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| Victorian Energy Upgrades  Specifications 2018 - Version 14.0 |

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**Author**

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**Document Version**

Version 14.0 comes into effect from 1 February 2023. Versions 0.1 to 13.0 are no longer in effect as at 1 February 2023.

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| --- | --- | --- | --- |
| Version | Amendments | In effect from | |
| 14.0 | Removed Part 21 activity – Incandescent lighting.  Revised Part 27 and Part 35 activities to remove mercury vapour lamp upgrades.  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 |
| 13.0 | Revised specified minimum energy efficiency requirements for Part 37 activity – Gas-fired steam boiler and Part 38 activity – gas-fired water heater.  Introduced minor amendments to clarify the relationship between this document and the Regulations. | 19 September 2022 | |
| 12.0 | Revised end date for the existing Part 21 activity from 28 February 2022 to  31 January 2023  Revised Part 34 activity to remove J6 lighting upgrades and adjust mercury vapour, metal halide and high-pressure sodium lamp circuit power calculations in table 34.8  Added new Part 44 Activity – Commercial and Industrial Air Source Heat Pump Water Heaters | 1 February 2022 | |
| 11.0 | Revised Part 32 Activity – Refrigerated Cabinet   1. Scenario 32(A) – applicable to 30 June 2022.   Corrected equation 10.5 to include EEF  Corrected date for Part 34 activity – applicable to 31 January 2022  Clarified product requirements for Voltage Reduction Units in Table 34.1 | 30 October 2021 | |
| 10.0 | Added the new Part 43 Activity – Cold Rooms | 17 August 2021 | |
| 9.0 | Revised electricity emissions factors for 2021-2025 and revised greenhouse gas equivalent emissions reduction calculations for activities impacting electricity consumption.  Removed the end dated Part 34 and Part 21 which expired on 31 March 2021 and  31 July 2021 respectively. | 1 August 2021 | |

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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 *Be* 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;

***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*means the annual electrical energy used by the auxiliary equipment of a solar or heat pump water heater system in accordance with AS/NZS 4234:2008 reissued in 2014 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* means the annual supplementary energy used by a solar or heat pump water heater measured in accordance with AS/NZS 4234:2008 reissued in 2014 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;

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

For Activity 44:

From 1 August 2021 to 31 January 2022

From 1 February 2022 to 31 January 2023

From 1 February 2023 to 31 January 2024

From 1 February 2024 to 31 January 2025

From 1 February 2025

For all other activities:

From 1 August 2021 to 31 January 2022

From 1 February 2022 to 31 January 2023

From 1 February 2023 to 31 January 2024

From 1 February 2024 to 31 January 2025

From 1 February 2025

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

***EER***means the effective energy efficiency ratio based on measurements of nominal rating (kW) and electricity consumption undertaken according to AS 2913-2000 and calculated according to—

where—

is the nominal rating (kW) divided by electricity consumption (kW) at rated airflow

is the nominal rating (kW) divided by electricity consumption (kW) at 50% rated airflow

is the nominal rating (kW) divided by electricity consumption (kW) at 20% rated airflow;

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

***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 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/>;

***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:

1. the Intergovernmental Panel on Climate Change (IPCC) fourth assessment report, 2007 (AR4), or
2. 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;

***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—

1. the power drawn by the lamp, and
2. 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 thelamp 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;

***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;

***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;

***rating correction*** means the factor which is multiplied by a gas or liquified petroleum gas instantaneous water heaters’ SRI, and results in an increase in the reduction of carbon dioxide equivalents of GHG for this product;

***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 cm2 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;

***SRI*** means star rating index;

***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****ff* means the volume in litres of the fresh food compartment of a refrigerator;

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

***warranty***, for the purposes of Part 15 of Schedule 2 of the Regulations activity requirements, means a warranty against defects;

***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

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| 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.   1. This section specifies the minimum energy efficiency requirements for these activities. 2. This section specifies other matters for these activities, where required by the Regulations. 3. This section also specifies the methods and variables required to determine the amount of GHG equivalent emissions reduced by each prescribed activity. |

## 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.  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 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[[1]](#footnote-2) | Product to be installed[[2]](#footnote-3) | Historical schedule number\* |
| --- | --- | --- | --- | --- |
| 1A | 1A | Electric resistance water heater | Gas or LPG storage water heater | 1A |
| 1B | 1B | Electric resistance water heater | Gas or LPG instantaneous water heater | 1B |
| 1C | 1C | Electric resistance water heater | Electric boosted solar water heater that is certified to AS/NZS 2712 | 1E |
| 1D | 1D | Electric resistance water heater | Heat pump water heater that is certified to AS/NZS 2712 | 1E |
| 1F | 1F | Electric resistance water heater | Gas or LPG boosted solar water heater that is certified to AS/NZS 2712 | 1F |

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

### *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

| Product category number | Requirement type | Efficiency requirement[[3]](#footnote-4) | |
| --- | --- | --- | --- |
| 1A and 1B | Minimum star rating | 5 stars, as certified when tested and rated in accordance with AS/NZS 5263.1.2 | |
| 1C, 1F | Minimum annual energy savings | 60%, determined in accordance with AS/NZS 4234 and the Water Heating and Space Heating/Cooling Product Application Guide, when modelled in climate zone 4 | |
| 1D | Minimum annual energy savings | If the product is installed in climatic zone 4\* | 60%, determined in accordance with AS/NZS 4234 and the Water Heating and Space Heating/Cooling Product Application Guide, when modelled in climate zone HP4-Au |
| If the product is installed in climatic zone 5\* | 60%, determined in accordance with AS/NZS 4234 and the Water Heating and Space Heating/Cooling Product Application Guide, when modelled in climate zone HP5-Au |

\*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[[4]](#footnote-5) |
| --- | --- | --- |
| 1D | Heat pump modelling requirements | The product must be modelled in accordance with AS/NZS 4234 so that minimum annual energy savings are determined for both HP4-Au and HP5-Au climate zones. These must be provided to the ESC.\* |

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

### *Method for Determining GHG Equivalent Reduction*

|  |
| --- |
| **Scenario 1A: Decommissioning Electric and Installing Gas Storage** |

The GHG equivalent emissions reduction for this scenario is given by Equation 1.1, using the variables listed in Table 1.4.

Equation 1.1 – GHG equivalent emissions reduction calculation for Scenario 1A

|  |
| --- |

Table 1.4 – GHG equivalent emissions reduction variables for Scenario 1A

|  |  |  |
| --- | --- | --- |
| Small upgrade: upgrade product has a storage capacity less than 95 litres  Medium upgrade: upgrade product has a storage capacity of at least 95 and no more than 140 litres  Large upgrade: upgrade product has storage capacity of more than 140 litres | | |
| **Input type** | **Condition** | **Input value** |
| Baseline | Small upgrade | 1.56 |
| Medium upgrade | 2.67 |
| Large upgrade | 3.39 |
| Upgrade | Small upgrade | 0.50 |
| Medium upgrade | 0.66 |
| Large upgrade | 0.82 |
| Lifetime | In every instance | 12.00 |
| Regional Factor | For upgrades in Metropolitan Victoria | 0.98 |
| For upgrades in Regional Victoria | 1.04 |

|  |
| --- |
| Scenario 1B: Decommissioning Electric and Installing Gas Instantaneous |

The GHG equivalent emissions reduction for this scenario is given by Equation 1.2, using the variables listed in Table 1.5.

Equation 1.2 – GHG equivalent emissions reduction calculation for Scenario 1B

|  |
| --- |

Table 1.5 – GHG equivalent emissions reduction variables for Scenario 1B

|  |  |  |
| --- | --- | --- |
| Small upgrade: upgrade product has a water heating capacity @ 25°C rise of less than 18 L/min  Medium upgrade: upgrade product has a water heating capacity @ 25°C rise of at least 18 L/min and no more than  22 L/min  Large upgrade: upgrade product has a water heating capacity @ 25°C rise of more than 22 L/min | | |
| **Input type** | **Condition** | **Input value** |
| Abatement Factor | Small upgrade |  |
| Medium upgrade |  |
| Large upgrade |  |
| Rating Correction | Small upgrade | 0.34 |
| Medium upgrade | 0.56 |
| Large upgrade | 0.78 |
| SRI |  | Star Rating Index of Product |
| Regional Factor | For upgrades in Metropolitan Victoria | 0.98 |
| For upgrades in Regional Victoria | 1.04 |

|  |
| --- |
| **Scenario 1C: Decommissioning Electric and Installing Electric Boosted Solar** |

The GHG equivalent emissions reduction for this scenario is given by Equation 1.3, using the variables listed in Table 1.6.

Equation 1.3 – GHG equivalent emissions reduction calculation for Scenario 1C

|  |
| --- |

Table 1.6 – GHG equivalent emissions reduction variables for Scenario 1C

|  |  |  |  |
| --- | --- | --- | --- |
| Small upgrade: upgrade product is a small system as determined in accordance with AS/NZS 4234 based on the system's peak daily thermal energy load delivery characteristics  Medium upgrade: upgrade product is a medium system as determined in accordance with AS/NZS 4234 based on the system's peak daily thermal energy load delivery characteristics | | | |
| **Input type** | **Condition** | | **Input value** |
| Abatement Factor | For upgrades in Metropolitan Victoria | Small upgrade | 28.67 |
| Medium upgrade | 45.95 |
| For upgrades in Regional Victoria | Small upgrade | 30.42 |
| Medium upgrade | 48.76 |
| SEF | For upgrades in Metropolitan Victoria | | 1.70 |
| For upgrades in Regional Victoria | | 1.81 |
| BS | In every instance | | as determined in accordance with AS/NZS 4234 in GJ/year |
| AEF | For upgrades in Metropolitan Victoria | | 1.70 |
| For upgrades in Regional Victoria | | 1.81 |
| Be | In every instance | | as determined in accordance with AS/NZS 4234 in GJ/year |

|  |
| --- |
| **Scenario 1D: Decommissioning Electric and Installing Heat Pump** |

The GHG equivalent emissions reduction for this scenario is given by Equation 1.4, using the variables listed in Table 1.7.

Equation 1.4 – GHG equivalent emissions reduction calculation for Scenario 1D

|  |
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Table 1.7 – GHG equivalent emissions reduction variables for Scenario 1D

|  |  |  |  |
| --- | --- | --- | --- |
| Small upgrade: upgrade product is a small system as determined in accordance with AS/NZS 4234 based on the system's peak daily thermal energy load delivery characteristics  Medium upgrade: upgrade product is a medium system as determined in accordance with AS/NZS 4234 based on the system's peak daily thermal energy load delivery characteristics | | | |
| **Input type** | **Condition** | | **Input value** |
| Abatement Factor | For upgrades in Metropolitan Victoria | Small upgrade | 22.62 |
| Medium upgrade | 36.24 |
| For upgrades in Regional Victoria | Small upgrade | 24.01 |
| Medium upgrade | 38.46 |
| SEF | For upgrades in Metropolitan Victoria | | 1.80 |
| For upgrades in Regional Victoria | | 1.91 |
| BS | In every instance | | as determined in accordance with AS/NZS 4234 in GJ/year |
| AEF | For upgrades in Metropolitan Victoria | | 1.80 |
| For upgrades in Regional Victoria | | 1.91 |
| Be | In every instance | | as determined in accordance with AS/NZS 4234 in GJ/year |

|  |
| --- |
| **Scenario 1F: Decommissioning Electric and Installing Gas Boosted Solar** |

The GHG equivalent emissions reduction for this scenario is given by Equation 1.5, using the variables listed in Table 1.8.

Equation 1.5 – GHG equivalent emissions reduction calculation for Scenario 1F

|  |
| --- |

Table 1.8 – GHG equivalent emissions reduction variables for Scenario 1F

|  |  |  |  |
| --- | --- | --- | --- |
| Small upgrade: upgrade product is a small system as determined in accordance with AS/NZS 4234 based on the system's peak daily thermal energy load delivery characteristics  Medium upgrade: upgrade product is a medium system as determined in accordance with AS/NZS 4234 based on the system's peak daily thermal energy load delivery characteristics | | | |
| **Input type** | **Condition** | | **Input value** |
| Abatement Factor | For upgrades in Metropolitan Victoria | Small upgrade | 28.71 |
| Medium upgrade | 46.01 |
| For upgrades in Regional Victoria | Small upgrade | 30.47 |
| Medium upgrade | 48.83 |
| SEF | For upgrades in Metropolitan Victoria | | 0.35 |
| For upgrades in Regional Victoria | | 0.34 |
| BS | In every instance | | as determined in accordance with AS/NZS 4234 in GJ/year |
| AEF | For upgrades in Metropolitan Victoria | | 1.71 |
| For upgrades in Regional Victoria | | 1.82 |
| Be | In every instance | | as determined in accordance with AS/NZS 4234 in GJ/year |

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

## 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.  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 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[[5]](#footnote-6) | Product to be installed[[6]](#footnote-7) | Historical schedule number\* |
| --- | --- | --- | --- | --- |
| 3B | 3B | Gas or LPG water heater | Gas or LPG boosted solar water heater that is certified to AS/NZS 2712 | 3B |

### *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[[7]](#footnote-8) |
| --- | --- | --- |
| 3B | Minimum annual energy savings | 60%, determined in accordance with AS/NZS 4234 and the Water Heating and Space Heating/Cooling Product Application Guide, when modelled in climate zone 4 |

### *Other specified matters*

None.

### *Method for Determining GHG Equivalent Reduction*

|  |
| --- |
| **Scenario 3B: Decommissioning Gas and Installing Gas Boosted Solar** |

The GHG equivalent emissions reduction for this scenario is given by Equation 3.1 using the variables listed in Table 3.3.

Equation 3.1 – GHG equivalent emissions reduction calculation for Scenario 3B

|  |
| --- |

Table 3.3 – GHG equivalent emissions reduction variables for Scenario 3B

|  |  |  |
| --- | --- | --- |
| Small upgrade: upgrade product is a small system as determined in accordance with AS/NZS 4234 based on the system's peak daily thermal energy load delivery characteristics  Medium upgrade: upgrade product is a medium system as determined in accordance with AS/NZS 4234 based on the system's peak daily thermal energy load delivery characteristics | | |
| **Input Type** | **Condition** | **Input Value** |
| Abatement Factor | Small upgrade | 8.88 |
| Medium upgrade | 12.23 |
| SEF | At every instance | 0.35 |
| BS | In every instance | as determined in accordance with AS/NZS 4234 in GJ/year |
| AEF | For upgrades in Metropolitan Victoria | 1.75 |
| For upgrades in Regional Victoria | 1.85 |
| Be | In every instance | as determined in accordance with AS/NZS 4234 in GJ/year |

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

## Part 5 Activity– Space heating, ducted gas heater

### *Activity description (Guidance)*

|  |
| --- |
| Part 5 of Schedule 2 of the Regulations prescribes the upgrade to a high efficiency ducted gas heater as an eligible activity for the purposes of the Victorian Energy Upgrades program.  Table 5.1 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 5.1 – Eligible part 5 space heating scenarios

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Product category number | Scenario  number | Decommissioning requirements[[8]](#footnote-9) | Other requirements | Product to be installed[[9]](#footnote-10) | Historical schedule  number |
| 5A | 5A(i) | Ducted gas heater | None | Ducted gas heater with a minimum thermal output (or capacity) of 10kW | 5A |
| 5A(ii) | Central electric resistance heater that provides heating to a space with a floor area of at least 100m2 | None | 6A |
| 5A(iii) | None | no other space heating or cooling product is installed in premises | 20A |

### *Specified Minimum Energy Efficiency*

The product installed must meet the additional requirements set out in Table 5.2.

Table 5.2 – Additional requirements for space heating equipment to be installed

| Product category number | Requirement type | Efficiency requirement[[10]](#footnote-11) |
| --- | --- | --- |
| 5A | Minimum star rating | 5 stars, as certified by an accredited body when tested and rated in accordance with AS/NZS 5263.1.6 |

### *Other specified matters*

None.

### *Method for Determining GHG Equivalent Reduction*

|  |
| --- |
| **Scenario 5A(i): Decommissioning an existing ducted gas space heater and installing high efficiency ducted gas space heater** |

The GHG equivalent emissions reduction for this scenario is given by Equation 5.1 using the variables listed in Table 5.3.

Equation 5.1 – GHG equivalent emissions reduction calculation for Scenario 5A(i)

|  |
| --- |

Table 5.3 – GHG equivalent emissions reduction variables for Scenario 5A(i)

|  |  |  |  |
| --- | --- | --- | --- |
| Measurements, testing and ratings must be in accordance with AS/NZS 5263.1.6  Small upgrade: upgrade product has a thermal output (or capacity) of at least 10 and not more than 18 kW  Medium upgrade: upgrade product has a thermal output (or capacity) of more than 18 and not more than 28 kW  Large upgrade: upgrade product has a thermal output (or capacity) of more than 28 kW | | | |
| **Input type** | **Condition** | | **Input value** |
| Baseline | Small upgrade | |  |
| Medium upgrade | |  |
| Large upgrade | |  |
| Upgrade | Small upgrade | 5.00 to less than 5.50 stars |  |
| 5.50 to less than 6 stars |  |
| 6 stars or greater |  |
| Medium upgrade | 5.00 to less than 5.50 stars |  |
| 5.50 to less than 6 stars |  |
| 6 stars or greater |  |
| Large upgrade | 5.00 to less than 5.50 stars |  |
| 5.50 to less than 6 stars |  |
| 6 stars or greater |  |
| 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 | | 1.63 |
| For upgrades in Regional Victoria – Climatic region mild | | 1.00 |
| For upgrades in Regional Victoria – Climatic region cold | | 1.64 |
| For upgrades in Regional Victoria – Climatic region hot | | 0.71 |

|  |
| --- |
| **Scenario 5A(ii): Decommissioning a central electric resistance heater and installing a high efficiency ducted gas space heater** |

The GHG equivalent emissions reduction for this scenario is given by Equation 5.2, using the variables listed in Table 5.4.

Equation 5.2 – GHG equivalent emissions reduction calculation for Scenario 5A(ii)

|  |
| --- |

Table 5.4 – GHG equivalent emissions reduction variables for Scenario 5A(ii)

|  |  |  |  |
| --- | --- | --- | --- |
| Measurements, testing and ratings must be in accordance with AS/NZS 5263.1.6  Small upgrade: upgrade product has a thermal output (or capacity) of at least 10 and not more than 18 kW  Medium upgrade: upgrade product has a thermal output (or capacity) of more than 18 and not more than 28 kW  Large upgrade: upgrade product has a thermal output (or capacity) of more than 28 kW | | | |
| **Input type** | **Condition** | | **Input value** |
| Baseline | Small upgrade | |  |
| Medium upgrade | |  |
| Large upgrade | |  |
| Upgrade | Small upgrade | 5.00 to less than 5.50 stars |  |
| 5.50 to less than 6 stars |  |
| 6 stars or greater |  |
| Medium upgrade | 5.00 to less than 5.50 stars |  |
| 5.50 to less than 6 stars |  |
| 6 stars or greater |  |
| Large upgrade | 5.00 to less than 5.50 stars |  |
| 5.50 to less than 6 stars |  |
| 6 stars or greater |  |
| 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 | | 1.08 |
| For upgrades in Regional Victoria – Climatic region cold | | 1.76 |
| For upgrades in Regional Victoria – Climatic region hot | | 0.76 |

|  |
| --- |
| **Scenario 5A(iii): Installing a ducted gas heater in a new premises** |

The GHG equivalent emissions reduction for this scenario is given by Equation 5.3, using the variables listed in Table 5.5.

Equation 5.3 – GHG equivalent emissions reduction calculation for Scenario 5A(iii)

|  |
| --- |

Table 5.5 – GHG equivalent emissions reduction variables for Scenario 5A(iii)

|  |  |  |  |
| --- | --- | --- | --- |
| Measurements, testing and ratings must be in accordance with AS/NZS 5263.1.6  Small upgrade: upgrade product has a thermal output (or capacity) of at least 10 and not more than 18 kW  Medium upgrade: upgrade product has a thermal output (or capacity) of more than 18 and not more than 28 kW  Large upgrade: upgrade product has a thermal output (or capacity) of more than 28 kW | | | |
| **Input type** | **Condition** | | **Input value** |
| Baseline | Small upgrade | |  |
| Medium upgrade | |  |
| Large upgrade | |  |
| Upgrade | Small upgrade | 5.00 to less than 5.50 stars |  |
| 5.50 to less than 6 stars |  |
| 6 stars or greater |  |
| Medium upgrade | 5.00 to less than 5.50 stars |  |
| 5.50 to less than 6 stars |  |
| 6 stars or greater |  |
| Large upgrade | 5.00 to less than 5.50 stars |  |
| 5.50 to less than 6 stars |  |
| 6 stars or greater |  |
| 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 | | 1.86 |
| For upgrades in Regional Victoria – Climatic region mild | | 1.01 |
| For upgrades in Regional Victoria – Climatic region cold | | 1.87 |
| For upgrades in Regional Victoria – Climatic region hot | | 0.66 |

## Part 6 Activity– Space heating and cooling, general

### *Activity description (Guidance)*

|  |
| --- |
| Part 6 of Schedule 2 of the Regulations prescribes the upgrade of a space heater or cooler of a type specified by the Secretary as an eligible activity for the purposes of the Victorian Energy Upgrades program.  The Secretary has not specified any type of requirements for this item to date. |

### *Specified Minimum Energy Efficiency*

Currently not applicable.

### *Other specified matters*

Currently not applicable.

### *Method for Determining GHG Equivalent Reduction*

Currently not applicable.

## Part 7 Activity– Space heating, ducted air to air heat pump

### *Activity description (Guidance)*

|  |
| --- |
| Part 7 of Schedule 2 of the Regulations prescribes the upgrade to a high efficiency air to air heat pump as an eligible activity for the purposes of the Victorian Energy Upgrades program.  Table 7.1lists 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.  Products installed must be listed on the GEMS Register at the time of installation. |

Table 7.1 – Eligible space heating scenarios

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Product category number | Scenario  Number | Decommissioning requirements[[11]](#footnote-12) | Other requirements | Product to be installed[[12]](#footnote-13) | Historical schedule  number |
| 7A | 7A(i) | Ducted air to air heat pump | None | Ducted air to air heat pump | 7A |
| 7A(ii) | Central electric resistance heater that provides heating to a space with a floor area of at least 100m2 | None | 8A |
| 7A(iii) | None | No other space heating or cooling product is installed in premises | N/A |

### *Specified Minimum Energy Efficiency*

The product installed must meet the additional requirements set out in Table 7.2.

Table 7.2 – Additional requirements for space heating equipment to be installed

| Product category number | Requirement type | Efficiency requirement[[13]](#footnote-14) |
| --- | --- | --- |
| 7A | Minimum performance requirement | Product achieves:   1. a minimum RTHC of 10 kW at the H1 temperature condition 2. a minimum ACOP of: 3. 3.9, if RTHC is 18kW or less 4. 3.7, in any other case   Measurement, testings and ratings must be in accordance with the *Greenhouse and Energy Minimum Standards (Air Conditioners and Heat Pumps) Determination 2013 (Cth)* |

### *Other specified matters*

None.

### *Method for Determining GHG Equivalent Reduction*

|  |
| --- |
| **Scenario 7A(i): Decommissioning an existing ducted air to air heat pump and installing a high efficiency ducted air to air heat pump** |

The GHG equivalent emissions reduction for this scenario is given by Equation 7.1, using the variables listed in Table 7.3.

Equation 7.1 – GHG equivalent emissions reduction calculation for Scenario 7A(i)

|  |
| --- |

Table 7.3 – GHG equivalent emissions reduction variables for Scenario 7A(i)

|  |  |  |  |
| --- | --- | --- | --- |
| Measurements, testing and ratings must be in accordance with the Greenhouse and Energy Minimum Standards  (Air Conditioners and Heat Pumps) Determination 2013 (Cth)  Small upgrade: upgrade product has a RTHC of at least 10 and not more than 18 kW  Medium upgrade: upgrade product has a RTHC of more than 18 and not more than 28 kW  Large upgrade: upgrade product has a RTHC of more than 28 kW | | | |
| **Input type** | **Condition** | | **Input value** |
| Baseline | Small upgrade | | 4.72 |
| Medium upgrade | | 6.16 |
| Large upgrade | | 7.43 |
| Upgrade | Small upgrade | ACOP of 3.90 to less than 4.00 | 4.49 |
| ACOP of 4.00 to less than 4.30 | 4.37 |
| ACOP of 4.30 to less than 4.60 | 4.06 |
| ACOP of 4.60 or greater | 3.78 |
| Medium upgrade | ACOP of 3.70 to less than 4.00 | 5.85 |
| ACOP of 4.00 to less than 4.30 | 5.40 |
| ACOP of 4.30 to less than 4.60 | 5.02 |
| ACOP of 4.60 or greater | 4.68 |
| Large upgrade | ACOP of 3.70 to less than 4.00 | 6.94 |
| ACOP of 4.00 to less than 4.30 | 6.41 |
| ACOP of 4.30 to less than 4.60 | 5.95 |
| ACOP of 4.60 or greater | 5.55 |
| Lifetime | In every instance | | 13.00 |
| Regional Factor | For upgrades in Metropolitan Victoria – Climatic region mild | | 1.00 |
| For upgrades in Metropolitan Victoria – Climatic region cold | | 1.32 |
| For upgrades in Regional Victoria – Climatic region mild | | 1.06 |
| For upgrades in Regional Victoria – Climatic region cold | | 1.40 |
| For upgrades in Regional Victoria – Climatic region hot | | 1.34 |

|  |
| --- |
| **Scenario 7A(ii): Decommissioning a central electric resistance heater and installing a high efficiency ducted air to air heat pump** |

The GHG equivalent emissions reduction for this scenario is given by Equation 7.2, using the variables listed in Table 7.4.

Equation 7.2 – GHG equivalent emissions reduction calculation for Scenario 7A(ii)

|  |
| --- |

Table 7.4 – GHG equivalent emissions reduction variables for Scenario 7A(ii)

|  |  |  |  |
| --- | --- | --- | --- |
| Measurements, testing and ratings must be in accordance with the Greenhouse and Energy Minimum Standards  (Air Conditioners and Heat Pumps) Determination 2013 (Cth)  Small upgrade: upgrade product has a RTHC of at least 10 and not more than 18 kW  Medium upgrade: upgrade product has a RTHC of more than 18 and not more than 28 kW  Large upgrade: upgrade product has a RTHC of more than 28 kW | | | |
| **Input type** | **Condition** | | **Input value** |
| Baseline | Small upgrade | | 9.35 |
| Medium upgrade | | 11.80 |
| Large upgrade | | 14.89 |
| Upgrade | Small upgrade | ACOP of 3.90 to less than 4.00 | 4.49 |
| ACOP of 4.00 to less than 4.30 | 4.37 |
| ACOP of 4.30 to less than 4.60 | 4.06 |
| ACOP of 4.60 or greater | 3.78 |
| Medium upgrade | ACOP of 3.70 to less than 4.00 | 5.85 |
| ACOP of 4.00 to less than 4.30 | 5.40 |
| ACOP of 4.30 to less than 4.60 | 5.02 |
| ACOP of 4.60 or greater | 4.68 |
| Large upgrade | ACOP of 3.70 to less than 4.00 | 6.94 |
| ACOP of 4.00 to less than 4.30 | 6.41 |
| ACOP of 4.30 to less than 4.60 | 5.95 |
| ACOP of 4.60 or greater | 5.55 |
| Lifetime | In every instance | | 13.00 |
| Regional Factor | For upgrades in Metropolitan Victoria – Climatic region mild | | 1.00 |
| For upgrades in Metropolitan Victoria – Climatic region cold | | 1.85 |
| For upgrades in Regional Victoria – Climatic region mild | | 1.06 |
| For upgrades in Regional Victoria – Climatic region cold | | 1.96 |
| For upgrades in Regional Victoria – Climatic region hot | | 0.30 |

|  |
| --- |
| **Scenario 7A(iii): Installing a high efficiency ducted air to air heat pump in a new premises** |

The GHG equivalent emissions reduction for this scenario is given by Equation 7.3, using the variables listed in Table 7.5.

Equation 7.3 – GHG equivalent emissions reduction calculation for Scenario 7A(iii)

|  |
| --- |

Table 7.5 – GHG equivalent emissions reduction variables for Scenario 7A(iii)

|  |  |  |  |
| --- | --- | --- | --- |
| Measurements, testing and ratings must be in accordance with the Greenhouse and Energy Minimum Standards  (Air Conditioners and Heat Pumps) Determination 2013 (Cth)  Small upgrade: upgrade product has a RTHC of at least 10 and not more than 18 kW  Medium upgrade: upgrade product has a RTHC of more than 18 and not more than 28 kW  Large upgrade: upgrade product has a RTHC of more than 28 kW | | | |
| **Input type** | **Condition** | | **Input value** |
| Baseline | Small upgrade | | 2.04 |
| Medium upgrade | | 2.13 |
| Large upgrade | | 2.81 |
| Upgrade | Small upgrade | ACOP of 3.90 to less than 4.00 | 1.94 |
| ACOP of 4.00 to less than 4.30 | 1.89 |
| ACOP of 4.30 to less than 4.60 | 1.75 |
| ACOP of 4.60 or greater | 1.63 |
| Medium upgrade | ACOP of 3.70 to less than 4.00 | 2.02 |
| ACOP of 4.00 to less than 4.30 | 1.87 |
| ACOP of 4.30 to less than 4.60 | 1.73 |
| ACOP of 4.60 or greater | 1.62 |
| Large upgrade | ACOP of 3.70 to less than 4.00 | 2.62 |
| ACOP of 4.00 to less than 4.30 | 2.42 |
| ACOP of 4.30 to less than 4.60 | 2.24 |
| ACOP of 4.60 or greater | 2.09 |
| Lifetime | In every instance | | 13.00 |
| Regional Factor | For upgrades in Metropolitan Victoria – Climatic region mild | | 1.00 |
| For upgrades in Metropolitan Victoria – Climatic region cold | | 1.37 |
| For upgrades in Regional Victoria – Climatic region mild | | 1.06 |
| For upgrades in Regional Victoria – Climatic region cold | | 1.45 |
| For upgrades in Regional Victoria – Climatic region hot | | 1.49 |

\*\*\*There is no Part 8 Activity

## Part 9 Activity– Space heating, room gas/LPG heater

### *Activity description (Guidance)*

|  |
| --- |
| Part 9 of Schedule 2 of the Regulations prescribes the upgrade to a high efficiency room gas or LPG space heater as an eligible activity for the purposes of the Victorian Energy Upgrades program.  Table 9.1 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 9.1 – Eligible space heating scenarios

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Product category number | Scenario  Number | Decommissioning requirements[[14]](#footnote-15) | Product to be installed[[15]](#footnote-16) | Historical schedule  number |
| 9A | 9A(i) | Hard-wired electric room heater used as the main form of heating the premises. | Gas or LPG room heater with a minimum thermal output (or capacity) of 2 kW | 9A |
| 9A(ii) | Gas or LPG room heater, or other type of room heating[[16]](#footnote-17) | 9A |
| 9A(iii) | Plug in electric heater when used as the main form of heating any premises; or  Wood fired room heater used as the main form of heating:   1. an entire Class 1a, 4, 5, 6, 7b or 8 Building 2. an entire dwelling within a Class 1b or 2 Building 3. a room within a Class 3 or 9 Building   as per the BCA” | 9A |

### *Specified Minimum Energy Efficiency*

The product installed must meet the additional requirements set out in Table 9.2.

Table 9.2 – Additional requirements for space heating equipment to be installed

| Product category number | Requirement type | Efficiency requirement[[17]](#footnote-18) |
| --- | --- | --- |
| 9A | Minimum star rating | 4 stars, as certified by an accredited body when tested and rated to AS/NZS 5263.1.3 |

### *Other specified matters*

The products installed or decommissioned must meet the additional requirements set out in Table 9.3.

Table 9.3 – Other specified matters for space heating equipment

| Product category number | Requirement type | Specification details |
| --- | --- | --- |
| 9A | space heating product for the purposes of the definition of “controlled heating or cooling product” in the Regulations[[18]](#footnote-19) | For the purposes of scenario number 9A(ii) the Secretary hereby specifies that any room heaters that are not otherwise listed may also be decommissioned |
| 9A | Specified flue design requirements[[19]](#footnote-20) | Room sealed flue |

### *Method for Determining GHG Equivalent Reduction*

|  |
| --- |
| **Scenario 9A(i): Decommissioning a hard-wired electric room heater and installing a high efficiency gas room heater** |

The GHG equivalent emissions reduction for this scenario is given by Equation 9.1, using the variables listed in Table 9.4.

Equation 9.1 – GHG equivalent emissions reduction calculation for Scenario 9A(i)

|  |
| --- |

Table 9.4 – GHG equivalent emissions reduction variables for Scenario 9A(i)

|  |  |  |  |
| --- | --- | --- | --- |
| Measurements, testing and ratings must be in accordance with AS/NZS 5263.1.3  Small upgrade: upgrade product has a thermal output (or capacity) of at least 2 and not more than 3 kW  Medium upgrade: upgrade product has a thermal output (or capacity) of more than 3 and not more than 6 kW  Large upgrade: upgrade product has a thermal output (or capacity) of more than 6 kW | | | |
| **Input type** | **Condition** | | **Input value** |
| Baseline | Small upgrade | |  |
| Medium upgrade | |  |
| Large upgrade | |  |
| Upgrade | Small upgrade | 4.00 to less than 5 stars | 0.40 |
| 5.00 stars or greater | 0.37 |
| Medium upgrade | 4.00 to less than 5 stars | 0.75 |
| 5.00 stars or greater | 0.70 |
| Large upgrade | 4.00 to less than 5 stars | 0.95 |
| 5.00 stars or greater | 0.88 |
| 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 | | 1.33 |
| For upgrades in Regional Victoria – Climatic region mild | | 1.08 |
| For upgrades in Regional Victoria – Climatic region cold | | 1.75 |
| For upgrades in Regional Victoria – Climatic region hot | | 0.76 |

|  |
| --- |
| **Scenario 9A(ii): Decommissioning an existing gas room heater or other heater and installing a high efficiency gas room heater** |

The GHG equivalent emissions reduction for this scenario is given by Equation 9.2, using the variables listed in Table 9.5.

Equation 9.2 – GHG equivalent emissions reduction calculation for Scenario 9A(ii)

|  |
| --- |

Table 9.5 – GHG equivalent emissions reduction variables for Scenario 9A(ii)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Measurements, testing and ratings must be in accordance with AS/NZS 5263.1.3  Small upgrade: upgrade product has a thermal output (or capacity) of at least 2 and not more than 3 kW  Medium upgrade: upgrade product has a thermal output (or capacity) of more than 3 and not more than 6 kW  Large upgrade: upgrade product has a thermal output (or capacity) of more than 6 kW | | | | |
| **Input type** | **Condition** | | **Input value** | |
| Baseline | Small upgrade | | 0.45 | |
| Medium upgrade | | 0.85 | |
| Large upgrade | | 1.07 | |
| Upgrade | Small upgrade | 4.00 to less than 5 stars | 0.40 |
| 5.00 stars or greater | 0.37 |
| Medium upgrade | 4.00 to less than 5 stars | 0.75 |
| 5.00 stars or greater | 0.70 |
| Large upgrade | 4.00 to less than 5 stars | 0.95 |
| 5.00 stars or greater | 0.88 |
| 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 | | 1.00 | |
| For upgrades in Regional Victoria – Climatic region cold | | 1.62 | |
| For upgrades in Regional Victoria – Climatic region hot | | 0.70 | |

|  |
| --- |
| **Scenario 9A(iii): Decommissioning an existing plug-in electric room heater or wood heater and installing a high efficiency gas room heater** |

The GHG equivalent emissions reduction for this scenario is given by Equation 9.3, using the variables listed in Table 9.6.

Equation 9.3 – GHG equivalent emissions reduction calculation for Scenario 9A(iii)

|  |
| --- |

Table 9.6 – GHG equivalent emissions reduction variables for Scenario 9A(iii)

|  |  |  |
| --- | --- | --- |
| Measurements, testing and ratings must be in accordance with AS/NZS 5263.1.3 | | |
| **Input Type** | **Condition** | **Input Value** |
| Baseline | In every instance |  |
| Upgrade | 4.00 to less than 5 stars | 0.32 |
| 5.00 stars or greater | 0.30 |
| 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 | 1.33 |
| For upgrades in Regional Victoria – Climatic region mild | 1.08 |
| For upgrades in Regional Victoria – Climatic region cold | 1.75 |
| For upgrades in Regional Victoria – Climatic region hot | 0.76 |

## Part 10 Activity– Space heating, room air to air heat pump

### *Activity description (Guidance)*

|  |
| --- |
| Part 10 of Schedule 2 of the Regulations prescribes the upgrade to a room air to air pump as an eligible activity for the purposes of the Victorian Energy Upgrades program.  Table 10.1 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.  For the purposes of scenario number 10A(ii) the Secretary specifies that room heaters that are not otherwise listed, may be decommissioned instead of a room air to air heat pump.  Products installed must be listed on the GEMS Register at the time of installation. |

Table 10.1 – Eligible space heating scenarios

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Product category number | Scenario  Number | Decommissioning requirements[[20]](#footnote-21) | Product to be installed[[21]](#footnote-22) | Historical schedule  number |
| 10A | 10A(i) | Hard-wired electric room heater used as the main form of heating the premises. | Room air to air heat pump (other than a ducted air to air heat pump) | 10A |
| 10A(ii) | Room air to air heat pump or other room heater | 10A |
| 10A(iii) | Plug in electric heater used as the main form of heating the premises, or wood fired room heater used as the main form of heating:   1. an entire Class 1a, 4, 5, 6, 7b or 8 Building 2. an entire dwelling within a Class 1b or 2 Building 3. a room within a Class 3 or 9 Building   as per the BCA” | 10A |
| 10A(iv) | Refrigerative air conditioner (non-ducted) that is not located in   1. if in residential premises, a bedroom, or 2. otherwise, a room with an area less than 20m2   and a hard-wired electric room heater used as the main form of heating the premises | 10A |
| 10A(v) | Refrigerative air conditioner (non-ducted) that is not located in   1. if in residential premises, a bedroom, or 2. otherwise, a room with an area less than 20m2   and a plug in electric room heater used as the main form of heating the premises | 10A |
| 10A(vi) | Refrigerative room air conditioner that is not located in   1. if in residential premises, a bedroom, or 2. otherwise, a room with an area less than 20m2   and a gas or LPG room heater | 10A |

### *Specified Minimum Energy Efficiency*

The product installed must meet the additional requirements set out in Table 10.2

Table 10.2 – Additional requirements for space heating equipment to be installed

| Product category number | Requirement type | Efficiency requirement[[22]](#footnote-23) |
| --- | --- | --- |
| 10A | Minimum performance requirement | Product achieves:   1. a minimum RTHC of 2 kW at the H1 temperature condition 2. a minimum ACOP of 3. 4.2, if RTHC is 3 kW or less 4. 4, in any other case   Measurement, testings and ratings must be in accordance with the *Greenhouse and Energy Minimum Standards  (Air Conditioners and Heat Pumps) Determination 2013 (Cth)* |

### *Other specified matters[[23]](#footnote-24)*

The product decommissioned must meet the additional requirements set out in Table 10.3.

Table 10.3 – Other specified matters for space heating equipment

| Product category number | Requirement type | Specification details |
| --- | --- | --- |
| 10A | Space heating product for the purposes of the definition of controlled heating or cooling product in the Regulations | For the purposes of scenario number 10A(ii) any room heaters that are not otherwise listed may also be decommissioned |

### *Method for Determining GHG Equivalent Reduction*

|  |
| --- |
| **Scenario 10A(i): Decommissioning hard-wired electric room heater and installing a high efficiency room air to air heat pump** |

The GHG equivalent emissions reduction for this scenario is given by Equation 10.1 using the variables listed in Table 10.4.

Equation 10.1 – GHG equivalent emissions reduction calculation for Scenario 10A(i)

|  |
| --- |

Table 10.4 – GHG equivalent emissions reduction variables for Scenario 10A(i)

|  |  |  |  |
| --- | --- | --- | --- |
| Measurements, testing and ratings must be in accordance with the Greenhouse and Energy Minimum Standards  (Air Conditioners and Heat Pumps) Determination 2013 (Cth)  Small upgrade: upgrade product has a RTHC of at least 2 and not more than 3 kW  Medium upgrade: upgrade product has a RTHC of more than 3 and not more than 6 kW  Large upgrade: upgrade product has a RTHC of more than 6 kW | | | |
| **Input type** | **Condition** | | **Input value** |
| Baseline | Small upgrade | | 1.53 |
| Medium upgrade | | 2.89 |
| Large upgrade | | 3.65 |
| Upgrade | Small upgrade | ACOP of 4.20 to less than 4.50 | 0.57 |
| ACOP of 4.50 to less than 5.00 | 0.52 |
| ACOP of 5.00 to less than 5.50 | 0.47 |
| ACOP of 5.50 or greater | 0.43 |
| Medium upgrade | ACOP of 4.00 to less than 4.50 | 1.11 |
| ACOP of 4.50 to less than 5.00 | 0.99 |
| ACOP of 5.00 to less than 5.50 | 0.89 |
| ACOP of 5.50 or greater | 0.81 |
| Large upgrade | ACOP of 4.00 to less than 4.50 | 1.32 |
| ACOP of 4.50 to less than 5.00 | 1.17 |
| ACOP of 5.00 to less than 5.50 | 1.05 |
| ACOP of 5.5 or greater | 0.95 |
| Lifetime | In every instance | | 12.00 |
| Regional Factor | For upgrades in Metropolitan Victoria – Climatic region mild | | 1.00 |
| For upgrades in Metropolitan Victoria – Climatic region cold | | 1.79 |
| For upgrades in Regional Victoria – Climatic region mild | | 1.06 |
| For upgrades in Regional Victoria – Climatic region cold | | 1.90 |
| For upgrades in Regional Victoria – Climatic region hot | | 0.48 |

|  |
| --- |
| **Scenario 10A(ii): Decommissioning room air to air heat pump and installing a high efficiency room air to air heat pump** |

The GHG equivalent emissions reduction for this scenario is given by Equation 10.2, using the variables listed in Table 10.5.

Equation 10.2 – GHG equivalent emissions reduction calculation for Scenario 10A(ii)

|  |
| --- |

Table 10.5 – GHG equivalent emissions reduction variables for Scenario 10A(ii)

|  |  |  |  |
| --- | --- | --- | --- |
| Measurements, testing and ratings must be in accordance with the Greenhouse and Energy Minimum Standards  (Air Conditioners and Heat Pumps) Determination 2013 (Cth)  Small upgrade: upgrade product has a RTHC of at least 2 and not more than 3 kW  Medium upgrade: upgrade product has a RTHC of more than 3 and not more than 6 kW  Large upgrade: upgrade product has a RTHC of more than 6 kW | | | |
| **Input type** | **Condition** | | **Input value** |
| Baseline | Small upgrade | | 0.58 |
| Medium upgrade | | 1.14 |
| Large upgrade | | 1.47 |
| Upgrade | Small upgrade | ACOP of 4.20 to less than 4.50 | 0.57 |
| ACOP of 4.50 to less than 5.00 | 0.52 |
| ACOP of 5.00 to less than 5.50 | 0.47 |
| ACOP of 5.50 or greater | 0.43 |
| Medium upgrade | ACOP of 4.00 to less than 4.50 | 1.11 |
| ACOP of 4.50 to less than 5.00 | 0.99 |
| ACOP of 5.00 to less than 5.50 | 0.89 |
| ACOP of 5.50 or greater | 0.81 |
| Large upgrade | ACOP of 4.00 to less than 4.50 | 1.32 |
| ACOP of 4.50 to less than 5.00 | 1.17 |
| ACOP of 5.00 to less than 5.50 | 1.05 |
| ACOP of 5.5 or greater | 0.95 |
| Lifetime | In every instance | | 12.00 |
| Regional Factor | For upgrades in Metropolitan Victoria – Climatic region mild | | 1.00 |
| For upgrades in Metropolitan Victoria – Climatic region cold | | 1.27 |
| For upgrades in Regional Victoria – Climatic region mild | | 1.06 |
| For upgrades in Regional Victoria – Climatic region cold | | 1.35 |
| For upgrades in Regional Victoria – Climatic region hot | | 1.30 |

|  |
| --- |
| **Scenario 10A(iii): Decommissioning plug in electric heater or a wood heater and installing a high efficiency room air to air heat pump** |

The GHG equivalent emissions reduction for this scenario is given by Equation 10.3, using the variables listed in Table 10.6.

Equation 10.3 – GHG equivalent emissions reduction calculation for Scenario 10A(iii)

|  |
| --- |

Table 10.6 – GHG equivalent emissions reduction variables for Scenario 10A(iii)

|  |  |  |
| --- | --- | --- |
| Measurements, testing and ratings must be in accordance with the Greenhouse and Energy Minimum Standards  (Air Conditioners and Heat Pumps) Determination 2013 (Cth) | | |
| **Input type** | **Condition** | **Input value** |
| Baseline | In every instance | 1.22 |
| Upgrade | ACOP of 4.20 to less than 4.50 | 0.46 |
| ACOP of 4.50 to less than 5.00 | 0.42 |
| ACOP of 5.00 to less than 5.50 | 0.38 |
| ACOP of 5.50 or greater | 0.34 |
| Lifetime | In every instance | 12.00 |
| Regional Factor | For upgrades in Metropolitan Victoria – Climatic region mild | 1.00 |
| For upgrades in Metropolitan Victoria – Climatic region cold | 1.79 |
| For upgrades in Regional Victoria – Climatic region mild | 1.06 |
| For upgrades in Regional Victoria – Climatic region cold | 1.90 |
| For upgrades in Regional Victoria – Climatic region hot | 0.48 |

|  |
| --- |
| **Scenario 10A(iv): Decommissioning a room refrigerative air conditioner and hard-wired electric room heater and installing a high efficiency room air to air heat pump** |

The GHG equivalent emissions reduction for this scenario is given by Equation 10.4, using the variables listed in Table 10.7.

Equation 10.4 – GHG equivalent emissions reduction calculation for Scenario 10A(iv)

|  |
| --- |

Table 10.7 – GHG equivalent emissions reduction variables for Scenario 10A(iv)

|  |  |  |  |
| --- | --- | --- | --- |
| Measurements, testing and ratings must be in accordance with the Greenhouse and Energy Minimum Standards  (Air Conditioners and Heat Pumps) Determination 2013 (Cth)  Small upgrade: upgrade product has a RTHC of at least 2 and not more than 3 kW  Medium upgrade: upgrade product has a RTHC of more than 3 and not more than 6 kW  Large upgrade: upgrade product has a RTHC of more than 6 kW | | | |
| **Input type** | **Condition** | | **Input value** |
| Baseline | Small upgrade | | 1.73 |
| Medium upgrade | | 3.296 |
| Large upgrade | | 4.10 |
| Upgrade | Small upgrade | ACOP of 4.20 to less than 4.50 | 0.57 |
| ACOP of 4.50 to less than 5.00 | 0.52 |
| ACOP of 5.00 to less than 5.50 | 0.47 |
| ACOP of 5.50 or greater | 0.43 |
| Medium upgrade | ACOP of 4.00 to less than 4.50 | 1.11 |
| ACOP of 4.50 to less than 5.00 | 0.99 |
| ACOP of 5.00 to less than 5.50 | 0.89 |
| ACOP of 5.50 or greater | 0.81 |
| Large upgrade | ACOP of 4.00 to less than 4.50 | 1.32 |
| ACOP of 4.50 to less than 5.00 | 1.17 |
| ACOP of 5.00 to less than 5.50 | 1.05 |
| ACOP of 5.5 or greater | 0.95 |
| Lifetime | In every instance | | 12.00 |
| Regional Factor | For upgrades in Metropolitan Victoria – Climatic region mild | | 1.00 |
| For upgrades in Metropolitan Victoria – Climatic region cold | | 1.60 |
| For upgrades in Regional Victoria – Climatic region mild | | 1.06 |
| For upgrades in Regional Victoria – Climatic region cold | | 1.69 |
| For upgrades in Regional Victoria – Climatic region hot | | 0.79 |

|  |
| --- |
| **Scenario 10A(v): Decommissioning room refrigerative air conditioner and a plug in electric room heater and installing a high efficiency room air to air heat pump** |

The GHG equivalent emissions reduction for this scenario is given by Equation 10.5, using the variables listed in Table 10.8.

Equation 10.5 – GHG equivalent emissions reduction calculation for Scenario 10A(v)

|  |
| --- |

Table 10.8 – GHG equivalent emissions reduction variables for Scenario 10A(v)

|  |  |  |
| --- | --- | --- |
| Measurements, testing and ratings must be in accordance with the Greenhouse and Energy Minimum Standards  (Air Conditioners and Heat Pumps) Determination 2013 (Cth) | | |
| **Input type** | **Condition** | **Input value** |
| Baseline | In every instance | 1.38 |
| Upgrade | ACOP of 4.20 to less than 4.50 | 0.46 |
| ACOP of 4.50 to less than 5.00 | 0.42 |
| ACOP of 5.00 to less than 5.50 | 0.38 |
| ACOP of 5.50 or greater | 0.34 |
| Lifetime | In every instance | 12.00 |
| Regional Factor | For upgrades in Metropolitan Victoria – Climatic region mild | 1.00 |
| For upgrades in Metropolitan Victoria – Climatic region cold | 1.60 |
| For upgrades in Regional Victoria – Climatic region mild | 1.06 |
| For upgrades in Regional Victoria – Climatic region cold | 1.69 |
| For upgrades in Regional Victoria – Climatic region hot | 0.79 |

|  |
| --- |
| **Scenario 10A(vi): Decommissioning room refrigerative air conditioner and a gas room space heater and installing a high efficiency room air to air heat pump** |

The GHG equivalent emissions reduction for this scenario is given by Equation 10.6, using the variables listed in Table 10.9.

Equation 10.6 – GHG equivalent emissions reduction calculation for Scenario 10A(vi)

|  |
| --- |

Table 10.9 – GHG equivalent emissions reduction variables for Scenario 10A(vi)

|  |  |  |  |
| --- | --- | --- | --- |
| Measurements, testing and ratings must be in accordance with the Greenhouse and Energy Minimum Standards  (Air Conditioners and Heat Pumps) Determination 2013 (Cth)  Small upgrade: upgrade product has a RTHC of at least 2 and not more than 3 kW  Medium upgrade: upgrade product has a RTHC of more than 3 and not more than 6 kW  Large upgrade: upgrade product has a RTHC of more than 6 kW | | | |
| **Input type** | **Condition** | | **Input value** |
| Baseline | Small upgrade | |  |
| Medium upgrade | |  |
| Large upgrade | |  |
| Upgrade | Small upgrade | ACOP of 4.20 to less than 4.50 |  |
| ACOP of 4.50 to less than 5.00 |  |
| ACOP of 5.00 to less than 5.50 |  |
| ACOP of 5.50 or greater |  |
| Medium upgrade | ACOP of 4.00 to less than 4.50 |  |
| ACOP of 4.50 to less than 5.00 |  |
| ACOP of 5.00 to less than 5.50 |  |
| ACOP of 5.50 or greater |  |
| Large upgrade | ACOP of 4.00 to less than 4.50 |  |
| ACOP of 4.50 to less than 5.00 |  |
| ACOP of 5.00 to less than 5.50 |  |
| ACOP of 5.5 or greater |  |
| Lifetime | In every instance | | 12.00 |
| Regional Factor | For upgrades in Metropolitan Victoria – Climatic region mild | | 1.00 |
| For upgrades in Metropolitan Victoria – Climatic region cold | | 1.33 |
| For upgrades in Regional Victoria – Climatic region mild | | 0.76 |
| For upgrades in Regional Victoria – Climatic region cold | | 0.93 |
| For upgrades in Regional Victoria – Climatic region hot | | 1.02 |

\*\*\*There is no Part 11 Activity

## 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[[24]](#footnote-25) | Product to be installed[[25]](#footnote-26) | Historical schedule number |
| --- | --- | --- | --- | --- | --- |
| 12A | 12A | None | Installing a product, or 2 or more products, where the product or products:   1. are installed in respect of a floor area that is not insulated; and 2. are installed for a minimum of 20 m2 in accordance with AS 3999. | A product, or two or more products:   1. 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 2. 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. | 12A |

### *Specified Minimum Energy Efficiency*

The product (or products) installed must meet the additional requirements.

Table 12.2 – Additional requirements for insulation to be installed

| Product category number | Requirement type | Efficiency requirement[[26]](#footnote-27) |
| --- | --- | --- |
| 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 each 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

|  |
| --- |

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

|  |  |  |
| --- | --- | --- |
| **Input type** | **Condition** | **Input value** |
| GHG Savings | In every instance |  |
| 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 |

## 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 efficiency window scenarios

|  |  |
| --- | --- |
| **Decommissioning / other requirement[[27]](#footnote-28)** | **Product to be installed[[28]](#footnote-29)** |
| Installing a glazing product where the product:   * + - * 1. is installed in place of one or more windows in an external wall; and         2. is installed for a minimum 5 m2. | A glazing product that:   * + - * 1. achieves a maximum Total U-value as specified in Table 13.2 below; and         2. is WERS rated and labelled to a minimum star rating for heating as specified in Table 13.2 below; and         3. complies with the performance requirements of AS 2047 and AS 1288. |

### *Specified Minimum Energy Efficiency*

The product installed must meet the additional requirements set out in Table 13.2.

Table 13.2 – Additional requirements for thermally efficient windows to be installed

|  |  |  |
| --- | --- | --- |
| Product category number | Requirement type | Efficiency requirement[[29]](#footnote-30) |
| 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.

### *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

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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 |  |
| WERS rating between 5-5.9 stars for heating |  |
| WERS rating of 6 stars for heating or more |  |
| 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 m2 |

## Part 14 Activity– Thermally efficient window products

### *Activity description (Guidance)*

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| --- |
| 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[[30]](#footnote-31) | Installation requirements[[31]](#footnote-32) | Product to be installed[[32]](#footnote-33) | Historical schedule number |
| --- | --- | --- | --- | --- | --- |
| 14A | 14A | None | Installing a product where the product:   1. is installed on one or more single glazed windows in an external wall; and 2. is installed for a minimum glazed area of 5 m2; and 3. when installed, results in a still air gap being created between the single glazed window and the product. | 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.

### *Method for Determining GHG Equivalent Reduction*

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| --- |
| **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 14.2.

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

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

|  |  |  |
| --- | --- | --- |
| **Input type** | **Condition** | **Input value** |
| GHG Savings | In every instance |  |
| 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 m2 |

## Part 15 Activity– Weather sealing

### *Activity description (Guidance)*

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| 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[[33]](#footnote-34) | | | | | |
| --- | --- | --- | --- | --- | --- |
| **Product category number** | **Scenario number** | **Decommissioning requirements[[34]](#footnote-35)** | **Installation requirements[[35]](#footnote-36)** | **Product to be installed[[36]](#footnote-37)** | **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:   1. is in accordance with the manufacturer’s instructions; and 2. restricts airflow along the entire perimeter of the door; and 3. does not impair the normal operation of the door. | 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:   1. is in accordance with the manufacturer's instructions; and 2. restricts airflow through the window; and 3. does not impair the normal operation of the window. | A window sealing product or window 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 | 15B |
| 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:   1. is a ceiling or wall exhaust fan; and 2. expels air either outside or into the roof space of the premises it is installed in; and 3. is fitted with a self-closing damper, flap, filter or other sealing product that is designed to: 4. allow airflow through the exhaust of the fan when the fan is operating; and 5. restrict airflow when the fan is not operating; and 6. is covered by a warranty against defects for a period of at least 2 years from the date of installation. | 15C |
| 15D | 15D | None | Installing a category 15D product:   1. in accordance with the manufacturer’s instructions; and 2. 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 15D product is not already installed; and 3. 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. | A product that:   1. is a self-closing damper, flap, filter or other sealing product; and 2. is designed so that when installed on a ceiling or wall exhaust fan, it allows airflow through the exhaust of the fan when the fan is operating and restricts airflow when the fan is not operating; and 3. is covered by a warranty against defects for a period of at least 2 years from the date of installation. | 15D |
| 15E | 15E | None | Installing a category 15E product:   1. in accordance with the manufacturer’s instruction; and 2. in an unsealed wall vent; and 3. with the result that a ventilation opening in an external wall is sealed or closed. | A product that:   1. is made of a robust non-shrinking sealing material; and 2. is covered by a warranty against defects for a period of at least 2 years from the date of installation. | 15E |
| 15F | 15F | None | Installing a category 15F product:   1. in accordance with the manufacturer’s instructions; and 2. in an unsealed chimney or flue of an open fireplace in which category 15F product is not already installed; and 3. 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 when closed; and  allows the fireplace to operate safely and effectively when open; and   1. so that is fitted permanently to the chimney or flue. | A product that:   1. is designed so that when fitted to a chimney or flue of an open fireplace used to burn solid fuel, the product: 2. restricts the airflow into or out of the chimney or flue when closed and; 3. allows the fireplace to operate safely and effectively when open; and 4. is designed to be fitted permanently to the chimney or flue; and 5. is covered by a warranty against defects for a period of at least 5 years from the date of installation. | 15F |
| 15G | 15G | None | Installing a category 15G product (not being the reinstalling of a category 15G product):   1. in accordance with the manufacturer’s instructions; and 2. to an unsealed chimney or flue of a fireplace in which category 15G product is not already installed; and 3. 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 4. with signage that includes instructions for removing the product. | A product that:   1. 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 2. is designed to be installed on a temporary or seasonal basis; and 3. is covered by a warranty against defects for a period of at least 2 years from the date of installation; and 4. is not a chimney or flue balloon. | 15G |
| 15H | 15H | None | Installing a category 15H product (not being the reinstalling of a category 15H product):   1. in accordance with the manufacturer’s instruction; and 2. 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 3. that is supplied for installation with instructions regarding:   the installation and removal of the product; and  the time of year that product should be installed and removed. | A product that:   1. 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 2. is designed to be installed on a temporary or seasonal basis; and 3. is covered by a warranty against defects for a period at least 2 years from the date of installation; and 4. is supplied for installation with instructions regarding: 5. the installation and removal of the product 6. the time of year that the product should be installed and removed. | 15H |

### *Specified Minimum Energy Efficiency*

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

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| **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

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

|  |  |  |
| --- | --- | --- |
| **Input type** | **Condition** | **Input value** |
| GHG Savings | In every instance |  |
| 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 |

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| **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

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

|  |  |  |
| --- | --- | --- |
| **Input type** | **Condition** | **Input value** |
| GHG Savings | In every instance |  |
| 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 m2 |

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| **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

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

|  |  |  |
| --- | --- | --- |
| **Input type** | **Condition** | **Input value** |
| GHG Savings | In every instance |  |
| 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 |

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| **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

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

|  |  |  |
| --- | --- | --- |
| **Input type** | **Condition** | **Input value** |
| GHG Savings | In every instance |  |
| 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 |

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| **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

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

|  |  |  |
| --- | --- | --- |
| **Input type** | **Condition** | **Input value** |
| GHG Savings | In every instance |  |
| 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

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

|  |  |  |
| --- | --- | --- |
| **Input type** | **Condition** | **Input value** |
| GHG Savings | In every instance |  |
| 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

|  |
| --- |

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

|  |  |  |
| --- | --- | --- |
| **Input type** | **Condition** | **Input value** |
| GHG Savings | In every instance |  |
| 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

|  |
| --- |

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

|  |  |  |
| --- | --- | --- |
| **Input type** | **Condition** | **Input value** |
| GHG Savings | In every instance |  |
| 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

## Part 17 Activity– Low flow shower rose

### *Activity description (Guidance)*

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| --- |
| 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[[37]](#footnote-38) | Product to be installed[[38]](#footnote-39) | 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[[39]](#footnote-40) |
| --- | --- | --- |
| 17A | Minimum star rating | 3 stars and a flow rate of range E, determined in accordance with AS/NZS 6400 |

### *Other specified matters*

None.

### *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

|  |
| --- |

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

|  |  |  |
| --- | --- | --- |
| **Input Type** | **Condition** | **Input Value** |
| Baseline | In every instance |  |
| Upgrade | In every instance |  |
| 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 are no Part 18, Part 19, Part 20 or Part 21 Activities

## Part 22 Activity– High efficiency refrigerators and freezers

### *Activity description (Guidance)*

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| --- |
| 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[[40]](#footnote-41) | 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[[41]](#footnote-42) |
| --- | --- | --- |
| 22A | Minimum performance requirement | * Group 1 refrigerator as defined by *Greenhouse and Energy Minimum Standards (Household Refrigerating Appliances) Determination 2012 (Cth)* * total storage volume of not less than 100 litres and not more than 700 litres (as defined by AS/NZS 4474.1:2007) * Star rating index of 2.5, determined in accordance with AS/NZS 4474.2. |
| 22B | Minimum performance requirement | * Group 4, 5B, 5S or 5T refrigerator as defined by Greenhouse and Energy Minimum Standards (Household Refrigerating Appliances)  Determination 2012 (Cth) * total storage volume of not less than 100 litres and not more than 700 litres (as defined by AS/NZS 4474.1:2007) * Star rating index of 3.5, determined in accordance with AS/NZS 4474.2. |
| 22C | Minimum performance requirement | * Group 6C product as defined by Greenhouse and Energy Minimum Standards (Household Refrigerating Appliances) Determination 2012 (Cth) * total storage volume of not less than 100 litres and not more than 700 litres (as defined by AS/NZS 4474.1:2007) * Star rating index of 3.5, determined in accordance with AS/NZS 4474.2. |
| 22D | Minimum performance requirement | * Group 6U or 7 product as defined by Greenhouse and Energy Minimum Standards (Household Refrigerating Appliances) Determination 2012 (Cth) * total storage volume of not less than 100 litres and not more than 700 litres (as defined by AS/NZS 4474.1:2007) * Star rating index of 3.0, determined in accordance with AS/NZS 4474.2. |

### *Other specified matters*

None.

### *Method for Determining GHG Equivalent Reduction*

|  |
| --- |
| **Scenario 22A: Installing a single door refrigerator** |

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

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

|  |
| --- |

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

|  |  |  |
| --- | --- | --- |
| **Input Type** | **Condition** | **Input Value** |
| Baseline | In every instance |  |
| Upgrade | In every instance |  |
| Lifetime | In every instance | 17.00 |
| Regional Factor | For upgrades in Metropolitan Victoria | 0.98 |
| For upgrades in Regional Victoria | 1.04 |

|  |
| --- |
| **Scenario 22B: Installing a two-door refrigerator** |

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 22B

|  |
| --- |

Table 22.4 – GHG equivalent emissions reduction variables for Scenario 22B

|  |  |  |
| --- | --- | --- |
| **Input Type** | **Condition** | **Input Value** |
| Baseline | In every instance |  |
| Upgrade | In every instance |  |
| Lifetime | In every instance | 17.00 |
| Regional Factor | For upgrades in Metropolitan Victoria | 0.98 |
| For upgrades in Regional Victoria | 1.04 |

|  |
| --- |
| **Scenario 22C: Installing a chest freezer** |

The GHG equivalent emissions reduction for each scenario is given by Equation 22.3, using the variables listed in Table 22.5.

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 22.3 – GHG equivalent emissions reduction calculation for Scenario 22C

|  |
| --- |

Table 22.5 – GHG equivalent emissions reduction variables for Scenario 22C

|  |  |  |
| --- | --- | --- |
| **Input Type** | **Condition** | **Input Value** |
| Baseline | In every instance |  |
| Upgrade | In every instance |  |
| Lifetime | In every instance | 21.00 |
| Regional Factor | For upgrades in Metropolitan Victoria | 0.98 |
| For upgrades in Regional Victoria | 1.04 |

|  |
| --- |
| **Scenario 22D: Installing an upright freezer** |

The GHG equivalent emissions reduction for each scenario is given by Equation 22.4, using the variables listed in Table 22.6.

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 22.4 – GHG equivalent emissions reduction calculation for Scenario 22D

|  |
| --- |

Table 22.6 – GHG equivalent emissions reduction variables for Scenario 22D

|  |  |  |
| --- | --- | --- |
| **Input Type** | **Condition** | **Input Value** |
| Baseline | In every instance |  |
| Upgrade | In every instance |  |
| Lifetime | In every instance | 21.00 |
| Regional Factor | For upgrades in Metropolitan Victoria | 0.98 |
| For upgrades in Regional Victoria | 1.04 |

## Part 23 Activity– Space heating and cooling, ducted evaporative cooler

### *Activity description (Guidance)*

|  |
| --- |
| Part 23 of Schedule 2 of the Regulations prescribes an activity involving installation of a ducted evaporative cooler as eligible for the creation of VEECs.  Table 23.1 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 23.1 – Eligible space heating scenarios

| Product category number | Scenario  Number | Decommissioning requirements[[42]](#footnote-43) | Product to be installed[[43]](#footnote-44) | Historical schedule  number |
| --- | --- | --- | --- | --- |
| 23A | 23A | Refrigerative air conditioner (whether ducted or not) that is not located in   1. if in residential premises, a bedroom, or 2. in business or non-residential, a room with an area less than 20m2. | Ducted evaporative cooler   1. that complies with AS 2913 2. has a minimum 7kW rated output. | 23A |

### *Specified Minimum Energy Efficiency*

The product installed must meet the additional requirements set out in Table 23.2.

Table 23.2 – Additional requirements for space cooling equipment to be installed

| Product category number | Requirement type | Efficiency requirement[[44]](#footnote-45) |
| --- | --- | --- |
| 23A | Minimum effective energy efficiency ratio | 20, based on measurements of nominal rating and electricity consumption determined in accordance with AS 2913 |

### *Other specified matters*

None.

### *Method for Determining GHG Equivalent Reduction*

|  |
| --- |
| **Scenario 23A: Decommissioning a refrigerative air conditioner and installing a ducted evaporative cooler** |

The GHG equivalent emissions reduction for this scenario is given by Equation 23.1, using the variables listed in Table 23.3.

Equation 23.1 – GHG equivalent emissions reduction calculation for Scenario 23A

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| --- |

Table 23.3 – GHG equivalent emissions reduction variables for Scenario 23A

|  |  |  |  |
| --- | --- | --- | --- |
| Measurements, testing and ratings must be in accordance with AS 2913  Small upgrade: upgrade product has nominal rating at full load of at least 7 and less than 10 kW  Medium upgrade: upgrade product has nominal rating at full load of at least 10 and less than 13 kW  Large upgrade: upgrade product has nominal rating at full load of at least 13 kW | | | |
| **Input type** | **Condition** | | **Input value** |
| Baseline | Small upgrade | Non-ducted refrigerative system | 0.29 |
| Ducted refrigerative system | 0.62 |
| Medium upgrade | Non-ducted refrigerative system | 0.29 |
| Ducted refrigerative system | 1.03 |
| Large upgrade | Non-ducted refrigerative system | 0.29 |
| Ducted refrigerative system | 1.54 |
| Upgrade | Small upgrade | EER of at least 20 and less than 30 | 0.10 |
| EER of at least 30 and less than 40 | 0.07 |
| EER of at least 40 | 0.05 |
| Medium upgrade | EER of at least 20 and less than 30 | 0.17 |
| EER of at least 30 and less than 40 | 0.11 |
| EER of at least 40 | 0.08 |
| Large upgrade | EER of at least 20 and less than 30 | 0.25 |
| EER of at least 30 and less than 40 | 0.17 |
| EER of at least 40 | 0.13 |
| 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 | Non-ducted refrigerative system | 0.56 |
| Ducted refrigerative system | 0.81 |
| For upgrades in Regional Victoria – Climatic region mild | | 1.06 |
| For upgrades in Regional Victoria – Climatic region cold | Non-ducted refrigerative system | 0.56 |
| Ducted refrigerative system | 0.86 |
| For upgrades in Regional Victoria – Climatic region hot | Non-ducted refrigerative system | 2.45 |
| Ducted refrigerative system | 2.35 |

## 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[[45]](#footnote-46) | 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[[46]](#footnote-47) |
| --- | --- | --- |
| 24A | Minimum performance requirement | 1. Star rating of 7 stars 2. CEC on the energy rating label of not more than 300 kWh/y.   Measurement, testings and ratings must be in accordance with the *Greenhouse and Energy Minimum Standards (Television)  Determination 2013 (No.2)* |

### *Other specified matters*

None.

### *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

|  |
| --- |

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

|  |  |  |
| --- | --- | --- |
| Measurement, testings and ratings must be in accordance with the Greenhouse and Energy Minimum Standards (Television) Determination 2013 (No.2) | | |
| **Input type** | **Condition** | **Input value** |
| Baseline | In every instance |  |
| Upgrade | In every instance |  |
| Lifetime | In every instance | 16.00 |
| Regional Factor | For upgrades in Metropolitan Victoria | 0.98 |
| For upgrades in Regional Victoria | 1.04 |

## 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[[47]](#footnote-48) | Historical schedule number |
| --- | --- | --- | --- | --- |
| 25A | 25A | None | An electric clothes dryer that:   1. achieves the minimum performance requirement specified in Table 25.2 below; and 2. 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[[48]](#footnote-49) |
| --- | --- | --- |
| 25A | Minimum performance requirement | 1. Registered for energy labelling 2. Star rating of 7 stars   Measurement, testings and ratings must be in accordance with the *Greenhouse and Energy Minimum Standards (Rotary Clothes Dryers) Determination 2015* |

### *Other specified matters*

None.

### *Method for Determining GHG Equivalent Reduction*

|  |
| --- |
| **Scenario 25A: Installing an energy efficient electric 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

|  |
| --- |

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

|  |  |  |
| --- | --- | --- |
| Measurement, testings and ratings must be in accordance with the Greenhouse and Energy Minimum Standards (Rotary Clothes Dryers) Determination 2015 | | |
| **Input type** | **Condition** | **Input value** |
| Baseline | In every instance |  |
| Upgrade | In every instance |  |
| Lifetime factor | In every instance | 12.00 |
| Regional Factor | For upgrades in Metropolitan Victoria | 0.98 |
| for upgrades in Regional Victoria | 1.04 |

## 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[[49]](#footnote-50) | Historical schedule number |
| --- | --- | --- | --- | --- |
| 26A | 26A | None | A product for use with a domestic pool or spa that:   1. is single phase, single speed, dual speed, multiple speed, or variable speed pump unit; and 2. has an input power of not less than 100W and not more than 2500W when tested in accordance with AS 5102.1; and 3. 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 4. is registered for energy labelling and achieves the minimum star rating specified in Table 26.2 when determined in accordance with AS 5102.2. | 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[[50]](#footnote-51) |
| --- | --- | --- |
| 26A | Minimum star rating | 7 stars, determined in accordance with AS 5102.2 |

### *Other specified matters*

None.

### *Method for Determining GHG Equivalent Reduction*

|  |
| --- |
| **Scenario 26A: 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 in Table 26.3.

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

|  |
| --- |

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 |  |
| Upgrade | In every instance |  |
| Lifetime factor | In every instance | 7.00 |
| Regional Factor | If the product is installed in Metropolitan Victoria | 0.98 |
| If the product is installed in Regional Victoria | 1.04 |

## 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 upgrade scenarios.

| Product category number | Scenario number | Decommissioning or removal requirements[[51]](#footnote-52) | Product / installation requirements[[52]](#footnote-53) | 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:   1. 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 2. is not a T5 adaptor.   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:   1. a LED integrated luminaire, or 2. the lamp and control gear associated with a non-integrated luminaire. | 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*

|  |
| --- |
| **Scenarios 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 variables for Scenarios 27A to 27C

|  |
| --- |

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

|  |
| --- |

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

|  |
| --- |

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 upgrade 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 upgrade 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 calculations for all public lighting upgrades

|  |
| --- |

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 27.9 |

#### 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 |
| 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 × 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 x 1·051 + 13 | NLP x 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 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 x 1·08 + 1·5 | NLP x 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 x 1.1 | NLP x 1.1 |
| LED lamp with integrated driver, connected with a legacy magnetic ballast used for HID lamps | 1.033 x NLP + 11 | 1.033 x NLP + 11 |
| LED lamp with integrated driver, connected with a legacy electronic ballast used for HID lamps | 1.096 x NLP + 0.9 | 1.096 x NLP + 0.9 |
| Induction lamp with integrated ballast | NLP | NLP |
| Induction lamp with non-integrated ballast | NLP x 1.056 | NLP x 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 |

## 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[[53]](#footnote-54) | Product / installation requirements[[54]](#footnote-55) | Historical schedule number |
| 28A | 28A | Gas heating ductwork that is connected to a ducted gas heater | Flexible ductwork that:   1. is tested and certified by an approved laboratory as complying with AS 4254.1 and is labelled in accordance with that Standard; and 2. 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. 3. is constructed and installed in accordance with the requirements set out in AS 4254.1 and uses fittings that 4. 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 5. 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. | 28A |
| 28B | 28B | Rigid ductwork that:   1. is tested and certified by an approved laboratory as complying with AS 4254.2; and 2. 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 3. is longitudinally labelled at intervals of not more than 1.5 meters, in characters that are clearly legible and at least 18mm high stating: 4. the duct manufacturer’s or assembler’s name; and 5. the diameter of the duct core; and 6. the R-value of the bulk insulation; and 7. whether the ductwork complies with AS 4254.2; and 8. is constructed and installed in accordance with the requirements set out in AS 4254.2 and uses fittings that: 9. 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 10. 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. | 28A |

### *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[[55]](#footnote-56) |
| --- | --- | --- |
| 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.

### *Method for Determining GHG Equivalent Reduction*

|  |
| --- |
| **Scenario 28A and 28B: Retrofitting gas ductwork with flexible or rigid ductwork** |

The GHG equivalent emissions reduction for these scenarios 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

|  |
| --- |

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 | ) |
| Medium upgrade | ) |
| Large upgrade |  |
| Unknown upgrade |  |
| Upgrade | Small upgrade |  |
| Medium upgrade |  |
| Large upgrade |  |
| Unknown upgrade |  |
| 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

## 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[[56]](#footnote-57) | Historical schedule number |
| --- | --- | --- | --- | --- |
| 30A | 30A | None | 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[[57]](#footnote-58) and the ZigBee Smart Energy Standard version 1.2,[[58]](#footnote-59) and when tested:[[59]](#footnote-60)   1. determines electricity consumption information from the sensing apparatus at least every 30 seconds; and 2. stores electricity energy consumption information from the previous 45 days; and 3. 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: 4. 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 5. average total household electrical power consumption (in Watts) for the displayed period, which must be updated at least every 30 seconds 6. 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 7. 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 8. can permanently erase all consumption and tariff information held by the product including information entered by the consumer 9. has an average electric power consumption of not more than 0.6 Watts when operating under normal circumstances 10. if battery powered, uses a battery that has a manufacturer’s rated lifetime of at least 5 years when operating under normal circumstances. | 30A |
| 30B | 30B | None | 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:[[60]](#footnote-61)   1. determines electricity consumption information from the sensing apparatus at least every 30 seconds; and 2. stores electricity energy consumption information from the previous 45 days; and 3. 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: 4. 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 5. the average total household electrical power consumption (in Watts) for the displayed period, which must be updated at least every 30 seconds; and 6. 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 7. 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; 8. can permanently erase all consumption and tariff information held by the product including information entered by the consumer; and 9. has an average electric power consumption of not more than 0.6 Watts when operating under normal circumstances ; and 10. provides electricity energy consumption information that is accurate to within 5% of actual electricity consumption; and 11. if battery powered, uses a battery that has a manufacturer’s rated lifetime of at least 5 years when operating under normal circumstances; and 12. uses, for its communications with the sensing apparatus and any display device, an encrypted communication protocol that is approved by the ESC.[[61]](#footnote-62) | 30B |

### *Specified Minimum Energy Efficiency*

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

### *Other specified matters*

None.

### *Method for Determining GHG Equivalent Reduction*

|  |
| --- |
| **Scenarios 30A and 30B: Installing an in-home display unit** |

The GHG equivalent 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

|  |
| --- |

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 |

## 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[[62]](#footnote-63) | Historical schedule number |
| --- | --- | --- | --- | --- |
| 31A | 31A | None | A three-phase cage induction motor that:   1. achieves the minimum performance requirement specified table 31.2; and 2. has 2,4,6 or 8 poles. | 31A |
| 31B | 31B | None | A three-phase cage induction motor that:   1. 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 2. meets the requirements for an 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 3. 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.

Table 31.2 – Additional requirements for motors to be installed

| Product category number | Requirement type | Efficiency requirements |
| --- | --- | --- |
| 31A | Minimum performance requirement | 1. GEMS registration 2. A rated output of not less than 0.75 and not more than 185 kW in accordance with AS 60034.1 3. Labelled as a high efficiency motor 4. Measurement, testings and ratings must be in accordance with the *Greenhouse and Energy Minimum Standards (Three Phase Cage Induction Motors) Determination 2012* unless otherwise stated |
| 31B | Not Applicable | No additional requirements |

### *Other specified matters*

None.

### *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 31.3.

Equation 31.1 – GHG equivalent emissions reduction calculation for Scenario 31A

|  |
| --- |

Table 31.3 – GHG equivalent emissions reduction variables for Scenario 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 |  |
| 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 |  |
| 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 |  |
| 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 |  |
| Minimum rated output of 55 kW |  |
| Minimum rated output of 75 kW |  |
| Minimum rated output of 90 kW |  |
| Minimum rated output of 110 kW | 1.20 |
| Minimum rated output of 132 kW | 1.31 |
| Minimum rated output of 150 kW | 1.40 |
| Minimum rated output of 185 kW | 1.73 |
| 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 |

|  |
| --- |
| **Scenario 31B: Installation of super-premium motors** |

The GHG equivalent emissions reduction for each scenario is given by Equation 31.2, using the variables listed in Table 31.4.

Equation 31.2 – GHG equivalent emissions reduction calculation for Scenario 31B

|  |
| --- |

Table 31.4 – GHG equivalent emissions reduction variables for Scenario 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 |  |
| 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 |  |
| 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 |  |
| 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 | 1.10 |
| Minimum rated output of 55 kW | 1.27 |
| Minimum rated output of 75 kW | 1.38 |
| Minimum rated output of 90 kW | 1.47 |
| Minimum rated output of 110 kW | 1.80 |
| Minimum rated output of 132 kW | 1.84 |
| Minimum rated output of 150 kW | 1.90 |
| Minimum rated output of 185 kW | 2.60 |
| 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 |

## 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[[63]](#footnote-64) | 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[[64]](#footnote-65) |
| --- | --- | --- |
| 32A\* | Minimum performance requirement | Achieves the high efficiency level within the meaning of *Greenhouse and Energy Minimum Standards (Refrigerated Display Cabinets) Determination 2012* |
| 32A(i-iii) | Minimum performance requirement | Achieves an Energy Efficiency Index within the meaning of *Greenhouse and Energy Minimum Standards (Refrigerated Cabinets) Determination 2020* 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.

### *Method for Determining GHG Equivalent Reduction*

|  |
| --- |
| **SCENARIO 32A: *INSTALLING A REFRIGERATED DISPLAY CABINET*  EXPIRES END OF DAY 30 JUNE 2022** |

|  |
| --- |
| **Scenario 32A: Installing a refrigerated display cabinet** |

The GHG equivalent emissions reduction for each scenario is given by Equation 32.1, using the variables listed in Table 32.3.

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

|  |
| --- |

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 m2 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)

|  |
| --- |

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

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Measurement, testings and ratings must be in accordance with the Greenhouse and Energy Minimum Standards (Refrigerated Cabinets) Determination 2020  Where –   1. 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 | | | |  | | | | | |  |
| Upgrade | In all cases | | | |  | | | | | | |
| Baseline EEI, M and N, Lifetime | GEMS 2020: Product class | GEMS 2020: Characteristics (code) | Upgrade EEI: | | Baseline EEI | M | N | Lifetime (years)  (TDA< 3.3m2) | Lifetime (years)  (TDA≥ 3.3m2) | | |
| 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 m2 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)

|  |
| --- |

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 –   1. 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 | | | |  | | |
| Upgrade | In all cases | | | |  | | |
| Baseline EEI, M and N | GEMS 2020: Product class | GEMS 2020: Characteristics (code) | | Upgrade EEI: | Baseline EEI | M | N |
| Class 5 | IFH-5 | 51 | | 130 | 1 | 0.009 |
| 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 | | |
| 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)

|  |
| --- |

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 –   1. 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 | | |  | | |  |
| Upgrade | In all cases | | |  | |  |  |
| Baseline EEI, M and N | 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 values 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 |

## 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 / installation requirements[[65]](#footnote-66) | Historical schedule number |
| --- | --- | --- | --- | --- |
| 33A | 33A | None | A fan motor, installed into a fan in a refrigerated cabinet or cold room, that:   1. is an electronically commutated motor (being a permanent magnet motor with electronic commutation) that has: 2. in the case of an internal rotor motor, has a rated motor output of not more than 600 Watts; or 3. in the case of an external rotor motor, has a rated motor input of not more than 800 Watts; and 4. is designed to be installed into a fan in a refrigerated cabinet or cold room. | 33A |
| 33B | 33B | None | A fan motor, installed into a ducted fan or partition fan in an air-handling system as defined in ISO 13349:2010, that:   1. is an electronically commutated motor (being a permanent magnet motor with electronic commutation) that has: 2. in the case of an internal rotor motor, has a rated motor output of not more than 600 Watts; or 3. in the case of an external rotor motor, has a rated motor input of not more than 800 Watts; and 4. is designed to be installed into a ducted fan or partition fan in an air-handling system as defined in ISO 13349:2010. | 33B |

### *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 and Table 33.3.

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

|  |
| --- |

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

|  |  |  |
| --- | --- | --- |
| **Input type** | **Condition** | **Input value** |
| Baseline\* | In every instance |  |
| Upgrade\* | In every instance |  |
| 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 |

|  |
| --- |
| **Scenarios 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

|  |
| --- |

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

|  |  |  |
| --- | --- | --- |
| **Input type** | **Condition** | **Input value** |
| Baseline | In every instance |  |
| Upgrade | In every instance |  |
| Lifetime Factor | In every instance | 7.00 |
| Regional Factor | For upgrades in Metropolitan Victoria | 0.98 |
| For upgrades in Regional Victoria | 1.04 |

## 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 upgrade scenarios

| Product category number | Scenario number | Decommissioning or removal requirements[[66]](#footnote-67) | Product to be installed / installation requirements[[67]](#footnote-68) | 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:   1. has an alternating current output voltage ascertained by an approved laboratory in accordance with the laboratory test approved for the unit by the ESC[[68]](#footnote-69); and 2. is not installed in conjunction with electronic ballasts or drivers, or LED lighting. | 34C |
| 34C | 34C | Decommissioning any removed lighting equipment | Any other lighting equipment that:   1. when installed, meets the minimum power factor determined by the ESC[[69]](#footnote-70); 2. meets minimum standards determined by the ESC when tested by an approved laboratory in accordance with the laboratory test approved by the ESC[[70]](#footnote-71); and 3. is not a T5 adaptor. | 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) |
| N/A | 34E | Removing and not replacing:   1. a LED integrated luminaire, or 2. the lamp and control gear associated with a non-integrated luminaire | 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*

|  |
| --- |
| **Scenarios 34A to 34E: All building based lighting upgrades** |

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

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

|  |
| --- |

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

|  |
| --- |

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 | 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

|  |
| --- |

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 (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

|  |
| --- |

Table 34.5 – Lifetime calculation variables for all sites

|  |  |  |
| --- | --- | --- |
| **Input type** | **Condition** | **Input value** |
| Asset Lifetime | In every instance | As determined by \*\* The lamp circuit power values for incumbent LED products are only eligible to be used for Scenario 34A.  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 | , where 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 x 1·08 + 1·5\*\* | NLP x 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 x 1.1\*\* | NLP x 1.1 |
| LED lamp with integrated driver, connected with a legacy magnetic ballast used for HID lamps | 1.033 x NLP + 11\*\* | 1.033 x NLP + 11 |
| LED lamp with integrated driver, connected with a legacy electronic ballast used for HID lamps | 1.096 x NLP + 0.9\*\* | 1.096 x 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  **Note**: 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 gymnasia operations, classified as Division R (9111) in the Australian and New Zealand Standard Industrial Classification  **Note**: this only includes health and fitness centres and gymnasia 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 |

## 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 upgrade scenarios

| Product category number | Scenario number | Decommissioning or removal requirements[[71]](#footnote-72) | Product to be installed and installation requirements[[72]](#footnote-73) | 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:   1. when installed, meets the minimum power factor determined by the ESC 2. meets minimum standards determined by the ESC when tested by an approved laboratory in accordance with a laboratory test approved by the ESC[[73]](#footnote-74) 3. is not a T5 adaptor. | 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:   1. a LED integrated luminaire, or 2. the lamp and control gear associated with a non-integrated luminaire | 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.

### *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*

|  |
| --- |
| **Scenarios 35A to 35D: Non-building based lighting upgrades** |

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

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

|  |
| --- |

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

|  |
| --- |

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

|  |
| --- |

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

|  |
| --- |

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 × 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 x 1·051 + 13 | NLP x 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 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 x 1·08 + 1·5 | NLP x 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 x 1.1 | NLP x 1.1 |
| LED lamp with integrated driver, connected with a legacy magnetic ballast used for HID lamps | 1.033 x NLP + 11 | 1.033 x NLP + 11 |
| LED lamp with integrated driver, connected with a legacy electronic ballast used for HID lamps | 1.096 x NLP + 0.9 | 1.096 x NLP + 0.9 |
| Induction lamp with integrated ballast | NLP | NLP |
| Induction lamp with non-integrated ballast | NLP x 1.056 | NLP x 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** | **Type(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 remove; 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 |

## 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[[74]](#footnote-75) | Installation requirements[[75]](#footnote-76) | Product to be installed[[76]](#footnote-77) | 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:   1. 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 2. 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. | 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. |

### *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[[77]](#footnote-78) |
| --- | --- | --- |
| 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 36.1, using the variables listed in Table 36.3.

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

|  |
| --- |

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

|  |  |  |
| --- | --- | --- |
| **Input Type** | **Condition** | **Input Value** |
| Baseline | In every instance |  |
| Upgrade | In every instance | ) |
| Lifetime | In every instance | 5.00 |
| Regional Factor | For upgrades in Metropolitan Victoria | 0.92 |
| For upgrades in Regional Victoria | 1.21 |

## 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[[78]](#footnote-79) | Product to be installed[[79]](#footnote-80) | 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:   1. is a Type B appliance and meets the minimum thermal efficiency requirements specified in Table 37.2 below; and 2. if the product has a nominal gas consumption: 3. exceeding 3700 MJ/h but not exceeding 7500 MJ/h, has an electronic gas/air ratio control system; or 4. 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. | 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[[80]](#footnote-81) |
| --- | --- | --- |
| 37A | Minimum gross thermal efficiency requirements | A product installed under this activity must meet at least one of the following criteria:   1. 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: 2. BS 845-2 (pre-commissioning); or 3. BS 845-1 (post-commissioning); or 4. 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 5. 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 6. 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. |

### *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, using the variables listed in Table 37.3.

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

|  |
| --- |

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 |

## 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[[81]](#footnote-82) | Product to be installed[[82]](#footnote-83) | 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:   1. is a Type B appliance and meets the minimum thermal efficiency requirements specified in Table 38.2; and 2. if the boiler has a nominal gas consumption: 3. exceeding 3,700 MJ/h but not exceeding 7,500 MJ/h, has an electronic gas/air ratio control system; or 4. 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. | 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.

Table 38.2 - Additional requirements for hot water boiler and water heater activities

| Product category number | Requirement Type | Efficiency Requirement[[83]](#footnote-84) |
| --- | --- | --- |
| 38A | Minimum gross thermal efficiency requirements | A product installed under this activity must meet at least one of the following criteria:   1. 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: 2. BS 845-2 (pre-commissioning); or 3. BS 845-1 (post-commissioning); or 4. 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 5. 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 6. 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. |

### *Other specified matters*

None.

### *Method for Determining GHG Equivalent Reduction*

|  |
| --- |
| **Scenarios 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, using the variables listed in Table 38.3.

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

|  |
| --- |

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% |  |
| New hot water boiler or water heater has a gross thermal efficiency of 90% or greater |  |
| 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% |  |
| New hot water boiler or water heater has a gross thermal efficiency of 90% or greater |  |
| 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% |  |
| New hot water boiler or water heater has a gross thermal efficiency of 90% or greater |  |
| 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% |  |
| New hot water boiler or water heater has a gross thermal efficiency of 90% or greater |  |
| 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% |  |
| New hot water boiler or water heater has a gross thermal efficiency of 90% or greater |  |
| LUF | In every instance | | 0.206 |
| Lifetime | In every instance | | 20.00 |

## 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 ratio control scenarios

| Product category number | Scenario number | Decommissioning Requirements | Product / installation requirements[[84]](#footnote-85) | 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.

### *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

|  |
| --- |

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 |  |
| LUF | In every instance | 0.206 |
| Lifetime | In every instance | 20.00 |

## 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[[85]](#footnote-86) | Historical schedule number |
| --- | --- | --- | --- | --- |
| 40A | 40A | None | 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:   1. 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 2. 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. | N/A |

### *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 40A: Installing a combustion trim system** |

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

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

|  |
| --- |

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 |  |
| If the product is installed on a hot water boiler or water heater |  |
| LUF | In every instance | 0.206 |
| Lifetime | In every instance | 10.00 |

## 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[[86]](#footnote-87) | Product / installation requirements[[87]](#footnote-88) | Historical schedule number |
| --- | --- | --- | --- | --- |
| 41A | 41A | A gas-fired burner that:   1. is on a gas-fired steam boiler, a gas-fired hot water boiler or a gas-fired water heater; and 2. 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:   1. is a gas-fire burner; and 2. 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.

### *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

|  |
| --- |

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:   1. the boiler or heater with the replacement equipment installed, or 2. 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 |  |
| LUF | In every instance | 0.206 |
| Lifetime | In every instance | 20 .00 |

## Part 42 Activity– Economizers

### *Activity description (Guidance)*

Part 42 of Schedule 2 of theRegulations 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[[88]](#footnote-89) | Historical schedule number |
| --- | --- | --- | --- | --- |
| 42A | 42A(i) | None | 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:   1. is of the condensing type; 2. 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 3. complies with AS 1228; and 4. provides for the products of combustion to be expelled into a stack constructed from stainless steel; and 5. 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. | N/A |
| 42A | 42A(ii) | None | 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:   1. is not of the condensing type 2. 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 3. complies with AS 1228; and 4. 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. | N/A |

### *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

|  |
| --- |

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 |  |
| Installed on a hot water boiler or water heater |  |
| LUF | In every instance | 0.206 |
| Lifetime | In every instance | 10.00 |

## 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 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 | Historical schedule number |
| --- | --- | --- | --- | --- |
| 43A | 43A | None | Installing for a cold room an electronic expansion valve and compatible superheat controller that:   1. are designed to be installed together in the refrigeration system of a cold room; and 2. when installed together into a refrigeration system can and will automatically control the superheat of the refrigeration system. | N/A |
| 43B | 43B(i) | None | Installing for a cold room 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:   1. technology capable of varying condensing temperature with ambient temperature to improve system performance; or 2. compressors with variable capacity modulation such as variable speed capacity control, other than 3. on/off capacity control on single compressor systems 4. hot gas bypass 5. fixed stage cylinder unloading | N/A |
| 43B | 43B(ii) | None | Installing for a cold room a refrigeration system that includes all of the following parts:   1. technology capable of varying condensing temperature with ambient temperature to improve system performance 2. compressors with variable capacity modulation such as variable speed capacity control, other than 3. on/off capacity control on single compressor systems 4. hot gas bypass 5. fixed stage cylinder unloading 6. electronic expansion valve and compatible superheat controller that meet the requirements of Activity 43A 7. speed controlled condensing fans, that 8. are electronically commutated (EC) fans, or 9. are variable speed drive (VSD) driven fans 10. evaporator fans, that are electronically commutated (EC) fans. | N/A |

### *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 43A: Installing an electronic expansion valve and superheat controller into a refrigeration system** |

The GHG equivalent emissions reduction for scenario 43A is given by Equation 43.1, using the variables listed in Table 43.2.

**Equation 43.1 – GHG equivalent emissions reduction calculation for Scenario 43A**

|  |
| --- |

**Table 43.2 – GHG equivalent emissions reduction variables for Scenario 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 0oC | 1.0 |
| For Cold Rooms operating below 0oC (freezers) | 1.4 |
| Regional Factor | For upgrades in Metropolitan Victoria | 0.98 |
|  | For upgrades in Regional Victoria | 1.04 |

|  |
| --- |
| **Scenario 43B(i): A refrigeration system that includes at a minimum three of the specified parts** |

The GHG equivalent emissions reduction for scenario 43B(i) is given by Equation 43.2, using the variables listed in Table 43.3.

**Equation 43.2 – GHG equivalent emissions reduction calculation for Scenario 43B(i)**

|  |
| --- |

**Table 43.3 – 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 0oC | 1.0 |
| For Cold Rooms operating below 0oC (freezers) | 1.4 |
| Regional Factor | For upgrades in Metropolitan Victoria | 0.98 |
|  | For upgrades in Regional Victoria | 1.04 |

|  |
| --- |
| **Scenario 43B(ii): A refrigeration system that includes at a minimum all of the specified parts** |

The GHG equivalent emissions reduction for scenario 43B(ii) is given by Equation 43.3, using the variables listed in Table43.4.

**Equation 43.3 – GHG equivalent emissions reduction calculation for Scenario 43B(ii)**

|  |
| --- |

**Table 43.4 – 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 0oC | 1.0 |
| For Cold Rooms operating below 0oC (freezers) | 1.4 |
| Regional Factor | For upgrades in Metropolitan Victoria | 0.98 |
|  | For upgrades in Regional Victoria | 1.04 |

## 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[[89]](#footnote-90)** | **Product to be installed[[90]](#footnote-91)** | **Historical schedule number** |
| --- | --- | --- | --- | --- |
| 44A | 44A | One or more:   1. gas-fired hot water boilers; or 2. gas-fired water heaters.   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. | One or more air source heat pump water heaters   1. that each:    1. have an insulated storage volume not exceeding 700 litres; and    2. are certified by an accredited body as complying with AS/NZS 2712; and    3. provide a minimum delivery temperature of 45°C; and    4. are installed by a licensed or registered plumber; and    5. achieves the minimum annual energy savings specified in Table 44.2; and    6. is modelled against the heat pump modelling requirements specified in Table 44.3; or 2. that each: 3. have an insulated storage volume exceeding 700 litres; and 4. provide a minimum delivery temperature of 45°C; and 5. are installed by a licensed or registered plumber; and 6. achieves the minimum annual energy savings specified in Table 44.2 ; and 7. is modelled against the heat pump modelling requirements specified in Table 44.3. | N/A |
| 44B | 44B | One or more:   1. electric resistance hot water boilers; or 2. electric resistance water heaters.   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. | One or more air source heat pump water heaters:   1. that each: 2. have an insulated storage volume not exceeding 700 litres; and 3. are certified by an accredited body as complying with AS/NZS 2712; and 4. provide a minimum delivery temperature of 45°C; and 5. are installed by a licensed or registered plumber; and 6. achieves the minimum annual energy savings specified in Table 44.2; and 7. is modelled against the heat pump modelling requirements specified in Table 44.3; or 8. that each:    1. have an insulated storage volume exceeding 700 litres; and    2. provide a minimum delivery temperature of 45°C; and    3. are installed by a licensed or registered plumber; and    4. achieves the minimum annual energy savings specified in Table 44.2; and    5. is modelled against the heat pump modelling requirements specified in Table 44.3. | N/A |
| 44C | 44C | None | One or more air source heat pump water heaters:   1. that each:    1. have an insulated storage volume not exceeding 700 litres; and    2. are certified to AS/NZS 2712; and    3. provide a minimum delivery temperature of 45°C; and    4. are installed by a licensed or registered plumber; and    5. achieves the minimum annual energy savings specified in Table 44.2; and    6. is modelled against the heat pump modelling requirements specified in Table 44.3; or 2. that each:    1. have an insulated storage volume exceeding 700 litres; and    2. provide a minimum delivery temperature of 45°C; and    3. are installed by a licensed or registered plumber; and    4. achieves the minimum annual energy savings specified in Table 44.2; and    5. is modelled against the heat pump modelling requirements specified in Table 44.3. |  |

### *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[[91]](#footnote-92)** | |
| --- | --- | --- | --- |
| 44A, 44B, and 44C | Minimum annual energy savings | 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. |
| 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. |

\*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[[92]](#footnote-93) |
| --- | --- | --- |
| 44A, 44B and 44C | 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-Au climate zones. Outputs and necessary data from the modelling must be provided to the ESC.\*  In order to achieve the specified minimum annual energy savings, the product must be installed as modelled. |
| 44A and 44B | Installation requirements where using an existing storage tank | 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:   1. was manufactured less than 10 years before the existing product is decommissioned; and 2. has a volume that is greater than or equal to the volume of the modelled component; and 3. is insulated. |

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

### *Method for Determining GHG Equivalent Reduction*

|  |
| --- |
| **Scenario 44A: Decommissioning a gas product and installing an air source heat pump water heater** |

The GHG equivalent emissions reduction for this 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**

|  |
| --- |

**Table 44.4– GHG equivalent emissions reduction variables for Scenario 44A**

|  |  |  |
| --- | --- | --- |
| **Input Type** | **Condition** | **Input Value** |
| Lifetime | If using existing storage with a new system | 10 |
| In any other case | 15 |
| EEF | In every Instance | The electricity emissions factor to be used in greenhouse gas equivalent emissions reduction calculations. |
| RegionalFactor | For upgrades in Metropolitan Victoria | 0.98 |
| For upgrades in Regional Victoria | 1.04 |
| GEF | In every instance | 0.05523 |
| RFE | In every instance | 5 x 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. |
| CapacityFactor | 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) |  |
| 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 44B: Decommissioning an electric product and installing an air source heat pump water heater** |

The GHG equivalent emissions reduction for this 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 44B**

| 𝑮𝑯𝑮 𝑬𝒒. 𝑹𝒆𝒅𝒖𝒄𝒕𝒊𝒐𝒏= |
| --- |

**Table 44.5 – GHG equivalent emissions reduction variables for Scenario 44B**

|  |  |  |
| --- | --- | --- |
| **Input Type** | **Condition** | **Input Value** |
| Lifetime | If using existing storage with a new system | 10 |
| In any other case | 15 |
| EEF | In every Instance | The electricity emissions factor to be used in greenhouse gas equivalent emissions reduction calculations. |
| RegionalFactor | For upgrades in Metropolitan Victoria\* | 0.98 |
| For upgrades in Regional Victoria\* | 1.04 |
| GEF | In every instance | 0.05523 |
| RFE | In every instance | 5 x 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 determined by the department 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. |
| CapacityFactor | 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) |  |
| 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 44C: Installing an air source heat pump water heater** |

The GHG equivalent emissions reduction for this 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 44C**

| 𝑮𝑯𝑮 𝑬𝒒. 𝑹𝒆𝒅𝒖𝒄𝒕𝒊𝒐𝒏= |
| --- |
|  |

**Table 44.6 – GHG equivalent emissions reduction variables for Scenario 43C**

|  |  |  |
| --- | --- | --- |
| **Input Type** | **Condition** | **Input Value** |
| Lifetime | If using existing storage with a new system | 10 |
| In any other case | 15 |
| EEF | In every Instance | The electricity emissions factor to be used in greenhouse gas equivalent emissions reduction calculations. |
| RegionalFactor | For upgrades in Metropolitan Victoria\* | 0.98 |
|  | For upgrades in Regional Victoria\* | 1.04 |
| GEF | In every instance | 0.05523 |
| RFE | In every instance | 5 x 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. |
| 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.

# 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 |

1. 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. [↑](#footnote-ref-2)
2. 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. [↑](#footnote-ref-3)
3. The Secretary is empowered to specify these efficiency requirements under Part 1 of Schedule 2 to the Regulations. [↑](#footnote-ref-4)
4. The Secretary is empowered to specify these modelling requirements under Part 1 of Schedule 2 to the Regulations. [↑](#footnote-ref-5)
5. 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. [↑](#footnote-ref-6)
6. 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. [↑](#footnote-ref-7)
7. The Secretary is empowered to specify these efficiency requirements under Part 3 of Schedule 2 to the Regulations. [↑](#footnote-ref-8)
8. The authoritative decommissioning requirements are contained in Part 5 of Schedule 2 to the Regulations, and take precedence over summary information provided for ease of reference in this document. This column contains examples of products that meet these requirements. [↑](#footnote-ref-9)
9. The authoritative product requirements are contained in Part 5 of Schedule 2 to the Regulations, and take precedence over summary information provided as guidance in this document. [↑](#footnote-ref-10)
10. The Secretary is empowered to specify these efficiency requirements under Part 3 of Schedule 2 to the Regulations. [↑](#footnote-ref-11)
11. The authoritative decommissioning requirements are contained in Part 7 of Schedule 2 to the Regulations, and take precedence over summary information provided for ease of reference in this document. [↑](#footnote-ref-12)
12. The authoritative product requirements are contained in Part 7 of Schedule 2 to the Regulations, and take precedence over summary information provided for ease of reference in this document. [↑](#footnote-ref-13)
13. The Secretary is empowered to specify these efficiency requirements under Part 7 of Schedule 2 to the Regulations. [↑](#footnote-ref-14)
14. The authoritative decommissioning requirements are contained in Part 9 of Schedule 2 to the Regulations, and take precedence over summary information provided for ease of reference in this document. [↑](#footnote-ref-15)
15. The authoritative product requirements are contained in Part 9 of Schedule 2 to the Regulations, and take precedence over summary information provided for ease of reference in this document. [↑](#footnote-ref-16)
16. As specified by the Secretary in Table 9.3 below. [↑](#footnote-ref-17)
17. The Secretary is empowered to specify these efficiency requirements under Part 9 of Schedule 2 to the Regulations. [↑](#footnote-ref-18)
18. The Secretary is empowered to specify this space heating product for the purpose clause (j) of the definition of “controlled heating or cooling product” under section 5 of the Regulations. [↑](#footnote-ref-19)
19. The Secretary is empowered to specify this under Part 9 of Schedule 2 to the Regulations. [↑](#footnote-ref-20)
20. The authoritative decommissioning requirements are contained in Part 10 of Schedule 2 to the Regulations, and take precedence over summary information provided for ease of reference in this document. [↑](#footnote-ref-21)
21. The authoritative product requirements are contained in Part 10 of Schedule 2 to the Regulations, and take precedence over summary information provided for ease of reference in this document. [↑](#footnote-ref-22)
22. The Secretary is empowered to specify these efficiency requirements in Part 10 of Schedule 2 to the Regulations. The Secretary is empowered to specify this space heating product for the purpose of the definition of “controlled heating or cooling product” in section 5 of the Regulations. [↑](#footnote-ref-23)
23. The Secretary is empowered to specify this space heating product for the purpose of clause (j) of the definition of “controlled heating or cooling product” in section 5 of the Regulations. [↑](#footnote-ref-24)
24. 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. [↑](#footnote-ref-25)
25. 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. [↑](#footnote-ref-26)
26. The Secretary is empowered to specify these efficiency requirements under Part 12 of Schedule 2 to the Regulations. [↑](#footnote-ref-27)
27. 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. [↑](#footnote-ref-28)
28. 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. [↑](#footnote-ref-29)
29. The Secretary is empowered to specify these efficiency requirements under Part 13 of Schedule 2 to the Regulations. [↑](#footnote-ref-30)
30. 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. [↑](#footnote-ref-31)
31. 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. [↑](#footnote-ref-32)
32. 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. [↑](#footnote-ref-33)
33. 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. [↑](#footnote-ref-34)
34. 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. [↑](#footnote-ref-35)
35. 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. [↑](#footnote-ref-36)
36. 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. [↑](#footnote-ref-37)
37. 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. [↑](#footnote-ref-38)
38. 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. [↑](#footnote-ref-39)
39. The Secretary is empowered to specify these efficiency requirements under Part 17 of Schedule 2 to the Regulations. [↑](#footnote-ref-40)
40. 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. [↑](#footnote-ref-41)
41. The Secretary is empowered to specify these efficiency requirements under Part 3 of Schedule 2 to the Regulations. [↑](#footnote-ref-42)
42. The authoritative decommissioning requirements are contained in Part 23 of Schedule 2 to the Regulations, and take precedence over summary information provided for ease of reference in this document. [↑](#footnote-ref-43)
43. 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. [↑](#footnote-ref-44)
44. The Secretary is empowered to specify these efficiency requirements under Part 23 of Schedule 2 to the Regulations. [↑](#footnote-ref-45)
45. 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. [↑](#footnote-ref-46)
46. The Secretary is empowered to specify these efficiency requirements under in Part 24 of Schedule 2 to the Regulations. [↑](#footnote-ref-47)
47. The authoritative decommissioning requirements are contained in Part 25 of Schedule 2 to the Regulations, and take precedence over summary information provided for ease of reference in this document. [↑](#footnote-ref-48)
48. The Secretary is empowered to specify these efficiency requirements under Part 25 of Schedule 2 to the Regulations. [↑](#footnote-ref-49)
49. 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. [↑](#footnote-ref-50)
50. The Secretary is empowered to specify these efficiency requirements under Part 26 of Schedule 2 to the Regulations. [↑](#footnote-ref-51)
51. 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. [↑](#footnote-ref-52)
52. 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. [↑](#footnote-ref-53)
53. 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. [↑](#footnote-ref-54)
54. 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. [↑](#footnote-ref-55)
55. The Secretary is empowered to specify these efficiency requirements under Part 28 of Schedule 2 to the Regulations. [↑](#footnote-ref-56)
56. 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. [↑](#footnote-ref-57)
57. Published by Zigbee Standards Organization on 1 December 2008. [↑](#footnote-ref-58)
58. Published by the ZigBee Standards Organization on 3 December 2014. [↑](#footnote-ref-59)
59. 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). [↑](#footnote-ref-60)
60. 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. [↑](#footnote-ref-61)
61. In a determination made under regulation 36(6). [↑](#footnote-ref-62)
62. 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. [↑](#footnote-ref-63)
63. 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. [↑](#footnote-ref-64)
64. The Secretary is empowered to specify the minimum performance requirement under Part 32 of Schedule 2 to the Regulations. [↑](#footnote-ref-65)
65. 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 [↑](#footnote-ref-66)
66. 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. [↑](#footnote-ref-67)
67. 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. [↑](#footnote-ref-68)
68. In a determination under regulation 36(6). [↑](#footnote-ref-69)
69. In a determination under regulation 36(6). [↑](#footnote-ref-70)
70. In a determination under regulation 36(6). [↑](#footnote-ref-71)
71. 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. [↑](#footnote-ref-72)
72. 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. [↑](#footnote-ref-73)
73. In a determination under regulation 36(6). [↑](#footnote-ref-74)
74. 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. [↑](#footnote-ref-75)
75. 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. [↑](#footnote-ref-76)
76. 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. [↑](#footnote-ref-77)
77. The Secretary is empowered to specify these efficiency requirements under Part 36 of Schedule 2 to the Regulations. [↑](#footnote-ref-78)
78. 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. [↑](#footnote-ref-79)
79. 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. [↑](#footnote-ref-80)
80. The Secretary is empowered to specify these efficiency requirements under Part 37 of Schedule 2 to the Regulations. [↑](#footnote-ref-81)
81. 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. [↑](#footnote-ref-82)
82. 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 [↑](#footnote-ref-83)
83. The Secretary is empowered to specify these efficiency requirements under Part 38 of Schedule 2 to the Regulations. [↑](#footnote-ref-84)
84. 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 [↑](#footnote-ref-85)
85. 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. [↑](#footnote-ref-86)
86. 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. [↑](#footnote-ref-87)
87. The authoritative product 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. [↑](#footnote-ref-88)
88. 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. [↑](#footnote-ref-89)
89. 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.. [↑](#footnote-ref-90)
90. 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. [↑](#footnote-ref-91)
91. The Secretary is empowered to specify these efficiency requirements under Part 44 of Schedule 2 to the Regulations [↑](#footnote-ref-92)
92. The Secretary is empowered to specify these matters under Part 44 of Schedule 2 to the Regulations. [↑](#footnote-ref-93)