

Victorian Energy Upgrades

Updates to Refrigerated Display Cabinets
Issues Paper and Draft Specifications – July 2021



Environment,
Land, Water
and Planning

OFFICIAL

Author

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Acknowledgment

We acknowledge and respect Victorian Traditional Owners as the original custodians of Victoria's land and waters, their unique ability to care for Country and deep spiritual connection to it. We honour Elders past and present whose knowledge and wisdom has ensured the continuation of culture and traditional practices.

We are committed to genuinely partner, and meaningfully engage, with Victoria's Traditional Owners and Aboriginal communities to support the protection of Country, the maintenance of spiritual and cultural practices and their broader aspirations in the 21st century and beyond.



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Overview

About the Victorian Energy Upgrades (VEU) program

The Victorian Energy Upgrades (VEU) program is established under the *Victorian Energy Efficiency Target Act 2007* to help Victoria reduce its greenhouse gas emissions, reduce the use of electricity and gas and invest in industries that provide energy demand management technology and services. The VEU program provides subsidies for residential and business consumers to reduce their energy use by upgrading appliances, processes or buildings.

The VEU program works by creating financial incentives for households and businesses to undertake energy saving activities. When accredited businesses (known as accredited providers) undertake eligible energy efficiency activities in homes or businesses, they create Victorian Energy Efficiency Certificates (VEECs). Each VEEC represents one tonne of greenhouse gas emissions saved over the lifetime of the activity or product installed. VEECs can then be sold to energy retailers who must meet an emission savings target each year based on their annual electricity and gas sales.

The VEU program includes energy saving activities for both households and businesses. Activities currently available for business in the program include lighting upgrades, installation of refrigerated display cabinets, high efficiency motors, upgrades to gas-fired boilers, and undertaking energy efficiency projects whose impacts are measured through measurement and verification of energy savings.

Purpose of the refrigerated display cabinets issues paper

The Department of Environment, Land, Water and Planning (the department) is looking to update the current Part 32 - Refrigerated display cabinet activity available under the VEU program to allow for the latest energy efficiency technology to be installed.

The purpose of this document is to set out options to update this activity and seek the views of interested stakeholders on the proposed updates.

Have your say

Stakeholders can submit their feedback on changes to the refrigerated display cabinet (Part 32 Activity) using the survey available on the [Engage Victoria](https://engage.vic.gov.au/victorian-energy-upgrades-new-activities-consultation) website <https://engage.vic.gov.au/victorian-energy-upgrades-new-activities-consultation>. Feedback from stakeholder submissions will be used to guide the revision of the existing refrigerated display cabinet activity.

Submissions can also be emailed to energy.upgrades@delwp.vic.gov.au or sent as a hard copy submission to: *Victorian Energy Upgrades, Department of Environment, Land, Water and Planning, PO Box 500, East Melbourne, VIC 8002*. If you make a submission by email or post, please ensure to state whether the department can publish your submission.

This consultation will close on 19 August 2021.

1. Introduction

1.1 Refrigerated display cabinets (Part 32 Activity)

Refrigerated Display Cabinets (RDCs) are products designed to store and display chilled and/or frozen food items. RDCs are typically used in retail stores such as supermarkets, petrol stations, liquor outlets and smaller food and beverage vendors, with their energy usage accounting for about 4 per cent (%) of Australia's energy sector greenhouse gas (GHG) emissions.¹

The Victorian Energy Upgrades (VEU) program provides incentives for installing or upgrading existing equipment with energy efficient RDCs under the Part 32 Activity – Refrigerated display cabinet. The *Victorian Energy Upgrades Specifications 2018* (the Specifications) specify the upgrade requirements RDCs must meet.² Currently only RDCs which meet the high efficiency levels set out under the *Greenhouse and Energy Minimum Standards (Refrigerated Display Cabinets) Determination 2012* (GEMS 2012 Determination) and are listed on the Greenhouse and Energy Minimum Standards (GEMS) Register are eligible to be installed in the VEU program and create incentives.

1.2 Changes to Refrigerated display cabinet regulation

On 1 May 2021, the GEMS 2012 Determination was replaced with the *Greenhouse and Energy Minimum Standards (Refrigerated Cabinets) Determination 2020* (GEMS 2020 Determination). The GEMS 2020 Determination expands the range of product classes that are regulated for energy efficiency, aligns the assessment of energy performance with European testing standards, and aligns Australian MEPS levels to the European Commissions.³

Key changes in the GEMS 2020 Determination include:

1. Change to the GEMS Determination name

- The GEMS 2012 Determination name “**Refrigerated Display Cabinets**” (RDC) has changed to “**Refrigerated Cabinets**” (RC) under the GEMS 2020 Determination. The name change reflects the broader range of product classes now covered under the GEMS 2020 Determination.

2. Addition of product classes that are regulated for energy efficiency

RC product classes now covered under the GEMS 2020 Determination include:

- **Refrigerated Display Cabinets** – designed to store and display for sale chilled and/or frozen food items contained in the cabinet in a retail environment. This includes refrigerated drink cabinets that are designed to store non-perishable drinks only.⁴
- **Refrigerated Storage Cabinets** – designed to store, but not to display for sale, chilled and/or frozen food items (*not covered under the GEMS 2012 determination*).
- **Ice Cream Freezer Cabinets** – designed to store and display pre-packaged frozen ice cream (*not covered under the GEMS 2012 determination*).
- **Scooping Cabinets** – designed for the storage, display and scooping of containerised frozen gelato or ice cream. Scooping cabinets are typically used in gelato and ice cream shops (*not covered under the GEMS 2012 determination*).

¹ <https://www.energyrating.gov.au/products/refrigeration-commercial>

² VEU Specifications: https://www.energy.vic.gov.au/_data/assets/pdf_file/0033/516993/ca8c4d784089aa18c578f7604e8fe9622ffd99fe.pdf

³ Refrigerated Cabinets Decision RIS: https://www.energyrating.gov.au/sites/default/files/documents/Decision_RIS_Commercial_Refrigeration_FINAL.pdf

⁴ This is the only RDC product class currently eligible for incentives through the VEU program.

3. Introduction of an Energy Efficiency Index scale

The assessment of RC energy performance in the GEMS 2020 Determination uses an Energy Efficiency Index (EEI) scale, based on European testing standards instead of the traditional minimum energy performance standard used in the 2012 Determination. If a product exceeds the maximum allowable level on the EEI scale, it cannot be supplied or sold in Australia.

1.3 Impact on the Victorian Energy Upgrades Refrigerated Display Cabinet activity

The *Victorian Energy Efficiency Target Regulations 2018* (the Regulations) and the Specifications V7.0 allow for RDCs which meet the high efficiency levels specified in the GEMS 2012 Determination to be installed. The RDC activity does not include the wider classes of products now included in the GEMS 2020 Determination and does not use an EEI to assess energy performance. Key changes in the GEMS 2020 Determination and the impact on the current VEU RDC activity is detailed in Table 1 below.

Table 1: Key GEMS 2020 Determination changes and impacts on the VEU RDC activity

Key GEMS Determination 2020 Changes	VEU RDC Activity Impacts and Considerations
<ul style="list-style-type: none">The GEMS 2020 Determination expands the regulation from 'Refrigerated Display Cabinets' to 'Refrigerated Cabinets'. New product classes are covered in the 2020 Determination.	<ul style="list-style-type: none">The VEU RDC activity will need to be expanded to cover the additional product classes covered in the GEMS 2020 Determination. This includes Refrigerated Storage Cabinets, Ice-cream Scooping Cabinets and Gelato Scooping Cabinets.
<ul style="list-style-type: none">The GEMS 2020 Determination introduces a new formula for calculating energy efficiency. Formulas vary across each of the different product classes.	<ul style="list-style-type: none">The VEU RDC activity will need to be updated to include new formulae and methods for calculating the incentive (VEECs) that products can receive.
<ul style="list-style-type: none">There is no identification of high efficiency products. The GEMS 2020 Determination uses an Energy Efficiency Index (EEI) to evaluate the efficiency of different products.	<ul style="list-style-type: none">A new method of calculating energy savings using the EEI will need to be developed, including:<ul style="list-style-type: none">determining a baseline energy efficiency index (EEI) to calculate the deemed energy savings for energy efficient RC productsdetermining a minimum required EEI that energy efficient RC products must meet to be eligible to receive VEU incentives.

1.4 Updating the current VEU refrigerated display cabinet activity

The department would like to update the Regulations and Specifications for the current refrigerated display cabinet activity, to align with the GEMS 2020 determination and to allow for products registered under the GEMS 2020 determination to be installed.

Proposed updates include:

- updating the Part 32 activity name in the Regulations, from 'Refrigerated Display Cabinet' to 'Refrigerated Cabinet' to enable new classes of products to be eligible to receive VEU incentives
- updating the Specifications to allow efficient RC products registered under the GEMS 2020 determination to be installed under the program
- updating the Specifications with new formula to calculate energy savings

- setting a baseline and upgrade EEI for each product class to be installed.

There will be a transition period so that products registered to the GEMS 2012 determination will still be eligible to create VEECs under the current Part 32 activity, to allow accredited providers to install existing stock.⁵ This allows for the quick revision of the Specifications, while providing certainty around the number of VEECs for planned upgrades.

This transition period is proposed to begin after the publication of any revised specifications and last for six (6) months during which time RC products can calculate the number of VEECs they are eligible for using either the GEMS 2012 Determination registration or the GEMS 2020 Determination registration, provided they meet the requirements of the Specifications. Only products registered to the GEMS 2020 Determination will be eligible to create VEECs following the completion of this six-month transition period.

Updating the VEU Specifications in this way will allow accredited providers (APs) to exhaust supplies of existing stock and generate VEU incentives, as well as offer customers newer models that are only registered to the 2020 Determination.

Table 2: Proposed updates to the Part 32 – Refrigerated Display Cabinets (Part 32) Activity

RDC Types	Proposed Updates	Calculating GHG Abatement
<i>RDCs registered to the GEMS 2012 Determination</i>	<ul style="list-style-type: none"> • Current activity will remain in place for six (6) months post the publication of revised Specifications. Accredited providers will be able to generate VEECs for these RDCs. 	<ul style="list-style-type: none"> • No change to levels of GHG abatement. • Existing VEU Specifications for calculating energy savings will apply.
<i>RCs registered to the GEMS 2020 Determination</i>	<ul style="list-style-type: none"> • Current activity will be updated to allow RC products under the 2020 Determination to be installed. Accredited providers will be able to generate VEECs for these RCs. 	<ul style="list-style-type: none"> • New product classes introduced. • New methods for calculating abatement introduced into the Specifications

Consultation questions:

1. Are there any changes in the GEMS 2020 Determination that the department has not considered?
2. What are your thoughts on the proposed approach to updating the current Part 32 - RDC activity?
3. Do you agree with the proposed six-month transition period for phasing out the eligibility of RDCs registered under the GEMS 2012 Determination?
 - a. Yes / No
 - b. If no, how long should this transition period be? Please add supporting evidence to your response.

⁵ Only products registered to the 2012 Determination that comply with the 2020 GEMS requirements may be supplied.

<https://www.energyrating.gov.au/news/delay-greenhouse-and-energy-minimum-standards-refrigerated-cabinets-determination-2019>

2. Proposed Part 32 - Refrigerated display cabinet activity updates

2.1 Overview

The proposed updates to the VEU Part 32 – Refrigerated display cabinet activity will:

- provide incentives for the installation or replacement of refrigerated cabinets of any relevant product class registered to the GEMS 2020 Determination that achieve the efficiency levels set by the department
- provide incentives for the installation or replacement of refrigerated cabinets that are registered to and meet the high efficiency levels of the GEMS 2012 determination for a six-month transition period.

To enable this:

- the Part 32 activity Specifications will need to be updated to include new methods and formulae for calculating energy savings consistent with methods of determining the energy efficiency of RCs in the GEMS 2020 Determination.

New baseline and minimum efficiency levels for each product class will need to be developed and included in the Specifications. As the GEMS registry now has over one thousand (1,000) product registrations, information is available to develop these baseline levels.

2.2 Calculating energy savings for RDCs registered to GEMS 2012 Determination

There will be no change to the deemed energy savings and the incentives available for these activities.⁶

2.3 Calculating energy savings for RCs registered to the GEMS 2020 determination

The GEMS 2020 determination identifies five different product classes, including:

1. Refrigerated Display Cabinets
2. Ice Cream Freezer Cabinets
3. Remote Refrigerated Display Cabinets
4. Gelato or Ice Cream Scooping Cabinets
5. Refrigerated Storage Cabinets.

Different formulae are used to calculate the energy savings for different product classes which all use all variations of the formula below. The lower a products energy consumption is compared to the baseline, the greater the energy savings.

$$\text{Deemed Equipment Electricity Savings} = (\text{Baseline energy consumption} - \text{Upgrade energy consumption}) \\ \times \text{Lifetime} \times \text{Electricity Emissions Factor} \times \text{Regional Factor}$$

The proposed formulae to be used for each product class are presented in Appendix A – Draft Specifications.

Consultation questions:

4. Do you have any feedback on the proposed formula (Section 4 - Draft Victorian Energy Upgrades Specifications - Part 32 Activity– Refrigerated cabinets) for each of the refrigerated cabinet product classes?

⁶ This does not include changes to the electricity emissions factors used for VEU activities and made under a separate process.

2.4 Proposed Baseline and Upgrade Energy Efficiency Index (EEI) levels

Important factors in calculating the energy savings for RCs are the baseline and upgrade EEI chosen for each product class.

The **baseline EEI** level determines the amount of energy savings and the number of VEECs an RC product can create.

The **upgrade EEI** is a performance threshold which determines the efficiency level RC products must meet to be installed under the VEU program.

Setting the baseline Energy Efficiency Index (EEI)

The baseline EEI level determines the amount of energy savings and the number of VEECs an RC product can create. As the RC upgrade activity includes both the installation of a new RC and replacement of an existing RC, the baseline EEI represents the baseline energy usage of existing equipment or the energy usage of equipment that would have been installed without VEU incentives.

The baseline EEI level for each RC product type should allow for sufficient incentives for business customers to purchase higher efficiency RC products, as well as bring forward upgrades of existing stock.

The following factors were considered in setting the baseline EEI levels:

- the estimated baseline efficiency level of existing stock⁷
- the average efficiency level of new RC products registered to the GEMS 2020 Determination
- current and anticipated Minimum Energy Performance Standards (MEPS) levels that are proposed or regulated internationally (particularly the EU 2021 and EU 2023 MEPS. The EU MEPS tend to set the international energy performance standards and trends internationally for products).

This analysis has led to the proposed baseline EEI levels in Table 3.

Setting the upgrade Energy Efficiency Index (EEI)

The VEU program provides incentives for energy efficiency upgrades that reduce energy consumption above what would be achieved under business as usual (BAU) conditions. The upgrade EEI is the energy performance threshold a product must meet to be installed under the VEU program and encourages the take-up and installation of energy efficient RC products. Only products that meet the upgrade EEI will be eligible to receive VEU program incentives

The upgrade EEI was determined by analysing the average EEI and star rating of products registered to the GEMS 2020 Determination using data from the GEMS registry.⁸ The upgrade EEI has been set at a level which encourages the uptake of more efficient models while ensuring there is an adequate number of products available to be installed.

- For product classes 1-5, 8-11 and 14-15 the upgrade EEI has been set at an EEI corresponding to a four (4) star energy rating.
- For product class 6 and 7, the upgrade EEI has been set at a six (6) star energy rating and five (5) star rating respectively, based on the number of energy efficient products available.
- For product classes 12 and 13 (for which there is minimal data to inform upgrade EEI levels), the EEI has been set at EU 2023 MEPs levels.

The analysis has led to the proposed upgrade EEI levels in Table 3.

⁷ Assuming that RCs have a lifetime of 8-12 years, it could be assumed that the existing stock meets the average energy efficiency levels as monitored in the GEMS 2012 register.

⁸ GEMS Registry for Refrigerated Cabinets accessed 1 May 2021 - https://reg.energyrating.gov.au/comparator/product_types/

Table 3 – Proposed RC baseline and upgrade EEI levels

GEMS Product Class	GEMS 2020 Characteristic Code	Application	Baseline EEI	Upgrade EEI	Average EEI - GEMS 2020 Register
Class 1	IRH Integral Refrigerated Horizontal Cabinets	Integral Refrigerated Display Cabinets	100	50	61
Class 7	IRV Integral Refrigerated Vertical Cabinets		55	45	31
Class 11	IRV-4 Integral Refrigerated Vertical Cabinets with Glass Door		100	50	55
Class 2	IFH Integral Freezer Horizontal		80	50	53
Class 5	IFH-5 Ice-Cream Freezer		100	50	87
Class 8	IFV Integral Freezer Vertical		100	50	60
Class 12	RRH Remote Refrigerated Horizontal Cabinets	Remote Refrigerated Display Cabinets	100	80	67
Class 14	RRV or RRV-2 Remote Refrigerated Vertical Cabinets or Remote Refrigerated Vertical Cabinet, open, medium temperature		80	50	70
Class 13	RFH Remote Freezer Horizontal		100	80	No data
Class 15	RFV Remote Freezer Vertical		100	50	79
Class 6	GSC/ISC Gelato Scooping Cabinets and Ice-Cream Scooping Cabinets		Refrigerated Display Cabinets	30	30
Class 3	SRH Storage Refrigerator Horizontal	Refrigerated Storage Cabinets	80	50	40
Class 9	SRV Storage Refrigerator Vertical		80	50	66
Class 4	SFH Storage Freezer Horizontal		80	50	65
Class 10	SFV Storage Freezer Vertical		80	50	67

2.5 Product lifetimes

The product lifetime is another important factor in the in determining energy savings for RC cabinets.

The VEU program has historically had a product lifetime of eight (8) years for RDCs. It was noted that the Decision Regulatory Impact Statement (RIS) for Refrigerated Display and Storage Cabinets cites a 12-year product life for larger RC products.⁹ To reflect this information from the RIS, larger RC products (determined by their total display area or product class) will have a 12-year product lifetime. Proposed lifetime across the GEMS Determination 2020 product classes are shown in Table 4.

Table 4 - Proposed lifetimes for GEMS 2020 product classes

GEMS Product Class	Total Display Area (TDA) (m ²)	Lifetime (years)
Classes 1-6, 9, 10	-	8
Classes 7, 8 and 11	<3.3	8
Classes 7, 8 and 11	≥3.3	12
Classes 12 - 15	All	12

Consultation questions:

5. Are the RDC activities you undertake product replacements or new installations?
6. Do you agree with the proposed baseline and upgrade Energy Efficiency Indexes for each RC product class?
 - a. Yes/No
 - b. If no, what alternative would you suggest and why? Please provide supporting evidence.
7. Do you agree with the proposed product lifetimes?
 - a. Yes / No
 - b. If no, what alternative would you suggest any why? Please provide supporting evidence.

⁹ Refrigerated Cabinets Decision RIS: https://www.energyrating.gov.au/sites/default/files/documents/Decision_RIS_Commercial_Refrigeration_FINAL.pdf

3. Activity implementation

Product Register

A register of approved products will be created for the updated Part 32 RC activity. Only RC products that are registered under the GEMS 2020 Determination and listed on the GEMS register will be approved for installation by the Essential Services Commission (ESC), provided the product meets the technical Specifications developed for the VEU program.

RDC products registered to the GEMS 2012 Determination will continue to be able to create incentives for six (6) months after the publication of the revised refrigerated cabinet activity.

Creating incentives for Refrigerated Cabinet upgrades

To create a VEEC in the VEU program, a person or business interested in undertaking RC activities must be an VEU accredited provider. While accredited providers do not necessarily carry out all facets of a VEU activity (for example, they may subcontract installation or act as an aggregator of activities), they are responsible for the correct creation of VEECs in compliance with the *Victorian Energy Efficiency Target Act 2007*, the Regulations, the Specifications and requirements of the ESC.

4. Draft Victorian Energy Upgrades Specifications - Part 32 Activity– Refrigerated cabinets

Activity Description

Part 32 of Schedule 2 of the Regulations prescribes the upgrade of refrigerated 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 cabinet scenarios

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

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

Specified Minimum Energy Efficiency

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

Table 32.2 – Additional requirements for refrigerated 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>
32A(i-iii)	Minimum performance requirement	Achieves an Energy Efficiency Index within the meaning of <i>Greenhouse and Energy Minimum Standards (Refrigerated Cabinets) Determination 2020</i> above the Upgrade Energy Efficiency Index (EEI) specified for the relevant product class in Table 32.4, Table 32.5 or Table 32.6.

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

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

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

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

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

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

GHG Eq. Reduction

$$= (\text{Baseline EEI} \times \left(\frac{M + (N \times TDA)}{100} \right) - \text{TEC}) \times 365.24 \times \text{Lifetime} / 1000 \times \text{Regional Factor} \times \text{EEF}$$

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

Measurement, testings and ratings must be in accordance with the Greenhouse and Energy Minimum Standards (Refrigerated Display Cabinets) Determination 2020								
Where –								
<ul style="list-style-type: none"> M and N are the coefficients for the cabinet's product class, as given by Schedule 1 in the GEMS (Refrigerated Cabinet) Determination 2020. 								
Input type	Condition			Input value				
Baseline EEI, M and N, Lifetime	GEMS 2020: Product class	GEMS 2020: Characteristics (code)	Upgrade EEI:	Baseline EEI	M	N	Lifetime (years) (TDA < 3.3m ²)	Lifetime (years) (TDA ≥ 3.3m ²)
	Class 1	IRH	50	100	3.7	3.5	8	8
	Class 2	IFH	50	80	4.2	9.8	8	8
	Class 6	GSC or ISC	30	30	10.4	30.4	8	8
	Class 7	IRV	45	55	9.1	9.1	8	12
	Class 8	IFV	50	100	1.6	19.1	8	12
	Class 11	IRV-4	50	100	0.69	5.97	8	12
	Class 12	RRH	80	100	3.7	3.5	12	12
	Class 13	RFH	80	100	4.2	9.8	12	12
	Class 14	RRV or RRV-2	50	80	9.1	9.1	12	12
	Class 15	RFV	50	100	1.6	19.1	12	12
TDA				Total Display Area in m ² of the installed product as recorded in the GEMS Registry				
TEC				Total Energy Consumption of the installed product as recorded in the GEMS Registry				
Regional Factor	For upgrades in Metropolitan Victoria			0.98				
	For upgrades in Regional Victoria			1.04				

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

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

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

$$GHG \text{ Eq. Reduction} = \left(\text{Baseline EEI} \times \left(\frac{M + (N \times Vn)}{100} \right) - TEC \right) \times 365.24 \times \text{Lifetime} / 1000 \times \text{Regional Factor} \times \text{EEF}$$

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

Measurement, testings and ratings must be in accordance with the Greenhouse and Energy Minimum Standards (Refrigerated Display Cabinets) Determination 2020.

Where –

M and N are the coefficients for the cabinet's product class, as given by Schedule 1 in the GEMS (Refrigerated Cabinet) Determination 2020.

Input type	Condition	Input value				
Baseline EEI, M and N	GEMS 2020: Product class	GEMS 2020: Characteristics (code)	Upgrade EEI:	Baseline EEI	M	N
	Class 5	IFH-5	50	100	1	0.009
Vn		Net Volume, in litres, of the installed product as recorded in the GEMS Registry				
TEC		Total Energy Consumption, in kWh/day, of the installed product as recorded in the GEMS Registry				
Lifetime	In all cases	8 years				
Regional Factor	For upgrades in Metropolitan Victoria	0.98				
	For upgrades in Regional Victoria	1.04				

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

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

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

$$\text{GHG Eq. Reduction} = \left(\text{Baseline EEI} \times \frac{(M \times V_n) + N}{100} \right) - (\text{TEC} \times \text{af} \times 365.24) \times \text{Lifetime} / 1000 \times \text{Regional Factor} \times \text{EEF}$$

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

Measurement, testings and ratings must be in accordance with the Greenhouse and Energy Minimum Standards (Refrigerated Display Cabinets) Determination 2020						
Where –						
M and N are the coefficients for the cabinet’s product class, as given by Schedule 1 in the GEMS (Refrigerated Cabinet) Determination 2020.						
Input type	Condition			Input value		
Baseline EEI, M and N	GEMS 2020: Product class	GEMS 2020: Characteristics (code)	Upgrade EEI:	Baseline EEI	M	N
	Class 3	SRH	50	80	2.55	1,790
	Class 4	SFH	50	80	5.84	2,380
	Class 9	SRV	50	80	1.643	609
	Class 10	SFV	50	80	4.928	1,472
Vn	Net Volume, in litres, of the installed product as recorded in the GEMS Registry					
TEC	Total Energy Consumption, in kWh/day, of the installed product as recorded in the GEMS Registry					
af	Adjustment factor for refrigerated storage cabinets as determined by Table 32.7					
Lifetime	In all cases			8 years		
Regional Factor	For upgrades in Metropolitan Victoria			0.98		
	For upgrades in Regional Victoria			1.04		

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

Input type	Condition	Input value
af	Light Duty (LD) chiller	1.2
	Light Duty (LD) freezer	1.1
	Normal Duty (ND) chiller or freezer	1.0
	Heavy Duty (HD) chiller or freezer	1.0

Submissions

Summary of consultation questions

1. Are there any changes in the GEMS 2020 Determination that the department has not considered?
2. What are your thoughts on the proposed approach to updating the current Part 32 - RDC activity?
3. Do you agree with the proposed six-month transition period for phasing out the eligibility of RDCs registered under the GEMS 2012 Determination?
 - a. Yes / No
 - b. If no, how long should this transition period be? Please add supporting evidence to your response.
4. Do you have any feedback on the proposed formula (Section 4 - Draft Victorian Energy Upgrades Specifications - Part 32 Activity– Refrigerated cabinets) for each of the refrigerated cabinet product classes?
5. Are the RDC activities you undertake product replacements or new installations?
6. Do you agree with the proposed baseline and upgrade Energy Efficiency Index for each RC product class?
 - a. Yes/No
 - b. If no, what alternative would you suggest and why? Please provide supporting evidence.
7. Do you agree with the proposed product lifetimes?
 - a. Yes / No
 - b. If no, what alternative would you suggest any why? Please provide supporting evidence.

Have your say

Stakeholders can submit their feedback to the questions on the refrigerated display cabinet issues paper by completing the **survey** available on the [Engage Victoria](#) website.

Submissions can also be emailed to energy.upgrades@delwp.vic.gov.au or sent as a hard copy submission to: *Victorian Energy Upgrades, Department of Environment, Land, Water and Planning, PO Box 500, East Melbourne, VIC 8002*. If you make a submission by email or post, please ensure to state whether the department can publish your submission.

Next steps

Key milestones in the revision of the refrigerated display cabinet activity in the VEU program are:

- | | |
|---|-----------------------|
| • Open stakeholder consultation on the revised activity | 22 July 2021 |
| • Close stakeholder consultation on the revised activity | 19 August 2021 |
| • Response to stakeholder consultation on the revised activity | September 2021 |
| • Finalise Regulations and Specifications | October 2021 |