                                  | Input Value                                                                           |
|-------------|------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| Consumption | Nominal gas consumption of the boiler or heater on which the product is installed is less than 11,400 MJ/h | the nominal gas consumption (MJ/h) of that steam boiler, water boiler or water heater |
|             | Nominal gas consumption of the boiler or heater on which the product is installed is at least 11,400 MJ/h  | 11,400                                                                                |
| DEI         | In every instance                                                                                          | $0.65 \times 10^{-6}$                                                                 |
| LUF         | In every instance                                                                                          | 0.206                                                                                 |
| Lifetime    | In every instance                                                                                          | 20.00                                                                                 |



## 40. Part 40 Activity– Combustion trim

### Activity description (Guidance)

Part 40 of Schedule 2 of the Regulations prescribes the upgrade of gas boilers through installing a combustion trim system in a gas/air ratio control system as an eligible activity for the purposes of the Victorian Energy Upgrades program.

Table 40.1 lists the eligible products that may be installed. Each type of upgrade is known as a scenario. Each scenario has its own method for determining GHG equivalent reduction.

**Table 40.1 – Eligible combustion trim scenarios**

| Product category number | Scenario number | Decommissioning requirements | Product / installation requirements <sup>72</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Historical schedule number |
|-------------------------|-----------------|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|
| 40A                     | 40A             | None                         | <p>Installing on a gas fired steam boiler, a gas-fired hot water boiler or gas-fired water heater that is a Type B appliance and has an electronic gas/air ratio control system capable of receiving a signal from a flue gas sensor for combustion trim purposes, a combustion trim system that:</p> <ul style="list-style-type: none"><li>a. includes a flue gas sensor connected to a control panel, capable of sending a signal to a control damper on the burner air supply or variable speed drive on the fan motor; and</li><li>b. is designed to be installed on a gas-fired steam boiler, gas fired water boiler or gas-fired water heater that has an electronic gas/air ratio control system capable of receiving a signal from a flue gas sensor for combustion trim purposes.</li></ul> | N/A                        |

### Specified Minimum Energy Efficiency

There are no further requirements that must be specified for the installed product.

### Other specified matters

None.

<sup>72</sup> The authoritative product and installation requirements are contained in Part 41 of Schedule 2 to the Regulations, and take precedence over summary information provided for ease of reference in this document.

# Method for Determining GHG Equivalent Reduction

## Scenario 40A: Installing a combustion trim system

The GHG equivalent emissions reduction for each scenario is given by Equation 40.1Equation 33.1, using the variables listed in Table 40.2.

Equation 40.1 – GHG equivalent emissions reduction calculation for Scenario 40A

$$GHG\ Eq.\ Reduction = Consumption \times DEI \times LUF \times 8760 \times Lifetime$$

Table 40.2 – GHG equivalent emissions reduction variables for Scenario 40A

| Input Type  | Condition                                                                                                  | Input Value                                                                           |
|-------------|------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| Consumption | Nominal gas consumption of the boiler or heater on which the product is installed is less than 11,400 MJ/h | the nominal gas consumption (MJ/h) of that steam boiler, water boiler or water heater |
|             | Nominal gas consumption of the boiler or heater on which the product is installed is at least 11,400 MJ/h  | 11,400                                                                                |
| DEI         | If the product is installed on a steam boiler                                                              | $0.80 \times 10^{-6}$                                                                 |
|             | If the product is installed on a hot water boiler or water heater                                          | $0.70 \times 10^{-6}$                                                                 |
| LUF         | In every instance                                                                                          | 0.206                                                                                 |
| Lifetime    | In every instance                                                                                          | 10.00                                                                                 |



# 41. Part 41 Activity– Gas-fired burners

## Activity description (Guidance)

Part 41 of Schedule 2 of the Regulations prescribes the upgrade of gas-fired burners as an eligible activity for the purposes of the Victorian Energy Upgrades program.

Table 41.1 lists the eligible products that may be installed, upgraded or replaced. Each type of upgrade is known as a scenario. Each scenario has its own method for determining GHG equivalent reduction.

**Table 41.1 – Eligible burner scenarios**

| Product category number | Scenario number | Decommissioning requirements <sup>73</sup>                                                                                                                                                               | Product / installation requirements <sup>74</sup>                                                                                                                                                                                                                                                                                                                                           | Historical schedule number |
|-------------------------|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|
| 41A                     | 41A             | A gas-fired burner that:<br>a. is on a gas-fired steam boiler, a gas-fired hot water boiler or a gas-fired water heater; and<br>b. was manufactured at least 10 years before the date is decommissioned. | Installing on a Type B appliance that is a gas-fired steam boiler, a gas-fired hot water boiler or a gas-fired water heater a product that:<br>a. is a gas-fire burner; and<br>b. if the product has a nominal gas consumption exceeding 3700 MJ/h, has an electronic gas/air ratio control system capable of receiving a signal from a flue gas sensor for gas/air ratio control purposes. | N/A                        |

## Specified Minimum Energy Efficiency

There are no further requirements that must be specified for the installed product.

## Other specified matters

None.

<sup>73</sup> The authoritative decommissioning requirements are contained in Part 41 of Schedule 2 to the Regulations, and take precedence over summary information provided for ease of reference in this document.

<sup>74</sup> The authoritative decommissioning requirements are contained in Part 41 of Schedule 2 to the Regulations, and take precedence over summary information provided for ease of reference in this document.

## Method for Determining GHG Equivalent Reduction

### Scenario 41A: Upgrading a gas-fired burner

The GHG equivalent emissions reduction for each scenario is given by Equation 41.1 using the variables listed in Table 41.2.

#### Equation 41.1 – GHG equivalent emissions reduction calculation for Scenario 41A

$$GHG\ Eq.\ Reduction = Consumption \times DEI \times LUF \times 8760 \times Lifetime$$

Table 41.2 – GHG equivalent emissions reduction variables for Scenario 41A

| Input Type  | Condition                                                                                                  | Input Value                                                                                                                                                                                   |
|-------------|------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Consumption | Nominal gas consumption of the boiler or heater on which the product is installed is less than 11,400 MJ/h | The lower of the nominal gas consumption (MJ/h) of:<br>a. the boiler or heater with the replacement equipment installed, or<br>b. the boiler or heater with the incumbent equipment installed |
|             | Nominal gas consumption of the boiler or heater on which the product is installed is at least 11,400 MJ/h  | 11,400                                                                                                                                                                                        |
| DEI         | In every instance                                                                                          | $1.07 \times 10^{-6}$                                                                                                                                                                         |
| LUF         | In every instance                                                                                          | 0.206                                                                                                                                                                                         |
| Lifetime    | In every instance                                                                                          | 20.00                                                                                                                                                                                         |



## 42. Part 42 Activity– Economizers

### Activity description (Guidance)

Part 42 of Schedule 2 of the Regulations prescribes the upgrade of gas boilers through the installation of economizers as an eligible activity for the purposes of the Victorian Energy Upgrades program.

Table 42.1 lists the eligible products that may be installed. Each type of upgrade is known as a scenario. Each scenario has its own method for determining GHG equivalent reduction.

**Table 42.1 – Eligible economizer scenarios**

| Product category number | Scenario number | Decommissioning requirements | Product / installation requirements <sup>75</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Historical schedule number |
|-------------------------|-----------------|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|
| 42A                     | 42A(i)          | None                         | <p>Installing on a gas-fired steam boiler, a gas fired hot water boiler or gas-fired water heater that is a Type B appliance (other than a condensing steam boiler, condensing hot water boiler or condensing water heater) an economizer that:</p> <ul style="list-style-type: none"> <li>a. is of the condensing type;</li> <li>b. is a heat exchanger that uses the products of combustion from a gas-fired steam boiler, a gas-fired hot water boiler or gas-fired water heater to heat boiler feedwater; and</li> <li>c. complies with AS 1228; and</li> <li>d. provides for the products of combustion to be expelled into a stack constructed from stainless steel; and</li> <li>e. unless the product is specifically designed to run dry, has a control system for minimum flow rates that does not require manual intervention for operation.</li> </ul> | N/A                        |
| 42A                     | 42A(ii)         | None                         | <p>Installing on a on a gas-fired steam boiler that is a Type B appliance (other than a condensing water boiler or condensing water heater) An economizer that:</p> <ul style="list-style-type: none"> <li>a. is not of the condensing type</li> <li>b. is a heat exchanger that uses the products of combustion from a gas-fired steam boiler, a gas-fired water heater to heat boiler feedwater; and</li> <li>c. complies with AS 1228; and</li> <li>d. unless the product is specifically designed to run dry, has a control system for minimum flow rates that does not require manual intervention for operation.</li> </ul>                                                                                                                                                                                                                                  | N/A                        |

<sup>75</sup> The authoritative product and installation requirements are contained in Part 42 of Schedule 2 to the Regulations, and take precedence over summary information provided for ease of reference in this document.

# Specified Minimum Energy Efficiency

There are no further requirements that must be specified for the installed product.

# Other specified matters

None.

# Method for Determining GHG Equivalent Reduction

## Scenario 42A: Upgrading boilers through installation of an economizer

The GHG equivalent emissions reduction for each scenario is given by Equation 42.1 using the variables listed in Table 42.2.

Equation 42.1 – GHG equivalent emissions reduction calculation for Scenario 42A

$$GHG\ Eq.\ Reduction = Consumption \times DEI \times LUF \times 8760 \times Lifetime$$

Table 42.2 – GHG equivalent emissions reduction variables for Scenario 42A

| Input Type  | Condition                                       | Input Value                                                                                  |
|-------------|-------------------------------------------------|----------------------------------------------------------------------------------------------|
| Consumption | In every instance                               | The nominal gas consumption (MJ/h) of the boiler or heater on which the product is installed |
| DEI         | Installed on a steam boiler                     | $1.81 \times 10^{-6}$                                                                        |
|             | Installed on a hot water boiler or water heater | $1.41 \times 10^{-6}$                                                                        |
| LUF         | In every instance                               | 0.206                                                                                        |
| Lifetime    | In every instance                               | 10.00                                                                                        |



## 43. Part 43 Activity– Cold Rooms

### Activity description (Guidance)

Part 43 of Schedule 2 of the Regulations prescribes the upgrade of parts of refrigeration systems for walk-in cold rooms or the installation of refrigeration systems for cold rooms as an eligible activity for the purposes of the Victorian Energy Upgrades program.

Table 43.1 lists the types of upgrade installations that may occur. Each type of upgrade is known as a scenario. Each scenario has its own method for determining GHG equivalent reduction.

At a later date, the Secretary may specify requirements for additional products that may be installed as a prescribed activity under Part 43 of Schedule 2 to the Regulations, which will be listed as scenario number 43C once specified.

**Table 43.1 – Eligible Cold Room Upgrade scenarios**

| Product category number | Scenario number | Decommissioning requirements | Product to be installed <sup>76</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Historical schedule number |
|-------------------------|-----------------|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|
| 43A                     | 43A             | None                         | Installing for a cold room, with a minimum internal floor area of 4m <sup>2</sup> , an electronic expansion valve and compatible superheat controller that: <ul style="list-style-type: none"> <li>a. are designed to be installed together in the refrigeration system of a cold room; and</li> <li>b. when installed together into a refrigeration system can and will automatically control the superheat of the refrigeration system.</li> </ul>                                                                                                                                                                                                                                                                           | N/A                        |
| 43B                     | 43B(i)          | None                         | Installing for a cold room, with a minimum internal floor area of 4m <sup>2</sup> , a refrigeration system that includes at least three of the parts set out in this Table for Activity 43B(ii), provided that at least one of the three parts must be: <ul style="list-style-type: none"> <li>a. technology capable of varying condensing temperature with ambient temperature to improve system performance; or</li> <li>b. compressors with variable capacity modulation such as variable speed capacity control, other than <ul style="list-style-type: none"> <li>i. on/off capacity control on single compressor systems</li> <li>ii. hot gas bypass</li> <li>iii. fixed stage cylinder unloading</li> </ul> </li> </ul> | N/A                        |
| 43B                     | 43B(ii)         | None                         | Installing for a cold room, with a minimum internal floor area of 4m <sup>2</sup> , a refrigeration system that includes all of the following parts: <ul style="list-style-type: none"> <li>a. technology capable of varying condensing temperature with ambient temperature to improve system performance</li> <li>b. compressors with variable capacity modulation such as variable speed capacity control, other than</li> </ul>                                                                                                                                                                                                                                                                                            | N/A                        |

<sup>76</sup> The authoritative product and installation requirements are contained in Part 43 of Schedule 2 to the Regulations, and take precedence over summary information provided for ease of reference in this document.

| Product category number | Scenario number | Decommissioning requirements | Product to be installed <sup>76</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Historical schedule number |
|-------------------------|-----------------|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|
|                         |                 |                              | <ul style="list-style-type: none"> <li>i. on/off capacity control on single compressor systems</li> <li>ii. hot gas bypass</li> <li>iii. fixed stage cylinder unloading</li> <li>c. electronic expansion valve and compatible superheat controller that meet the requirements of Activity 43A</li> <li>d. speed controlled condensing fans, that <ul style="list-style-type: none"> <li>i. are electronically commutated (EC) fans, or</li> <li>ii. are variable speed drive (VSD) driven fans</li> </ul> </li> <li>e. evaporator fans, that are electronically commutated (EC) fans.</li> </ul> |                            |

## Specified Minimum Energy Efficiency

There are no further requirements that must be specified for the installed product.

## Other specified matters

The product installed must meet the relevant additional requirements listed in Table 43.2.

**Table 43.2 – Other specified matters for cold rooms**

| Product category number | Requirement type            | Specification details <sup>77</sup>                                                                         |
|-------------------------|-----------------------------|-------------------------------------------------------------------------------------------------------------|
| 43B                     | Minimum co-payment amount** | A minimum co-payment amount of \$500 (including GST) must be made for each cold room installed or upgraded. |

\*\* Applicable from 1 February 2025

<sup>77</sup> The Secretary is empowered to specify these matters under Part 44 of Schedule 2 to the Regulations.

## Method for Determining GHG Equivalent Reduction

**Scenario 43A: Installing an electronic expansion valve and superheat controller into a refrigeration system**

The GHG equivalent emissions reduction for each scenario is given by Equation 43.1 using the variables listed in Table 43.3.

### Equation 43.1 – GHG equivalent emissions reduction calculation for Scenario 43A

***GHG Eq. Reduction***

$$= \sum \text{Systems} [ [ \text{Energy Savings} \times \text{Lifetime} \times \text{EEF} \times \text{Temperature Factor} \\ \times \text{Regional Factor} \times \text{Size Factor} ] ]$$

**Table 43.3 – GHG equivalent emissions reduction variables for Scenarios 43A**

| Input Type         | Condition                                                                                                             | Input Value |
|--------------------|-----------------------------------------------------------------------------------------------------------------------|-------------|
| Energy Savings     | In every instance                                                                                                     | 1.7         |
| Lifetime           | In every instance                                                                                                     | 12          |
| Temperature Factor | For Cold Rooms operating at or above 0°C                                                                              | 1.0         |
|                    | For Cold Rooms installed or upgraded for the purposes of operating below 0°C (freezers)                               | 1.4         |
| Regional Factor    | For upgrades in Metropolitan Victoria                                                                                 | 0.98        |
|                    | For upgrades in Regional Victoria                                                                                     | 1.04        |
| Size Factor        | For Cold Rooms less than 4m <sup>2</sup>                                                                              | 0           |
|                    | For Cold Rooms equal to or greater than 4m <sup>2</sup> and less than or equal to 9m <sup>2</sup> internal floor area | 0.5         |
|                    | For Cold Rooms greater than 9m <sup>2</sup> and less than 24m <sup>2</sup> internal floor area                        | 1.0         |
|                    | For Cold Rooms equal to or greater than 24m <sup>2</sup> internal floor area                                          | 2           |



Scenario 43B(i): A refrigeration system that includes at a minimum three of the specified parts

The GHG equivalent emissions reduction for each scenario is given by Equation 43.2 using the variables listed in Table 43.4

**Equation 43.2 – GHG equivalent emissions reduction calculation for Scenario 43B(i)**

***GHG Eq. Reduction***

$$= \sum \text{Systems} [ [ \text{Energy Savings} \times \text{Lifetime} \times \text{EEF} \times \text{Temperature Factor} \\ \times \text{Regional Factor} \times \text{Size Factor} ] ]$$

**Table 43.4 – GHG equivalent emissions reduction variables for Scenario 43B(i)**

| Input Type         | Condition                                                                                                             | Input Value |
|--------------------|-----------------------------------------------------------------------------------------------------------------------|-------------|
| Energy Savings     | In every instance                                                                                                     | 3.4         |
| Lifetime           | In every instance                                                                                                     | 12          |
| Temperature Factor | For Cold Rooms operating at or above 0°C                                                                              | 1.0         |
|                    | For Cold Rooms installed or upgraded for the purposes of operating below 0°C (freezers)                               | 1.4         |
| Regional Factor    | For upgrades in Metropolitan Victoria                                                                                 | 0.98        |
|                    | For upgrades in Regional Victoria                                                                                     | 1.04        |
| Size Factor        | For Cold Rooms less than 4m <sup>2</sup>                                                                              | 0           |
|                    | For Cold Rooms equal to or greater than 4m <sup>2</sup> and less than or equal to 9m <sup>2</sup> internal floor area | 0.5         |
|                    | For Cold Rooms greater than 9m <sup>2</sup> and less than 24m <sup>2</sup> internal floor area                        | 1.0         |
|                    | For Cold Rooms equal to or greater than 24m <sup>2</sup> internal floor area                                          | 2           |



Scenario 43B(ii): A refrigeration system that includes at a minimum all of the specified parts

The GHG equivalent emissions reduction for each scenario is given by Equation 43.3 using the variables listed in Table 43.5

**Equation 43.3 – GHG equivalent emissions reduction calculation for Scenario 43B(ii)**

***GHG Eq. Reduction***

$$= \sum \text{Systems} [ [ \text{Energy Savings} \times \text{Lifetime} \times \text{EEF} \times \text{Temperature Factor} \\ \times \text{Regional Factor} \times \text{Size Factor} ] ]$$

**Table 43.5 – GHG equivalent emissions reduction variables for Scenario 43B(ii)**

| Input Type         | Condition                                                                                                             | Input Value |
|--------------------|-----------------------------------------------------------------------------------------------------------------------|-------------|
| Energy Savings     | In every instance                                                                                                     | 5.1         |
| Lifetime           | In every instance                                                                                                     | 12          |
| Temperature Factor | For Cold Rooms operating at or above 0°C                                                                              | 1.0         |
|                    | For Cold Rooms installed or upgraded for the purposes of operating below 0°C (freezers)                               | 1.4         |
| Regional Factor    | For upgrades in Metropolitan Victoria                                                                                 | 0.98        |
|                    | For upgrades in Regional Victoria                                                                                     | 1.04        |
| Size Factor        | For Cold Rooms less than 4m <sup>2</sup>                                                                              | 0           |
|                    | For Cold Rooms equal to or greater than 4m <sup>2</sup> and less than or equal to 9m <sup>2</sup> internal floor area | 0.5         |
|                    | For Cold Rooms greater than 9m <sup>2</sup> and less than 24m <sup>2</sup> internal floor area                        | 1.0         |
|                    | For Cold Rooms equal to or greater than 24m <sup>2</sup> internal floor area                                          | 2           |



## 44. Part 44 Activity– Commercial and industrial air source heat pump water heaters

### Activity description (Guidance)

Part 44 of Schedule 2 of the Regulations prescribes the upgrade to an air source heat pump water heater for commercial (including multi-residential) and industrial applications as an eligible activity for the purposes of the Victorian Energy Upgrades program.

Table 44.1 lists the decommissioning requirements and the eligible products that may be installed, upgraded or replaced. Each type of upgrade is known as a scenario. Each scenario has its own method for determining GHG equivalent reduction.

VEECs cannot be created for this activity unless products installed are listed on the ESC Register by the time VEECs are created. Products already on the register at the time of installation can be taken as satisfying all those product requirements that can be determined prior to the installation of a product.

**Table 44.1 – Eligible Commercial and industrial air source heat pump water heater scenarios**

| Product category number | Scenario number | Decommissioning requirements <sup>78</sup>                                                                                                                                                                                                                                                                                                                      | Product to be installed <sup>79</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Historical schedule number |
|-------------------------|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|
| 44A                     | 44A(i)          | <p>One or more:</p> <ul style="list-style-type: none"> <li>a. gas-fired hot water boilers; or</li> <li>b. gas-fired water heaters.</li> </ul> <p>Hot water boiler or heater to be decommissioned, excluding the insulated storage tank that forms part of the product, must be in working order and at least 10 years old at the date it is decommissioned.</p> | <p>One or more air source heat pump water heaters</p> <ul style="list-style-type: none"> <li>a. that each: <ul style="list-style-type: none"> <li>i. have an average insulated storage volume greater than 700 litres; and</li> <li>ii. provide a minimum delivery temperature of 45°C; and</li> <li>iii. are installed by a licensed or registered plumber; and</li> <li>iv. achieves the minimum annual energy savings specified in Table 44.2; and</li> <li>v. is modelled against the heat pump modelling requirements specified in Table 44.3; or</li> </ul> </li> <li>b. that each: <ul style="list-style-type: none"> <li>i. have an average insulated storage volume equal to or less than 700 litres but greater than 425 litres; and</li> <li>ii. have an average heat pump thermal capacity greater than 20 kilowatts; and</li> <li>iii. are certified by an accredited body as complying with AS/NZS 2712; and</li> <li>iv. provide a minimum delivery temperature of 45°C; and</li> <li>v. are installed by a licensed or registered plumber; and</li> <li>vi. achieves the minimum annual energy savings specified in Table 44.2 ; and</li> </ul> </li> </ul> | N/A                        |

<sup>78</sup> The authoritative decommissioning requirements are contained in Part 44 of Schedule 2 to the Regulations, and take precedence over summary information provided for ease of reference in this document..

<sup>79</sup> The authoritative product requirements are contained in Part 44 of Schedule 2 to the Regulations, and take precedence over summary information provided for ease of reference in this document.

| Product category number | Scenario number | Decommissioning requirements <sup>78</sup>                                                                                                                                                                                                                                                                                                                                          | Product to be installed <sup>79</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Historical schedule number |
|-------------------------|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|
|                         |                 |                                                                                                                                                                                                                                                                                                                                                                                     | vii. is modelled against the heat pump modelling requirements specified in Table 44.3.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                            |
| 44A                     | 44A(ii)         | <p>One or more:</p> <ul style="list-style-type: none"> <li>a. electric resistance hot water boilers; or</li> <li>b. electric resistance water heaters.</li> </ul> <p>Hot water boiler or heater to be decommissioned, excluding the insulated storage tank that forms part of the product, must be in working order and at least 10 years old at the date it is decommissioned.</p> | <p>One or more air source heat pump water heaters:</p> <ul style="list-style-type: none"> <li>a. that each: <ul style="list-style-type: none"> <li>i. have an average insulated storage volume greater than 700 litres; and</li> <li>ii. provide a minimum delivery temperature of 45°C; and</li> <li>iii. are installed by a licensed or registered plumber; and</li> <li>iv. achieves the minimum annual energy savings specified in Table 44.2; and</li> <li>v. is modelled against the heat pump modelling requirements specified in Table 44.3; or</li> </ul> </li> <li>b. that each: <ul style="list-style-type: none"> <li>i. have an average insulated storage volume equal to or less than 700 litres but greater than 425 litres; and</li> <li>ii. have an average heat pump thermal capacity greater than 20 kilowatts; and</li> <li>iii. are certified by an accredited body as complying with AS/NZS 2712; and</li> <li>iv. provide a minimum delivery temperature of 45°C; and</li> <li>v. are installed by a licensed or registered plumber; and</li> <li>vi. achieves the minimum annual energy savings specified in Table 44.2; and</li> <li>vii. is modelled against the heat pump modelling requirements specified in Table 44.3.</li> </ul> </li> </ul> | N/A                        |
| 44A                     | 44A(iii)        | None                                                                                                                                                                                                                                                                                                                                                                                | <p>One or more air source heat pump water heaters:</p> <ul style="list-style-type: none"> <li>a. that each: <ul style="list-style-type: none"> <li>i. have an average insulated storage volume greater than 700 litres; and</li> <li>ii. provide a minimum delivery temperature of 45°C; and</li> <li>iii. are installed by a licensed or registered plumber; and</li> <li>iv. achieves the minimum annual energy savings specified in Table 44.2; and</li> <li>v. is modelled against the heat pump modelling requirements specified in Table 44.3; or</li> </ul> </li> <li>b. that each:</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | N/A                        |

| Product category number | Scenario number | Decommissioning requirements <sup>78</sup> | Product to be installed <sup>79</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Historical schedule number |
|-------------------------|-----------------|--------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|
|                         |                 |                                            | <ul style="list-style-type: none"> <li>i. have an average insulated storage volume equal to or less than 700 litres but greater than 425 litres; and</li> <li>ii. have an average heat pump thermal capacity greater than 20 kilowatts; and</li> <li>iii. are certified to AS/NZS 2712; and</li> <li>iv. provide a minimum delivery temperature of 45°C; and</li> <li>v. are installed by a licensed or registered plumber; and</li> <li>vi. achieves the minimum annual energy savings specified in Table 44.2; and</li> <li>vii. is modelled against the heat pump modelling requirements specified in Table 44.3.</li> </ul> |                            |

## Specified Minimum Energy Efficiency

The product installed must meet the additional requirements set out in Table 44.2.

**Table 44.2 – Additional requirements for commercial and industrial air source heat pump water heaters to be installed**

| Product category number | Requirement type              | Efficiency requirement <sup>80</sup>                                                                                                                                                                                                                                                                                                                                                                                                                  |
|-------------------------|-------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 44A                     | Minimum annual energy savings | <p>If the product is installed in climatic zone 4* 60%, determined in accordance with the Commercial and Industrial Air Source Heat Pump Water Heater Product Application Guide, when modelled in climate zone HP4-Au.</p> <p>If the product is installed in climatic zone 5* 60%, determined in accordance with the Commercial and Industrial Air Source Heat Pump Water Heater Product Application Guide, when modelled in climate zone HP5-Au.</p> |

\*See the Location Variables list to determine what climatic zone applies to any premises.

## Specified Heat Pump modelling requirements and Other specified matters

The product installed must meet the additional requirements set out in Table 44.3.

**Table 44.3 – Other specified matters for commercial and industrial air source heat pump water heaters**

| Product category number | Scenario number              | Requirement type                 | Specification details <sup>81</sup>                                                                                                                                                                                     |
|-------------------------|------------------------------|----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 44A                     | 44A(i), 44A(ii) and 44A(iii) | Heat pump modelling requirements | The product must be modelled 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- |

<sup>80</sup> The Secretary is empowered to specify these efficiency requirements under Part 44 of Schedule 2 to the Regulations

<sup>81</sup> The Secretary is empowered to specify these matters under Part 44 of Schedule 2 to the Regulations.

| Product category number | Scenario number                | Requirement type                                               | Specification details <sup>81</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-------------------------|--------------------------------|----------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                         |                                |                                                                | <p>Au climate zones. Outputs and necessary data from the modelling must be provided to the ESC.*</p> <p>In order to achieve the specified minimum annual energy savings, the product must be installed as modelled.</p>                                                                                                                                                                                                                                                                                                                                                      |
| 44A                     | 44A(i) and 44A(ii)             | Installation requirements where using an existing storage tank | <p>The product must be installed as modelled except that an existing storage tank may be used as storage in place of a modelled component if evidence is provided to the ESC that the tank:</p> <ul style="list-style-type: none"> <li>a. was manufactured less than 10 years before the existing product is decommissioned; and</li> <li>b. has a volume that is greater than or equal to the volume of the modelled component; and</li> <li>c. is insulated.</li> </ul>                                                                                                    |
| 44A                     | 44A(i), 44A(ii) and 44A(iii)** | Minimum co-payment amount**                                    | A minimum co-payment amount of \$1,000 (including GST) must be made per installed product.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 44A                     | 44A(i), 44A(ii) and 44A(iii)** | Product warranty requirements**                                | <p>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).</p> <p>In addition to the requirements of a warranty against defects under the ACL (Victoria), the warranty must also include the contact details of who to contact regarding product warranty obligations in Australia in the event of a product failure, if the person who gives the warranty is not in Australia.</p> |

\*See the Location Variables list to determine what climatic zone applies to any premises.

\*\* Applicable from 1 February 2025

\*\*\* Applicable from 31 March 2025

## Method for Determining GHG Equivalent Reduction

### Scenario 44A(i): Decommissioning a gas product and installing an air source heat pump water heater

The GHG equivalent emissions reduction for each scenario is given by Equation 44.1 using the variables listed in Table 44.4.

#### Equation 44.1 – GHG equivalent emissions reduction calculation for Scenario 44A(i)

*GHG Eq. Reduction =*

$$\begin{aligned}
 \sum_{systems} \left[ GEF \times \left( \frac{RefElec}{RepEff} \right) - GEF \times HPGas \right. \\
 \left. - EEF_m \times \left( \frac{HPElec}{3.6} \right) \right] \times CapacityFactor \times LoadFactor \times Lifetime \\
 + \sum_{systems} [ (1430 - GWP) \times RFE \times RfrgCharge ]
 \end{aligned}$$

**Table 44.4 – GHG equivalent emissions reduction variables for Scenario 44A(i)**

| Input Type      | Condition                                                                      | Input Value                                                                                                                                                                                                                                                                     |
|-----------------|--------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Lifetime        | If using existing storage with a new system                                    | 10                                                                                                                                                                                                                                                                              |
|                 | In any other case                                                              | 15                                                                                                                                                                                                                                                                              |
| GEF             | In every instance                                                              | 0.05523                                                                                                                                                                                                                                                                         |
| RFE             | In every instance                                                              | 5 x 10 <sup>-4</sup>                                                                                                                                                                                                                                                            |
| GWP             | In every instance                                                              | Refrigerant 100-year global warming potential as listed in the Intergovernmental Panel on Climate Change (IPCC) fourth assessment report, 2007 (AR4) or, if applicable, as listed in the Commercial and Industrial Air Source Heat Pump Water Heater Product Application Guide. |
| RfrgCharge      | In every instance                                                              | Refrigerant charge (kg) of the heat pump water heater unit as specified by the manufacturer.                                                                                                                                                                                    |
| Capacity Factor | If new heat pump thermal capacity (kW) ≤ existing system thermal capacity (kW) | 1                                                                                                                                                                                                                                                                               |
|                 | If new heat pump thermal capacity (kW) > existing system thermal capacity (kW) | $\frac{\text{Existing system thermal capacity (kW)}}{\text{Heat pump thermal capacity (kW)}}$                                                                                                                                                                                   |
| Load Factor     | If new average heat pump thermal capacity (kW) < 10 (kW)                       | $\frac{42}{\text{ComPeakLoad}}$ , limited to a maximum of 1                                                                                                                                                                                                                     |
|                 | If new average heat pump thermal capacity (kW) ≥ 10 (kW)                       | 1                                                                                                                                                                                                                                                                               |
| ComPeakLoad     | In every instance                                                              | As determined in accordance with the Commercial and Industrial Air Source Heat Pump Water Heater Product Application Guide in MJ/day.                                                                                                                                           |
| HPElec          | In every instance                                                              | As determined in accordance with the Commercial and Industrial Air Source Heat Pump Water Heater Product Application Guide in GJ/year.                                                                                                                                          |
| HPGas           | In every instance                                                              | As determined in accordance with the Commercial and Industrial Air Source Heat Pump Water Heater Product Application Guide in GJ/year.                                                                                                                                          |
| RepEff          | In every instance                                                              | 0.788                                                                                                                                                                                                                                                                           |
| RefElec         | In every instance                                                              | As determined in accordance with the Commercial and Industrial Air Source Heat Pump Water Heater Product Application Guide in GJ/year.                                                                                                                                          |

\*See the Location Variables list to determine what climatic zone applies to any premises.

### Scenario 44A(ii): Decommissioning an electric product and installing an air source heat pump water heater

The GHG equivalent emissions reduction for each scenario is given by Equation 44.2 using the variables listed in Table 44.5.

**Equation 44.2 – GHG equivalent emissions reduction calculation for Scenario 44A(ii)**

**GHG Eq. Reduction=**

$$\begin{aligned} & \sum_{\text{systems}} \left[ EEF_m \times \left( \frac{RefElec}{3.6} \right) - GEF \times HPGas \right. \\ & \quad \left. - EEF_m \times \left( \frac{HPElec}{3.6} \right) \right] \times CapacityFactor \times LoadFactor \times Lifetime \\ & + \sum_{\text{systems}} [ (1430 - GWP) \times RFE \times RfrgCharge ] \end{aligned}$$

**Table 44.5 – GHG equivalent emissions reduction variables for Scenario 44A(ii)**

| Input Type      | Condition                                                                           | Input Value                                                                                                                                                                                                                                                                     |
|-----------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Lifetime        | If using existing storage with a new system                                         | 10                                                                                                                                                                                                                                                                              |
|                 | In any other case                                                                   | 15                                                                                                                                                                                                                                                                              |
| GEF             | In every instance                                                                   | 0.05523                                                                                                                                                                                                                                                                         |
| RFE             | In every instance                                                                   | $5 \times 10^{-4}$                                                                                                                                                                                                                                                              |
| GWP             | In every instance                                                                   | Refrigerant 100-year global warming potential as listed in the Intergovernmental Panel on Climate Change (IPCC) fourth assessment report, 2007 (AR4) or, if applicable, as listed in the Commercial and Industrial Air Source Heat Pump Water Heater Product Application Guide. |
| RfrgCharge      | In every instance                                                                   | Refrigerant charge (kg) of the heat pump water heater unit as specified by the manufacturer.                                                                                                                                                                                    |
| Capacity Factor | If new heat pump thermal capacity (kW) $\leq$ existing system thermal capacity (kW) | 1                                                                                                                                                                                                                                                                               |
|                 | If new heat pump thermal capacity (kW) $>$ existing system thermal capacity (kW)    | $\frac{\text{Existing system thermal capacity (kW)}}{\text{Heat pump thermal capacity (kW)}}$                                                                                                                                                                                   |
| Load Factor     | If new heat pump thermal capacity (kW) $< 10$ (kW)                                  | $\frac{42}{ComPeakLoad}$ , limited to a maximum of 1                                                                                                                                                                                                                            |
|                 | If new heat pump thermal capacity (kW) $\geq 10$ (kW)                               | 1                                                                                                                                                                                                                                                                               |
| ComPeakLoad     | In every instance                                                                   | As determined in accordance with the Commercial and Industrial Air Source Heat Pump Water Heater Product Application Guide in MJ/day.                                                                                                                                           |
| HPElec          | In every instance                                                                   | As determined in accordance with the Commercial and Industrial Air Source Heat Pump Water Heater Product Application Guide in GJ/year.                                                                                                                                          |
| HPGas           | In every instance                                                                   | As determined in accordance with the Commercial and Industrial Air Source Heat Pump Water Heater Product Application Guide in GJ/year.                                                                                                                                          |
| RefElec         | In every instance                                                                   | As determined in accordance with the Commercial and Industrial Air Source Heat Pump Water Heater Product Application Guide in GJ/year.                                                                                                                                          |

\*See the Location Variables list to determine what climatic zone applies to any premises.

### Scenario 44A(iii): Installing an air source heat pump water heater

The GHG equivalent emissions reduction for each scenario is given by Equation 44.3 using the variables listed in Table 44.6.

**Equation 44.3 – GHG equivalent emissions reduction calculation for Scenario 44A(iii)**

**GHG Eq. Reduction=**

$$\sum_{systems} \left[ GEF \times \left( \frac{RefElec}{NewEff} \right) - GEF \times HPGas - EEF_m \times \left( \frac{HPElec}{3.6} \right) \right] \times Lifetime \times LoadFactor \\ + \sum_{systems} [ (1430 - GWP) \times RFE \times RfrgCharge ]$$

**Table 44.6 – GHG equivalent emissions reduction variables for Scenario 44A(iii)**

| Input Type  | Condition                                         | Input Value                                                                                                                                                                                                                                                                     |
|-------------|---------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Lifetime    | If using existing storage with a new system       | 10                                                                                                                                                                                                                                                                              |
|             | In any other case                                 | 15                                                                                                                                                                                                                                                                              |
| GEF         | In every instance                                 | 0.05523                                                                                                                                                                                                                                                                         |
| RFE         | In every instance                                 | $5 \times 10^{-4}$                                                                                                                                                                                                                                                              |
| GWP         | In every instance                                 | Refrigerant 100-year global warming potential as listed in the Intergovernmental Panel on Climate Change (IPCC) fourth assessment report, 2007 (AR4) or, if applicable, as listed in the Commercial and Industrial Air Source Heat Pump Water Heater Product Application Guide. |
| Load Factor | If new heat pump thermal capacity (kW) < 10 (kW)  | $\frac{42}{ComPeakLoad}$ , limited to a maximum of 1                                                                                                                                                                                                                            |
|             | If new heat pump thermal capacity (kW) >= 10 (kW) | 1                                                                                                                                                                                                                                                                               |
| ComPeakLoad | In every instance                                 | As determined in accordance with the Commercial and Industrial Air Source Heat Pump Water Heater Product Application Guide in MJ/day.                                                                                                                                           |
| RfrgCharge  | In every instance                                 | Refrigerant charge (kg) of the heat pump water heater unit as specified by the manufacturer.                                                                                                                                                                                    |
| HPElec      | In every instance                                 | As determined in accordance with the Commercial and Industrial Air Source Heat Pump Water Heater Product Application Guide in GJ/year.                                                                                                                                          |
| HPGas       | In every instance                                 | As determined in accordance with the Commercial and Industrial Air Source Heat Pump Water Heater Product Application Guide in GJ/year.                                                                                                                                          |
| NewEff      | In every instance                                 | 0.85                                                                                                                                                                                                                                                                            |
| RefElec     | In every instance                                 | As determined in accordance with the Commercial and Industrial Air Source Heat Pump Water Heater Product Application Guide in GJ/year.                                                                                                                                          |

\*See the Location Variables list to determine what climatic zone applies to any premises.

## 45. Part 45 Activity– Home energy rating assessment

### Activity description (Guidance)

Part 45 of Schedule 2 of the Regulations prescribes the provision of a home energy rating assessment as an eligible activity for the purposes of the Victorian Energy Upgrades program.

Table 45.1 lists the types of home energy rating assessment that may occur.

Over time, the department may determine that there are other home energy rating assessment activities that reduce GHG equivalent emissions. In such a case, assessment requirements for these changes will be listed by the department as scenario number 45B once specified.

**Table 45.1 – Eligible Home energy rating assessment scenarios**

| Product category number | Scenario number   | Decommissioning requirements | Activity to be completed                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Historical schedule number |
|-------------------------|-------------------|------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|
| 45A                     | 45A <sup>82</sup> | None                         | A Residential Efficiency Scorecard assessment, being the home energy rating assessment of that name that is: <ul style="list-style-type: none"><li>a. endorsed or accredited by the Nationwide House Energy Rating Scheme (NatHERS) as an In Home assessment; and</li><li>b. validly undertaken in compliance with:<ul style="list-style-type: none"><li>i. the 'Residential Efficiency Scorecard Software Manual for Scorecard Assessors'; and</li><li>ii. the 'Residential Efficiency Scorecard Assessor Manual for Scorecard Assessors'.</li></ul></li></ul> | N/A                        |

### Specified Minimum Energy Efficiency

There are no further requirements that must be specified for the assessment.

### Other specified matters

An assessor conducting a home energy rating assessment belonging to the scenario number listed in column 2 must meet the requirements set out in Table 45.2 in respect of that home energy rating assessment.

**Table 45.2 – Other specified matter for home energy rating assessments**

| Activity category number | Scenario number | Assessor requirements                                                                                                                                        |
|--------------------------|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 45A                      | 45A             | An assessor conducting a Residential Efficiency Scorecard assessment must be an accredited Scorecard assessor and be listed on the public Scorecard website. |

<sup>82</sup> Home energy rating assessments under this scenario number are taken to be an activity referred to at Schedule 2, Part 45, clause 45(a) of the Regulations. The Secretary has the power to specify additional home energy rating assessments as being eligible for inclusion under this activity (provided they are NatHERS-endorsed). If the Secretary exercises this power, any additional tools will be included in future updates to these specifications.

# Method for Determining GHG Equivalent Reduction

## Scenario 45: Home Energy Rating Assessment

The GHG equivalent emissions reduction for each scenario is given by Equation 45.1 using the variables listed in Table 45.3.

Equation 45.1 – GHG equivalent emissions reduction calculation for Scenario 45A

$$GHG\ Eq.Reduction = GHG\ Savings \times Lifetime$$

Table 45.3 – GHG equivalent emissions reduction variables for Scenario 45A

| Input Type  | Condition                             | Input Value                            |
|-------------|---------------------------------------|----------------------------------------|
| GHG Savings | For upgrades in Metropolitan Victoria | $(0.34 \times EEF \times 0.98) + 0.23$ |
|             | For upgrades in Regional Victorian    | $(0.47 \times EEF \times 1.04) + 0.22$ |
| Lifetime    | In every instance                     | 5                                      |



# 46. Part 46 Activity– Induction cooktop and freestanding combined induction cooking products – applicable 25 October 2024 to 30 June 2026

## Activity description (Guidance)

Part 46 of Schedule 2 of the Regulations prescribes the sale of an induction cooktop or freestanding combined induction cooking product for a residential premises as an eligible activity for the purposes of the Victorian Energy Upgrades program.

Table 46.1 lists the eligible products that may be sold. Each type of upgrade is known as a scenario. Each scenario has its own method for determining GHG equivalent reduction.

VEECs cannot be created for Scenarios 46A and 46B unless products sold are listed on the Secretary’s product list by the time VEECs are created. Products already on the list at the time of sale can be taken as satisfying all those product requirements that can be determined prior to the sale of a product.

**Table 46.1 – Eligible induction cooktop and freestanding combined induction cooking product scenarios**

| Product category number | Scenario number | Product to be sold <sup>83</sup>                                                                                                                                            |
|-------------------------|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 46A                     | 46A             | An induction cooktop on the Secretary’s product list, for the purposes of installation in a residential premises with a gas or LPG connection.                              |
| 46B                     | 46B             | A freestanding combined induction cooking product on the Secretary’s product list, for the purposes of installation in a residential premises with a gas or LPG connection. |

## Specified Minimum Energy Efficiency

There are no further requirements that must be specified for the installed product.

## Other specified matters

The product sold must meet the relevant additional requirements set out in Table 46.2.

**Table 46.2 – Other specified matters for the sale of induction cooktops and freestanding combined induction cooking products**

| Product category number | Requirement type                | Performance requirement <sup>84</sup>                                                |
|-------------------------|---------------------------------|--------------------------------------------------------------------------------------|
| 46A and 46B             | Minimum cooktop dimensions      | The cooktop surface must be at least 550mm wide and 380mm deep.                      |
| 46A and 46B             | Minimum number of cooking zones | The cooktop surface must have a minimum of 3 independently controlled cooking zones. |

<sup>83</sup> The authoritative product requirements are contained in Part 46 of Schedule 2 to the Regulations, and take precedence over summary information provided for ease of reference in this document.

<sup>84</sup> The Secretary is empowered to specify these additional requirements under Part 46 of Schedule 2 to the Regulations.

|             |                                |                                                                                                                                                                                                                                                                                                                   |
|-------------|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 46A         | Product design                 | The product must be designed to only be permanently mounted in-bench. On-bench or portable plug-in products are not eligible.                                                                                                                                                                                     |
| 46A and 46B | Mandatory consumer information | In addition to the applicable requirements set out under the Code of Conduct (at Schedule 6 of the Regulations), the accredited person must ensure that the mandatory VEU Cooktop Consumer Fact Sheet is provided to the energy consumer before VEECs are created for carrying out a prescribed Part 46 activity. |
| 46A and 46B | Product warranty requirement   | The product must be covered by a warranty against defects for a period of at least two-years from the date of sale, purchase or supply (as applicable).                                                                                                                                                           |
| 46A and 46B | Minimum co-payment amount      | A minimum co-payment amount of \$200 (including GST) must be made per product sold.                                                                                                                                                                                                                               |

## Method for Determining GHG Equivalent Reduction

**Scenario 46A and 46B: Sale of an induction cooktop or freestanding combined induction cooking product**

The GHG equivalent emissions reduction for each scenario is given by Equation 46.1 using the variables listed in Table 46.3.

### Equation 46.1 – GHG equivalent emissions reduction calculation for Scenario 46A and 46B

$$GHG \text{ Eq. Reduction} = (Baseline - Upgrade) \times Lifetime$$

**Table 46.3 – GHG equivalent emissions reduction variables for Scenario 46A and 46B**

| Input Type | Condition         | Input Value |
|------------|-------------------|-------------|
| Baseline   | In every instance | 0.10        |
| Upgrade    | In every instance | 0.04        |
| Lifetime   | In every instance | 25.00       |

## 47. Part 47 Activity– Commercial and industrial solar photovoltaic system

### Activity description (Guidance)

Part 47 of Schedule 2 of the Regulations prescribes the installation of a solar photovoltaic system for commercial and industrial applications as an eligible activity for the purposes of the Victorian Energy Upgrades program.

Table 47.1 lists the eligible solar photovoltaic system installations that may occur. Each type of installation is known as a scenario. Each scenario has its own method for determining GHG equivalent reduction.

At a later date, the Secretary may specify requirements for additional solar photovoltaic systems that may be installed as a prescribed activity under Part 47 of Schedule 2 of the Regulations, which will be listed as scenario number 47C once specified.

Products must be listed on the Clean Energy Council list of approved products at the time of installation.

**Table 47.1 – Eligible commercial and industrial solar photovoltaic system scenarios**

| Product category number | Scenario number | System to be installed <sup>85</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-------------------------|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 47A                     | 47A             | <p>A solar photovoltaic system that has a solar photovoltaic module capacity of more than or equal to 30 kW and less than or equal to 100 kW that:</p> <ul style="list-style-type: none"><li>a. is installed in compliance with the relevant Distribution Network Service Provider's negotiated connection contract; and</li><li>b. can be either a new connection or a connection alteration; and</li><li>c. uses solar photovoltaic modules (solar panels) listed on the Clean Energy Council approved modules list; and</li><li>d. uses inverters listed on the Clean Energy Council approved inverters list.</li></ul> |
| 47B                     | 47B             | <p>A solar photovoltaic system that has a solar photovoltaic module capacity of more than 100 kW and less than or equal to 200 kW that:</p> <ul style="list-style-type: none"><li>a. is installed in compliance with the relevant Distribution Network Service Provider's negotiated connection contract; and</li><li>b. can be either a new connection or a connection alteration; and</li><li>c. uses solar photovoltaic modules (solar panels) listed on the Clean Energy Council approved modules list; and</li><li>d. uses inverters listed on the Clean Energy Council approved inverters list.</li></ul>            |

### Specified Minimum Energy Efficiency

There are no further requirements that must be met by the system installed.

<sup>85</sup> The authoritative product requirements are contained in Part 47 of Schedule 2 to the Regulations, and take precedence over summary information provided for ease of reference in this document.

## Other specified matters

The system installed must meet the relevant additional requirements listed in Table 47.2.

**Table 47.2 – Other specified matters for commercial and industrial solar photovoltaic systems to be installed**

| Product category number | Requirement type                                                  | Specification details                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-------------------------|-------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 47A                     | Pre-installation requirements – Solar Panel Validation Initiative | All solar photovoltaic module manufacturers must be listed by the Clean Energy Regulator as a participating brand in the industry-led Solar Panel Validation Initiative.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 47A and 47B             | Installation requirements – monitoring system                     | A solar photovoltaic system installed must support a monitoring portal capable of tracking system performance, system energy production and system energy consumption, and which is able to be accessed by the end user.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 47A and 47B             | Installation requirements – system sizing                         | The accredited person or scheme participant carrying out a prescribed Part 47 activity must size the system in accordance with Solar Accreditation Australia requirements for the design and installation of grid-connection solar photovoltaic systems.                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 47A and 47B             | Product warranty requirements                                     | <p>All inverters installed must be covered by a warranty against defects for a period of at least 5 years from the date of installation, purchase or supply (as applicable).</p> <p>All solar photovoltaic modules installed must be covered by a warranty against defects for a period of at least 10 years from the date of installation, purchase or supply (as applicable).</p> <p>In addition to the requirements of a warranty against defects under the ACL (Victoria), the warranty must also include the contact details of who to contact regarding the product warranty obligations in Australia in the event of a product failure, if the person who gives the warranty is not in Australia.</p> |
| 47A and 47B             | Inverter Requirements                                             | The total connected inverter capacity as installed and per the relevant Distribution Network Service Provider's negotiated connection contract must be a minimum of 30 kVA.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

## Method for Determining GHG Equivalent Reduction

### Scenario 47A and 47B: Commercial and industrial solar photovoltaic system

The GHG equivalent emissions reduction for each scenario is given by Equation 47.1 using the variables listed in Table 47.3

#### Equation 47.1 – GHG equivalent emissions reduction calculation for Scenario 47A and 47B

$$\text{GHG Eq. Reduction} = \text{System size} \times \text{Input factor} \times \text{Lifetime} \times \text{Regional Factor}$$

Table 47.3 – GHG equivalent emissions reduction variables for Scenario 47A and 47B

| Input Type      | Condition                                           | Input Value                                                |
|-----------------|-----------------------------------------------------|------------------------------------------------------------|
| System size     | In every instance                                   | Total rated solar photovoltaic module power output (in kW) |
| Lifetime        | In every instance                                   | 10                                                         |
| Input Factor    | For a system size less than or equal to 100 kW      | 0.133                                                      |
|                 | For a system size more than 100 kW                  | 0.25                                                       |
| Regional Factor | If the system is installed in Metropolitan Victoria | 0.98                                                       |
|                 | If the system is installed in Regional Victoria     | 1.04                                                       |



# Location Variable List

The section is used to determine the which values of Regional Factor GHG Savings and other variables are applied to GHG equivalent emissions reduction calculations for prescribed activities carried out in compliance with the Victorian Energy Efficiency Target Act 2007, associated Regulations and these Specifications.

Table A specifies whether upgrades are located in Metropolitan or Regional Victoria, whether a Mild, Cold or Hot climatic region is applicable, whether a zone 4 or 5 climatic zone is applicable and whether the area is a reticulated gas area.

**Table A – List of postcodes**

| Postcode | Regional/Metropolitan | Reticulated gas | Climatic region | Climatic zone |
|----------|-----------------------|-----------------|-----------------|---------------|
| 3000     | Metropolitan          | Yes             | Mild            | 4             |
| 3001     | Metropolitan          | Yes             | Mild            | 4             |
| 3002     | Metropolitan          | Yes             | Mild            | 4             |
| 3003     | Metropolitan          | Yes             | Mild            | 4             |
| 3004     | Metropolitan          | Yes             | Mild            | 4             |
| 3006     | Metropolitan          | Yes             | Mild            | 4             |
| 3008     | Metropolitan          | Yes             | Mild            | 4             |
| 3010     | Metropolitan          | Yes             | Mild            | 4             |
| 3011     | Metropolitan          | Yes             | Mild            | 4             |
| 3012     | Metropolitan          | Yes             | Mild            | 4             |
| 3013     | Metropolitan          | Yes             | Mild            | 4             |
| 3015     | Metropolitan          | Yes             | Mild            | 4             |
| 3016     | Metropolitan          | Yes             | Mild            | 4             |
| 3018     | Metropolitan          | Yes             | Mild            | 4             |
| 3019     | Metropolitan          | Yes             | Mild            | 4             |
| 3020     | Metropolitan          | Yes             | Mild            | 4             |
| 3021     | Metropolitan          | Yes             | Mild            | 4             |
| 3022     | Metropolitan          | Yes             | Mild            | 4             |
| 3023     | Metropolitan          | Yes             | Mild            | 4             |
| 3024     | Metropolitan          | Yes             | Mild            | 4             |
| 3025     | Metropolitan          | Yes             | Mild            | 4             |
| 3026     | Metropolitan          | Yes             | Mild            | 4             |
| 3027     | Metropolitan          | Yes             | Mild            | 4             |
| 3028     | Metropolitan          | Yes             | Mild            | 4             |
| 3029     | Metropolitan          | Yes             | Mild            | 4             |
| 3030     | Metropolitan          | Yes             | Mild            | 4             |

|      |              |     |      |   |
|------|--------------|-----|------|---|
| 3031 | Metropolitan | Yes | Mild | 4 |
| 3032 | Metropolitan | Yes | Mild | 4 |
| 3033 | Metropolitan | Yes | Mild | 4 |
| 3034 | Metropolitan | Yes | Mild | 4 |
| 3036 | Metropolitan | Yes | Mild | 4 |
| 3037 | Metropolitan | Yes | Mild | 4 |
| 3038 | Metropolitan | Yes | Mild | 4 |
| 3039 | Metropolitan | Yes | Mild | 4 |
| 3040 | Metropolitan | Yes | Mild | 4 |
| 3041 | Metropolitan | Yes | Mild | 4 |
| 3042 | Metropolitan | Yes | Mild | 4 |
| 3043 | Metropolitan | Yes | Mild | 4 |
| 3044 | Metropolitan | Yes | Mild | 4 |
| 3045 | Metropolitan | Yes | Mild | 4 |
| 3046 | Metropolitan | Yes | Mild | 4 |
| 3047 | Metropolitan | Yes | Mild | 4 |
| 3048 | Metropolitan | Yes | Mild | 4 |
| 3049 | Metropolitan | Yes | Mild | 4 |
| 3050 | Metropolitan | Yes | Mild | 4 |
| 3051 | Metropolitan | Yes | Mild | 4 |
| 3052 | Metropolitan | Yes | Mild | 4 |
| 3053 | Metropolitan | Yes | Mild | 4 |
| 3054 | Metropolitan | Yes | Mild | 4 |
| 3055 | Metropolitan | Yes | Mild | 4 |
| 3056 | Metropolitan | Yes | Mild | 4 |
| 3057 | Metropolitan | Yes | Mild | 4 |
| 3058 | Metropolitan | Yes | Mild | 4 |
| 3059 | Metropolitan | Yes | Mild | 4 |
| 3060 | Metropolitan | Yes | Mild | 4 |
| 3061 | Metropolitan | Yes | Mild | 4 |
| 3062 | Metropolitan | Yes | Mild | 4 |
| 3063 | Metropolitan | Yes | Mild | 4 |
| 3064 | Metropolitan | Yes | Mild | 4 |
| 3065 | Metropolitan | Yes | Mild | 4 |
| 3066 | Metropolitan | Yes | Mild | 4 |
| 3067 | Metropolitan | Yes | Mild | 4 |
| 3068 | Metropolitan | Yes | Mild | 4 |

|      |              |     |      |   |
|------|--------------|-----|------|---|
| 3070 | Metropolitan | Yes | Mild | 4 |
| 3071 | Metropolitan | Yes | Mild | 4 |
| 3072 | Metropolitan | Yes | Mild | 4 |
| 3073 | Metropolitan | Yes | Mild | 4 |
| 3074 | Metropolitan | Yes | Mild | 4 |
| 3075 | Metropolitan | Yes | Mild | 4 |
| 3076 | Metropolitan | Yes | Mild | 4 |
| 3078 | Metropolitan | Yes | Mild | 4 |
| 3079 | Metropolitan | Yes | Mild | 4 |
| 3081 | Metropolitan | Yes | Mild | 4 |
| 3082 | Metropolitan | Yes | Mild | 4 |
| 3083 | Metropolitan | Yes | Mild | 4 |
| 3084 | Metropolitan | Yes | Mild | 4 |
| 3085 | Metropolitan | Yes | Mild | 4 |
| 3086 | Metropolitan | Yes | Mild | 4 |
| 3087 | Metropolitan | Yes | Mild | 4 |
| 3088 | Metropolitan | Yes | Mild | 4 |
| 3089 | Metropolitan | Yes | Mild | 4 |
| 3090 | Metropolitan | Yes | Mild | 4 |
| 3091 | Metropolitan | Yes | Mild | 4 |
| 3093 | Metropolitan | Yes | Mild | 4 |
| 3094 | Metropolitan | Yes | Mild | 4 |
| 3095 | Metropolitan | Yes | Mild | 4 |
| 3096 | Metropolitan | Yes | Mild | 4 |
| 3097 | Metropolitan | Yes | Mild | 4 |
| 3099 | Metropolitan | Yes | Mild | 4 |
| 3101 | Metropolitan | Yes | Mild | 4 |
| 3102 | Metropolitan | Yes | Mild | 4 |
| 3103 | Metropolitan | Yes | Mild | 4 |
| 3104 | Metropolitan | Yes | Mild | 4 |
| 3105 | Metropolitan | Yes | Mild | 4 |
| 3106 | Metropolitan | Yes | Mild | 4 |
| 3107 | Metropolitan | Yes | Mild | 4 |
| 3108 | Metropolitan | Yes | Mild | 4 |
| 3109 | Metropolitan | Yes | Mild | 4 |
| 3111 | Metropolitan | Yes | Mild | 4 |
| 3113 | Metropolitan | Yes | Mild | 4 |

|      |              |     |      |   |
|------|--------------|-----|------|---|
| 3114 | Metropolitan | Yes | Mild | 4 |
| 3115 | Metropolitan | Yes | Mild | 4 |
| 3116 | Metropolitan | Yes | Mild | 4 |
| 3121 | Metropolitan | Yes | Mild | 4 |
| 3122 | Metropolitan | Yes | Mild | 4 |
| 3123 | Metropolitan | Yes | Mild | 4 |
| 3124 | Metropolitan | Yes | Mild | 4 |
| 3125 | Metropolitan | Yes | Mild | 4 |
| 3126 | Metropolitan | Yes | Mild | 4 |
| 3127 | Metropolitan | Yes | Mild | 4 |
| 3128 | Metropolitan | Yes | Mild | 4 |
| 3129 | Metropolitan | Yes | Mild | 4 |
| 3130 | Metropolitan | Yes | Mild | 4 |
| 3131 | Metropolitan | Yes | Mild | 4 |
| 3132 | Metropolitan | Yes | Mild | 4 |
| 3133 | Metropolitan | Yes | Mild | 4 |
| 3134 | Metropolitan | Yes | Mild | 4 |
| 3135 | Metropolitan | Yes | Mild | 4 |
| 3136 | Metropolitan | Yes | Mild | 4 |
| 3137 | Metropolitan | Yes | Mild | 4 |
| 3138 | Metropolitan | Yes | Mild | 4 |
| 3139 | Metropolitan | Yes | Mild | 5 |
| 3140 | Metropolitan | Yes | Mild | 5 |
| 3141 | Metropolitan | Yes | Mild | 4 |
| 3142 | Metropolitan | Yes | Mild | 4 |
| 3143 | Metropolitan | Yes | Mild | 4 |
| 3144 | Metropolitan | Yes | Mild | 4 |
| 3145 | Metropolitan | Yes | Mild | 4 |
| 3146 | Metropolitan | Yes | Mild | 4 |
| 3147 | Metropolitan | Yes | Mild | 4 |
| 3148 | Metropolitan | Yes | Mild | 4 |
| 3149 | Metropolitan | Yes | Mild | 4 |
| 3150 | Metropolitan | Yes | Mild | 4 |
| 3151 | Metropolitan | Yes | Mild | 4 |
| 3152 | Metropolitan | Yes | Mild | 4 |
| 3153 | Metropolitan | Yes | Mild | 4 |
| 3154 | Metropolitan | Yes | Mild | 4 |

|      |              |     |      |   |
|------|--------------|-----|------|---|
| 3155 | Metropolitan | Yes | Mild | 4 |
| 3156 | Metropolitan | Yes | Mild | 4 |
| 3158 | Metropolitan | Yes | Mild | 5 |
| 3159 | Metropolitan | Yes | Mild | 4 |
| 3160 | Metropolitan | Yes | Mild | 5 |
| 3161 | Metropolitan | Yes | Mild | 4 |
| 3162 | Metropolitan | Yes | Mild | 4 |
| 3163 | Metropolitan | Yes | Mild | 4 |
| 3164 | Metropolitan | Yes | Mild | 4 |
| 3165 | Metropolitan | Yes | Mild | 4 |
| 3166 | Metropolitan | Yes | Mild | 4 |
| 3167 | Metropolitan | Yes | Mild | 4 |
| 3168 | Metropolitan | Yes | Mild | 4 |
| 3169 | Metropolitan | Yes | Mild | 4 |
| 3170 | Metropolitan | Yes | Mild | 4 |
| 3171 | Metropolitan | Yes | Mild | 4 |
| 3172 | Metropolitan | Yes | Mild | 4 |
| 3173 | Metropolitan | Yes | Mild | 4 |
| 3174 | Metropolitan | Yes | Mild | 4 |
| 3175 | Metropolitan | Yes | Mild | 4 |
| 3176 | Metropolitan | Yes | Mild | 4 |
| 3177 | Metropolitan | Yes | Mild | 4 |
| 3178 | Metropolitan | Yes | Mild | 4 |
| 3179 | Metropolitan | Yes | Mild | 4 |
| 3180 | Metropolitan | Yes | Mild | 4 |
| 3181 | Metropolitan | Yes | Mild | 4 |
| 3182 | Metropolitan | Yes | Mild | 4 |
| 3183 | Metropolitan | Yes | Mild | 4 |
| 3184 | Metropolitan | Yes | Mild | 4 |
| 3185 | Metropolitan | Yes | Mild | 4 |
| 3186 | Metropolitan | Yes | Mild | 4 |
| 3187 | Metropolitan | Yes | Mild | 4 |
| 3188 | Metropolitan | Yes | Mild | 4 |
| 3189 | Metropolitan | Yes | Mild | 4 |
| 3190 | Metropolitan | Yes | Mild | 4 |
| 3191 | Metropolitan | Yes | Mild | 4 |
| 3192 | Metropolitan | Yes | Mild | 4 |

|      |              |     |      |   |
|------|--------------|-----|------|---|
| 3193 | Metropolitan | Yes | Mild | 4 |
| 3194 | Metropolitan | Yes | Mild | 4 |
| 3195 | Metropolitan | Yes | Mild | 4 |
| 3196 | Metropolitan | Yes | Mild | 4 |
| 3197 | Metropolitan | Yes | Mild | 4 |
| 3198 | Metropolitan | Yes | Mild | 4 |
| 3199 | Metropolitan | Yes | Mild | 4 |
| 3200 | Metropolitan | Yes | Mild | 4 |
| 3201 | Metropolitan | Yes | Mild | 4 |
| 3202 | Metropolitan | Yes | Mild | 4 |
| 3204 | Metropolitan | Yes | Mild | 4 |
| 3205 | Metropolitan | Yes | Mild | 4 |
| 3206 | Metropolitan | Yes | Mild | 4 |
| 3207 | Metropolitan | Yes | Mild | 4 |
| 3211 | Regional     | Yes | Mild | 4 |
| 3212 | Regional     | Yes | Mild | 4 |
| 3213 | Regional     | No  | Mild | 4 |
| 3214 | Regional     | Yes | Mild | 4 |
| 3215 | Regional     | Yes | Mild | 4 |
| 3216 | Regional     | Yes | Mild | 4 |
| 3217 | Regional     | Yes | Mild | 4 |
| 3218 | Regional     | Yes | Mild | 4 |
| 3219 | Regional     | Yes | Mild | 4 |
| 3220 | Regional     | Yes | Mild | 4 |
| 3221 | Regional     | Yes | Mild | 4 |
| 3222 | Regional     | Yes | Mild | 4 |
| 3223 | Regional     | Yes | Mild | 4 |
| 3224 | Regional     | Yes | Mild | 4 |
| 3225 | Regional     | Yes | Mild | 4 |
| 3226 | Regional     | Yes | Mild | 4 |
| 3227 | Regional     | Yes | Mild | 4 |
| 3228 | Regional     | Yes | Mild | 4 |
| 3230 | Regional     | Yes | Mild | 4 |
| 3231 | Regional     | Yes | Mild | 4 |
| 3232 | Regional     | No  | Mild | 4 |
| 3233 | Regional     | No  | Mild | 4 |
| 3234 | Regional     | No  | Mild | 4 |

|      |          |     |      |   |
|------|----------|-----|------|---|
| 3235 | Regional | No  | Mild | 4 |
| 3236 | Regional | No  | Mild | 4 |
| 3237 | Regional | No  | Mild | 4 |
| 3238 | Regional | No  | Mild | 4 |
| 3239 | Regional | No  | Mild | 4 |
| 3240 | Regional | No  | Mild | 4 |
| 3241 | Regional | No  | Mild | 4 |
| 3242 | Regional | No  | Mild | 4 |
| 3243 | Regional | No  | Mild | 4 |
| 3249 | Regional | Yes | Mild | 4 |
| 3250 | Regional | Yes | Mild | 4 |
| 3251 | Regional | Yes | Mild | 4 |
| 3254 | Regional | No  | Mild | 4 |
| 3260 | Regional | Yes | Mild | 4 |
| 3264 | Regional | No  | Mild | 4 |
| 3265 | Regional | Yes | Mild | 4 |
| 3266 | Regional | Yes | Mild | 4 |
| 3267 | Regional | No  | Mild | 4 |
| 3268 | Regional | No  | Mild | 4 |
| 3269 | Regional | No  | Mild | 4 |
| 3270 | Regional | No  | Mild | 4 |
| 3271 | Regional | No  | Mild | 4 |
| 3272 | Regional | No  | Mild | 4 |
| 3273 | Regional | No  | Mild | 4 |
| 3274 | Regional | No  | Mild | 4 |
| 3275 | Regional | No  | Mild | 4 |
| 3276 | Regional | No  | Mild | 4 |
| 3277 | Regional | Yes | Mild | 4 |
| 3278 | Regional | No  | Mild | 4 |
| 3279 | Regional | No  | Mild | 4 |
| 3280 | Regional | Yes | Mild | 4 |
| 3281 | Regional | No  | Mild | 4 |
| 3282 | Regional | Yes | Mild | 4 |
| 3283 | Regional | No  | Mild | 4 |
| 3284 | Regional | Yes | Mild | 4 |
| 3285 | Regional | No  | Mild | 4 |
| 3286 | Regional | No  | Mild | 4 |

|      |              |     |      |   |
|------|--------------|-----|------|---|
| 3287 | Regional     | No  | Mild | 4 |
| 3289 | Regional     | No  | Cold | 5 |
| 3292 | Regional     | No  | Mild | 4 |
| 3293 | Regional     | No  | Cold | 5 |
| 3294 | Regional     | No  | Cold | 5 |
| 3300 | Regional     | Yes | Cold | 5 |
| 3301 | Regional     | No  | Mild | 5 |
| 3302 | Regional     | No  | Mild | 5 |
| 3303 | Regional     | No  | Mild | 4 |
| 3304 | Regional     | No  | Mild | 4 |
| 3305 | Regional     | Yes | Mild | 4 |
| 3309 | Regional     | No  | Mild | 4 |
| 3310 | Regional     | No  | Cold | 4 |
| 3311 | Regional     | No  | Cold | 4 |
| 3312 | Regional     | No  | Cold | 4 |
| 3314 | Regional     | No  | Cold | 5 |
| 3315 | Regional     | No  | Cold | 5 |
| 3317 | Regional     | No  | Cold | 4 |
| 3318 | Regional     | No  | Cold | 4 |
| 3319 | Regional     | No  | Cold | 4 |
| 3321 | Regional     | No  | Mild | 4 |
| 3322 | Regional     | No  | Mild | 4 |
| 3323 | Regional     | No  | Cold | 4 |
| 3324 | Regional     | No  | Cold | 4 |
| 3325 | Regional     | No  | Mild | 4 |
| 3328 | Regional     | No  | Mild | 4 |
| 3329 | Regional     | No  | Mild | 4 |
| 3330 | Regional     | No  | Cold | 4 |
| 3331 | Regional     | No  | Mild | 4 |
| 3332 | Regional     | No  | Mild | 4 |
| 3333 | Regional     | No  | Mild | 4 |
| 3334 | Regional     | No  | Cold | 4 |
| 3335 | Metropolitan | Yes | Mild | 4 |
| 3336 | Metropolitan | Yes | Mild | 4 |
| 3337 | Metropolitan | Yes | Mild | 4 |
| 3338 | Metropolitan | Yes | Mild | 4 |
| 3340 | Regional     | Yes | Mild | 4 |

|      |          |     |      |   |
|------|----------|-----|------|---|
| 3341 | Regional | No  | Cold | 4 |
| 3342 | Regional | Yes | Cold | 4 |
| 3345 | Regional | No  | Cold | 4 |
| 3350 | Regional | Yes | Cold | 5 |
| 3351 | Regional | No  | Cold | 5 |
| 3352 | Regional | Yes | Cold | 5 |
| 3353 | Regional | No  | Cold | 5 |
| 3354 | Regional | No  | Cold | 5 |
| 3355 | Regional | Yes | Cold | 5 |
| 3356 | Regional | Yes | Cold | 5 |
| 3357 | Regional | Yes | Cold | 5 |
| 3358 | Regional | Yes | Cold | 4 |
| 3360 | Regional | No  | Cold | 4 |
| 3361 | Regional | No  | Cold | 4 |
| 3363 | Regional | Yes | Cold | 5 |
| 3364 | Regional | Yes | Cold | 5 |
| 3370 | Regional | No  | Cold | 5 |
| 3371 | Regional | No  | Cold | 4 |
| 3373 | Regional | No  | Cold | 5 |
| 3374 | Regional | No  | Cold | 4 |
| 3375 | Regional | No  | Cold | 5 |
| 3377 | Regional | Yes | Cold | 5 |
| 3378 | Regional | No  | Cold | 5 |
| 3379 | Regional | No  | Cold | 5 |
| 3380 | Regional | Yes | Cold | 4 |
| 3381 | Regional | No  | Cold | 5 |
| 3384 | Regional | No  | Cold | 4 |
| 3385 | Regional | No  | Cold | 4 |
| 3387 | Regional | No  | Cold | 4 |
| 3388 | Regional | No  | Cold | 4 |
| 3390 | Regional | No  | Cold | 4 |
| 3391 | Regional | No  | Cold | 4 |
| 3392 | Regional | No  | Cold | 4 |
| 3393 | Regional | No  | Cold | 4 |
| 3395 | Regional | No  | Cold | 4 |
| 3396 | Regional | No  | Cold | 4 |
| 3400 | Regional | Yes | Cold | 4 |

|      |              |     |      |   |
|------|--------------|-----|------|---|
| 3401 | Regional     | Yes | Cold | 4 |
| 3402 | Regional     | Yes | Cold | 4 |
| 3407 | Regional     | No  | Cold | 5 |
| 3409 | Regional     | No  | Cold | 4 |
| 3412 | Regional     | No  | Cold | 4 |
| 3413 | Regional     | No  | Cold | 4 |
| 3414 | Regional     | No  | Cold | 4 |
| 3415 | Regional     | No  | Cold | 4 |
| 3418 | Regional     | No  | Cold | 4 |
| 3419 | Regional     | No  | Cold | 4 |
| 3420 | Regional     | No  | Cold | 4 |
| 3423 | Regional     | No  | Cold | 4 |
| 3424 | Regional     | No  | Cold | 4 |
| 3427 | Metropolitan | Yes | Mild | 4 |
| 3428 | Metropolitan | Yes | Mild | 4 |
| 3429 | Metropolitan | Yes | Mild | 4 |
| 3430 | Metropolitan | No  | Mild | 5 |
| 3431 | Metropolitan | Yes | Cold | 5 |
| 3432 | Metropolitan | No  | Cold | 5 |
| 3433 | Metropolitan | No  | Cold | 5 |
| 3434 | Metropolitan | Yes | Cold | 5 |
| 3435 | Regional     | Yes | Cold | 5 |
| 3437 | Regional     | Yes | Cold | 5 |
| 3438 | Metropolitan | Yes | Cold | 5 |
| 3440 | Regional     | Yes | Cold | 4 |
| 3441 | Metropolitan | Yes | Cold | 4 |
| 3442 | Regional     | Yes | Cold | 4 |
| 3444 | Regional     | Yes | Cold | 4 |
| 3446 | Regional     | No  | Cold | 4 |
| 3447 | Regional     | No  | Cold | 4 |
| 3448 | Regional     | No  | Cold | 4 |
| 3450 | Regional     | Yes | Cold | 5 |
| 3451 | Regional     | Yes | Cold | 5 |
| 3453 | Regional     | No  | Cold | 5 |
| 3458 | Regional     | No  | Cold | 5 |
| 3460 | Regional     | Yes | Cold | 5 |
| 3461 | Regional     | Yes | Cold | 5 |

|      |          |     |      |   |
|------|----------|-----|------|---|
| 3462 | Regional | No  | Cold | 5 |
| 3463 | Regional | No  | Cold | 5 |
| 3464 | Regional | Yes | Cold | 4 |
| 3465 | Regional | Yes | Cold | 4 |
| 3467 | Regional | No  | Cold | 5 |
| 3468 | Regional | No  | Cold | 5 |
| 3469 | Regional | No  | Cold | 5 |
| 3472 | Regional | No  | Cold | 4 |
| 3475 | Regional | No  | Cold | 4 |
| 3477 | Regional | No  | Cold | 4 |
| 3478 | Regional | No  | Cold | 4 |
| 3480 | Regional | No  | Cold | 4 |
| 3482 | Regional | No  | Cold | 4 |
| 3483 | Regional | No  | Cold | 4 |
| 3485 | Regional | No  | Cold | 4 |
| 3487 | Regional | No  | Hot  | 4 |
| 3488 | Regional | No  | Hot  | 4 |
| 3489 | Regional | No  | Hot  | 4 |
| 3490 | Regional | No  | Hot  | 4 |
| 3491 | Regional | No  | Hot  | 4 |
| 3494 | Regional | Yes | Hot  | 4 |
| 3496 | Regional | Yes | Hot  | 4 |
| 3498 | Regional | Yes | Hot  | 4 |
| 3500 | Regional | Yes | Hot  | 4 |
| 3501 | Regional | Yes | Hot  | 4 |
| 3502 | Regional | Yes | Hot  | 4 |
| 3505 | Regional | Yes | Hot  | 4 |
| 3506 | Regional | No  | Hot  | 4 |
| 3507 | Regional | No  | Hot  | 4 |
| 3509 | Regional | No  | Hot  | 4 |
| 3512 | Regional | No  | Hot  | 4 |
| 3515 | Regional | No  | Cold | 4 |
| 3516 | Regional | No  | Cold | 4 |
| 3517 | Regional | No  | Cold | 4 |
| 3518 | Regional | No  | Cold | 4 |
| 3520 | Regional | No  | Cold | 4 |
| 3521 | Regional | No  | Cold | 4 |

|      |          |     |      |   |
|------|----------|-----|------|---|
| 3522 | Regional | No  | Cold | 4 |
| 3523 | Regional | No  | Cold | 4 |
| 3525 | Regional | No  | Cold | 4 |
| 3527 | Regional | No  | Cold | 4 |
| 3529 | Regional | No  | Hot  | 4 |
| 3530 | Regional | No  | Hot  | 4 |
| 3531 | Regional | No  | Hot  | 4 |
| 3533 | Regional | No  | Hot  | 4 |
| 3537 | Regional | No  | Hot  | 4 |
| 3540 | Regional | No  | Hot  | 4 |
| 3542 | Regional | No  | Hot  | 4 |
| 3544 | Regional | No  | Hot  | 4 |
| 3546 | Regional | No  | Hot  | 4 |
| 3549 | Regional | No  | Hot  | 4 |
| 3550 | Regional | Yes | Cold | 4 |
| 3551 | Regional | Yes | Cold | 4 |
| 3552 | Regional | No  | Cold | 4 |
| 3554 | Regional | No  | Cold | 4 |
| 3555 | Regional | Yes | Cold | 4 |
| 3556 | Regional | Yes | Cold | 4 |
| 3557 | Regional | No  | Cold | 4 |
| 3558 | Regional | No  | Cold | 4 |
| 3559 | Regional | No  | Cold | 4 |
| 3561 | Regional | Yes | Cold | 4 |
| 3562 | Regional | No  | Cold | 4 |
| 3563 | Regional | Yes | Cold | 4 |
| 3564 | Regional | Yes | Cold | 4 |
| 3565 | Regional | No  | Cold | 4 |
| 3566 | Regional | Yes | Hot  | 4 |
| 3567 | Regional | No  | Hot  | 4 |
| 3568 | Regional | No  | Hot  | 4 |
| 3570 | Regional | No  | Cold | 4 |
| 3571 | Regional | No  | Cold | 4 |
| 3572 | Regional | No  | Cold | 4 |
| 3573 | Regional | No  | Cold | 4 |
| 3575 | Regional | No  | Hot  | 4 |
| 3576 | Regional | No  | Hot  | 4 |

|      |          |     |      |   |
|------|----------|-----|------|---|
| 3579 | Regional | No  | Hot  | 4 |
| 3580 | Regional | No  | Hot  | 4 |
| 3581 | Regional | No  | Hot  | 4 |
| 3583 | Regional | No  | Hot  | 4 |
| 3584 | Regional | No  | Hot  | 4 |
| 3585 | Regional | No  | Hot  | 4 |
| 3586 | Regional | No  | Hot  | 4 |
| 3588 | Regional | No  | Hot  | 4 |
| 3589 | Regional | No  | Hot  | 4 |
| 3590 | Regional | No  | Hot  | 4 |
| 3591 | Regional | No  | Hot  | 4 |
| 3594 | Regional | No  | Hot  | 4 |
| 3595 | Regional | No  | Hot  | 4 |
| 3596 | Regional | No  | Hot  | 4 |
| 3597 | Regional | No  | Hot  | 4 |
| 3599 | Regional | No  | Hot  | 4 |
| 3607 | Regional | No  | Cold | 4 |
| 3608 | Regional | No  | Cold | 4 |
| 3610 | Regional | Yes | Cold | 4 |
| 3612 | Regional | No  | Cold | 4 |
| 3614 | Regional | No  | Cold | 4 |
| 3616 | Regional | Yes | Cold | 4 |
| 3617 | Regional | No  | Cold | 4 |
| 3618 | Regional | Yes | Cold | 4 |
| 3619 | Regional | No  | Cold | 4 |
| 3620 | Regional | Yes | Cold | 4 |
| 3621 | Regional | Yes | Cold | 4 |
| 3622 | Regional | No  | Cold | 4 |
| 3623 | Regional | Yes | Cold | 4 |
| 3624 | Regional | Yes | Cold | 4 |
| 3629 | Regional | Yes | Cold | 4 |
| 3630 | Regional | Yes | Cold | 4 |
| 3631 | Regional | Yes | Cold | 4 |
| 3632 | Regional | No  | Cold | 4 |
| 3633 | Regional | No  | Cold | 4 |
| 3634 | Regional | No  | Cold | 4 |
| 3635 | Regional | No  | Cold | 4 |

|      |          |     |      |   |
|------|----------|-----|------|---|
| 3636 | Regional | Yes | Cold | 4 |
| 3637 | Regional | No  | Cold | 4 |
| 3638 | Regional | No  | Cold | 4 |
| 3639 | Regional | No  | Cold | 4 |
| 3640 | Regional | Yes | Cold | 4 |
| 3641 | Regional | Yes | Cold | 4 |
| 3643 | Regional | Yes | Cold | 4 |
| 3644 | Regional | Yes | Cold | 4 |
| 3646 | Regional | No  | Cold | 4 |
| 3647 | Regional | No  | Cold | 4 |
| 3649 | Regional | No  | Cold | 4 |
| 3658 | Regional | Yes | Cold | 4 |
| 3659 | Regional | Yes | Cold | 4 |
| 3660 | Regional | Yes | Cold | 4 |
| 3661 | Regional | No  | Cold | 4 |
| 3662 | Regional | No  | Cold | 4 |
| 3663 | Regional | No  | Cold | 4 |
| 3664 | Regional | No  | Cold | 4 |
| 3665 | Regional | No  | Cold | 4 |
| 3666 | Regional | Yes | Cold | 4 |
| 3669 | Regional | No  | Cold | 4 |
| 3670 | Regional | No  | Cold | 4 |
| 3671 | Regional | No  | Cold | 4 |
| 3672 | Regional | Yes | Cold | 4 |
| 3673 | Regional | No  | Cold | 4 |
| 3675 | Regional | No  | Cold | 5 |
| 3676 | Regional | No  | Cold | 5 |
| 3677 | Regional | Yes | Cold | 5 |
| 3678 | Regional | Yes | Cold | 5 |
| 3682 | Regional | No  | Cold | 4 |
| 3683 | Regional | Yes | Cold | 4 |
| 3685 | Regional | Yes | Cold | 4 |
| 3687 | Regional | Yes | Cold | 4 |
| 3688 | Regional | No  | Cold | 4 |
| 3689 | Regional | No  | Cold | 4 |
| 3690 | Regional | Yes | Cold | 4 |
| 3691 | Regional | Yes | Cold | 4 |

|      |          |     |      |   |
|------|----------|-----|------|---|
| 3694 | Regional | Yes | Cold | 4 |
| 3695 | Regional | No  | Cold | 4 |
| 3697 | Regional | No  | Cold | 5 |
| 3698 | Regional | No  | Cold | 5 |
| 3699 | Regional | No  | Cold | 5 |
| 3700 | Regional | No  | Cold | 5 |
| 3701 | Regional | No  | Cold | 5 |
| 3704 | Regional | No  | Cold | 5 |
| 3705 | Regional | No  | Cold | 5 |
| 3707 | Regional | No  | Cold | 5 |
| 3708 | Regional | No  | Cold | 5 |
| 3709 | Regional | No  | Cold | 5 |
| 3711 | Regional | No  | Cold | 5 |
| 3712 | Regional | No  | Cold | 5 |
| 3713 | Regional | No  | Cold | 5 |
| 3714 | Regional | No  | Cold | 5 |
| 3715 | Regional | No  | Cold | 5 |
| 3717 | Regional | No  | Cold | 5 |
| 3718 | Regional | No  | Cold | 5 |
| 3719 | Regional | No  | Cold | 5 |
| 3720 | Regional | No  | Cold | 5 |
| 3722 | Regional | No  | Cold | 5 |
| 3723 | Regional | No  | Cold | 5 |
| 3724 | Regional | No  | Cold | 5 |
| 3725 | Regional | No  | Cold | 4 |
| 3726 | Regional | No  | Cold | 4 |
| 3727 | Regional | No  | Cold | 4 |
| 3728 | Regional | No  | Cold | 4 |
| 3730 | Regional | Yes | Cold | 4 |
| 3732 | Regional | No  | Cold | 5 |
| 3733 | Regional | No  | Cold | 5 |
| 3735 | Regional | No  | Cold | 5 |
| 3736 | Regional | No  | Cold | 5 |
| 3737 | Regional | No  | Cold | 5 |
| 3738 | Regional | No  | Cold | 5 |
| 3739 | Regional | No  | Cold | 5 |
| 3740 | Regional | No  | Cold | 5 |

|      |              |     |      |   |
|------|--------------|-----|------|---|
| 3741 | Regional     | No  | Cold | 5 |
| 3744 | Regional     | No  | Cold | 5 |
| 3746 | Regional     | No  | Cold | 5 |
| 3747 | Regional     | No  | Cold | 4 |
| 3749 | Regional     | No  | Cold | 4 |
| 3750 | Metropolitan | Yes | Mild | 4 |
| 3751 | Metropolitan | Yes | Mild | 4 |
| 3752 | Metropolitan | Yes | Mild | 4 |
| 3753 | Metropolitan | Yes | Mild | 4 |
| 3754 | Metropolitan | Yes | Mild | 4 |
| 3755 | Metropolitan | Yes | Mild | 4 |
| 3756 | Metropolitan | Yes | Mild | 4 |
| 3757 | Metropolitan | Yes | Mild | 4 |
| 3758 | Metropolitan | No  | Mild | 4 |
| 3759 | Metropolitan | Yes | Mild | 4 |
| 3760 | Metropolitan | Yes | Mild | 4 |
| 3761 | Metropolitan | Yes | Mild | 4 |
| 3762 | Metropolitan | No  | Cold | 4 |
| 3763 | Metropolitan | Yes | Cold | 4 |
| 3764 | Regional     | Yes | Cold | 4 |
| 3765 | Metropolitan | Yes | Mild | 4 |
| 3766 | Metropolitan | Yes | Cold | 4 |
| 3767 | Metropolitan | Yes | Cold | 4 |
| 3770 | Metropolitan | Yes | Cold | 5 |
| 3775 | Metropolitan | Yes | Cold | 5 |
| 3777 | Metropolitan | Yes | Cold | 5 |
| 3778 | Regional     | No  | Cold | 5 |
| 3779 | Regional     | No  | Cold | 5 |
| 3781 | Metropolitan | Yes | Mild | 4 |
| 3782 | Metropolitan | Yes | Mild | 4 |
| 3783 | Metropolitan | Yes | Mild | 4 |
| 3785 | Metropolitan | Yes | Cold | 4 |
| 3786 | Metropolitan | Yes | Cold | 4 |
| 3787 | Metropolitan | Yes | Cold | 4 |
| 3788 | Metropolitan | Yes | Cold | 4 |
| 3789 | Metropolitan | Yes | Cold | 4 |
| 3791 | Metropolitan | Yes | Mild | 4 |

|      |              |     |      |   |
|------|--------------|-----|------|---|
| 3792 | Metropolitan | Yes | Cold | 4 |
| 3793 | Metropolitan | Yes | Cold | 4 |
| 3795 | Metropolitan | Yes | Cold | 4 |
| 3796 | Metropolitan | Yes | Cold | 4 |
| 3797 | Metropolitan | Yes | Mild | 4 |
| 3799 | Regional     | Yes | Cold | 4 |
| 3800 | Metropolitan | Yes | Mild | 4 |
| 3802 | Metropolitan | Yes | Mild | 4 |
| 3803 | Metropolitan | Yes | Mild | 4 |
| 3804 | Metropolitan | Yes | Mild | 4 |
| 3805 | Metropolitan | Yes | Mild | 4 |
| 3806 | Metropolitan | Yes | Mild | 4 |
| 3807 | Metropolitan | Yes | Mild | 4 |
| 3808 | Metropolitan | Yes | Mild | 4 |
| 3809 | Metropolitan | Yes | Mild | 4 |
| 3810 | Metropolitan | Yes | Mild | 4 |
| 3812 | Metropolitan | Yes | Mild | 4 |
| 3813 | Metropolitan | Yes | Mild | 4 |
| 3814 | Metropolitan | Yes | Mild | 4 |
| 3815 | Metropolitan | Yes | Mild | 4 |
| 3816 | Regional     | Yes | Mild | 5 |
| 3818 | Regional     | Yes | Mild | 5 |
| 3820 | Regional     | Yes | Mild | 5 |
| 3821 | Regional     | No  | Mild | 5 |
| 3822 | Regional     | Yes | Mild | 5 |
| 3823 | Regional     | Yes | Mild | 5 |
| 3824 | Regional     | Yes | Mild | 5 |
| 3825 | Regional     | Yes | Mild | 5 |
| 3831 | Regional     | No  | Mild | 5 |
| 3832 | Regional     | No  | Mild | 5 |
| 3833 | Regional     | No  | Cold | 5 |
| 3835 | Regional     | No  | Mild | 5 |
| 3840 | Regional     | Yes | Mild | 4 |
| 3841 | Regional     | No  | Mild | 4 |
| 3842 | Regional     | Yes | Mild | 4 |
| 3844 | Regional     | Yes | Mild | 4 |
| 3847 | Regional     | Yes | Mild | 4 |

|      |          |     |      |   |
|------|----------|-----|------|---|
| 3850 | Regional | Yes | Mild | 4 |
| 3851 | Regional | Yes | Mild | 4 |
| 3852 | Regional | Yes | Mild | 4 |
| 3853 | Regional | Yes | Mild | 4 |
| 3854 | Regional | No  | Mild | 4 |
| 3856 | Regional | No  | Mild | 4 |
| 3857 | Regional | No  | Mild | 4 |
| 3858 | Regional | No  | Mild | 5 |
| 3859 | Regional | No  | Mild | 4 |
| 3860 | Regional | Yes | Cold | 4 |
| 3862 | Regional | No  | Cold | 5 |
| 3864 | Regional | No  | Cold | 4 |
| 3865 | Regional | No  | Mild | 4 |
| 3869 | Regional | No  | Mild | 4 |
| 3870 | Regional | No  | Mild | 4 |
| 3871 | Regional | No  | Mild | 4 |
| 3873 | Regional | No  | Mild | 4 |
| 3874 | Regional | No  | Mild | 4 |
| 3875 | Regional | Yes | Mild | 4 |
| 3878 | Regional | Yes | Mild | 4 |
| 3880 | Regional | Yes | Mild | 4 |
| 3882 | Regional | No  | Mild | 4 |
| 3885 | Regional | No  | Mild | 5 |
| 3886 | Regional | No  | Mild | 4 |
| 3887 | Regional | No  | Mild | 4 |
| 3888 | Regional | No  | Mild | 4 |
| 3889 | Regional | No  | Cold | 4 |
| 3890 | Regional | No  | Mild | 4 |
| 3891 | Regional | No  | Mild | 4 |
| 3892 | Regional | No  | Mild | 4 |
| 3893 | Regional | No  | Cold | 5 |
| 3895 | Regional | No  | Cold | 5 |
| 3896 | Regional | No  | Cold | 5 |
| 3898 | Regional | No  | Cold | 5 |
| 3900 | Regional | No  | Cold | 5 |
| 3902 | Regional | No  | Mild | 4 |
| 3903 | Regional | No  | Mild | 4 |

|      |              |     |      |   |
|------|--------------|-----|------|---|
| 3904 | Regional     | No  | Mild | 4 |
| 3909 | Regional     | No  | Mild | 4 |
| 3910 | Metropolitan | Yes | Mild | 4 |
| 3911 | Metropolitan | Yes | Mild | 4 |
| 3912 | Metropolitan | Yes | Mild | 4 |
| 3913 | Metropolitan | Yes | Mild | 4 |
| 3915 | Metropolitan | Yes | Mild | 4 |
| 3916 | Metropolitan | Yes | Mild | 4 |
| 3918 | Metropolitan | Yes | Mild | 4 |
| 3919 | Metropolitan | Yes | Mild | 4 |
| 3920 | Metropolitan | Yes | Mild | 4 |
| 3921 | Regional     | Yes | Mild | 4 |
| 3922 | Regional     | No  | Mild | 4 |
| 3923 | Regional     | No  | Mild | 4 |
| 3925 | Regional     | No  | Mild | 4 |
| 3926 | Metropolitan | Yes | Mild | 4 |
| 3927 | Metropolitan | Yes | Mild | 4 |
| 3928 | Metropolitan | Yes | Mild | 4 |
| 3929 | Metropolitan | Yes | Mild | 4 |
| 3930 | Metropolitan | Yes | Mild | 4 |
| 3931 | Metropolitan | Yes | Mild | 4 |
| 3933 | Metropolitan | Yes | Mild | 4 |
| 3934 | Metropolitan | Yes | Mild | 4 |
| 3936 | Metropolitan | Yes | Mild | 4 |
| 3937 | Metropolitan | Yes | Mild | 4 |
| 3938 | Metropolitan | Yes | Mild | 4 |
| 3939 | Metropolitan | Yes | Mild | 4 |
| 3940 | Metropolitan | Yes | Mild | 4 |
| 3941 | Metropolitan | Yes | Mild | 4 |
| 3942 | Metropolitan | Yes | Mild | 4 |
| 3943 | Metropolitan | Yes | Mild | 4 |
| 3944 | Metropolitan | Yes | Mild | 4 |
| 3945 | Regional     | No  | Mild | 4 |
| 3946 | Regional     | No  | Cold | 4 |
| 3950 | Regional     | Yes | Mild | 4 |
| 3951 | Regional     | No  | Mild | 4 |
| 3953 | Regional     | Yes | Mild | 4 |

|      |              |     |      |   |
|------|--------------|-----|------|---|
| 3954 | Regional     | No  | Mild | 4 |
| 3956 | Regional     | No  | Mild | 4 |
| 3957 | Regional     | No  | Mild | 4 |
| 3958 | Regional     | No  | Cold | 4 |
| 3959 | Regional     | No  | Mild | 4 |
| 3960 | Regional     | No  | Mild | 4 |
| 3962 | Regional     | No  | Mild | 4 |
| 3964 | Regional     | No  | Cold | 4 |
| 3965 | Regional     | No  | Mild | 4 |
| 3966 | Regional     | No  | Cold | 4 |
| 3967 | Regional     | No  | Cold | 4 |
| 3971 | Regional     | No  | Cold | 4 |
| 3975 | Metropolitan | Yes | Mild | 4 |
| 3976 | Metropolitan | Yes | Mild | 4 |
| 3977 | Metropolitan | Yes | Mild | 4 |
| 3978 | Metropolitan | Yes | Mild | 4 |
| 3979 | Regional     | No  | Mild | 4 |
| 3980 | Metropolitan | Yes | Cold | 4 |
| 3981 | Regional     | Yes | Cold | 4 |
| 3984 | Regional     | Yes | Mild | 4 |
| 3987 | Regional     | Yes | Mild | 4 |
| 3988 | Regional     | No  | Cold | 4 |
| 3990 | Regional     | No  | Mild | 4 |
| 3991 | Regional     | No  | Mild | 4 |
| 3992 | Regional     | No  | Mild | 4 |
| 3995 | Regional     | Yes | Mild | 4 |
| 3996 | Regional     | Yes | Mild | 4 |

