

Victorian Energy Upgrades

Specifications 2018 - Version 6.0

Author

This document has been prepared by the Department of Environment, Land, Water and Planning.

Document Version

| Version | Amendments | In force from |
|---------|---|-----------------|
| 0.1 | Post consultation release | 3 October 2018 |
| 1.0 | Secretary approved | 26 October 2018 |
| 2.0 | <ul style="list-style-type: none">• Replacement of superseded water heating Part 1 and Part 3• Clarification of zone 5 requirements for heat pump water heaters• Corrections to the AEF for Activity 1C, 1D, 1F & 3B• Corrected weather sealing warranty period for Tables 15.2, 15.3, 15.4, 15.6, & 15.9• Inclusion of an unlisted space type in Table 34.8• Clarification of wording for gas activities Part 37 – Part 42• Correction of other minor errors | 10 June 2019 |
| 3.0 | <ul style="list-style-type: none">• Revised the greenhouse gas equivalent emissions reduction calculations to zero for Part 15, Part 17, Part 21 and Part 30 | 1 April 2020 |
| 4.0 | <ul style="list-style-type: none">• Reinstated the greenhouse gas equivalent emissions reduction calculations for Part 15, Part 17, Part 21 and Part 30 | 22 June 2020 |
| 5.0 | <ul style="list-style-type: none">• Revised the greenhouse gas equivalent emissions reduction calculations to zero for Part 15, Part 17, Part 21 and Part 30 | 14 July 2020 |
| 6.0 | <ul style="list-style-type: none">• Reinstated the greenhouse gas equivalent emissions reduction calculations for Part 15, Part 17, Part 21 and Part 30 | 28 October 2020 |

© The State of Victoria Department of Environment, Land, Water and Planning 2018



This work is licensed under a Creative Commons Attribution 4.0 International licence. You are free to re-use the work under that licence, on the condition that you credit the State of Victoria as author. The licence does not apply to any images, photographs or branding, including the Victorian Coat of Arms, the Victorian Government logo and the Department of Environment, Land, Water and Planning (DELWP) logo. To view a copy of this licence, visit <http://creativecommons.org/licenses/by/4.0/>

Disclaimer

This publication may be of assistance to you but the State of Victoria and its employees do not guarantee that the publication is without flaw of any kind or is wholly appropriate for your particular purposes and therefore disclaims all liability for any error, loss or other consequence which may arise from you relying on any information in this publication.

Accessibility

If you would like to receive this publication in an alternative format, please telephone the DELWP Customer Service Centre on 136186, email customer.service@delwp.vic.gov.au, or via the National Relay Service on 133 677 www.relayservice.com.au. This document is also available on the internet at www.delwp.vic.gov.au.

Table of Contents

| | |
|--|-----------|
| Introduction | 8 |
| Legislation and responsibilities | 8 |
| Using this document | 9 |
| Definitions | 10 |
| Activity Requirements | 14 |
| 1: Part 1 Activity– Water heaters, replacing electric resistance water heater..... | 15 |
| <i>Activity description</i> | 15 |
| <i>Specified minimum energy efficiency</i> | 16 |
| <i>Other specified matters</i> | 16 |
| <i>Method for determining GHG equivalent reduction</i> | 16 |
| 3: Part 3 Activity– Water heaters, replacing gas/LPG | 21 |
| <i>Activity Description</i> | 21 |
| <i>Specified Minimum Energy Efficiency</i> | 21 |
| Other specified matters | 21 |
| <i>Method for Determining GHG Equivalent Reduction</i> | 21 |
| 5: Part 5 Activity– Space heating, ducted gas heater | 23 |
| Activity Description | 23 |
| Specified Minimum Energy Efficiency | 23 |
| Other specified matters | 23 |
| Method for Determining GHG Equivalent Reduction | 24 |
| 6: Part 6 Activity– Space heating and cooling, general | 27 |
| Activity Description | 27 |
| Specified Minimum Energy Efficiency | 27 |
| Other specified matters | 27 |
| Method for Determining GHG Equivalent Reduction | 27 |
| 7: Part 7 Activity– Space heating, ducted air to air heat pump..... | 28 |
| Activity Description | 28 |
| Specified Minimum Energy Efficiency | 28 |
| Other specified matters | 29 |
| Method for Determining GHG Equivalent Reduction | 29 |
| 9: Part 9 Activity– Space heating, room gas/LPG heater | 33 |
| Activity Description | 33 |
| Specified Minimum Energy Efficiency | 33 |
| Other specified matters | 34 |
| Method for Determining GHG Equivalent Reduction | 34 |
| 10: Part 10 Activity– Space heating, room air to air heat pump | 37 |
| Activity Description | 37 |
| Specified Minimum Energy Efficiency | 37 |
| Other specified matters | 38 |
| Method for Determining GHG Equivalent Reduction | 38 |

| | | |
|------------|---|-----------|
| 12: | Part 12 Activity– Underfloor insulation | 45 |
| | Activity Description | 45 |
| | Specified Minimum Energy Efficiency | 45 |
| | Other specified matters | 45 |
| | Method for Determining GHG Equivalent Reduction | 45 |
| 13: | Part 13 Activity– Double glazed windows | 47 |
| | Activity Description | 47 |
| | Specified Minimum Energy Efficiency | 47 |
| | Other specified matters | 47 |
| | Method for Determining GHG Equivalent Reduction | 48 |
| 14: | Part 14 Activity– Thermally efficient window products | 49 |
| | Activity Description | 49 |
| | Specified Minimum Energy Efficiency | 49 |
| | Other specified matters | 49 |
| | Method for Determining GHG Equivalent Reduction | 50 |
| 15: | Part 15 Activity– Weather sealing | 51 |
| | Activity Description | 51 |
| | Specified Minimum Energy Efficiency | 53 |
| | Other specified matters | 53 |
| | Method for Determining GHG Equivalent Reduction | 53 |
| 17: | Part 17 Activity– Low flow shower rose | 60 |
| | Activity Description | 60 |
| | Specified Minimum Energy Efficiency | 60 |
| | Other specified matters | 60 |
| | Method for Determining GHG Equivalent Reduction | 60 |
| 19: | Part 19 Activity– Destruction of pre-1996 refrigerator or freezer – applicable 10 December 2018 to 9 December 2020 | 62 |
| | Activity Description | 62 |
| | Specified Minimum Energy Efficiency | 62 |
| | Other specified matters | 62 |
| | Method for Determining GHG Equivalent Reduction | 63 |
| 21: | Part 21 Activity– Incandescent lighting | 64 |
| | Activity Description | 64 |
| | Specified Minimum Energy Efficiency | 66 |
| | Other specified matters | 66 |
| | Method for Determining GHG Equivalent Reduction | 67 |
| 22: | Part 22 Activity– High efficiency refrigerators and freezers | 74 |
| | Activity Description | 74 |
| | Specified Minimum Energy Efficiency | 74 |
| | Other specified matters | 75 |
| | Method for Determining GHG Equivalent Reduction | 75 |
| 23: | Part 23 Activity– Space heating and cooling, ducted evaporative cooler | 78 |
| | Activity Description | 78 |

| | |
|---|------------|
| Specified Minimum Energy Efficiency | 78 |
| Other specified matters | 78 |
| Method for Determining GHG Equivalent Reduction | 78 |
| 24: Part 24 Activity– High efficiency televisions | 80 |
| Activity Description | 80 |
| Specified Minimum Energy Efficiency | 80 |
| Other specified matters | 80 |
| Method for Determining GHG Equivalent Reduction | 81 |
| 25: Part 25 Activity– Energy efficient (low greenhouse intensity) clothes dryers | 82 |
| Activity Description | 82 |
| Specified Minimum Energy Efficiency | 82 |
| Other specified matters | 82 |
| Method for Determining GHG Equivalent Reduction | 83 |
| 26: Part 26 Activity– High efficiency pool pumps | 84 |
| Activity Description | 84 |
| Specified Minimum Energy Efficiency | 84 |
| Other specified matters | 84 |
| Method for Determining GHG Equivalent Reduction | 85 |
| 27: Part 27 Activity– Public lighting upgrade | 86 |
| Activity Description | 86 |
| Specified Minimum Energy Efficiency | 86 |
| Other specified matters | 86 |
| Method for Determining GHG Equivalent Reduction | 87 |
| 28: Part 28 Activity– Gas heating ductwork | 91 |
| Activity Description | 91 |
| Specified Minimum Energy Efficiency | 92 |
| Other specified matters | 92 |
| Method for Determining GHG Equivalent Reduction | 92 |
| 30: Part 30 Activity– In-home display unit | 94 |
| Activity Description | 94 |
| Specified Minimum Energy Efficiency | 96 |
| Other specified matters | 96 |
| Method for Determining GHG Equivalent Reduction | 96 |
| 31: Part 31 Activity– High efficiency motor | 97 |
| Activity Description | 97 |
| Specified Minimum Energy Efficiency | 97 |
| Other specified matters | 98 |
| Method for Determining GHG Equivalent Reduction | 98 |
| 32: Part 32 Activity– Refrigerated display cabinet | 102 |
| Activity Description | 102 |
| Specified Minimum Energy Efficiency | 102 |
| Other specified matters | 102 |
| Method for Determining GHG Equivalent Reduction | 102 |

| | | |
|------------|---|------------|
| 33: | Part 33 Activity– Refrigeration fan motor and ventilation fan motor | 106 |
| | Activity Description | 106 |
| | Specified Minimum Energy Efficiency | 106 |
| | Other specified matters | 107 |
| | Method for Determining GHG Equivalent Reduction | 107 |
| 34: | Part 34 Activity– Building based lighting upgrade | 109 |
| | Activity Description | 109 |
| | Specified Minimum Energy Efficiency | 110 |
| | Other specified matters | 110 |
| | Method for Determining GHG Equivalent Reduction | 110 |
| 35: | Part 35 Activity– Non-building based lighting upgrade | 119 |
| | Activity Description | 119 |
| | Specified Minimum Energy Efficiency | 119 |
| | Other specified matters | 120 |
| | Method for Determining GHG Equivalent Reduction | 120 |
| 36: | Part 36 Activity– Water efficient pre-rinse spray valve | 124 |
| | Activity Description | 124 |
| | Specified Minimum Energy Efficiency | 124 |
| | Other specified matters | 124 |
| | Method for Determining GHG Equivalent Reduction | 125 |
| 37: | Part 37 Activity– Gas-fired steam boiler | 126 |
| | Activity Description | 126 |
| | Specified Minimum Energy Efficiency | 126 |
| | Other specified matters | 126 |
| | Method for Determining GHG Equivalent Reduction | 127 |
| 38: | Part 38 Activity– Gas-fired hot water boiler or gas-fired water heater | 128 |
| | Activity Description | 128 |
| | Specified Minimum Energy Efficiency | 128 |
| | Other specified matters | 128 |
| | Method for Determining GHG Equivalent Reduction | 128 |
| 39: | Part 39 Activity– Electronic gas/air ratio control | 130 |
| | Activity Description | 130 |
| | Specified Minimum Energy Efficiency | 130 |
| | Other specified matters | 130 |
| | Method for Determining GHG Equivalent Reduction | 131 |
| 40: | Part 40 Activity– Combustion trim | 132 |
| | Activity Description | 132 |
| | Specified Minimum Energy Efficiency | 132 |
| | Other specified matters | 132 |
| | Method for Determining GHG Equivalent Reduction | 133 |
| 41: | Part 41 Activity– Gas-fired burners | 134 |
| | Activity Description | 134 |
| | Specified Minimum Energy Efficiency | 134 |

| | |
|---|------------|
| Other specified matters | 134 |
| Method for Determining GHG Equivalent Reduction | 135 |
| 42: Part 42 Activity– Economizers | 136 |
| Activity Description | 136 |
| Specified Minimum Energy Efficiency | 136 |
| Other specified matters | 136 |
| Method for Determining GHG Equivalent Reduction | 137 |
| Location Variable List..... | 138 |

Introduction

This document is created pursuant to regulation 35 of the Victorian Energy Efficiency Target Regulations 2018 (the Regulations).

It sets out:

- how prescribed activities under regulations 10 and 13 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 Environment, Land, Water and Planning (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.

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, with the content in the Regulations taking precedence. This document should be read in conjunction with the Act, Regulations and material published by the ESC.

Using this document

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

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

The Activity Requirements section sets out for each prescribed activity:

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

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

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

Standards

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

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

Definitions

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

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

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

AEMO's NEM load table means the Australian Energy Market Operator's (AEMO) National Electricity Market Load Tables for Unmetered Connection Points referenced by regulation 15(3) of the Regulations;

air conditioned for the purpose of determining the AM in Table 34.3, Table 34.4 and Table 34.5, 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;

cool white means a colour temperature above 3500 Kelvin up to and including 4000 Kelvin;

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;

EER 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—

$$EER = 0.2 \times EER_{FL} + 0.3 \times EER_{50\%} + 0.5 \times EER_{20\%}$$

where—

EER_{FL} is the nominal rating (kW) divided by electricity consumption (kW) at rated airflow

$EER_{50\%}$ is the nominal rating (kW) divided by electricity consumption (kW) at 50% rated airflow

$EER_{20\%}$ 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;

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;

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;

IPD means the maximum power density in Watts/metres²;

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

- the power drawn by the lamp, and

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

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

LCD means lighting control device as defined in the Regulations;

LCP means the lamp circuit power for a light source;

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

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;

mercury vapour lamp means a discharge lamp classified as a high-pressure mercury vapour lamp as defined by IEC 60188;

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 liquefied petroleum gas instantaneous water heaters' SRI, and results in an increase in the reduction of carbon dioxide equivalents of GHG for this product;

RDC means a refrigerated display cabinet as defined in the *Greenhouse and Energy Minimum Standards (Refrigerated Display Cabinets) Determination 2012 (Cth)*;

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;

SA means the area of the screen of a television in cm² determined in accordance with AS/NZS 62087.2.2;

self-ballasted mercury vapour lamp means a lamp that contains, in the same envelope, a mercury vapour lamp and an incandescent lamp filament connected in series;

SEF means the supplementary energy factor of a solar or heat pump water heater and converts the B_s 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;

warm white means a temperature of at least 2700 up to and including 3500 Kelvin;

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

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

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

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

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

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

Activity description

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

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

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

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

Table 1.1 – Eligible part 1 water heating scenarios

| Product category number | Scenario number | Decommissioning requirements | Product to be installed | 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: <ul style="list-style-type: none"> certified to AS/NZS 2712 | 1E |
| 1D | 1D | Electric resistance water heater | Heat pump water heater that is: <ul style="list-style-type: none"> certified to AS/NZS 2712 | 1E |
| 1F | 1F | Electric resistance water heater | Gas or LPG boosted solar water heater that is: <ul style="list-style-type: none"> 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 relevant 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 | |
|-------------------------|-------------------------------|---|--|
| 1A and 1B | Minimum star rating | 5 stars, determined in accordance with AS/NZS 5263.1.2 (to be demonstrated by appropriate certification) | |
| 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 relevant additional requirements set out in Table 1.3.

Table 1.3 – Other specified matters for water heaters

| Product category number | Requirement type | Specification details |
|-------------------------|----------------------------------|--|
| 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.* |

*Products listed on the ESC Register under the transitional provisions in section 44(3) of the Regulations can use the Bs, Be, and minimum annual energy savings determined for climate zone HP4-Au when installed in either climatic zone 4 and 5, until 10 June 2020. 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

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

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 | 1.71 |
| | Medium upgrade | 2.92 |
| | Large upgrade | 3.71 |
| 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

$$GHG\ Eq.\ Reduction = (Abatement\ Factor + Rating\ Correction \times SRI) \times Regional\ Factor$$

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 | 13.89 |
| | Medium upgrade | 24.41 |
| | Large upgrade | 29.81 |
| 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

$$GHG\ Eq.\ Reduction = Abatement\ Factor - (SEF \times B_s) - (AEF \times B_e)$$

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 | 31.38 |
| | | Medium upgrade | 50.30 |
| | For upgrades in Regional Victoria | Small upgrade | 33.28 |
| | | Medium upgrade | 53.34 |
| SEF | For upgrades in Metropolitan Victoria | | 1.87 |
| | For upgrades in Regional Victoria | | 1.98 |
| B _s | In every instance | | as determined in accordance with AS/NZS 4234 in GJ/year |
| AEF | For upgrades in Metropolitan Victoria | | 1.87 |
| | For upgrades in Regional Victoria | | 1.98 |
| B _e | 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

$$GHG \text{ Eq. Reduction} = \text{Abatement Factor} - (SEF \times B_s) - (AEF \times B_e)$$

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 | 24.77 |
| | | Medium upgrade | 39.67 |
| | For upgrades in Regional Victoria | Small upgrade | 26.26 |
| | | Medium upgrade | 42.07 |
| SEF | For upgrades in Metropolitan Victoria | | 1.97 |
| | For upgrades in Regional Victoria | | 2.09 |
| B _s | In every instance | | as determined in accordance with AS/NZS 4234 in GJ/year |
| AEF | For upgrades in Metropolitan Victoria | | 1.97 |
| | For upgrades in Regional Victoria | | 2.09 |
| B _e | 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

$$GHG \text{ Eq. Reduction} = \text{Abatement Factor} - (SEF \times B_s) - (AEF \times B_e)$$

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 | 31.43 |
| | | Medium upgrade | 50.37 |
| | For upgrades in Regional Victoria | Small upgrade | 33.33 |
| | | Medium upgrade | 53.41 |
| SEF | For upgrades in Metropolitan Victoria | | 0.35 |
| | For upgrades in Regional Victoria | | 0.34 |
| B _s | In every instance | | as determined in accordance with AS/NZS 4234 in GJ/year |
| AEF | For upgrades in Metropolitan Victoria | | 1.87 |
| | For upgrades in Regional Victoria | | 1.99 |
| B _e | In every instance | | as determined in accordance with AS/NZS 4234 in GJ/year |

***There is no Part 2 Activity

3: Part 3 Activity– Water heaters, replacing gas/LPG

Activity Description

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

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

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

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

Table 3.1 – Eligible part 3 water heating scenarios

| Product category number | Scenario number | Decommissioning requirements | Product to be installed | Historical schedule number |
|-------------------------|-----------------|------------------------------|---|----------------------------|
| 3B | 3B | Gas or LPG water heater | Gas or LPG boosted solar water heater that is: <ul style="list-style-type: none">certified to AS/NZS 2712 | 3B |

Specified Minimum Energy Efficiency

The product installed must meet the relevant additional requirements listed in Table 3.2.

Table 3.2 – Additional requirements for water heating equipment to be installed

| Product category number | Requirement type | Efficiency requirement |
|-------------------------|-------------------------------|---|
| 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

$$GHG\ Eq.\ Reduction = Abatement\ Factor - (SEF \times B_s) - (AEF \times B_e)$$

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 |
| B _s | In every instance | as determined in accordance with AS/NZS 4234 in GJ/year |
| AEF | For upgrades in Metropolitan Victoria | 1.91 |
| | For upgrades in Regional Victoria | 2.03 |
| B _e | In every instance | as determined in accordance with AS/NZS 4234 in GJ/year |

***There is no Part 4 Activity

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

Activity Description

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 | Other requirements | Product to be installed | 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 100m ² | 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 relevant additional requirements listed in Table 5.2.

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

| Product category number | Requirement type | Efficiency requirement |
|-------------------------|---------------------|--|
| 5A | Minimum star rating | 5 stars, determined in accordance with AS/NZS 5263.1.6 (to be demonstrated by appropriate certification) |

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)

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

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 | | 3.54 |
| | Medium upgrade | | 4.47 |
| | Large upgrade | | 5.64 |
| Upgrade | Small upgrade | 5.00 to less than 5.50 stars | 3.10 |
| | | 5.50 to less than 6 stars | 2.92 |
| | | 6 stars or greater | 2.76 |
| | Medium upgrade | 5.00 to less than 5.50 stars | 3.92 |
| | | 5.50 to less than 6 stars | 3.69 |
| | | 6 stars or greater | 3.49 |
| | Large upgrade | 5.00 to less than 5.50 stars | 4.94 |
| | | 5.50 to less than 6 stars | 4.65 |
| | | 6 stars or greater | 4.40 |
| 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)

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

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 | | 10.22 |
| | Medium upgrade | | 12.90 |
| | Large upgrade | | 16.27 |
| Upgrade | Small upgrade | 5.00 to less than 5.50 stars | 3.10 |
| | | 5.50 to less than 6 stars | 2.92 |
| | | 6 stars or greater | 2.76 |
| | Medium upgrade | 5.00 to less than 5.50 stars | 3.92 |
| | | 5.50 to less than 6 stars | 3.69 |
| | | 6 stars or greater | 3.49 |
| | Large upgrade | 5.00 to less than 5.50 stars | 4.94 |
| | | 5.50 to less than 6 stars | 4.65 |
| | | 6 stars or greater | 4.40 |
| 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)

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

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 | | 1.34 |
| | Medium upgrade | | 1.34 |
| | Large upgrade | | 1.77 |
| Upgrade | Small upgrade | 5.00 to less than 5.50 stars | 1.12 |
| | | 5.50 to less than 6 stars | 1.06 |
| | | 6 stars or greater | 1.00 |
| | Medium upgrade | 5.00 to less than 5.50 stars | 1.12 |
| | | 5.50 to less than 6 stars | 1.06 |
| | | 6 stars or greater | 1.00 |
| | Large upgrade | 5.00 to less than 5.50 stars | 1.49 |
| | | 5.50 to less than 6 stars | 1.40 |
| | | 6 stars or greater | 1.32 |
| 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 |

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

Activity Description

Part 6 of Schedule 2 of the Regulations prescribes the upgrade of a space heater or cooler of a type specified by the department as an eligible activity for the purposes of the Victorian Energy Upgrades program.

The department has not yet specified any particular type of space heater or cooler for this prescribed activity.

Over time, the department may determine that there are space heating and cooling upgrades that reduce GHG equivalent emissions, other than those listed in parts 5, 7, 9, 10 or 23. In such a case, product requirements and installation requirements for emerging technology and upgrade scenarios will be listed by the department under this part as well as the method by which to determine reduction in GHG equivalent emissions.

Specified Minimum Energy Efficiency

Currently not applicable.

Other specified matters

Currently not applicable.

Method for Determining GHG Equivalent Reduction

Currently not applicable.

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

Activity Description

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 7.1 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.

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 | Other requirements | Product to be installed | 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 100m ² | 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 relevant additional requirements listed in Table 7.2.

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

| Product category number | Requirement type | Efficiency requirement |
|-------------------------|---------------------------------|--|
| 7A | Minimum performance requirement | <p>Product achieves:</p> <ul style="list-style-type: none"> a minimum RTHC of 10 kW at the H1 temperature condition a minimum ACOP of: <ul style="list-style-type: none"> – 3.9, if RTHC is 18kW or less – 3.7, in any other case <p>Measurement, testings and ratings must be in accordance with the <i>Greenhouse and Energy Minimum Standards (Air Conditioners and Heat Pumps) Determination 2013 (Cth)</i></p> |

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)

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

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 | | 5.17 |
| | Medium upgrade | | 6.75 |
| | Large upgrade | | 8.14 |
| Upgrade | Small upgrade | ACOP of 3.90 to less than 4.00 | 4.92 |
| | | ACOP of 4.00 to less than 4.30 | 4.79 |
| | | ACOP of 4.30 to less than 4.60 | 4.44 |
| | | ACOP of 4.60 or greater | 4.14 |
| | Medium upgrade | ACOP of 3.70 to less than 4.00 | 6.41 |
| | | ACOP of 4.00 to less than 4.30 | 5.92 |
| | | ACOP of 4.30 to less than 4.60 | 5.49 |
| | | ACOP of 4.60 or greater | 5.13 |
| | Large upgrade | ACOP of 3.70 to less than 4.00 | 7.60 |
| | | ACOP of 4.00 to less than 4.30 | 7.01 |
| | | ACOP of 4.30 to less than 4.60 | 6.51 |
| | | ACOP of 4.60 or greater | 6.08 |
| 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)

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

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 | | 10.24 |
| | Medium upgrade | | 12.92 |
| | Large upgrade | | 16.30 |
| Upgrade | Small upgrade | ACOP of 3.90 to less than 4.00 | 4.92 |
| | | ACOP of 4.00 to less than 4.30 | 4.79 |
| | | ACOP of 4.30 to less than 4.60 | 4.44 |
| | | ACOP of 4.60 or greater | 4.14 |
| | Medium upgrade | ACOP of 3.70 to less than 4.00 | 6.41 |
| | | ACOP of 4.00 to less than 4.30 | 5.92 |
| | | ACOP of 4.30 to less than 4.60 | 5.49 |
| | | ACOP of 4.60 or greater | 5.13 |
| | Large upgrade | ACOP of 3.70 to less than 4.00 | 7.60 |
| | | ACOP of 4.00 to less than 4.30 | 7.01 |
| | | ACOP of 4.30 to less than 4.60 | 6.51 |
| | | ACOP of 4.60 or greater | 6.08 |
| 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)

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

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 | | 2.24 |
| | Medium upgrade | | 2.33 |
| | Large upgrade | | 3.08 |
| Upgrade | Small upgrade | ACOP of 3.90 to less than 4.00 | 2.13 |
| | | ACOP of 4.00 to less than 4.30 | 2.07 |
| | | ACOP of 4.30 to less than 4.60 | 1.92 |
| | | ACOP of 4.60 or greater | 1.79 |
| | Medium upgrade | ACOP of 3.70 to less than 4.00 | 2.22 |
| | | ACOP of 4.00 to less than 4.30 | 2.04 |
| | | ACOP of 4.30 to less than 4.60 | 1.90 |
| | | ACOP of 4.60 or greater | 1.77 |
| | Large upgrade | ACOP of 3.70 to less than 4.00 | 2.87 |
| | | ACOP of 4.00 to less than 4.30 | 2.65 |
| | | ACOP of 4.30 to less than 4.60 | 2.46 |
| | | ACOP of 4.60 or greater | 2.29 |

| | | |
|-----------------|--|-------|
| 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

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

Activity Description

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 | Product to be installed | 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: <ul style="list-style-type: none"> a minimum thermal output (or capacity) of 2 kW | 9A |
| | 9A(ii) | Gas or LPG room heater, or other type of room heating | | 9A |
| | 9A(iii) | Plug in electric heater when used as the main form of heating the premises, or wood fired room heater used as the main form of heating: <ul style="list-style-type: none"> an entire Class 1a, 4, 5, 6, 7b or 8 Building an entire dwelling within a Class 1b or 2 Building a room within a Class 3 or 9 Building as per the BCA” | | 9A |

Specified Minimum Energy Efficiency

The product installed must meet the relevant additional requirements listed in Table 9.2.

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

| Product category number | Requirement type | Efficiency requirement |
|-------------------------|---------------------|--|
| 9A | Minimum star rating | 4 stars, determined in accordance with AS/NZS 5263.1.3 (to be demonstrated by appropriate certification) |

Other specified matters

The products installed or decommissioned must meet the relevant additional requirements listed 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 | For the purposes of scenario number 9A(ii) the department hereby specifies that any room heaters that are not otherwise listed may also be decommissioned |
| 9A | Specified flue design requirements | 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)

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

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 | | 1.67 |
| | Medium upgrade | | 3.15 |
| | Large upgrade | | 3.98 |
| 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)

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

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)

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

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 | 1.34 |
| 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 |

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

Activity Description

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 department hereby 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 | Product to be installed | 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: <ul style="list-style-type: none"> an entire Class 1a, 4, 5, 6, 7b or 8 Building an entire dwelling within a Class 1b or 2 Building 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 <ul style="list-style-type: none"> if in residential premises, a bedroom, or 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 <ul style="list-style-type: none"> if in residential premises, a bedroom, or 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 <ul style="list-style-type: none"> if in residential premises, a bedroom, or 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 relevant additional requirements listed in Table 10.2.

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

| Product category number | Requirement type | Efficiency requirement |
|-------------------------|---------------------------------|--|
| 10A | Minimum performance requirement | <p>Product achieves:</p> <ul style="list-style-type: none"> • a minimum RTHC of 2 kW at the H1 temperature condition • a minimum ACOP of <ul style="list-style-type: none"> – 4.2, if RTHC is 3 kW or less – 4, in any other case <p>Measurement, testings and ratings must be in accordance with the <i>Greenhouse and Energy Minimum Standards (Air Conditioners and Heat Pumps) Determination 2013 (Cth)</i></p> |

Other specified matters

The product decommissioned must meet the relevant additional requirements listed 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) the department hereby specifies that 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)

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

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 | | 1.67 |
| | Medium upgrade | | 3.17 |
| | Large upgrade | | 3.99 |
| Upgrade | Small upgrade | ACOP of 4.20 to less than 4.50 | 0.63 |
| | | ACOP of 4.50 to less than 5.00 | 0.57 |
| | | ACOP of 5.00 to less than 5.50 | 0.52 |
| | | ACOP of 5.50 or greater | 0.47 |
| | Medium upgrade | ACOP of 4.00 to less than 4.50 | 1.22 |
| | | ACOP of 4.50 to less than 5.00 | 1.08 |
| | | ACOP of 5.00 to less than 5.50 | 0.97 |
| | | ACOP of 5.50 or greater | 0.88 |
| | Large upgrade | ACOP of 4.00 to less than 4.50 | 1.44 |
| | | ACOP of 4.50 to less than 5.00 | 1.28 |
| | | ACOP of 5.00 to less than 5.50 | 1.15 |
| | | ACOP of 5.5 or greater | 1.04 |
| 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)

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

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 | | 0.64 |
| | Medium upgrade | | 1.24 |
| | Large upgrade | | 1.61 |
| Upgrade | Small upgrade | ACOP of 4.20 to less than 4.50 | 0.63 |
| | | ACOP of 4.50 to less than 5.00 | 0.57 |
| | | ACOP of 5.00 to less than 5.50 | 0.52 |
| | | ACOP of 5.50 or greater | 0.47 |
| | Medium upgrade | ACOP of 4.00 to less than 4.50 | 1.22 |
| | | ACOP of 4.50 to less than 5.00 | 1.08 |
| | | ACOP of 5.00 to less than 5.50 | 0.97 |
| | | ACOP of 5.50 or greater | 0.88 |
| | Large upgrade | ACOP of 4.00 to less than 4.50 | 1.44 |
| | | ACOP of 4.50 to less than 5.00 | 1.28 |
| | | ACOP of 5.00 to less than 5.50 | 1.15 |
| | | ACOP of 5.5 or greater | 1.04 |
| 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)

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

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 | 1.34 |
| Upgrade | ACOP of 4.20 to less than 4.50 | 0.50 |
| | ACOP of 4.50 to less than 5.00 | 0.46 |
| | ACOP of 5.00 to less than 5.50 | 0.42 |
| | ACOP of 5.50 or greater | 0.38 |
| 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)

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

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 | | 1.90 |
| | Medium upgrade | | 3.60 |
| | Large upgrade | | 4.49 |
| Upgrade | Small upgrade | ACOP of 4.20 to less than 4.50 | 0.63 |
| | | ACOP of 4.50 to less than 5.00 | 0.57 |
| | | ACOP of 5.00 to less than 5.50 | 0.52 |
| | | ACOP of 5.50 or greater | 0.47 |
| | Medium upgrade | ACOP of 4.00 to less than 4.50 | 1.22 |
| | | ACOP of 4.50 to less than 5.00 | 1.08 |
| | | ACOP of 5.00 to less than 5.50 | 0.97 |
| | | ACOP of 5.50 or greater | 0.88 |
| | Large upgrade | ACOP of 4.00 to less than 4.50 | 1.44 |
| | | ACOP of 4.50 to less than 5.00 | 1.28 |
| | | ACOP of 5.00 to less than 5.50 | 1.15 |
| | | ACOP of 5.5 or greater | 1.04 |
| 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)

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

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 | 1.52 |
| Upgrade | ACOP of 4.20 to less than 4.50 | 0.50 |
| | ACOP of 4.50 to less than 5.00 | 0.46 |
| | ACOP of 5.00 to less than 5.50 | 0.42 |
| | ACOP of 5.50 or greater | 0.38 |
| 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)

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

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 | | 0.67 |
| | Medium upgrade | | 1.29 |
| | Large upgrade | | 1.57 |
| Upgrade | Small upgrade | ACOP of 4.20 to less than 4.50 | 0.63 |
| | | ACOP of 4.50 to less than 5.00 | 0.57 |
| | | ACOP of 5.00 to less than 5.50 | 0.52 |
| | | ACOP of 5.50 or greater | 0.47 |
| | Medium upgrade | ACOP of 4.00 to less than 4.50 | 1.22 |
| | | ACOP of 4.50 to less than 5.00 | 1.08 |
| | | ACOP of 5.00 to less than 5.50 | 0.97 |
| | | ACOP of 5.50 or greater | 0.88 |
| | Large upgrade | ACOP of 4.00 to less than 4.50 | 1.44 |
| | | ACOP of 4.50 to less than 5.00 | 1.28 |
| | | ACOP of 5.00 to less than 5.50 | 1.15 |
| | | ACOP of 5.5 or greater | 1.04 |
| 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

12: Part 12 Activity– Underfloor insulation

Activity Description

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 | Product to be installed | Historical schedule number |
|-------------------------|-----------------|------------------------------|---|----------------------------|
| 12A | 12A | None | A product (or multiple products) that: <ul style="list-style-type: none">• is/are installed in a floor area that is not insulated for a minimum of 20 m² in accordance with AS 3999• complies (or together comply) with AS/NZS 4859.1 performance requirements once installed | 12A |

Specified Minimum Energy Efficiency

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

Table 12.2 – Additional requirements for insulation to be installed

| Product category number | Requirement type | Efficiency requirement |
|-------------------------|------------------|---|
| 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

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

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

| Input type | Condition | Input value |
|-----------------|--|--|
| GHG Savings | In every instance | 3.98×10^{-3} |
| 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 m ² |

13: Part 13 Activity– Double glazed windows

Activity Description

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 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

| Product category number | Scenario number | Removal requirements | Product to be installed | Historical schedule number |
|-------------------------|-----------------|----------------------|--|----------------------------|
| 13A | 13A | An existing window | Glazing product: <ul style="list-style-type: none">• of which at least 5 m² is installed in place of one or more windows in an external wall• that complies with AS 2047 and AS 1288 performance requirements• that is WERS rated | 13A |

Specified Minimum Energy Efficiency

The product installed must meet the relevant additional requirements listed in Table 13.2.

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

| Product category number | Requirement type | Efficiency requirement |
|-------------------------|---------------------------------|---|
| 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

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

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

| Input type | Condition | Input value |
|-----------------|--|---|
| GHG Savings | WERS rating between 4-4.9 stars for heating | 1.62×10^{-2} |
| | WERS rating between 5-5.9 stars for heating | 2.02×10^{-2} |
| | WERS rating of 6 stars for heating or more | 2.43×10^{-2} |
| Lifetime | In every instance | 25.00 |
| Regional Factor | For upgrades in Metropolitan Victoria – Climatic region Mild | 1.03 |
| | For upgrades in Metropolitan Victoria – Climatic region Cold | 1.39 |
| | For upgrades in Regional Victoria – Climatic region Mild | 0.93 |
| | For upgrades in Regional Victoria – Climatic region Cold | 1.42 |
| | For upgrades in Regional Victoria – Climatic region Hot | 0.76 |
| Area | In every instance | The area of glazing installed in m ² |

14: Part 14 Activity– Thermally efficient window products

Activity Description

Part 14 of Schedule 2 of the Regulations prescribes the upgrade of a window by installing glazing product 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.

Over time, the department may determine that there are other products that enhance the thermal efficiency of a window and thereby reduce GHG equivalent emissions. In such a case, product requirements and installation requirements for emerging technology will be listed by the department as scenario number 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 | Product to be installed | Historical schedule number |
|-------------------------|-----------------|------------------------------|---|----------------------------|
| 14A | 14A | None | A product that raises the thermal efficiency of the single glazed window it is installed onto and: <ul style="list-style-type: none">• when installed creates a still air gap between it and the single glazed window• is installed on at least 5 m² of the window, which must be on an external wall | 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

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

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

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

| Input type | Condition | Input value |
|-----------------|--|---|
| GHG Savings | In every instance | 1.46×10^{-2} |
| Lifetime | Glass or acrylic product | 15.00 |
| | Window film product | 5.00 |
| Regional Factor | For upgrades in Metropolitan Victoria – Climatic region Mild | 1.03 |
| | For upgrades in Metropolitan Victoria - Climatic region Cold | 1.39 |
| | For upgrades in Regional Victoria – Climatic region Mild | 0.93 |
| | For upgrades in Regional Victoria – Climatic region Cold | 1.42 |
| | For upgrades in Regional Victoria – Climatic region Hot | 0.76 |
| Area | In every instance | The area of glazing installed in m ² |

15: Part 15 Activity– Weather sealing

Activity Description

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.

Over time, the department may determine 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 listed by the department as scenario number 15I 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 15.1 – Eligible weather sealing scenarios

Note: Final upgrade must ensure air change rate of premises is less than 0.5 and must comply with Part 3.8.5 of the BCA

| Product category number | Scenario number | Decommissioning requirements | Product to be installed | Historical schedule number |
|-------------------------|-----------------|---|---|----------------------------|
| 15A | 15A | None | <p>Door sealing or weather stripping product(s) installed to frame of, or each edge of, an external door in accordance with the manufacturer's instructions so it restricts airflow around the entire perimeter of the door and which:</p> <ul style="list-style-type: none"> • does not impair normal operation of the door • is covered by warranty against defects for at least 2 years | 15A |
| 15B | 15B | None | <p>Window sealing or weather stripping product(s) installed to frame of, or each edge of, an external window in accordance with the manufacturer's instructions so it restricts airflow around the relevant edges of the window and which:</p> <ul style="list-style-type: none"> • does not impair normal operation of the window • is covered by warranty against defects for at least 2 years | 15B |
| 15C | 15C | A ceiling or wall exhaust fan that does not meet criteria for product to be installed | <p>Ceiling or wall exhaust fan that</p> <ul style="list-style-type: none"> • is installed in accordance with the manufacturer's instructions and in place of the decommissioned fan • expels air either outside or into the roof space of the premises • is fitted with a self-closing damper, flap, filter or other sealing product that allows airflow through the exhaust of the fan when the fan is operating, but restricts airflow when the fan is not operating | 15C |

Note: Final upgrade must ensure air change rate of premises is less than 0.5 and must comply with Part 3.8.5 of the BCA

| Product category number | Scenario number | Decommissioning requirements | Product to be installed | Historical schedule number |
|-------------------------|-----------------|------------------------------|--|----------------------------|
| | | | <ul style="list-style-type: none"> is covered by warranty against defects for at least 2 years | |
| 15D | 15D | None | <p>A self-closing damper, flap, filter or other sealing product on a ceiling or wall exhaust fan that expels air either outside or into the roof space of the premises and on which no such product is already installed that</p> <ul style="list-style-type: none"> is installed in accordance with the manufacturer's instructions when installed, allows airflow through the exhaust of the fan when the fan is operating and restricts airflow when the fan is not operating is covered by warranty against defects for at least 2 years | 15D |
| 15E | 15E | None | <p>A product made of robust non-shrinking sealing material in an unsealed wall vent with the result that a ventilation opening in an external wall is sealed or closed that:</p> <ul style="list-style-type: none"> is installed in accordance with the manufacturer's instructions is covered by warranty against defects for at least 2 years | 15E |
| 15F | 15F | None | <p>A product that is permanently installed to an unsealed chimney or flue of a fireplace to which no such product is already installed and:</p> <ul style="list-style-type: none"> when fitted to a chimney or flue of an open fireplace used to burn solid fuel <ul style="list-style-type: none"> restricts the airflow into or out of the chimney or flue when closed allows the fireplace to operate safely and effectively when open is designed to be installed permanently is installed in accordance with the manufacturer's instructions is covered by warranty against defects for at least 5 years | 15F |
| 15G | 15G | None | <p>A product that is installed to an unsealed chimney or flue of a fireplace to which no such product is already installed and:</p> <ul style="list-style-type: none"> is not a chimney or flue balloon when fitted to a chimney or flue of an open fireplace used to burn solid fuel when closed restricts the airflow into or out of the chimney or flue is designed to be installed on a temporary or seasonal basis is installed in accordance with the manufacturer's | 15G |

Note: Final upgrade must ensure air change rate of premises is less than 0.5 and must comply with Part 3.8.5 of the BCA

| Product category number | Scenario number | Decommissioning requirements | Product to be installed | Historical schedule number |
|-------------------------|-----------------|------------------------------|--|----------------------------|
| | | | instructions and with signage that has instructions for removal of the product • is covered by warranty against defects for at least 2 years | |
| 15H | 15H | None | A product that is installed so it covers the ceiling outlet of a ducted evaporative cooling system to which no such product is already installed and: <ul style="list-style-type: none"> • restricts airflow from inside the residential premises into the evaporative cooling ductwork • is designed to be installed on a temporary or seasonal basis • is installed in accordance with the manufacturer's instructions • comes with instructions regarding its installation and removal and the time of the year that the product should be installed and removed • is covered by warranty against defects for at least 2 years | 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.

Scenario 15A: Door sealing upgrade

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

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

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

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

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

| Input type | Condition | Input value |
|-----------------|--|-----------------------|
| GHG Savings | In every instance | 6.05×10^{-2} |
| Lifetime | Product warranty of at least 2 years, but less than 5 years | 5.00 |
| | Product warranty of at least 5 years | 10.00 |
| Regional Factor | For upgrades in Metropolitan Victoria – Climatic region Mild | 1.05 |
| | For upgrades in Metropolitan Victoria – Climatic region Cold | 1.30 |
| | For upgrades in Regional Victoria – Climatic region Mild | 0.84 |
| | For upgrades in Regional Victoria – Climatic region Cold | 1.33 |
| | For upgrades in Regional Victoria – Climatic region Hot | 0.63 |

Scenario 15B: Window sealing upgrade

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

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

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

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

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

| Input type | Condition | Input value |
|-----------------|--|-----------------------|
| GHG Savings | In every instance | 2.73×10^{-3} |
| Lifetime | Product warranty of at least 2 years, but less than 5 years | 5.00 |
| | Product warranty of at least 5 years | 10.00 |
| Regional Factor | For upgrades in Metropolitan Victoria – Climatic region Mild | 1.05 |
| | For upgrades in Metropolitan Victoria – Climatic region Cold | 1.30 |
| | For upgrades in Regional Victoria – Climatic region Mild | 0.84 |

| | | |
|------|--|--------------------------------------|
| | For upgrades in Regional Victoria – Climatic region Cold | 1.33 |
| | For upgrades in Regional Victoria – Climatic region Hot | 0.63 |
| Area | In every instance | The area of window in m ² |

Scenario 15C: Ceiling or wall exhaust fan upgrade

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

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

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

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

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

| Input type | Condition | Input value |
|-----------------|--|-----------------------|
| GHG Savings | In every instance | 9.28×10^{-2} |
| Lifetime | Product warranty of at least 2 years, but less than 5 years | 5.00 |
| | Product warranty of at least 5 years | 10.00 |
| Regional Factor | For upgrades in Metropolitan Victoria – Climatic region Mild | 1.05 |
| | For upgrades in Metropolitan Victoria – Climatic region Cold | 1.30 |
| | For upgrades in Regional Victoria – Climatic region Mild | 0.84 |
| | For upgrades in Regional Victoria – Climatic region Cold | 1.33 |
| | For upgrades in Regional Victoria – Climatic region Hot | 0.63 |

Scenario 15D: Damper, flap and filter upgrade

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

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

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

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

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

| Input type | Condition | Input value |
|-----------------|--|-----------------------|
| GHG Savings | In every instance | 1.78×10^{-1} |
| Lifetime | Product warranty of at least 2 years, but less than 5 years | 5.00 |
| | Product warranty of at least 5 years | 10.00 |
| Regional Factor | For upgrades in Metropolitan Victoria – Climatic region Mild | 1.05 |
| | For upgrades in Metropolitan Victoria – Climatic region Cold | 1.30 |
| | For upgrades in Regional Victoria – Climatic region Mild | 0.84 |
| | For upgrades in Regional Victoria – Climatic region Cold | 1.33 |
| | For upgrades in Regional Victoria – Climatic region Hot | 0.63 |

Scenario 15E: Robust non-shrinking sealing material upgrade

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

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

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

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

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

| Input type | Condition | Input value |
|-----------------|--|-----------------------|
| GHG Savings | In every instance | 2.36×10^{-2} |
| Lifetime | Product warranty of at least 2 years, but less than 5 years | 5.00 |
| | Product warranty of at least 5 years | 10.00 |
| Regional Factor | For upgrades in Metropolitan Victoria – Climatic region Mild | 1.05 |
| | For upgrades in Metropolitan Victoria – Climatic region Cold | 1.30 |
| | For upgrades in Regional Victoria – Climatic region Mild | 0.84 |

| | |
|--|------|
| For upgrades in Regional Victoria – Climatic region Cold | 1.33 |
| For upgrades in Regional Victoria – Climatic region Hot | 0.63 |

Scenario 15F: Permanent chimney sealing upgrade

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

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

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

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

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

| Input type | Condition | Input value |
|-----------------|--|-----------------------|
| GHG Savings | In every instance | 5.23×10^{-1} |
| Lifetime | In every instance | 10.00 |
| Regional Factor | For upgrades in Metropolitan Victoria – Climatic region Mild | 1.05 |
| | For upgrades in Metropolitan Victoria – Climatic region Cold | 1.30 |
| | For upgrades in Regional Victoria – Climatic region Mild | 0.84 |
| | For upgrades in Regional Victoria – Climatic region Cold | 1.33 |
| | For upgrades in Regional Victoria – Climatic region Hot | 0.63 |

Scenario 15G: Temporary chimney sealing upgrade

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

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

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

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

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

| Input type | Condition | Input value |
|-----------------|--|-----------------------|
| GHG Savings | In every instance | 5.23×10^{-1} |
| Lifetime | In every instance | 5.00 |
| Regional Factor | For upgrades in Metropolitan Victoria – Climatic region Mild | 1.05 |
| | For upgrades in Metropolitan Victoria – Climatic region Cold | 1.30 |
| | For upgrades in Regional Victoria – Climatic region Mild | 0.84 |
| | For upgrades in Regional Victoria – Climatic region Cold | 1.33 |
| | For upgrades in Regional Victoria – Climatic region Hot | 0.63 |

Scenario 15H: Ceiling outlet sealing upgrade.

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

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

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

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

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

| Input type | Condition | Input value |
|-----------------|--|----------------------|
| GHG Savings | In every instance | 2.4×10^{-2} |
| Lifetime | Product warranty of at least 2 years, but less than 5 years | 5.00 |
| | Product warranty of at least 5 years | 10.00 |
| Regional Factor | For upgrades in Metropolitan Victoria – Climatic region Mild | 1.05 |
| | For upgrades in Metropolitan Victoria – Climatic region Cold | 1.88 |
| | For upgrades in Regional Victoria – Climatic region Mild | 0.84 |
| | For upgrades in Regional Victoria – Climatic region Cold | 1.93 |
| | For upgrades in Regional Victoria – Climatic region Hot | 0.55 |

***There is no Part 16 Activity

17: Part 17 Activity– Low flow shower rose

Activity Description

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 | Product to be installed | Historical schedule number |
|-------------------------|-----------------|---|---|----------------------------|
| 17A | 17A | A shower rose with a flow rate above 9L/min | A shower rose that: <ul style="list-style-type: none">• complies with AS/NZS 3662 | 17A |

Specified Minimum Energy Efficiency

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

Table 17.2 – Additional requirements for shower roses to be installed

| Product category number | Requirement type | Efficiency requirement |
|-------------------------|---------------------|---|
| 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

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

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

| Input Type | Condition | Input Value |
|-----------------|--|-------------|
| Baseline | In every instance | 0.34 |
| Upgrade | In every instance | 0.24 |
| 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 Activity

19: Part 19 Activity– Destruction of pre-1996 refrigerator or freezer – applicable 10 December 2018 to 9 December 2020

THIS PART EXPIRES END OF DAY 9 DECEMBER 2020

Activity Description

Regulation 13 of the Regulations prescribes the destruction of a pre-1996 refrigerator or freezer as an eligible activity for the purposes of the Victorian Energy Upgrades program.

Table 19.1 lists the activity requirements.

The information in this part of the Specifications should only be used between 10 December 2018 and 9 December 2020.

Table 19.1 – Eligible refrigerator/freezer destruction scenarios

| Product category number | Scenario number | Decommissioning requirements | Product to be installed | Historical schedule number |
|-------------------------|-----------------|---|-------------------------|----------------------------|
| 19A | 19A | Destruction, by the disposal of, in accordance with the Ozone Protection and Synthetic Greenhouse Gas Management Act 1989 of the Commonwealth, scheduled substances (within the meaning of that Act) contained in a refrigerator or freezer manufactured before 1996 and in working order | None | 19A |

Specified Minimum Energy Efficiency

None.

Other specified matters

None.

Method for Determining GHG Equivalent Reduction

Scenario 19A: Destroying a pre-1996 refrigerator or freezer.

The GHG equivalent emissions reduction for each scenario is given by Equation 19.1, using the variables listed in Table 19.2.

Equation 19.1 – GHG equivalent emissions reduction calculation for Scenario 19A

$$GHG\ Eq.\ Reduction = Abatement\ Factor \times Regional\ Factor$$

Table 19.2 – GHG equivalent emissions reduction variables for Scenario 19A

| Input Type | Condition | Input Value |
|------------------|---|-------------|
| Abatement Factor | If the product is a single door refrigerator or freezer | 3.25 |
| Abatement Factor | If the product is a two-door refrigerator or freezer | 5.82 |
| Regional Factor | If the product is installed in Metropolitan Victoria | 0.98 |
| | If the product is installed in Regional Victoria | 1.04 |

***There is no part 20 Activity

21: Part 21 Activity– Incandescent lighting

Activity Description

Part 21 of Schedule 2 of the Regulations prescribes the upgrade of incandescent lighting as an eligible activity for the purposes of the Victorian Energy Upgrades program.

Table 21.1 lists the eligible products that may be installed, upgraded or replaced. Each type of upgrade is known as a scenario. Each scenario has its own method for determining GHG equivalent reduction.

Over time, the department may determine that there are other lighting upgrades that reduce GHG equivalent emissions. In such a case, product requirements and installation requirements for emerging technology will be listed by the department as scenario number 21G 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 21.1 – Eligible incandescent lighting scenarios

| Product category number | Scenario number | Decommissioning requirements | Product to be installed | Historical schedule number |
|-------------------------|-----------------|---|--|----------------------------|
| 21A | 21A | Mains voltage incandescent GLS lamp of at least 25 Watts (tungsten filament lamp) or 18 Watts (tungsten halogen lamp) or a mains voltage compact fluorescent lamp of at least 5 Watts | LED GLS lamp that: <ul style="list-style-type: none"> • has a light output equivalent to or higher than the decommissioned lamp • meets ESC performance requirements • if installed in a dimmable circuit, is approved by the manufacturers are suitable for such a circuit • has a colour temperature of (or capable of being set to) warm white or cool white | 21A |
| 21B | 21B | Mains voltage incandescent reflector lamp | LED lamp which: <ul style="list-style-type: none"> • is determined suitable for the same purpose as the decommissioned lamp by the ESC • has a light output equivalent to the decommissioned lamp • meets ESC performance requirements • if installed in a dimmable circuit, is approved by the manufacturers are suitable for such a circuit • has a colour temperature of (or capable of being set to) warm white or cool white | 21B |
| 21C | 21C | 12 volt tungsten halogen lamp of at least 35 Watts | Non-integrated LED lamp compatible with the type of ELC used with the replaced lamp and: <ul style="list-style-type: none"> • is installed by a licensed electrician • if installed in a dimmable circuit, is approved by the manufacturer as suitable for such a circuit • meets ESC performance requirements | 21C |

| Product category number | Scenario number | Decommissioning requirements | Product to be installed | Historical schedule number |
|-------------------------|-----------------|--|--|----------------------------|
| | | | <ul style="list-style-type: none"> • has a minimum light output of 420 lumens • has a colour temperature of (or capable of being set to) warm white or cool white | |
| 21D | 21D | 12 volt tungsten halogen downlight luminaire that uses a 12 volt tungsten halogen lamp of at least 35 Watts, as well as any transformer associated with it | <p>Mains voltage downlight LED luminaire (integrated or non-integrated) which:</p> <ul style="list-style-type: none"> • is installed by a licensed electrician • if installed in a dimmable circuit, is approved by the manufacturer as suitable for such a circuit • meets ESC performance requirements • with a minimum light output of 400 lumens • with a colour temperature of (or capable of being set to) warm white or cool white | 21D |
| 21E | 21E | Mains voltage tungsten halogen lamp of at least 35 Watts with a GU10 base | <p>LED lamp with integrated driver that has a GU10 base which:</p> <ul style="list-style-type: none"> • is installed by a licensed electrician • if installed in a dimmable circuit, is approved by the manufacturer as suitable for such a circuit • meets ESC performance requirements • has a minimum light output of 400 lumens • has a colour temperature of (or capable of being set to) warm white or cool white | 21E |
| 21F | 21F | Mains voltage tungsten halogen downlight luminaire that uses a tungsten halogen lamp of at least 35 Watts with a GU10 base | <p>Mains voltage downlight LED integrated luminaire that:</p> <ul style="list-style-type: none"> • is installed by a licensed electrician • if installed in a dimmable circuit, is approved by the manufacturer as suitable for such a circuit • meets ESC performance requirements • has a minimum light output of 400 lumens • has a colour temperature of (or capable of being set to) warm white or cool white | 21F |

Specified Minimum Energy Efficiency

The product installed must meet the relevant additional requirements listed in Table 21.2.

Table 21.2 – Additional requirements for lighting products to be installed

| Product category number | Requirement type | Requirements |
|---|--------------------------------------|----------------|
| 21A | Minimum light source efficacy levels | 84 lumens/watt |
| 21B | Minimum light source efficacy levels | 45 lumens/watt |
| 21C | Minimum light source efficacy levels | 52 lumens/watt |
| 21D, 21E and 21F | Minimum light source efficacy levels | 48 lumens/watt |
| Note: Measurements and testing for the above must be in accordance with ESC's performance requirements | | |

Other specified matters

The product installed must meet the relevant additional requirements listed in Table 21.3.

Table 21.3 - Other requirements for lighting products to be installed

| Product category number | Requirement type | Specification details |
|---|-------------------------|--|
| 21A | Minimum lifetime rating | Lifetime of 8000 hours |
| 21B | Minimum lifetime rating | Lifetime of 12,000 hours |
| 21C | Minimum beam angle | 55 degrees, determined in accordance with IEC/TR 61341 Edition 2.0) – applies to products installed in residential premises |
| | Minimum lifetime rating | Lifetime of 15,000 hours |
| 21D, 21F | Minimum beam angle | 40 degrees, determined in accordance with IEC/TR 61341 Edition 2.0) – applies to products installed in residential premises |
| | Minimum lifetime rating | Lifetime of 15,000 hours |
| 21E | Minimum beam angle | 55 degrees, determined in accordance with IEC/TR 61341 Edition 2.0) – applies to products installed in residential premises |
| | Minimum lifetime rating | Lifetime of 15,000 hours |
| Note: Measurements and testing for the above must be in accordance with ESC's performance requirements | | |

Method for Determining GHG Equivalent Reduction

Scenario 21A: Replacing incandescent GLS lamp or CFL with LED GLS lamp

The GHG equivalent emissions reduction for each scenario is given by Equation 21.1, using the variables listed in Table 21.4.

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 21.1 – GHG equivalent emissions reduction calculation for Scenario 21A

$$GHG \text{ Eq. Reduction} = \sum_{\text{installation}} \text{Abatement Factor} \times \text{PF Multiplier} \times \text{Regional Factor}$$

Table 21.4 – GHG equivalent emissions reduction variables for Scenario 21A

| Measurements, testing and ratings must be in accordance with the ESC's performance requirements | | | |
|---|--|--|-------------|
| Input type | Condition | | Input value |
| Abatement Factor | Upgrade product has a minimum light source efficacy of 84 lumens/watt | Lifetime is at least 8000 and less than 10,000 hours | 0.04 |
| | | Lifetime is at least 10,000 and less than 12,000 hours | 0.05 |
| | | Lifetime is at least 12,000 and less than 15,000 hours | 0.06 |
| | | Lifetime is at least 15,000 and less than 20,000 hours | 0.08 |
| | | Lifetime is at least 20,000 and less than 25,000 hours | 0.11 |
| | | Lifetime is at least 25,000 hours | 0.13 |
| | Upgrade product has a minimum light source efficacy of 100 lumens/watt | Lifetime is at least 8000 and less than 10,000 hours | 0.09 |
| | | Lifetime is at least 10,000 and less than 12,000 hours | 0.11 |
| | | Lifetime is at least 12,000 and less than 15,000 hours | 0.13 |
| | | Lifetime is at least 15,000 and less than 20,000 hours | 0.16 |
| | | Lifetime is at least 20,000 and less than 25,000 hours | 0.21 |
| | | Lifetime is at least 25,000 hours | 0.27 |
| | Upgrade product has a minimum light source efficacy of 120 lumens/watt | Lifetime is at least 8000 and less than 10,000 hours | 0.14 |
| | | Lifetime is at least 10,000 and less than 12,000 hours | 0.17 |

| | | | |
|-----------------|--|--|------|
| | | Lifetime is at least 12,000 and less than 15,000 hours | 0.20 |
| | | Lifetime is at least 15,000 and less than 20,000 hours | 0.25 |
| | | Lifetime is at least 20,000 and less than 25,000 hours | 0.34 |
| | | Lifetime is 25,000 hours or more | 0.42 |
| | Upgrade product has a minimum light source efficacy of 140 lumens/watt | Lifetime is at least 8000 and less than 10,000 hours | 0.19 |
| | | Lifetime is at least 10,000 and less than 12,000 hours | 0.23 |
| | | Lifetime is at least 12,000 and less than 15,000 hours | 0.28 |
| | | Lifetime is at least 15,000 and less than 20,000 hours | 0.35 |
| | | Lifetime is at least 20,000 and less than 25,000 hours | 0.46 |
| | | Lifetime is 25,000 hours or more | 0.58 |
| PF Multiplier | Power factor of the upgrade product is less than 0.80 | | 0.80 |
| | Power factor of the upgrade product is at least 0.80 | | 1.00 |
| Regional Factor | For upgrades in Metropolitan Victoria | | 0.98 |
| | For upgrades in Regional Victoria | | 1.04 |

Scenario 21B: Replacing incandescent reflector lamp with LED lamp

The GHG equivalent emissions reduction for each scenario is given by Equation 21.2, using the variables listed in Table 21.5.

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 21.2 – GHG equivalent emissions reduction calculation for Scenario 21B

$$GHG\ Eq.\ Reduction = \sum_{installation} Abatement\ Factor \times PF\ Multiplier \times Regional\ Factor$$

Table 21.5 – GHG equivalent emissions reduction variables for Scenario 21B

| Measurements, testing and ratings must be in accordance with the ESC's performance requirements | | | |
|---|---|--|-------------|
| Input type | Condition | | Input value |
| Abatement Factor | Upgrade product has a minimum light source efficacy of 45 lumens/watt | Lifetime is at least 12,000 and less than 15,000 hours | 0.40 |
| | | Lifetime is at least 15,000 and less than 20,000 hours | 0.50 |
| | | Lifetime is at least 20,000 and less than 25,000 hours | 0.67 |
| | | Lifetime is at least 25,000 hours | 0.83 |
| | Upgrade product has a minimum light source efficacy of 54 lumens/watt | Lifetime is at least 12,000 and less than 15,000 hours | 0.41 |
| | | Lifetime is at least 15,000 and less than 20,000 hours | 0.51 |
| | | Lifetime is at least 20,000 and less than 25,000 hours | 0.68 |
| | | Lifetime is at least 25,000 hours | 0.85 |
| | Upgrade product has a minimum light source efficacy of 65 lumens/watt | Lifetime is at least 12,000 and less than 15,000 hours | 0.42 |
| | | Lifetime is at least 15,000 and less than 20,000 hours | 0.52 |
| | | Lifetime is at least 20,000 and less than 25,000 hours | 0.70 |
| | | Lifetime is at least 25,000 hours | 0.87 |
| | Upgrade product has a minimum light source efficacy of 78 lumens/watt | Lifetime is at least 12,000 and less than 15,000 hours | 0.42 |
| | | Lifetime is at least 15,000 and less than 20,000 hours | 0.53 |
| | | Lifetime is at least 20,000 and less than 25,000 hours | 0.71 |
| | | Lifetime is at least 25,000 hours | 0.88 |
| PF Multiplier | Power factor of the upgrade product is less than 0.90 | | 1.00 |
| | Power factor of the upgrade product is at least 0.90 | | 1.05 |
| Regional Factor | For upgrades in Metropolitan Victoria | | 0.98 |
| | For upgrades in Regional Victoria | | 1.04 |

Scenario 21C: Replacing 12-volt halogen lamp with non-integrated LED lamp

The GHG equivalent emissions reduction for each scenario is given by Equation 21.3, using the variables listed in Table 21.6.

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 21.3 – GHG equivalent emissions reduction calculation for Scenario 21C

$$GHG\ Eq.\ Reduction = \sum_{installation} Abatement\ Factor \times PF\ Multiplier \times Regional\ Factor$$

Table 21.6 – GHG equivalent emissions reduction variables for Scenario 21C

| Measurements, testing and ratings must be in accordance with the ESC's performance requirements | | | |
|---|---|--|-------------|
| Input type | Condition | | Input value |
| Abatement Factor | Upgrade product has a minimum light source efficacy of 52 lumens/watt | Lifetime is at least 15,000 and less than 20,000 hours | 0.44 |
| | | Lifetime is at least 20,000 and less than 25,000 hours | 0.59 |
| | | Lifetime is at least 25,000 hours | 0.74 |
| | Upgrade product has a minimum light source efficacy of 62 lumens/watt | Lifetime is at least 15,000 and less than 20,000 hours | 0.47 |
| | | Lifetime is at least 20,000 and less than 25,000 hours | 0.63 |
| | | Lifetime is at least 25,000 hours | 0.78 |
| | Upgrade product has a minimum light source efficacy of 75 lumens/watt | Lifetime is at least 15,000 and less than 20,000 hours | 0.49 |
| | | Lifetime is at least 20,000 and less than 25,000 hours | 0.66 |
| | | Lifetime is at least 25,000 hours | 0.82 |
| | Upgrade product has a minimum light source efficacy of 90 lumens/watt | Lifetime is at least 15,000 and less than 20,000 hours | 0.51 |
| | | Lifetime is at least 20,000 and less than 25,000 hours | 0.68 |
| | | Lifetime is at least 25,000 hours | 0.85 |
| PF Multiplier | Power factor of the upgrade product is less than 0.90 | | 1.00 |
| | Power factor of the upgrade product is at least 0.90 | | 1.05 |
| Regional Factor | For upgrades in Metropolitan Victoria | | 0.98 |
| | For upgrades in Regional Victoria | | 1.04 |

Scenario 21D: Replacing 12 volt halogen lamp and luminaire with downlight LED luminaire

The GHG equivalent emissions reduction for each scenario is given by Equation 21.4, using the variables listed in Table 21.7.

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 21.4 – GHG equivalent emissions reduction calculation for Scenario 21D

$$GHG \text{ Eq. Reduction} = \sum_{\text{installation}} \text{Abatement Factor} \times \text{PF Multiplier} \times \text{Regional Factor}$$

Table 21.7 – GHG equivalent emissions reduction variables for Scenario 21D

| Measurements, testing and ratings must be in accordance with the ESC's performance requirements | | | |
|---|---|--|-------------|
| Input type | Condition | | Input value |
| Abatement Factor | Upgrade product has a minimum light source efficacy of at least 48 lumens/watt but less than 58 lumens/watt | Lifetime is at least 15,000 and less than 20,000 hours | 0.46 |
| | | Lifetime is at least 20,000 and less than 25,000 hours | 0.61 |
| | | Lifetime is at least 25,000 hours | 0.76 |
| | Upgrade product has a minimum light source efficacy of 58 lumens/watt | Lifetime is at least 15,000 and less than 20,000 hours | 0.48 |
| | | Lifetime is at least 20,000 and less than 25,000 hours | 0.64 |
| | | Lifetime is at least 25,000 hours | 0.80 |
| | Upgrade product has a minimum light source efficacy of 69 lumens/watt | Lifetime is at least 15,000 and less than 20,000 hours | 0.50 |
| | | Lifetime is at least 20,000 and less than 25,000 hours | 0.67 |
| | | Lifetime is at least 25,000 hours | 0.83 |
| | Upgrade product has a minimum light source efficacy of 83 lumens/watt | Lifetime is at least 15,000 and less than 20,000 hours | 0.52 |
| | | Lifetime is at least 20,000 and less than 25,000 hours | 0.69 |
| | | Lifetime is at least 25,000 hours | 0.86 |
| | Upgrade product has a minimum light source efficacy of 100 lumens/watt | Lifetime is at least 15,000 and less than 20,000 hours | 0.53 |
| | | Lifetime is at least 20,000 and less than 25,000 hours | 0.71 |
| | | Lifetime is at least 25,000 hours | 0.88 |
| PF Multiplier | Power factor of the upgrade product is less than 0.90 | | 1.00 |
| | Power factor of the upgrade product is at least 0.90 | | 1.05 |

| | | |
|-----------------|---------------------------------------|------|
| Regional Factor | For upgrades in Metropolitan Victoria | 0.98 |
| | For upgrades in Regional Victoria | 1.04 |

Scenarios 21E and 21F: Replacing halogen lamp with GU10 base with LED lamp, or replacing halogen lamp with GU10 base and luminaire with downlight LED luminaire

The GHG equivalent emissions reduction for each scenario is given by Equation 21.5, using the variables listed in Table 21.8.

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 21.5 – GHG equivalent emissions reduction calculation for Scenarios 21E and 21F

$$GHG\ Eq.\ Reduction = \sum_{installation} Abatement\ Factor \times PF\ Multiplier \times Regional\ Factor$$

Table 21.8 – GHG equivalent emissions reduction variables for Scenarios 21E and 21F

| Measurements, testing and ratings must be in accordance with the ESC's performance requirements | | | |
|---|---|--|-------------|
| Input Type | Condition | | Input value |
| Abatement Factor | Upgrade product has a minimum light source efficacy of 48 lumens/watt | Lifetime is at least 15,000 and less than 20,000 hours | 0.56 |
| | | Lifetime is at least 20,000 and less than 25,000 hours | 0.74 |
| | | Lifetime is at least 25,000 hours | 0.93 |
| | Upgrade product has a minimum light source efficacy of 58 lumens/watt | Lifetime is at least 15,000 and less than 20,000 hours | 0.58 |
| | | Lifetime is at least 20,000 and less than 25,000 hours | 0.78 |
| | | Lifetime is at least 25,000 hours | 0.97 |
| | Upgrade product has a minimum light source efficacy of 69 lumens/watt | Lifetime is at least 15,000 and less than 20,000 hours | 0.60 |
| | | Lifetime is at least 20,000 and less than 25,000 hours | 0.80 |
| | | Lifetime is at least 25,000 hours | 1.00 |
| | Upgrade product has a minimum light source efficacy of 83 lumens/watt | Lifetime is at least 15,000 and less than 20,000 hours | 0.62 |
| | | Lifetime is at least 20,000 and less than 25,000 hours | 0.82 |
| | | Lifetime is at least 25,000 hours | 1.03 |

| | | | |
|-----------------|--|--|------|
| | Upgrade product has a minimum light source efficacy of 100 lumens/watt | Lifetime is at least 15,000 and less than 20,000 hours | 0.63 |
| | | Lifetime is at least 20,000 and less than 25,000 hours | 0.84 |
| | | Lifetime is at least 25,000 hours | 1.05 |
| PF Multiplier | Power factor of the upgrade product is less than 0.90 | | 1.00 |
| | Power factor of the upgrade product is at least 0.90 | | 1.05 |
| Regional Factor | For upgrades in Metropolitan Victoria | | 0.98 |
| | For upgrades in Regional Victoria | | 1.04 |

22: Part 22 Activity– High efficiency refrigerators and freezers

Activity Description

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.

Over time, the department may determine 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 listed by the department as scenario number 22E once specified.

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 | Historical schedule number |
|-------------------------|-----------------|------------------------------|--------------------------|----------------------------|
| 22A | 22A | None | Single door refrigerator | 22A |
| 22B | 22B | None | Two door refrigerator | 22B |
| 22C | 22C | None | A chest freezer | 22C |
| 22D | 22D | None | An upright freezer | 22D |

Specified Minimum Energy Efficiency

The product installed must meet the relevant additional requirements listed in Table 22.2.

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

| Product category number | Requirement type | Efficiency requirement |
|-------------------------|---------------------------------|--|
| 22A | Minimum performance requirement | <ul style="list-style-type: none">Group 1 refrigerator as defined by <i>Greenhouse and Energy Minimum Standards (Household Refrigerating Appliances) Determination 2012 (Cth)</i>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 | <ul style="list-style-type: none">Group 4, 5B, 5S or 5T refrigerator as defined by <i>Greenhouse and Energy Minimum Standards (Household Refrigerating Appliances) Determination 2012 (Cth)</i>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 | <ul style="list-style-type: none">Group 6C product as defined by <i>Greenhouse and Energy Minimum Standards (Household Refrigerating Appliances) Determination 2012 (Cth)</i>total storage volume of not less than 100 litres and not more than 700 litres (as defined by AS/NZS 4474.1:2007) |

| Product category number | Requirement type | Efficiency requirement |
|-------------------------|---------------------------------|---|
| | | <ul style="list-style-type: none"> Star rating index of 3.5, determined in accordance with AS/NZS 4474.2 |
| 22D | Minimum performance requirement | <ul style="list-style-type: none"> Group 6U or 7 product as defined by <i>Greenhouse and Energy Minimum Standards (Household Refrigerating Appliances) Determination 2012 (Cth)</i> 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

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

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

| Input Type | Condition | Input Value |
|-----------------|---------------------------------------|---|
| Baseline | In every instance | $(200 + 4 \times V_{ff}^{0.67}) \times 6.42 \times 10^{-4}$ |
| Upgrade | In every instance | $CEC \times 9.31 \times 10^{-4}$ |
| 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

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

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

| Input Type | Condition | Input Value |
|-----------------|---------------------------------------|---|
| Baseline | In every instance | $\{150 + 8.8 \times [V_{ff} + (1.6 \times V_{fr})]^{0.67}\} \times 4.88 \times 10^{-4}$ |
| Upgrade | In every instance | $CEC \times 9.31 \times 10^{-4}$ |
| 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

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

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

| Input Type | Condition | Input Value |
|-----------------|---------------------------------------|--|
| Baseline | In every instance | $[150 + 7.5 \times (1.6 \times V_{fr})^{0.67}] \times 5.14 \times 10^{-4}$ |
| Upgrade | In every instance | $CEC \times 9.31 \times 10^{-4}$ |
| 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

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

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

| Input Type | Condition | Input Value |
|-----------------|---------------------------------------|---|
| Baseline | In every instance | $\left[150 + 7.5 \times (1.6 \times V_{fr})^{0.67}\right] \times 5.79 \times 10^{-4}$ |
| Upgrade | In every instance | $CEC \times 9.31 \times 10^{-4}$ |
| Lifetime | In every instance | 21.00 |
| Regional Factor | For upgrades in Metropolitan Victoria | 0.98 |
| | For upgrades in Regional Victoria | 1.04 |

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

Activity Description

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 | Product to be installed | Historical schedule number |
|-------------------------|-----------------|---|--|----------------------------|
| 23A | 23A | Refrigerative air conditioner (whether ducted or not) that is not located in <ul style="list-style-type: none">if in residential premises, a bedroom, orotherwise, a room with an area less than 20m² | Ducted evaporative cooler <ul style="list-style-type: none">that complies with AS 2913with a minimum 7kW rated output | 23A |

Specified Minimum Energy Efficiency

The product installed must meet the relevant additional requirements listed in Table 23.2.

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

| Product category number | Requirement type | Efficiency requirement |
|-------------------------|---|---|
| 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

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

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 | 0.31 |
| | | Ducted refrigerative system | 0.66 |
| | Medium upgrade | Non-ducted refrigerative system | 0.31 |
| | | Ducted refrigerative system | 1.10 |
| | Large upgrade | Non-ducted refrigerative system | 0.31 |
| | | Ducted refrigerative system | 1.65 |
| Upgrade | Small upgrade | EER of at least 20 and less than 30 | 0.11 |
| | | 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 | 0.18 |
| | | EER of at least 30 and less than 40 | 0.12 |
| | | EER of at least 40 | 0.09 |
| | Large upgrade | EER of at least 20 and less than 30 | 0.27 |
| | | EER of at least 30 and less than 40 | 0.18 |
| | | 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 |

24: Part 24 Activity– High efficiency televisions

Activity Description

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 | Historical schedule number |
|-------------------------|-----------------|------------------------------|-------------------------|----------------------------|
| 24A | 24A | None | Television | 24A |

Specified Minimum Energy Efficiency

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

Table 24.2 – Additional requirements for televisions to be installed

| Product category number | Requirement type | Efficiency requirement |
|-------------------------|---------------------------------|---|
| 24A | Minimum performance requirement | <ul style="list-style-type: none">Star rating of 7 starsCEC on the energy rating label of not more than 300 kWh/y Measurement, testings and ratings must be in accordance with the <i>Greenhouse and Energy Minimum Standards (Television) Determination 2013 (No.2)</i> |

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

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

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 | $[65.4080 + (0.09344 \times SA)] \times 1.97 \times 10^{-4}$ |
| Upgrade | In every instance | $CEC \times 6.00 \times 10^{-4}$ |
| Lifetime | In every instance | 16.00 |
| Regional Factor | For upgrades in Metropolitan Victoria | 0.98 |
| | For upgrades in Regional Victoria | 1.04 |

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

Activity Description

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.

Over time, the department may determine that there are other clothes dryers that reduce GHG equivalent emissions when installed. In such a case, product requirements and installation requirements for emerging technology will be listed by the department as scenario number 25B once specified.

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

Table 25.1 – Eligible clothes dryer scenarios

| Product category number | Scenario number | Decommissioning requirements | Product to be installed | Historical schedule number |
|-------------------------|-----------------|------------------------------|---|----------------------------|
| 25A | 25A | None | Stand-alone electric clothes dryer (not part of a combination washer/dryer) | 25A |

Specified Minimum Energy Efficiency

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

Table 25.2 – Additional requirements for clothes dryers to be installed

| Product category number | Requirement type | Efficiency requirement |
|-------------------------|---------------------------------|--|
| 25A | Minimum performance requirement | <ul style="list-style-type: none">Registered for energy labellingStar rating of 7 stars <p>Measurement, testings and ratings must be in accordance with the <i>Greenhouse and Energy Minimum Standards (Rotary Clothes Dryers) Determination 2015</i></p> |

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

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

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 | $R \times 2.35 \times 10^{-2}$ |
| Upgrade | In every instance | $CEC \times 5.68 \times 10^{-4}$ |
| Lifetime factor | In every instance | 12.00 |
| Regional Factor | For upgrades in Metropolitan Victoria | 0.98 |
| | for upgrades in Regional Victoria | 1.04 |

26: Part 26 Activity– High efficiency pool pumps

Activity Description

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.

Over time, the department may determine that there are other types of pool pumps that reduce GHG equivalent emissions when installed. In such a case, product requirements and installation requirements for emerging technology will be listed by the department 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 | Historical schedule number |
|-------------------------|-----------------|------------------------------|---|----------------------------|
| 26A | 26A | None | <p>A domestic pool or spa pump that has a single phase, single speed, dual speed, multiple speed or a variable speed pump unit that:</p> <ul style="list-style-type: none">• has an input power of not less than 100W and not more than 2500W, when determined in accordance with AS 5102.1• is part of the E3 Committee's voluntary energy rating labelling program for swimming pool pump-units (Rules for participation November 2010), or else registered for energy labelling under AS 5102.2 | 26A |

Specified Minimum Energy Efficiency

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

Table 26.2 – Additional requirements for pool pumps to be installed

| Product category number | Requirement type | Efficiency requirement |
|-------------------------|---------------------|--|
| 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

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

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

| Measurement, testings and ratings must be in accordance with AS 5102.2 | | |
|--|--|-----------------------------------|
| Input type | Condition | Input value |
| Baseline | In every instance | 1.27 |
| Upgrade | In every instance | $PAEC \times 1.10 \times 10^{-3}$ |
| 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 |

27: Part 27 Activity– Public lighting upgrade

Activity Description

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 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 | Product to be installed | Historical schedule number |
|-------------------------|-----------------|--|--|--------------------------------|
| 27A | 27A | None* | A lighting control device, other than a voltage reduction unit, that is certified by the manufacturer as appropriate for use with the type of luminaire it will be required to control | 34B |
| 27B | 27B | Decommissioning any removed lighting equipment | Any other lighting equipment that: <ul style="list-style-type: none"> when installed, meets the minimum power factor determined by the ESC meets minimum standards determined by the ESC when tested by an approved laboratory in accordance with a laboratory test approved by the ESC is not a T5 adaptor | 34D |
| N/A | 27C | Removing and not replacing: <ul style="list-style-type: none"> a LED integrated luminaire, or 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

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

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

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

Equation 27.2 – Baseline calculation for all public lighting upgrades

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

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 | In every instance | As determined by Table 27.7 |
| GHG coefficient | In every instance | 1.095 |

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

Equation 27.3 – Upgrade calculation for all public lighting upgrades

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

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 | In every instance | As determined by Table 27.7 |
| GHG coefficient | In every instance | 1.095 |

** 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

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

Table 27.5 – Lifetime calculation variables for all public lighting upgrades

| Input type | Condition | Input value |
|------------------------|-------------------|-----------------------------|
| Asset Lifetime | In every instance | As determined by Table 27.8 |
| Annual Operating Hours | In every instance | As determined by Table 27.9 |

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 $\geq B$ 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 $\geq B$ or magnetic ballast with no EEI marked) | NLP + 5 | NLP + 5 |
| Compact fluorescent lamp with integral ballast | NLP | NLP |
| Tungsten incandescent or halogen lamp (mains voltage) | NLP x 0.7 | NLP |

| Type of incumbent or upgrade light source | Lamp circuit power for incumbent light source | Lamp circuit power for upgrade light source |
|--|---|---|
| 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 |
| Mercury vapour lamp with ballast | NLP x 1.033 + 11 | NLP x 1.033 + 11 |
| 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 \geq 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 \geq 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 |
| Self-ballasted Mercury Vapour lamp | NLP | NLP |
| 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 – Control multiplier values for baseline and upgrade calculations for public lighting upgrades, depending on the number and types of lighting control devices (LCDs)

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

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

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

Table 27.9 – Annual operating hours for public lighting upgrades

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

28: Part 28 Activity– Gas heating ductwork

Activity Description

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 | Product to be installed | Historical schedule number |
|-------------------------|-----------------|---|---|----------------------------|
| 28A | 28A | Ductwork that is connected to a ducted gas heater | Flexible ductwork that: <ul style="list-style-type: none"> • is certified by an approved laboratory as complying with AS 4254.1 and is labelled in accordance with that standard • is insulated using bulk insulation that is certified by an approved laboratory as complying with AS/NZS 4859.1 • is constructed and installed in accordance with AS 4254.1 and uses fittings that <ul style="list-style-type: none"> – if installed in a class 1 or 10 Building, achieves at least the R-value specified by Table 3.12.5.2 of Volume Two of the BCA – if installed in a class 2 to 9 Building, achieves the minimum total R value specified by Specification J5.2b of Volume One of the BCA | 28A |
| 28B | 28B | | Rigid ductwork that: <ul style="list-style-type: none"> • is certified by an approved laboratory as complying with AS 4254.2 • is insulated using bulk insulation that is certified by an approved laboratory as complying with AS/NZS 4859.1 • is longitudinally labelled at intervals of no more than 1.5 meters in characters that are clearly legible and at least 18mm high and state the duct manufacturer's or assembler's name, the diameter of the duct core, the R-value of the bulk insulation and whether the ductwork complies with AS 4254.2 • is constructed and installed in accordance with AS 4254.2 and uses fittings that <ul style="list-style-type: none"> – if installed in a class 1 or 10 Building, achieves at least the R-value specified by Table 3.12.5.2 of Volume Two of the BCA | 28A |

- if installed in a class 2 to 9 Building, achieves the minimum total R value specified by Specification J5.2b of Volume One of the BCA

Specified Minimum Energy Efficiency

The product installed must meet the relevant additional requirements listed in Table 28.2.

Table 28.2 – Additional requirements for ductwork to be installed

| Product category number | Requirement type | Efficiency requirement |
|-------------------------|------------------|--|
| 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

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

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

| Measurements of thermal output (or capacity) of the heater must be in accordance with AS/NZS 5263.1.6 | | |
|--|-----------------|-------------|
| Small upgrade: ductwork connected to heater with thermal output (or capacity) of at least 10 and not more than 18 kW | | |
| Medium upgrade: ductwork connected to heater with thermal output (or capacity) over 18 and not more than 28 kW | | |
| Large upgrade: ductwork connected to heater with thermal output (or capacity) of more than 28 kW | | |
| Unknown upgrade: ductwork connected to heater with unknown thermal output (or capacity) | | |
| Input type | Condition | Input value |
| Baseline | Small upgrade | 2.87 |
| | Medium upgrade | 3.63 |
| | Large upgrade | 4.58 |
| | Unknown upgrade | 2.87 |
| Upgrade | Small upgrade | 2.26 |

| | | |
|-----------------|--|-------|
| | Medium upgrade | 2.85 |
| | Large upgrade | 3.59 |
| | Unknown upgrade | 2.26 |
| Lifetime | In every instance | 14.00 |
| Regional Factor | For upgrades in Metropolitan Victoria – Climatic region mild | 1.00 |
| | For upgrades in Metropolitan Victoria – Climatic region cold | 1.62 |
| | For upgrades in Regional Victoria – Climatic region mild | 1.01 |
| | For upgrades in Regional Victoria – Climatic region cold | 1.63 |
| | For upgrades in Regional Victoria – Climatic region hot | 0.70 |

***There is no Part 29 Activity

30: Part 30 Activity– In-home display unit

Activity Description

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.

Over time, the department may determine that there are other in-home display units that reduce GHG equivalent emissions. In such a case, product requirements and installation requirements for emerging technology will be listed by the department as scenario number 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 | Historical schedule number |
|-------------------------|-----------------|------------------------------|---|----------------------------|
| 30A | 30A | None | <p>An in-home display unit that when installed in relation to an AMI metering installation provides information on the total electricity consumption of the residential premises directly to the consumer, complies with the ZigBee Smart Energy Profile Specification and ZigBee Smart Energy Standard, and when tested in a manner approved by the ESC:</p> <ul style="list-style-type: none"> determines electricity consumption information from the sensing apparatus at least every 30 seconds stores electricity energy consumption information from the previous 45 days displays to the consumer (or relays to a device that displays to the consumer) in a numerical format and non-numerical format and in a manner that allows the consumer to easily distinguish between low and high consumption the: <ul style="list-style-type: none"> 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 average total household electrical power consumption (in Watts) for the displayed period, which must be updated at least every 30 seconds 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 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 | 30A |

| Product category number | Scenario number | Decommissioning requirements | Product to be installed | Historical schedule number |
|-------------------------|-----------------|------------------------------|--|----------------------------|
| | | | <p>displayed</p> <ul style="list-style-type: none"> permanently erases all consumption and tariff information held by the product including information entered by the consumer has an average electric power consumption of not more than 0.6 Watts when operating under normal circumstances if battery powered, uses a battery that has a manufacturer's rated lifetime of at least 5 years when operating under normal circumstances | |
| 30B | 30B | None | <p>An in-home display unit that when installed in relation to any sensing apparatus provides information on the total electricity consumption of the residential premises directly to the consumer, and when tested in a manner approved by the ESC that:</p> <ul style="list-style-type: none"> determines electricity consumption information from the sensing apparatus at least every 30 seconds stores electricity energy consumption information from the previous 45 days displays to the consumer (or relays to a device that displays to the consumer) in a numerical format and non-numerical format and in a manner that allows the consumer to easily distinguish between low and high consumption the: <ul style="list-style-type: none"> 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 the average total household electrical power consumption (in Watts) for the displayed period, which must be updated at least every 30 seconds 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 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 permanently erases all consumption and tariff information held by the product including information entered by the consumer has an average electric power consumption of not more than 0.6 Watts when operating under normal circumstances | 30B |

| Product category number | Scenario number | Decommissioning requirements | Product to be installed | Historical schedule number |
|-------------------------|-----------------|------------------------------|---|----------------------------|
| | | | <ul style="list-style-type: none"> provides electricity energy consumption information that is accurate to within 5% of actual electricity consumption if battery powered, uses a battery that has a manufacturer's rated lifetime of at least 5 years when operating under normal circumstances uses, for its communications with the sensing apparatus and any display device, an encrypted communication protocol that is approved by the ESC | |

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 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

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

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

| Input type | Condition | Input value |
|-----------------|--|-------------|
| GHG Savings | For upgrades in a gas-reticulated area | 0.43 |
| | For upgrades in a non-gas reticulated area | 0.56 |
| Lifetime | In every instance | 5.00 |
| Regional Factor | For upgrades in Metropolitan Victoria | 0.98 |
| | For upgrades in Regional Victoria | 1.04 |

31: Part 31 Activity– High efficiency motor

Activity Description

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.

Over time, the department may determine that there are other motors that reduce GHG equivalent emissions when installed or replaced. In such a case, product requirements and installation requirements for emerging technology 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 | Historical schedule number |
|-------------------------|-----------------|------------------------------|--|----------------------------|
| 31A | 31A | None | A three-phase cage induction motor that has 2,4,6 or 8 poles | 31A |
| 31B | 31B | None | A three-phase cage induction motor that: <ul style="list-style-type: none">• has a rated output of not less than 0.75 and not more than 185 kW (as determined in accordance with AS 60034.1-2009 as published on 15 July 2009)• 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)• has 2,4 or 6 poles | 31B |

Specified Minimum Energy Efficiency

The product installed must meet the additional requirements listed 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 | <ul style="list-style-type: none">• GEMS registration• A rated output of not less than 0.75 and not more than 185 kW in accordance with AS 60034.1• Labelled as a high efficiency motor |

| Product category number | Requirement type | Efficiency requirements |
|-------------------------|------------------|--|
| | | Measurement, testings and ratings must be in accordance with the <i>Greenhouse and Energy Minimum Standards (Three Phase Cage Induction Motors) Determination 2012</i> unless otherwise stated |
| 31B | Not Applicable | No additional requirements |

Other specified matters

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

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

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 |
| GHG Savings | Minimum rated output of 0.75 kW | 2.82×10^{-2} |
| | Minimum rated output of 1.1 kW | 3.64×10^{-2} |
| | Minimum rated output of 1.5 kW | 4.46×10^{-2} |
| | Minimum rated output of 2.2 kW | 5.78×10^{-2} |
| | Minimum rated output of 3 kW | 7.79×10^{-2} |
| | Minimum rated output of 4 kW | 9.48×10^{-2} |
| | Minimum rated output of 5.5 kW | 1.18×10^{-1} |
| | Minimum rated output of 7.5 kW | 1.45×10^{-1} |
| | Minimum rated output of 11 kW | 2.02×10^{-1} |
| | Minimum rated output of 15 kW | 2.51×10^{-1} |
| | Minimum rated output of 18.5 kW | 2.88×10^{-1} |
| | Minimum rated output of 22 kW | 3.23×10^{-1} |
| | Minimum rated output of 30 kW | 4.05×10^{-1} |
| | Minimum rated output of 37 kW | 4.55×10^{-1} |
| | Minimum rated output of 45 kW | 6.25×10^{-1} |

| | | |
|-----------------|---------------------------------------|-----------------------|
| | Minimum rated output of 55 kW | 7.19×10^{-1} |
| | Minimum rated output of 75 kW | 8.89×10^{-1} |
| | Minimum rated output of 90 kW | 9.51×10^{-1} |
| | Minimum rated output of 110 kW | 1.31 |
| | Minimum rated output of 132 kW | 1.43 |
| | Minimum rated output of 150 kW | 1.53 |
| | Minimum rated output of 185 kW | 1.89 |
| 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

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

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 |
| GHG Savings | Minimum rated output of 0.75 kW | 5.12×10^{-2} |
| | Minimum rated output of 1.1 kW | 6.69×10^{-2} |
| | Minimum rated output of 1.5 kW | 8.13×10^{-2} |
| | Minimum rated output of 2.2 kW | 1.09×10^{-1} |
| | Minimum rated output of 3 kW | 1.48×10^{-1} |
| | Minimum rated output of 4 kW | 1.76×10^{-1} |
| | Minimum rated output of 5.5 kW | 2.34×10^{-1} |
| | Minimum rated output of 7.5 kW | 2.91×10^{-1} |
| | Minimum rated output of 11 kW | 4.33×10^{-1} |
| | Minimum rated output of 15 kW | 5.14×10^{-1} |
| | Minimum rated output of 18.5 kW | 5.94×10^{-1} |
| | Minimum rated output of 22 kW | 6.91×10^{-1} |
| | Minimum rated output of 30 kW | 7.92×10^{-1} |
| | Minimum rated output of 37 kW | 8.87×10^{-1} |
| | Minimum rated output of 45 kW | 1.20 |
| | Minimum rated output of 55 kW | 1.40 |
| | Minimum rated output of 75 kW | 1.51 |
| | Minimum rated output of 90 kW | 1.61 |
| | Minimum rated output of 110 kW | 1.97 |
| | Minimum rated output of 132 kW | 2.01 |
| | Minimum rated output of 150 kW | 2.08 |
| | Minimum rated output of 185 kW | 2.85 |
| Lifetime | Minimum rated output of 0.75 kW | 12.00 |
| | Minimum rated output of 1.1 kW | |
| | Minimum rated output of 1.5 kW | |
| | Minimum rated output of 2.2 kW | |

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

32: Part 32 Activity– Refrigerated display cabinet

Activity Description

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

Table 32.1 lists the types of refrigerated display cabinets 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 32.1 – Eligible refrigerated display cabinet scenarios

| Product category number | Scenario number | Decommissioning requirements | Product to be installed | Historical schedule number |
|-------------------------|-----------------|------------------------------|--------------------------------|----------------------------|
| 32A | 32A | None | A refrigerated display cabinet | 32A |

Specified Minimum Energy Efficiency

The product installed must meet the requirements listed in Table 32.2.

Table 32.2 – Additional requirements for refrigerated display cabinets to be installed

| Product category number | Requirement type | Efficiency requirement |
|-------------------------|---------------------------------|--|
| 32A | Minimum performance requirement | Achieves the high efficiency level within the meaning of <i>Greenhouse and Energy Minimum Standards (Refrigerated Display Cabinets) Determination 2012</i> |

Other specified matters

None.

Method for Determining GHG Equivalent Reduction

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

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

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

| Measurement, testings and ratings must be in accordance with the Greenhouse and Energy Minimum Standards (Refrigerated Display Cabinets) Determination 2012 | | |
|---|----------------------|-------------|
| Input type | Condition | Input value |
| Baseline | RS 1 – unlit shelves | 4.02 |
| | RS 1 – lit shelves | 5.68 |
| | RS 2 – unlit shelves | 4.07 |
| | RS 2 – lit shelves | 5.43 |
| | RS 3 – unlit shelves | 4.75 |
| | RS 3 – lit shelves | 5.88 |
| | RS 4 – glass door | 3.11 |
| | RS 6 – gravity coil | 4.55 |
| | RS 6 – fan coil | 4.53 |
| | RS 7 – fan coil | 4.73 |
| | RS 8 – gravity coil | 3.92 |
| | RS 8 – fan coil | 4.22 |
| | RS 9 – fan coil | 3.87 |
| | RS 10 – low | 5.97 |
| | RS 11 | 12.20 |
| | RS 12 | 21.22 |
| | RS 13 – solid sided | 6.23 |
| | RS 13 – glass sided | 6.26 |
| | RS 14 – solid sided | 4.96 |
| | RS 14 – glass sided | 11.86 |
| | RS 15 – glass door | 11.86 |
| | RS 16 – glass door | 12.98 |
| | RS 18 | 15.54 |
| | RS 19 | 11.57 |
| | HC1 | 3.68 |
| | HC4 | 4.96 |
| | VC1 | 10.48 |
| | VC2 | 8.40 |
| | VC4 – solid door | 5.52 |
| | VC4 – glass door | 5.52 |
| | HF4 | 8.48 |
| | HF6 | 2.56 |
| | VF4 – solid door | 13.28 |

| | | |
|---------|---|-------|
| | VF4 – glass door | 13.28 |
| Upgrade | RS 1 – unlit shelves | 2.68 |
| | RS 1 – lit shelves | 3.41 |
| | RS 2 – unlit shelves | 2.72 |
| | RS 2 – lit shelves | 3.62 |
| | RS 3 – unlit shelves | 3.30 |
| | RS 3 – lit shelves | 3.92 |
| | RS 4 – glass door | 2.17 |
| | RS 6 – gravity coil | 3.16 |
| | RS 6 – fan coil | 3.15 |
| | RS 7 – fan coil | 3.15 |
| | RS 8 – gravity coil | 2.73 |
| | RS 8 – fan coil | 2.93 |
| | RS 9 – fan coil | 2.58 |
| | RS 10 – low | 4.16 |
| | RS 11 | 8.49 |
| | RS 12 | 14.76 |
| | RS 13 – solid sided | 4.16 |
| | RS 13 – glass sided | 4.36 |
| | RS 14 – solid sided | 3.66 |
| | RS 14 – glass sided | 4.11 |
| | RS 15 – glass door | 8.77 |
| | RS 16 – glass door | 9.59 |
| | RS 18 | 12.72 |
| | RS 19 | 9.46 |
| | HC1 | 2.72 |
| | HC4 | 3.65 |
| | VC1 | 7.71 |
| | VC2 | 6.19 |
| | VC4 – solid door | 2.34 |
| | VC4 – glass door | 3.42 |
| | HF4 | 6.24 |
| | HF6 | 1.89 |
| | VF4 – solid door | 9.77 |
| | VF4 – glass door | 9.77 |
| TDA | Total display area in m ² 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 |

33: Part 33 Activity– Refrigeration fan motor and ventilation fan motor

Activity Description

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.

Over time, the department may determine that there are other fan motors that reduce GHG equivalent emissions when installed or upgraded. In such a case, product requirements and installation requirements for emerging technology will be listed by the department 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 | Historical schedule number |
|-------------------------|-----------------|------------------------------|--|----------------------------|
| 33A | 33A | None | A fan motor installed in a fan in a refrigerated display cabinet, commercial freezer or cool room that is: <ul style="list-style-type: none">• an electronically commutated motor (being a permanent magnet motor with electronic commutation) and<ul style="list-style-type: none">– if an internal rotor motor, has a rated motor output of not more than 600 Watts– if an external rotor motor, has a rated motor input of not more than 800 Watts | 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 is: <ul style="list-style-type: none">• an electronically commutated motor (being a permanent magnet motor with electronic commutation) and<ul style="list-style-type: none">– if an internal rotor motor, has a rated motor output of not more than 600 Watts– if an external rotor motor, has a rated motor input of not more than 800 Watts | N/A |

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 display cabinet, commercial freezer or cool 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

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

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

| Input type | Condition | Input value |
|-----------------|---------------------------------------|---|
| Baseline* | In every instance | $4.79 \times 10^{-3} \times (NFIP \times 1.77 + 19.39) \times \left(1 + \frac{1}{COP}\right)$ |
| Upgrade* | In every instance | $4.79 \times 10^{-3} \times NFIP \times \left(1 + \frac{1}{COP}\right)$ |
| Lifetime | In every instance | 7.00 |
| Regional Factor | For upgrades in Metropolitan Victoria | 0.98 |
| | For upgrades in Regional Victoria | 1.04 |

*The COP is determined from Table 33.3.

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

| Refrigerator type | COP |
|------------------------------|------|
| Refrigerator display cabinet | 2.80 |
| Freezer | 1.80 |
| Cool room | 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

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

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

| Input type | Condition | Input value |
|-----------------|---------------------------------------|---|
| Baseline | In every instance | $4.79 \times 10^{-3} \times (NFIP \times 1.77 + 19.39)$ |
| Upgrade | In every instance | $4.79 \times 10^{-3} \times NFIP$ |
| Lifetime Factor | In every instance | 7.00 |
| Regional Factor | For upgrades in Metropolitan Victoria | 0.98 |
| | For upgrades in Regional Victoria | 1.04 |

34: Part 34 Activity– Building based lighting upgrade

Activity Description

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 | Product to be installed | 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 be required to control | 34B |
| 34B | 34B | None* | A voltage reduction unit that: <ul style="list-style-type: none"> • has an output voltage ascertained by an approved laboratory in accordance with a laboratory test approved by the ESC • is not installed in conjunction with electronic ballasts | 34C |
| 34C | 34C | Decommissioning any removed lighting equipment | Any other lighting equipment that: <ul style="list-style-type: none"> • when installed, meets the minimum power factor determined by the ESC • meets minimum standards determined by the ESC when tested by an approved laboratory in accordance with a laboratory test approved by the ESC • is not a T5 adaptor | 34D |
| N/A | 34D | Removing no 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: <ul style="list-style-type: none"> • a LED integrated luminaire, or • 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

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

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

| Input type | Condition | Input value |
|-----------------|---|--|
| Baseline | Upgrade is 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 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 34.3, using variables listed in Table 34.4 |
| Upgrade | In every instance | Given by Equation 34.4, using variables listed in Table 34.5 |
| Lifetime | In every instance | Given by Equation 34.5, using variables listed in Table 34.6 |
| Regional Factor | For upgrades in Metropolitan Victoria | 0.98 |
| | For upgrades in Regional Victoria | 1.04 |

Equation 34.2 – Baseline calculation at sites required to comply with Part J6 of the Building Code

$$Baseline = \sum_{each \ space} IPD \times Area \times CM \times AM \times GHG \text{ Coefficient}$$

Table 34.3 – Baseline calculation variables for sites required to comply with Part J6 of the Building Code

| Input type | Condition | Input value |
|------------|-------------------|-----------------------------|
| IPD | In every instance | As determined by Table 34.7 |

| | | |
|-----------------|---|---|
| Area | In every instance | the area of the space in m ² |
| CM | In every instance | As determined by Table 34.9 |
| 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 |
| GHG Coefficient | In every instance | 1.095 |

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

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

Table 34.4 – Baseline calculation variables for sites not required to comply with Part J6 of the Building Code and upgrade calculation variables for all sites

| Input type | Condition | Input value |
|-----------------|---|---|
| LCP | Light source is listed in Table 34.10 | As determined by Table 34.10 |
| | Light source is not listed in Table 34.10 | The value determined by the ESC for that type of light source |
| CM | In every instance | As determined by Table 34.9 |
| 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 |
| GHG Coefficient | In every instance | 1.095 |

Equation 34.4 – Upgrade calculation at all sites

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

Table 34.5 – Upgrade calculation variables for all sites

| Input type | Condition | Input value |
|-----------------|---|---|
| LCP | Light source is listed in Table 34.10 | As determined by Table 34.10 |
| | Light source is not listed in Table 34.10 | The value determined by the ESC for that type of light source |
| CM | In every instance | As determined by Table 34.9 |
| 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 |
| GHG Coefficient | In every instance | 1.095 |

Equation 34.5 – Lifetime calculation at all sites

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

Table 34.6 – Lifetime calculation variables for all sites

| Input type | Condition | Input value |
|------------------------|--|------------------------------|
| Asset Lifetime | In every instance | As determined by Table 34.11 |
| Annual Operating Hours | Activity is part of upgrades refurbishment that is required to comply with Part J6 of the Building Code as amended from time to time | As determined by Table 34.7 |
| | Activity is not part of upgrades refurbishment that is required to comply with Part J6 of the Building Code as amended from time to time | As determined by Table 34.12 |

Additional variables for determining GHG reduction

Table 34.7 – Annual operating hours and illumination power density (IPD) at sites required to comply with Part J6 of the Building Code

| Type of space | Annual operating hours (per year) | IPD |
|--|-----------------------------------|-----|
| Auditorium, church and public hall | 2000 | 10 |
| Board room and conference room | 3000 | 10 |
| Carpark—entry zone (first 20 m of travel) | 7000 | 25 |
| Carpark—general (undercover) | 7000 | 6 |
| Common rooms, spaces and corridors in a Class 2 building | 7000 | 8 |
| Control room, switch room and the like in a Class 2 building | As determined by Table 34.8 | 9 |
| Corridors | As determined by Table 34.8 | 8 |
| Courtroom | 2000 | 12 |
| Dormitory of a Class 3 building used for sleeping only | 3000 | 6 |
| Dormitory of a Class 3 building used for sleeping and study | 3000 | 9 |
| Entry lobby from outside the building | As determined by Table 34.8 | 15 |
| Health care – children’s ward and examination room | 6000 | 10 |
| Health care – patient ward | 6000 | 7 |
| Health-care—all patient care areas including corridors where cyanosis lamps are used | 6000 | 13 |
| Kitchen and food preparation area | As determined by Table 34.8 | 8 |
| Laboratory—artificially lit to an ambient level of 400 lx or more | 3000 | 12 |
| Library—stack and shelving area | 3000 | 12 |
| Library – reading room and general areas | 3000 | 10 |
| Lounge area for communal use in a Class 3 building or Class 9c aged care building | 7000 | 10 |
| Maintained emergency lighting | 8500 | 1 |

| Type of space | Annual operating hours (per year) | IPD |
|---|-----------------------------------|-----|
| Museum and gallery—circulation, cleaning and service lighting | 2000 | 8 |
| Office – artificially lit to an ambient level of 200 lx or more | 3000 | 9 |
| Office – artificially lit to an ambient level of less than 200 lx | 3000 | 7 |
| Plant room | As determined by Table 34.8 | 5 |
| 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 | 18 |
| 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 | 18 |
| Retail space including a museum and gallery whose purpose is the sale of objects | 5000 | 22 |
| School—general purpose learning areas and tutorial rooms | 3000 | 8 |
| Sole-occupancy unit of a Class 3 building | 3000 | 5 |
| Sole-occupancy unit of a Class 9c aged care building | 6000 | 7 |
| Storage with shelving no higher than 75% of the height of the aisle lighting | As determined by Table 34.8 | 8 |
| Storage with shelving higher than 75% of the height of the aisle lighting or wholesale storage and display area | As determined by Table 34.8 | 10 |
| Service area, cleaner's room and the like | As determined by Table 34.8 | 5 |
| Toilet, locker room, staff room, rest room and the like | As determined by Table 34.8 | 6 |
| Health and fitness centres and gymnasias operations, classified as Division R (9111) in the Australian and New Zealand Standard Industrial Classification Note: this only includes health and fitness centres and gymnasias operations that are membership based and whose membership's primary purpose is to frequent these operations | 5100 | 10 |
| Unlisted space type with illuminance of not more than 80 lx | As determined by Table 34.8 | 7.5 |
| Unlisted space type with illuminance between 81 lx and 160 lx | As determined by Table 34.8 | 9 |
| Unlisted space type with illuminance between 161 lx and 240 lx | As determined by Table 34.8 | 10 |
| Unlisted space type with illuminance between 241 lx and 320 lx | As determined by Table 34.8 | 11 |
| Unlisted space type with illuminance between 321 lx and 400 lx | As determined by Table 34.8 | 12 |
| Unlisted space type with illuminance between 401 lx and 480 lx | As determined by Table 34.8 | 13 |
| Unlisted space type with illuminance between 481 lx and 540 lx | As determined by Table 34.8 | 14 |
| Unlisted space type with illuminance between 541 lx and 620 lx | As determined by Table 34.8 | 15 |

Table 34.8 – 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 34.9 – 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 | 0.70 |

| | | |
|---------------|---|--|
| | luminaires | |
| | Occupancy sensor that controls more than 6 luminaires | 0.90 |
| | Daylight-linked control | 0.70 |
| | Programmable dimmer | 0.85 |
| | Manual dimmer | 0.90 |
| | Voltage reduction unit | $V^2 \div 240^2$, where V is the output voltage of the voltage reduction unit |
| More than one | A combination of one occupancy sensor that controls 1 to 2 luminaires, and any other LCD(s) | 0.4 or, if greater, the multiple of the two lowest control multiplier values for the combination of LCDs |
| | A combination of one occupancy sensor that controls 3 to 6 luminaires, and any other LCD(s) | 0.5 or, if greater, the multiple of the two lowest control multiplier values for the combination of LCDs |
| | Any LCDs, except occupancy sensors that control 1 to 6 luminaires | 0.6 or, if greater, the multiple of the two lowest control multiplier values for the combination of LCDs |

Table 34.10 – Lamp circuit power (LCP) calculations for baseline calculations at sites not required to comply with Part J6 of the Building Code and upgrade calculations at all sites

| 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 \geq B or magnetic with no EEI marked) | NLP + 6 | NLP + 6 |
| T5 linear fluorescent lamp with T5 adaptor and magnetic ballast | $NLP \times 0.94 + 1.78$ | N/A |
| T5 linear fluorescent or circular fluorescent lamp with ballast | $NLP \times 1.08 + 1.5$ | $NLP \times 1.08 + 1.5$ |
| Compact fluorescent lamp with non-integral ballast (EEI of A or electronic with no EEI marked) | NLP + 1 | NLP + 1 |
| Compact fluorescent lamp with non-integral ballast (EEI \geq B or magnetic ballast with no EEI marked) | NLP + 5 | NLP + 5 |
| Compact fluorescent lamp with integral ballast | NLP | NLP |
| Tungsten incandescent or halogen lamp (mains voltage) | $NLP \times 0.7$ | NLP |
| Tungsten incandescent or halogen lamp with ELC | NLP (being no greater than 37 Watts) $\times 1.163$ | $NLP \times 1.163$ |
| Metal halide lamp with magnetic ballast | $NLP \times 0.846 + 14.4$ | $NLP \times 0.846 + 14.4$ |
| Metal halide lamp with electronic ballast | $NLP \times 0.877 + 0.7$ | $NLP \times 0.877 + 0.7$ |
| Mercury vapour lamp with ballast | $NLP \times 0.826 + 8.8$ | $NLP \times 0.826 + 8.8$ |
| High pressure sodium lamp with magnetic ballast | $NLP \times 0.841 + 10.4$ | $NLP \times 0.841 + 10.4$ |
| LED lamp with integrated driver with no associated legacy ballast connected | NLP | NLP |

| Type of incumbent or upgrade light source | Lamp circuit power for incumbent light source | Lamp circuit power for upgrade light source |
|--|---|---|
| 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 \geq 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 \geq 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 |
| Self-ballasted Mercury Vapour lamp | NLP x 0.8 | NLP x 0.8 |
| 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 34.11 – 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 | 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 <u>upgrade</u> 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 | 5.00 |

| Condition met by Lighting Upgrade | Asset lifetime (years) |
|---|--|
| 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 | |
| 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 |
| New installation of lighting equipment (only applicable for J6 upgrades): This applies to the installation of a light source such as a lamp or luminaire and any associated control gear, when the installation does not fall into one of the other above listed 'conditions met by lighting upgrade' | 10.00 |
| In any other case | Manufacturer's rated lifetime (in hours and not exceeding 30,000 hours) for the <u>incumbent</u> lamp divided by annual operating hours, to a maximum of 5 years |

Table 34.12 – 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 34.8 |
| Corridors | As determined by Table 34.8 |
| 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 34.8 |
| 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 34.8 |
| 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 | 5000 |

| Type of space | Annual operating hours (per year) |
|---|-----------------------------------|
| Zealand Standard Industrial Classification Note: excludes all operations that fall under class 4513 (catering services) | |
| 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 34.8 |
| Service area, cleaner's room and the like | As determined by Table 34.8 |
| Toilet, locker room, staff room, rest room and the like | As determined by Table 34.8 |
| Health and fitness centres and gymnasias operations, classified as Division R (9111) in the Australian and New Zealand Standard Industrial Classification Note: this only includes health and fitness centres and gymnasias operations that are membership based and whose membership's primary purpose is to frequent these operations | 5100 |
| A space type that is not listed in Table 34.12 | As determined by Table 34.8 |

35: Part 35 Activity– Non-building based lighting upgrade

Activity Description

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 | Product to be installed | Historical schedule number |
|-------------------------|-----------------|--|--|----------------------------|
| 35A | 35A | None* | A lighting control device, other than a voltage reduction unit, that is certified by the manufacturer as appropriate for use with the type of luminaire it will be required to control | 34B |
| 35B | 35B | Decommissioning any removed lighting equipment | Any other lighting equipment that: <ul style="list-style-type: none"> when installed, meets the minimum power factor determined by the ESC meets minimum standards determined by the ESC when tested by an approved laboratory in accordance with a laboratory test approved by the ESC 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: <ul style="list-style-type: none"> a LED integrated luminaire, or 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

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

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

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

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

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

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 |
| GHG coefficient | In every instance | 1.095 |

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

$$Upgrade = \sum_{each\ upgrade\ light\ source} LCP \times CM \times GHG\ Coefficient$$

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 | In every instance | As determined by Table 35.7 |
| GHG coefficient | In every instance | 1.095 |

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

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

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

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

Additional variables for determining GHG reduction

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

| Type of incumbent or upgrade light source | Lamp circuit power for incumbent light source | Lamp circuit power for upgrade light source |
|---|---|---|
| T8 or T12 linear fluorescent or circular fluorescent lamp with ballast (EEI of A or electronic with no EEI marked) | NLP | NLP |
| T8 or T12 linear fluorescent or circular fluorescent lamp with ballast (EEI of \geq 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 \geq B or magnetic ballast with no EEI marked) | NLP + 5 | NLP + 5 |
| Compact fluorescent lamp with integral ballast | NLP | NLP |
| Tungsten incandescent or halogen lamp (mains voltage) | NLP x 0.7 | NLP |
| Tungsten incandescent or halogen lamp with ELC | NLP (being no greater than 37 Watts) x 1.163 | NLP x 1.163 |
| Metal halide lamp with magnetic ballast | NLP x 1.058 + 18 | NLP x 1.058 + 18 |
| Metal halide lamp with electronic ballast | NLP x 1.096 + 0.9 | NLP x 1.096 + 0.9 |

| Type of incumbent or upgrade light source | Lamp circuit power for incumbent light source | Lamp circuit power for upgrade light source |
|--|---|---|
| Mercury vapour lamp with ballast | $NLP \times 1.033 + 11$ | $NLP \times 1.033 + 11$ |
| High pressure sodium lamp with magnetic ballast | $NLP \times 1.051 + 13$ | $NLP \times 1.051 + 13$ |
| LED lamp with integrated driver with no associated legacy ballast connected | NLP | NLP |
| Non-integrated LED lamp with remote driver or ELC | $NLP \times 1.1$ | $NLP \times 1.1$ |
| LED lamp with integrated driver, connected with a non-integral legacy ballast used for a T8 or T12 linear or circular fluorescent lamp, marked with EEI of A or electronic ballast with no EEI marked | NLP | NLP |
| LED lamp with integrated driver, connected with a non-integral legacy ballast used for a T8 or T12 linear or circular fluorescent lamp, marked with EEI of $\geq B$ or magnetic ballast with no EEI marked | $NLP + 6$ | $NLP + 6$ |
| LED lamp with integrated driver, connected with a legacy ballast used for a T5 linear or circular fluorescent lamp | $NLP \times 1.08 + 1.5$ | $NLP \times 1.08 + 1.5$ |
| LED lamp with integrated driver, connected with a legacy ballast used for a CFL, marked with EEI of A or electronic ballast with no EEI marked | $NLP + 1$ | $NLP + 1$ |
| LED lamp with integrated driver, connected with a legacy ballast used for a CFL, marked with an EEI of $\geq B$ or a magnetic ballast with no EEI marked | $NLP + 5$ | $NLP + 5$ |
| LED integrated luminaire | NLP | NLP |
| Non-integrated LED luminaire with remote driver | $NLP \times 1.1$ | $NLP \times 1.1$ |
| LED lamp with integrated driver, connected with a legacy magnetic ballast used for HID lamps | $1.033 \times NLP + 11$ | $1.033 \times NLP + 11$ |
| LED lamp with integrated driver, connected with a legacy electronic ballast used for HID lamps | $1.096 \times NLP + 0.9$ | $1.096 \times NLP + 0.9$ |
| Induction lamp with integrated ballast | NLP | NLP |
| Induction lamp with non-integrated ballast | $NLP \times 1.056$ | $NLP \times 1.056$ |
| Self-ballasted Mercury Vapour lamp | NLP | NLP |
| 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 – 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 removed; all legacy control gear not essential for the operation of remaining lamp(s) is either removed from the site or from the electrical circuit so that it does not draw any power | 5.00 |
| Lighting control device: a lighting control device is installed and no lighting equipment of any other type is installed in the space | 5.00 |
| Luminaire decommissioning: the lamp is removed and not replaced, and either the luminaire or all legacy control gear is removed from the site or from the electrical circuit so that it does not draw any power | 10.00 |
| In any other case | Manufacturer's rated lifetime (in hours and not exceeding 30,000 hours) for the incumbent lamp divided by annual operating hours, to a maximum of 5 years |

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

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

36: Part 36 Activity– Water efficient pre-rinse spray valve

Activity Description

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 | Other | Product to be installed | 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 or labelled in accordance with AS/NZS 6400) | None | A pre-rinse spray valve that: <ul style="list-style-type: none">is described as “tap equipment” in the <i>Water Efficiency Labelling and Standards Determination 2013 (No. 2)</i> made under the Water Efficiency Labelling and Standards Act 2005 (Cth)is installed in accordance with AS/NZS 3500 and the Plumbing Regulations 2008 | 36A |
| | 36A(ii) | None | There is an existing fitting for a pre-rinse spray valve on which no existing pre-rinse spray valve is installed | | |

Specified Minimum Energy Efficiency

The product installed must meet the additional requirements listed in Table 36.2.

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

| Product category number | Requirement Type | Efficiency Requirement |
|-------------------------|---------------------|--|
| 36A | Minimum star rating | 6 stars, determined 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)

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

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

| Input Type | Condition | Input Value |
|-----------------|---------------------------------------|-------------|
| Baseline | In every instance | 1.86 |
| Upgrade | In every instance | 0.83 |
| Lifetime | In every instance | 5.00 |
| Regional Factor | For upgrades in Metropolitan Victoria | 0.92 |
| | For upgrades in Regional Victoria | 1.21 |

37: Part 37 Activity– Gas-fired steam boiler

Activity Description

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 | Product to be installed | Historical schedule number |
|-------------------------|-----------------|--|--|----------------------------|
| 37A | 37A | One or more gas-fired steam boilers each of which is at least 10 years old | One or more gas-fired steam boilers each of which: <ul style="list-style-type: none">• is a Type B appliance• if the boiler has a nominal gas consumption above 3,700 MJ/h but not above 7,500 MJ/h, has an electronic gas/air ratio control system• if the boiler has a nominal gas consumption above 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 |

Specified Minimum Energy Efficiency

The product installed must meet the additional requirements listed in Table 37.2.

Table 37.2 - Additional requirements for steam boiler activities

| Product category number | Requirement Type | Efficiency Requirement |
|-------------------------|---|---|
| 37A | Minimum gross thermal efficiency requirements | 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 BS 845-2 (pre-commissioning) or BS 845-1 (post-commissioning) |

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

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

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

| Input type | Condition | Input value |
|-------------|--|---|
| Consumption | In every instance | the lower of the total nominal gas consumption (MJ/h) of the replacement equipment or of the incumbent equipment; |
| DEI | Year of manufacture of the incumbent boiler marked as 1989 or earlier, and the burner was installed over 10 years ago | New steam boiler has a gross thermal efficiency of 80% to less than 85% |
| | | 2.71 × 10 ⁻⁶ |
| | | New steam boiler has a gross thermal efficiency of 85% or greater |
| | | 5.47 × 10 ⁻⁶ |
| | 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% |
| | | 2.22 × 10 ⁻⁶ |
| | | New steam boiler has a gross thermal efficiency of 85% or greater |
| | | 4.98 × 10 ⁻⁶ |
| | 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% |
| | | 2.49 × 10 ⁻⁶ |
| | | New steam boiler has a gross thermal efficiency of 85% or greater |
| | | 5.25 × 10 ⁻⁶ |
| | 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% |
| | | 2.00 × 10 ⁻⁶ |
| | | New steam boiler has a gross thermal efficiency of 85% or greater |
| | | 4.76 × 10 ⁻⁶ |
| LUF | In every instance | 0.206 |
| Lifetime | In every instance | 20.00 |

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

Activity Description

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 | Product to be installed | Historical schedule number |
|-------------------------|-----------------|--|---|----------------------------|
| 38A | 38A(i) | One or more gas-fired steam boilers each of which is at least 10 years old | One or more gas-fired hot water boilers or gas-fired water heaters each of which: <ul style="list-style-type: none">• is a Type B appliance | N/A |
| | 38A(ii) | One or more gas-fired hot water boilers each of which is at least 10 years old | <ul style="list-style-type: none">• if the boiler has a nominal gas consumption above 3,700 MJ/h but not above 7,500 MJ/h, has an electronic gas/air ratio control system | N/A |
| | 38A(iii) | One or more gas-fired water heaters each of which is at least 10 years old | <ul style="list-style-type: none">• if the boiler has a nominal gas consumption above 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 |

Specified Minimum Energy Efficiency

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

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

| Product category number | Requirement Type | Efficiency Requirement |
|-------------------------|---|--|
| 38A | Minimum gross thermal efficiency requirements | A gross thermal efficiency of at least 85% 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 BS 7190 (pre-commissioning) or BS 845-1 (post-commissioning) |

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)

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

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

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

39: Part 39 Activity– Electronic gas/air ratio control

Activity Description

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 to be installed | Historical schedule number |
|-------------------------|-----------------|------------------------------|---|----------------------------|
| 39A | 39A | None | An electronic gas/air ratio control that: <ul style="list-style-type: none">• is installed on a burner of a Type B appliance that is a gas-fired steam boiler, gas-fired hot water boiler or gas-fired water heater | 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

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

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

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

40: Part 40 Activity– Combustion trim

Activity Description

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 to be installed | Historical schedule number |
|-------------------------|-----------------|------------------------------|---|----------------------------|
| 40A | 40A | None | <p>A combustion trim system that:</p> <ul style="list-style-type: none">• 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• is installed on a Type B appliance that is 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

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

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

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

41: Part 41 Activity– Gas-fired burners

Activity Description

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 | Product to be installed | Historical schedule number |
|-------------------------|-----------------|---|--|----------------------------|
| 41A | 41A | A gas-fired burner that is at least 10 years old and is on a Type B: <ul style="list-style-type: none">• gas-fired steam boiler, or• gas-fired hot water boiler, or• gas-fired water heater | A gas-fired burner that: <ul style="list-style-type: none">• is installed on the same Type B appliance that the decommissioned burner was removed from, and• if nominal gas consumption is above 3,700 MJ/h, has an electronic gas/air ratio control system that is 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 41A: Upgrading a gas-fired burner

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

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

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

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

| Input type | Condition | Input value |
|-------------|--|--|
| Consumption | Nominal gas consumption of the boiler or heater on which the product is installed is less than 11,400 MJ/h | The lower of the nominal gas consumption (MJ/h) of: <ul style="list-style-type: none"> the boiler or heater with the replacement equipment installed, or the boiler or heater with the incumbent equipment installed |
| | Nominal gas consumption of the boiler or heater on which the product is installed is at least 11,400 MJ/h | 11,400 |
| DEI | In every instance | 1.07×10^{-6} |
| LUF | In every instance | 0.206 |
| Lifetime | In every instance | 20 .00 |

42: Part 42 Activity– Economizers

Activity Description

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

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

Table 42.1 – Eligible economizer scenarios

| Product category number | Scenario number | Decommissioning requirements | Product to be installed | Historical schedule number |
|-------------------------|-----------------|------------------------------|--|----------------------------|
| 42A | 42A | None | An economizer that: <ul style="list-style-type: none">• is installed on a Type B appliance that is a gas-fired steam boiler, a gas-fired hot water boiler or gas-fired water heater (other than a condensing steam boiler, condensing hot water boiler or condensing water heater)• is a heat exchanger that uses the products of combustion from a gas-fired steam boiler, gas-fired hot water boiler or gas-fired water heater to heat boiler feedwater• if of a condensing kind, is installed on a gas-fired steam boiler and provides for the products of combustion to be expelled into a stack constructed from stainless steel• unless it is specifically designed to run dry, is installed with a control system for minimum flow rates that does not require manual intervention for operation• complies with AS 1228 | 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

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

Table 42.2 – GHG equivalent emissions reduction variables for Scenario 42A

| Input type | Condition | Input value |
|-------------|---|--|
| Consumption | In every instance | the nominal gas consumption (MJ/h) of the boiler or heater on which the product is installed |
| DEI | Installed on a steam boiler | 1.81×10^{-6} |
| | Installed on a hot water boiler or water heater | 1.41×10^{-6} |
| LUF | In every instance | 0.206 |
| Lifetime | In every instance | 10.00 |

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 |

| Postcode | Regional/Metropolitan | Reticulated gas | Climatic region | Climatic zone |
|----------|-----------------------|-----------------|-----------------|---------------|
| 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 |

| Postcode | Regional/Metropolitan | Reticulated gas | Climatic region | Climatic zone |
|----------|-----------------------|-----------------|-----------------|---------------|
| 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 |

| Postcode | Regional/Metropolitan | Reticulated gas | Climatic region | Climatic zone |
|----------|-----------------------|-----------------|-----------------|---------------|
| 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 |

| Postcode | Regional/Metropolitan | Reticulated gas | Climatic region | Climatic zone |
|----------|-----------------------|-----------------|-----------------|---------------|
| 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 |

| Postcode | Regional/Metropolitan | Reticulated gas | Climatic region | Climatic zone |
|----------|-----------------------|-----------------|-----------------|---------------|
| 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 |

| Postcode | Regional/Metropolitan | Reticulated gas | Climatic region | Climatic zone |
|----------|-----------------------|-----------------|-----------------|---------------|
| 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 |

| Postcode | Regional/Metropolitan | Reticulated gas | Climatic region | Climatic zone |
|----------|-----------------------|-----------------|-----------------|---------------|
| 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 |

| Postcode | Regional/Metropolitan | Reticulated gas | Climatic region | Climatic zone |
|----------|-----------------------|-----------------|-----------------|---------------|
| 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 |

| Postcode | Regional/Metropolitan | Reticulated gas | Climatic region | Climatic zone |
|----------|-----------------------|-----------------|-----------------|---------------|
| 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 |

| Postcode | Regional/Metropolitan | Reticulated gas | Climatic region | Climatic zone |
|----------|-----------------------|-----------------|-----------------|---------------|
| 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 |

| Postcode | Regional/Metropolitan | Reticulated gas | Climatic region | Climatic zone |
|----------|-----------------------|-----------------|-----------------|---------------|
| 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 |

| Postcode | Regional/Metropolitan | Reticulated gas | Climatic region | Climatic zone |
|----------|-----------------------|-----------------|-----------------|---------------|
| 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 |

| Postcode | Regional/Metropolitan | Reticulated gas | Climatic region | Climatic zone |
|----------|-----------------------|-----------------|-----------------|---------------|
| 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 |

| Postcode | Regional/Metropolitan | Reticulated gas | Climatic region | Climatic zone |
|----------|-----------------------|-----------------|-----------------|---------------|
| 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 |

| Postcode | Regional/Metropolitan | Reticulated gas | Climatic region | Climatic zone |
|----------|-----------------------|-----------------|-----------------|---------------|
| 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 |

| Postcode | Regional/Metropolitan | Reticulated gas | Climatic region | Climatic zone |
|----------|-----------------------|-----------------|-----------------|---------------|
| 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 |

| Postcode | Regional/Metropolitan | Reticulated gas | Climatic region | Climatic zone |
|----------|-----------------------|-----------------|-----------------|---------------|
| 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 |

| Postcode | Regional/Metropolitan | Reticulated gas | Climatic region | Climatic zone |
|----------|-----------------------|-----------------|-----------------|---------------|
| 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 |

| Postcode | Regional/Metropolitan | Reticulated gas | Climatic region | Climatic zone |
|----------|-----------------------|-----------------|-----------------|---------------|
| 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 |

| Postcode | Regional/Metropolitan | Reticulated gas | Climatic region | Climatic zone |
|----------|-----------------------|-----------------|-----------------|---------------|
| 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 |