ESSENTIAL SERVICES COMMISSION

Victorian Energy Upgrades

# Explanatory note – building based lighting upgrade – part 1: activity guidance

28 June 2018

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The Department of Environment, Land, Water and Planning develops policy for the Victorian Energy Upgrades program. The program provides incentives for Victorian households and organisations to make energy efficiency improvements that save money on their energy bills and reduce Victoria's greenhouse gas emissions

The Essential Services Commission administers the program as the 'Victorian Energy Efficiency Target scheme' under the *Victorian Energy Efficiency Target Act 2007*.

For more information, visit veet.vic.gov.au.

# Table of contents

# List of tables

# List of figures

# Introduction

Undertaking a lighting upgrade became an eligible prescribed activity under Schedule 34 of the *Victorian Energy Efficiency Regulations 2008* (the Principal Regulations) in 2012. The purpose of this document is to help accredited persons (APs) understand the lighting upgrade activity, as well as to provide important information about their obligations when undertaking this activity.

This explanatory note makes extensive reference to the Principal Regulations, which are available for download from the VEET website (www.veet.vic.gov.au).

### How this document is structured

This document explains how to participate in building based (BB) non-residential lighting activity of the Victorian Energy Efficiency Target (VEET) scheme. This activity is complex, both administratively and technically. Participants typically need to dedicate considerable time to understanding how it works, even if they have many years of experience in the lighting industry.

The Essential Services Commission (the commission) has developed separate guidance for upgrade activities undertaken for street, road or outdoor lighting, involving the replacement of traffic signals or other situations where lighting equipment is not affixed to or found within a building. These types of activities are known as non-building based (NBB) lighting upgrades. For participants seeking to engage in non-building based lighting upgrades, please refer to *Explanatory note – non-building based lighting upgrade - part 1: activity guidance*.

This explanatory note begins by explaining some of the key concepts and issues – see Section 1 of this document. You will need a firm grasp of this section in order to review and comprehend the other sections of this document.

Sections 1 and 2 of this document (in particular Section 1) explain the process for participating in this activity. Section 2 details the end-to-end process of the activity, starting with becoming accredited and finishing with the registration of Victorian energy efficiency certificates (VEECs). It is only one example of how you might structure your engagement with the scheme. Every business is different, and you may find that the specifics of your arrangements differ, but Section 2 should provide an easy way to find the information you need, when you need it.

### Before you begin

This is not the only document you will need in order to understand how to participate in this activity. Especially if you are new to the VEET scheme, you should access the following documents and keep them handy. They will be referred to in this document and some (such as the Principal Regulations) will be important throughout your involvement in the scheme.

Each of the following documents can be accessed via the VEET website:

- *Victorian Energy Efficiency Target Act 2007* (the Act)
- *Victorian Energy Efficiency Target Regulations 2008* (the Principal Regulations)
- *Victorian Energy Efficiency Target Guidelines* (the Guidelines)
- *Explanatory note – lodging an application for accreditation* (if you are not yet accredited)
- *Explanatory note – lodging an application for additional activities* (if you are already an AP)
- *Explanatory note – lodging a product application*
- *Explanatory note – creating VEECs from prescribed activities*
- *Explanatory note - large energy users' scheduled activity premises*
- *Explanatory note – building based lighting upgrade - part 2: compliance requirements*
- Frequently Asked Questions (FAQ) – see the top right corner of the VEET website.

There is also some specific Schedule 34 documentation that is not listed above but which will be introduced as you step through the document. You should download a copy of each of these documents below and keep them handy while reading this explanatory note. You can access them from the VEET website.

- Building-based lighting upgrade (34) - documentation pack coversheet template
- Building-based lighting upgrade (34) - assignment form template
- Building-based lighting upgrade (34 - data summary and AS/NZS 1680 compliance declaration templates

The commission has prepared this document to help APs understand how to participate in building based lighting upgrade activities under Schedule 34 of the Principal Regulations. However, you should not rely on this document to discharge your legal responsibility and this document should be read in conjunction with the Act, the Principal Regulations and the Guidelines. You should review and have a thorough understanding of the Principal Regulations, in particular Schedule 34.

# 1. Key concepts and issues

There are a range of concepts and terminology that are specific to undertaking Schedule 34 building based lighting upgrades in the VEET scheme. Even if you are an experienced lighting installer, to successfully participate in the scheme you will need to take the time to familiarise yourself with the following key concepts and issues.

## 1.1. Product safety and OH&S

For an installation to be eligible under the VEET scheme, it must comply with all relevant laws and regulations, including those relating to occupational health and safety (OH&S). This applies to all installations – including in circumstances where you subcontract the actual installation work to a third party.

### Replacing a luminaire – important information

One issue of particular relevance to the lighting activity is that of replacing a linear fluorescent lamp with a T5 adaptor or a LED tube.

If you are planning on installing these products, you should ensure that you thoroughly understand the OH&S, compliance and warranty implications. As a starting point, you should confirm that your product meets the requirements set out in the AS/NZS 60598.2.1:2014 standard for these luminaires. You should also make sure that the products you plan to install do not pose any unreasonable electrical risks to your installers or to your client, either during the installation process or post-installation.

Importantly, you should understand that 'modifying' an existing luminaire may effectively create a 'new' luminaire from a legal viewpoint. This means that you will likely become responsible for that luminaire's compliance with relevant safety and electro-magnetic compatibility laws and standards. Furthermore, the upgrade may void the warranty provided by the original luminaire manufacturer, meaning you may be considered liable should the product malfunction post-installation.

From 16 May 2016, the assignment form must include this information as a tick box for the customer to sign, and you should ensure that they are aware of the implications of the modification work prior to the installation taking place.

The Certificate of Electrical Safety which Energy Safe Victoria requires for this work must be retained on file by you should the commission require an audit. From 16 May 2016, this document must detail the modification work you performed on each type of linear fluorescent luminaire you modify, as well as specify that the modification work includes electrical isolation of the legacy ballast (and capacitor if one was present).

If you elect to retrofit linear LED lamps into linear fluorescent luminaires without removal of the legacy ballast and/or capacitor, from 16 May 2016 you must measure and assess the power factor of the upgraded lighting circuit, with the aim that the upgrade should not have a detrimental impact on the customer's compliance with section 4.3 of the *Electricity Distribution Code* (EDC).You must also have obtained commission approval for your proposed measurement and assessment methodology prior to proceeding. The EDC can be found at http://www.esc.vic.gov.au/document/energy/34937-energy-distribution-code-version-9-current/.

If you feel unsure about the obligations and risks associated with installing T5 adaptors and LED tubes, you should seek independent legal advice.

APs should also be aware of the decommissioning requirements associated with installations of T5 adaptors and LED tubes, as outlined in Section 2.10 of this document and the applicable section of part two of Explanatory note – building based lighting upgrade - part 2: compliance requirements. These requirements stipulate that any replaced control gear must be decommissioned (i.e. rendered permanently unusable).

## 1.2. Eligible upgrades

There are two facets of eligibility you must satisfy for a given upgrade:

- whether the premises itself is eligible
- whether you have the appropriate accreditations and approvals from the commission at the time of the upgrade.

### Eligible premises

To be eligible, premises must fulfil two essential criteria:

- it must **not** be a new building (VEET only applies to retrofits of existing buildings)
- the premises must not be a 'scheduled activity premises' as defined in Regulation 4 of the Principal Regulations, unless it has been 'opted in' to the VEET scheme pursuant to Regulation 10AA of the Principal Regulations.

### Eligible upgrades

For an individual upgrade to be eligible, it must meet the following conditions:

- the treatment of the works as part of the same upgrade must be reasonable and defensible
- the upgrade must have begun after the commencement of the amended regulations (17 May 2012)
- the upgrade must have been completed after the date on which you lodged your application for accreditation or application for additional activity approval

- the existing lighting equipment must be connected to an electricity supply before the upgrade if it is decommissioned[1]
- the existing lighting equipment must be connected to an electricity supply both before and after the upgrade, and must be operable after the upgrade, if it is not decommissioned
- all products installed as part of the upgrade must have been listed on the Register of products before being installed as part of the upgrade (i.e. the 'Effective from' date listed in the register must be before the date of installation)
- you must be able to source all the documentation required to verify the pre-upgrade lighting situation.

## 1.3. Role of the upgrade manager

For each upgrade, you must nominate a single person to legally represent your business for the purposes of verifying the documentation connected to the upgrade, including the assignment of rights and the AS/NZS 1680 declaration associated with the upgrade. This person is referred to as the 'upgrade manager'.

It is not necessary for the upgrade manager to be directly employed by the AP but they must have the authority to sign on the AP's behalf. Additionally, the roles of the upgrade manager, as defined by the assignment form and other scheme documentation, must be completed by a single person.

## 1.4. Using subcontractors

It is permissible as an AP to use subcontractors to undertake installations on your behalf. However, for the purposes of VEET, all legal liability rests with you as the AP. This means that if a subcontractor is found to have disregarded a relevant law or failed to properly record information about the upgrade, you may be subject to compliance action.

Because the use of subcontractors represents a compliance risk, you will be required to provide information about the contractual arrangements for each upgrade you undertake. This information is recorded on the assignment form and must be provided at the time you create the VEECs associated with each upgrade.

## 1.5. J6 and non-J6 upgrades

The calculations used to determine the energy savings of a given upgrade project vary depending on whether the upgrade is part of a site refurbishment that requires a Building Permit, and as a result is required to comply with Part J6 of the Building Code of Australia (BCA). The shorthand terminology used to describe this distinction in this document is 'J6' and 'Non-J6' (or NJ6).

[1] See Section 2.10 for what lighting equipment must be decommissioned when performing an upgrade.

J6 and Non-J6 upgrades have different data and documentation requirements. Because of this, separate versions of the upload form (which you use to create VEECs) and the VEEC calculator have been developed. You will see the two options in the relevant drop down menus on the VEET website.

You should exercise a high degree of care to ensure that you have a clear understanding of the status of any upgrade project you are engaged in. Selecting the incorrect version of the user interface or the upload form will result in the improper creation of certificates, which may lead to compliance action being taken against you.

## 1.6. VEEC calculation method

The number of VEECs you receive for a given upgrade is based on the deemed abatement associated with that upgrade. It is important to recognise that this deemed abatement may differ considerably from the actual abatement caused by any particular upgrade. In some cases it will be higher, in others, lower.

This is because the process of deeming abatement must make general assumptions about many factors that affect the energy savings of an upgrade, such as the operating hours of a business, mode of operation, or other specifics.

The VEEC calculation method is defined in Schedule 34 of the Principal Regulations. You should take care to ensure you fully understand the workings of this equation. An explanation of this method is provided below.

### VEEC calculation

VEECs are calculated using the following equation ('Regulations Equation 1'):

*VEECs = (energy savings x 1.095) x regional factor*

Where;

*energy savings = baseline energy consumption – upgrade energy consumption*

The regional factors that apply are 0.98 for upgrades undertaken in metropolitan Victoria and 1.04 for upgrades undertaken in regional Victoria. Energy savings are multiplied by the marginal greenhouse gas intensity factor, 1.095.

### Baseline calculation ('before')

There are two equations available to calculate baseline energy consumption. Whether the upgrade is required to comply with Part J6 of the current edition of the BCA (as amended from time to time) determines which equation is to be used.

If the upgrade is required to comply with Part J6 of the BCA, the following equation must be used ('Regulations Equation 2' or 'J6')[2]:

> *Baseline energy consumption (MWh)* = $\sum_{\text{each space}}$ (the maximum allowable illumination power density (IPD) for the space x the area of the space x the relevant asset lifetime x annual operating hours x a multiplier if a control device is installed (CM) x a multiplier if the space is air-conditioned (AM)) ÷ $10^6$

If the upgrade does not need to comply with Part J6 of the BCA, then the following equation is used to calculate the baseline ('Regulations Equation 3' or 'Non-J6')[3] :

> *Baseline energy consumption (MWh)* = $\sum_{\text{each lamp}}$ (lamp circuit power (LCP) for the replaced lamp x the relevant asset lifetime x annual operating hours x a multiplier if a control device is installed (CM) x a multiplier if the space is air-conditioned (AM)) ÷ $10^6$

In both these equations, the annual operating hours is defined based on the space type/BCA classification in which an upgrade occurs as set out in Tables 3 and 4 of Schedule 34 in the Principal Regulations. In Regulations Equation 3, the LCP value is usually[4] taken from Table 1 of Schedule 34. If the type of lamp being replaced is not listed in Table 1, then the applicant must apply to the commission to have a value approved (see Section 1.11 below for details). The values assigned to the control device multiplier (CM) (see Table 2 of Schedule 34) and air-conditioning multiplier (AM) are both outlined in Schedule 34 of the Principal Regulations.

The final variable is asset lifetime. The value for asset lifetime is obtained by first identifying what type of lighting upgrade is being undertaken, then consulting the Principal Regulations to identify which asset lifetime value applies. The details of this process are set out in full in Section 1.910.

It should be noted that for lamps that contain an integrated ballast, the asset lifetime scenario chosen needs to reflect as if both the lamp and the ballast are separately being replaced.

### Upgrade calculation ('after')

The following equation is used to determine the upgrade energy consumption ('Regulations Equation 4' or 'U')[5]:

> *Upgrade energy consumption (MWh)* = $\sum_{\text{each upgrade lamp}}$ (lamp circuit power (LCP) for the installed lamp x the relevant asset lifetime x annual operating hours x a multiplier if a control device is installed (CM) x a multiplier if the space is air-conditioned (AM)) ÷ $10^6$

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[2] This baseline equation may be referred to as 'Regulations Equation 2' or 'J6'
[3] This baseline equation may be referred to as 'Regulations Equation 3' or 'Non-J6'
4 If the lamp does not appear in table 1 then an application can be made to the commission to determine the LCP for the lamp. See section 1.11 below for details.
[5] This upgrade equation may be referred to as 'Regulations Equation 4' or 'U'

As in the baseline calculation, the annual operating hours is defined based on the space type/BCA classification in which an upgrade occurs as set out in Tables 3 and 4 of Schedule 34 in the Principal Regulations. The LCP value is taken from Table 1 of Schedule 34. If the type of lamp being replaced is not listed in Table 1, then the applicant must apply to the commission to have a value approved.

The values assigned to the control device multiplier (CM) (see Table 2) and air-conditioning multiplier (AM) are both outlined in Schedule 34 of the Principal Regulations.

The value for asset lifetime is again obtained by first identifying what type of lighting upgrade is being undertaken. Certain upgrade scenarios and an associated asset lifetime can only match certain baseline scenarios with the same asset lifetime. The details of this process are set out in full in Section 1.9.

Please note that in certain situations (associated with fittings being removed) there may not be an upgrade (i.e. 'Regulations Equation 4' or 'U') equation. In these situations, only the baseline asset lifetime is required – see Section 1.9 for more details.

## 1.7. VEEC calculation with discount factor applied

The *notice of declaration of discount factors*[6] published in the Victorian Government Gazette on 1 December 2017 outlines discount factors to be applied to certain types of Schedule 34 lighting upgrade activities.[7]

The discount factors will apply to activities where:

1. the upgrade undertaken does not need to comply with Part J6 of the of the current edition of the BCA (as amended from time to time) under building based lighting upgrades, and
2. where the lamps to be replaced (incumbent lamps) are either:
   - T8 or T12 fluorescent lamps (in both building based and non-building based environments), or
   - high intensity discharge lamps (metal halide, mercury vapour and high pressure sodium lamps) (only in building based environments).

The discount factor will be applied via a staged approach. See Table 1 below for details of the discount factors to be applied over two different periods.

Table 1: Schedule 34 discount factor changes

| Item number (in Table 1 of | Type of incumbent lamp | Discount factor applicable from | Discount factor applicable from |
|---|---|---|---|

[6] http://www.gazette.vic.gov.au/gazette/Gazettes2017/GG2017S411.pdf
[7] Further to Section 19 of the *Victorian Energy Efficiency Target Act 2007* and Section 10A of the *Victorian Energy Efficiency Target Regulations 2008* (the Principal Regulations)

| Schedule 34 Part B) | | 1 February 2018–30 April 2018 | 1 May 2018 onwards |
|---|---|---|---|
| Items 1–9 | T8 or T12 linear fluorescent | 0.9 | 0.8 |
| Items 27–29 | Metal halide[8] | 0.85 | 0.7 |
| Item 30 | Mercury vapour[6] | 0.85 | 0.7 |
| Item 31 | High pressure sodium[6] | 0.85 | 0.7 |

You should note that the higher discount factor will apply to upgrades completed with an **activity date**[9] of 1 February to 30 April 2018; whilst the lower discount factor will apply to upgrades completed with an **activity date**[10] of 1 May onwards.

### How the discount factor is applied to Schedule 34 lighting upgrades depending on the type of activity

#### Scenario 1 - Simple upgrade with one discount factor applied

VEECs are calculated using the following equation:

*VEECs = abatement factor x regional factor x discount factor*

*Where,*

*abatement factor = energy savings x 1.095*

*energy savings = baseline energy consumption – upgrade energy consumption*

Under this scenario, your Schedule 34 activity attracts a discount factor, and it involves the replacement of only one type of lamp, where the lamp is one of incumbent lamp types listed in Table 1. Here, the discount factor applies to the final amount of $CO_2$-e calculated for the activity[11], as only one discount factor applies.

#### Scenario 2 - Complex upgrade with multiple discount factors applied

VEECs are calculated using the following equation:

*VEECs = abatement factor x regional factor x adjusted discount factor*

*Where,*

*abatement factor = energy savings x 1.095*

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[8] Discount factors do not apply to these types of incumbent lamps under Schedule 34 non-building based lighting.
9 An activity is defined to be undertaken on the day the lighting upgrade is completed as per Part C of the Principal Regulations. That is, at the beginning of the day on which the lighting upgrade is completed (the activity date).
10 See preceding note.
[11] As per Regulation 10A of the Principal Regulations.

*energy savings = baseline energy consumption – upgrade energy consumption*

*adjusted discount factor =*

*((00energy consumption baseline zone 1 x discount factor baseline zone 1)*

*+ (energy consumption baseline zone 2 x discount factor baseline zone 2)*

*+ …*

*+ (energy consumption baseline zone n x discount factor baseline zone n))*

*÷ total baseline energy consumption.*

Note: zone n refers to additional zones (where applicable).

Under this scenario, your Schedule 34 activity attracts a discount factor, and it involves the replacement of more than one type of incumbent lamp (where at least one of the incumbent lamps is a lamp listed in Table 1). Such an upgrade will consist of multiple zones and multiple incumbent lamp types, thereby requiring the application of more than one discount factor.[12] Here, the discount factors are applied to the proportion of total baseline energy consumption which is attributable to the incumbent lamps affected by the discount factors.

## 1.8. Upgrades, areas and calculation zones

For the purposes of calculating the correct baseline and upgrade energy use for a given upgrade project, it will usually be necessary to subdivide the upgrade into smaller components. The way this subdivision occurs depends on the project.

For a J6 upgrade, the baseline calculation for the upgrade site must be divided into calculation zones with a common space type, as this space type defines the illumination power density (IPD) and annual operating hours requirements for the upgrade (see Figure 1 below). For the upgrade calculation, the upgrade site must be divided into calculation zones. This is defined as a set of lamps that are installed in a common space type with the same space type, asset lifetime, air-conditioning environment, control device type and lamps subject to the same lamp circuit power (LCP).

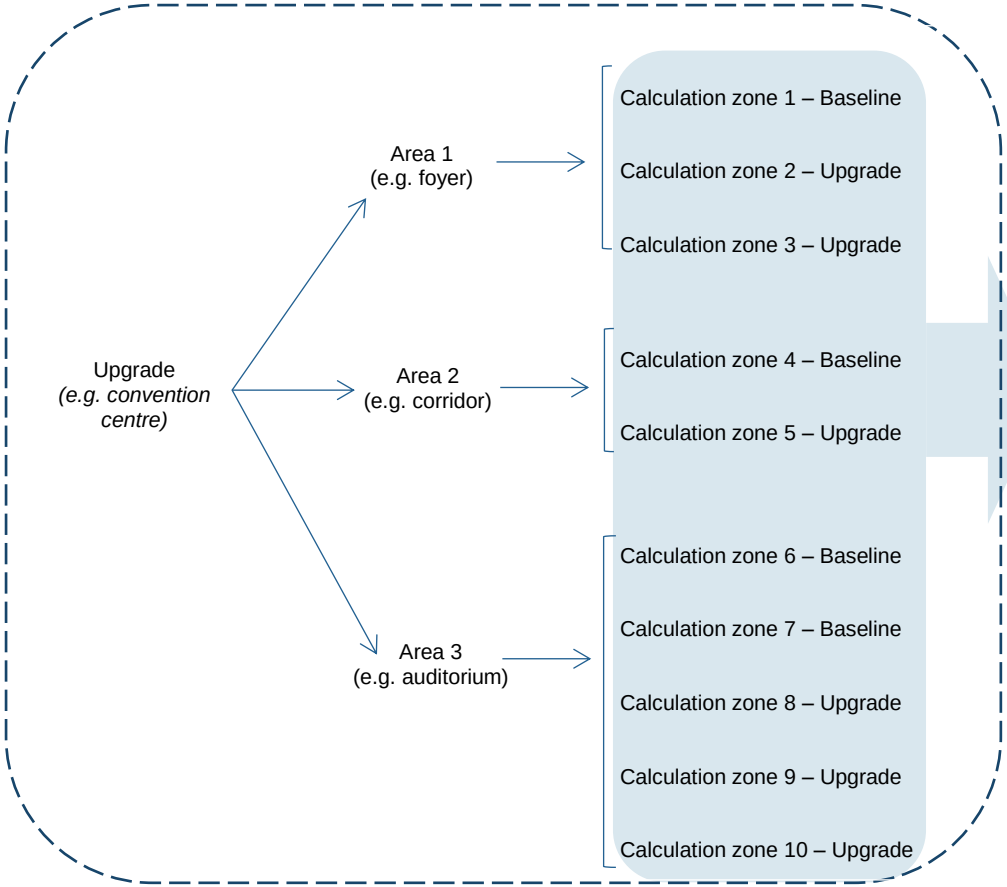
If the upgrade is identified as a Non-J6 upgrade, the calculation zone is defined as a set of lamps that are installed in a common space type with the same asset lifetime, air-conditioning environment, control device type and lamps subject with the same lamp circuit power (LCP). This is for both baseline and upgrade calculations.

[12] A default value of 1 is applied where the incumbent lamps are not lamp types listed in Figure 2 above.

This information, and the definition of a calculation zone, is represented in Figure 1 below. Even for simple upgrades, there will normally be at least two calculation zones; one for baseline and one for upgrade. Complex upgrades may require many more. The VEET online creation upload system can accommodate up to 50 calculations zones; if users encounter an upgrade requiring more than 50 calculation zones, they should contact the commission.

Figure 1: Subdividing an upgrade project into calculation zones

**Subdividing an upgrade**




**Defining a Calculation Zone**

| Equation | Equation variables | | | | |
|---|---|---|---|---|---|
| J6 Baseline | Illumination Power Density (IPD) | Annual Operating Hours | Asset Lifetime | Control Multiplier | A/C Multiplier |
| Non-J6 Baseline | Lamp Circuit Power (LCP) | Annual Operating Hours | Asset Lifetime | Control Multiplier | A/C Multiplier |
| Upgrade | Lamp Circuit Power (LCP) | Annual Operating Hours | Asset Lifetime | Control Multiplier | A/C Multiplier |

A Calculation Zone is a physical space (J6) or series of lamps (Non-J6) for which all of the variables of the relevant equation are common.

For instance, if two different types of lamps are installed in an area, there will be two Lamp Circuit Power (LCP) variables, and the area must be subdivided to account for this.

Note that this means some areas may have a different number of baseline and upgrade calculation zones.

## 1.9. Asset lifetime references

As outlined above, one factor in the abatement calculation is the 'asset lifetime'. Determining the correct asset lifetime is one of the more complicated aspects of undertaking this activity. You should ensure that both you and any relevant staff fully understand how this aspect of how the calculation works.

The asset lifetime varies depending on the nature of the upgrade. Typically, more permanent upgrades (those which cannot be reversed without the services of an electrician) receive higher asset lifetimes than those that are easily reversible by the client.

Importantly, within one upgrade project you may need to select different asset lifetimes. For instance, where you undertake permanent upgrades in one area of the premises (such as installed new luminaires in an office space) and then do reversible upgrades in another area (like replacing GLS incandescent lamps with CFL lamps in a bathroom), then you will use different asset lifetimes for each of the two areas.

Further, when recording your data, select the asset lifetimes for each area as outlined in Table 2, Table 4, Table 6 and Table 8. Normally this means one asset lifetime for the baseline ('before') energy calculation and another for the upgrade ('after') energy calculation (note this combination of a 'before' and 'after' asset lifetime forms an 'asset lifetime reference' as discussed below).

Lastly, the asset lifetimes you use will determine what other data you must collect about the upgrade. Some asset lifetimes require you to record the rated lifetime hours of the pre-existing lamps or the newly installed lamps, while others require no rated lifetime information at all.

The asset lifetimes are defined in Schedule 34 in the Principal Regulations. For ease of use, we have developed a shorthand reference to refer to the different asset lifetime matches. This shorthand is called the 'asset lifetime reference'[13]. The figures in the following sections set out the various asset lifetime references, the situations in which they apply, and any data recording requirements. Keep these figures handy when you are recording data about an upgrade or when using the online VEEC calculator.

The figures also provide asset lifetime scenario explanations and details, as well as decision matrices to aid in identifying how lighting project changes relate to baseline ('Regulations Equation 2' or 'J6' and 'Regulations Equation 3' or 'Non-J6') and upgrade ('Regulations Equation 4' or 'U') equations.

[13] Using the same naming as in the Principal Regulations, in the shorthand of these 'asset lifetime references' they are capitalised and include: A, AB, B, C, D, E. They are then connected to a J6, Non-J6 or U scenario to provide a complete reference – i.e. 'Non-J6-C' means 'Regulations Equation 3' or 'NJ6', asset lifetime C.

Scenarios have been grouped into four kinds of upgrade:

- Installing new lighting components.
- Replacing lighting components.
- Removing or decommissioning lighting components.
- Any other case.

Please note that where the fitting has been modified (i.e. fitting replaced or legacy lighting components removed or decommissioned), the lamp life is not a limiting factor for the number of VEECs claimed. This means that where the baseline and upgrade equation matches (i.e. asset lifetime reference) allow for it, a lighting upgrade may create VEECs for the total space type annual operating hours multiplied by the applicable asset lifetime.

If you are unsure about any of the following, please contact the VEET support team.

### Installing new lighting components

When undertaking an **upgrade that involves installing new lighting components**, use the following figures as a guide to identify the correct asset lifetime references to use. Please take note of the following:

- Use the decision matrix in Table 2 to decide what an asset lifetime means in practical terms.
- Take note of the asset lifetime that best suits your upgrade for J6 or Non-J6 and U.
- Use Table 3 to find the chosen asset lifetime references and make sure their match explains your project scenario.
- Matches in both figures have been colour coded to aid in ease of use.
- Full scenario details are provided in Table 3, including the Regulation wording.
- The Case # is intended to assist in identifying and communicating particular asset lifetime references. It does not need to be recorded or included as a data input.

Table 2: Asset lifetime scenarios - installing new lighting components - decision matrix

| Asset lifetime | New fitting installed | New lamp installed in new fitting | New ballast installed | New transformer installed | New control device installed |
|---|---|---|---|---|---|
| J6-A | ✓ | ✓ | ✓ | ✓ | ✓ |
| J6-AB | × | × | × | × | ✓ |
| J6-B | × | × | × | × | × |
| J6-C | × | × | × | × | × |
| Non-J6-A | × | × | × | × | × |
| Non-J6-AB | × | × | × | × | ✓ |
| Non-J6-B | × | × | × | × | × |
| Non-J6-C | × | × | × | × | × |
| Non-J6-D | × | × | × | × | × |
| Non-J6-E | × | × | × | × | × |
| U-A | × | × | × | × | × |
| U-AB | × | × | × | × | ✓ |
| U-B | ✓ | ✓ | ✓ | ✓ | ✓ |
| U-C | × | × | × | × | × |

Table 3: Asset lifetime reference scenarios - installing new lighting components - regulation wording

| Case # | Scenario | Asset lifetime reference[14] | Equation 2 (J6) – baseline regulation wording | Equation 3 (non-J6) – baseline regulation wording | Equation 4 (U) – upgrade regulation wording | Asset lifetime – regulation wording | RLH[15] data inputs required |
|---|---|---|---|---|---|---|---|
| 2 | New fittings, ballast or transformer (and any associated lamp or reflector) installed, with no other lighting equipment (except control devices) | **J6-A and U-B** | **(A)**<br>If, as part of the lighting upgrade:<br><br>i) a light fitting, ballast or transformer (and any associated lamp or reflector) is installed in the space, and<br><br>ii) no lighting equipment of any other type (other than a lighting control device) is installed in the space<br>10 years | *Fitting installed as part of upgrade – no equation for Non-J6 baseline* | **(B)**<br>If the lamp is installed in a lighting fitting that was installed as part of the lighting upgrade:<br><br>10 years | 10 years | None |
| 3 | Lighting control device installed | **J6-AB and U-AB**<br><br>**OR**<br><br>**Non-J6-AB and U-AB** | **(AB)**<br>If, as part of the lighting upgrade:<br><br>i) a lighting control device is installed in the space, and<br><br>ii) no lighting equipment of any other type is installed in the space<br><br>5 years | **(AB)**<br>If, as part of the lighting upgrade:<br><br>i) a lighting control device is installed in the space, and<br><br>ii) no lighting equipment of any other type is installed in the space<br><br>5 years | **(AB)**<br>If, as part of the lighting upgrade:<br><br>i) a lighting control device is installed in the space, and<br><br>ii) no lighting equipment of any other type is installed in the space<br><br>5 years | 5 years | None |

[14] Remember, certain upgrades and an associated asset lifetime can only match certain baselines with the same asset lifetime – this column shows the applicable matches
[15] Rated lifetime hours

### Replacing lighting components

When undertaking an **upgrade that involves replacing lighting components**, use the following figures as a guide to identify the correct asset lifetime references to use. Please take note of the following:

- Use the decision matrix in Table 4 to decide what an asset lifetime means in practical terms.
- Take note of the asset lifetime that best suits your upgrade for J6 or Non-J6 and U.
- Use Table 5 to find the chosen asset lifetime references and make sure their match explains your project scenario.
- Matches in both figures have been colour coded to aid in ease of use.
- Full scenario details are provided in Table 5, including the Regulation wording.
- The Case # is intended to assist in identifying and communicating particular asset lifetime references. It does not need to be recorded or included as a data input.

Table 4: Asset lifetime scenarios - replacing lighting components - decision matrix

| Asset lifetime | Lamp replaced | Ballast replaced (with lamp removed and not replaced) | Transformer replaced (with lamp removed and not replaced) |
|---|---|---|---|
| J6-A | ✓ | ✓ | ✓ |
| J6-AB | × | × | × |
| J6-B | × | × | × |
| J6-C | ✓ | × | × |
| Non-J6-A | × | × | × |
| Non-J6-AB | × | × | × |
| Non-J6-B | × | ✓ | ✓ |
| Non-J6-C | ✓ | ✓ | ✓ |
| Non-J6-D | ✓ | × | × |
| Non-J6-E | × | × | × |
| U-A | ✓ | ✓ | ✓ |
| U-AB | × | × | × |
| U-B | × | × | × |
| U-C | ✓ | × | × |

Table 5: Asset lifetime reference scenarios - replacing lighting components - regulation wording

| Case # | Scenario | Asset lifetime reference | Equation 2 (J6) – baseline regulation wording | Equation 3 (non-J6) – baseline regulation wording | Equation 4 (U) – upgrade regulation wording | Asset lifetime – regulation wording | RLH[16] data inputs required |
|---|---|---|---|---|---|---|---|
| 4 | Lamp (only) removed and not replaced while associated ballast or transformer are replaced | **J6-A only**<br>**OR**<br>**Non-J6-B only** | **(A)**<br>If, as part of the lighting upgrade:<br>i) a light fitting, ballast or transformer (and any associated lamp or reflector) is installed in the space, and<br>(ii) no lighting equipment of any other type (other than a lighting control device) is installed in the space<br>10 years | **(B)**<br>If, as part of the lighting upgrade, the lamp is removed and not replaced and:<br>i) the ballast or transformer associated with the lamp is replaced; or<br>(ii) the light fitting in which the lamp was installed is removed<br>10 years | *Lamp removed as part of upgrade – no equation for operating period* | 10 years | None |
| 6 | Lamp replaced – with ballast or transformer replaced | **J6-A and U-A**<br>**OR**<br>**Non-J6-C and U-A** | **(A)**<br>If, as part of the lighting upgrade:<br>(i) a light fitting, ballast or transformer (and any associated lamp or reflector) is installed in the space; and<br>(ii) no lighting equipment of any other type (other than a lighting control device) is installed in the space<br>10 years | **(C)**<br>If, as part of the lighting upgrade, the lamp is replaced and any ballast or transformer associated with the lamp is also replaced<br>10 years | **(A)**<br>If the ballast or transformer associated with the lamp is replaced as part of the lighting upgrade<br>10 years | 10 years | None |

[16] Rated lifetime hours

| Case # | Scenario | Asset lifetime reference | Equation 2 (J6) – baseline regulation wording | Equation 3 (non-J6) – baseline regulation wording | Equation 4 (U) – upgrade regulation wording | Asset lifetime – regulation wording | RLH[17] data inputs required |
|---|---|---|---|---|---|---|---|
| 7 | Lamp replaced – but not ballast or transformer | **J6-C and U-C**<br><br>**OR**<br><br>**Non-J6-D and U-C** | **(C)**<br>In any other case, the lowest manufacturer's rated lifetime (in hours and not exceeding 30,000 hours) for a lamp that is in the space after the lighting upgrade is undertaken divided by Annual Operating Hours, to a maximum of 10 years | **(D)**<br>If, as part of the lighting upgrade, the lamp is replaced and:<br><br>i) the ballast or transformer associated with the lamp is not replaced; or<br><br>ii) there is no ballast or transformer associated with the lamp.<br><br>the manufacturer's rated lifetime (in hours and not exceeding 30,000 hours) for the replacement lamp divided by the Annual Operating Hours, to a maximum of 10 years | **(C)**<br>In any other case, the manufacturer's rated lifetime (in hours and not exceeding 30,000 hours) for the lamp divided by Annual Operating Hours, to a maximum of 10 years | The manufacturer's rated lifetime (in hours and not exceeding 30,000 hours) for the lamp divided by Annual Operating Hours<br><br>*Which means:*<br><br>Lowest manufacturer's rated lifetime hours of post-upgrade lamp (not exceeding 30,000)/AOH | RLH of upgrade lighting |

[17] Rated lifetime hours

### Removing or decommissioning lighting components

When undertaking an **upgrade that involves removing or decommissioning lighting components**, use the following figures as a guide to identify the correct asset lifetime references to use. Again, note the following:

- Use the decision matrix in Table 6 to decide what an asset lifetime means in practical terms.
- Take note of the asset lifetime that best suits your upgrade for J6 or Non-J6 and U.
- Use Table 7 to find the chosen asset lifetime references and make sure their match explains your project scenario.
- Matches in both figures have been colour coded to aid in ease of use.
- Full scenario details are provided in Table 7, including the Regulation wording.
- The Case # is intended to assist in identifying and communicating particular asset lifetime references. It does not need to be recorded or included as a data input.

Table 6: Asset lifetime scenarios - removing or decommissioning lighting components - decision matrix

| Asset lifetime | Multiple lamp fitting de-lamped (assoc. ballasts and transformers decommissioned) | Fitting removed |
|---|---|---|
| J6-A | × | × |
| J6-AB | × | × |
| J6-B | ✓ | × |
| J6-C | × | ✓ |
| Non-J6-A | ✓ | × |
| Non-J6-AB | × | × |
| Non-J6-B | × | ✓ |
| Non-J6-C | × | × |
| Non-J6-D | × | × |
| Non-J6-E | × | × |
| U-A | × | × |
| U-AB | × | × |
| U-B | × | × |
| U-C | ✓ | × |

Table 7: Asset lifetime reference scenarios - removing or decommissioning lighting components - regulation wording

| Case # | Scenario | Asset lifetime reference | Equation 2 (J6) – baseline regulation wording | Equation 3 (non-J6) – baseline regulation wording | Equation 4 (U) – upgrade regulation wording | Asset lifetime – regulation wording | RLH[18] data inputs required |
|---|---|---|---|---|---|---|---|
| 1 | Multiple lamp fitting de-lamped | **J6-B and U-C**<br><br>**OR**<br><br>**Non-J6-A and U-C** | **(B)**<br>If, as part of the lighting upgrade:<br><br>i) no more than half the lamps are removed from a multiple lamp fitting in the space; and<br><br>ii) any ballast or transformer associated with the removed lamps is decommissioned; and<br><br>iii) no light fittings, ballasts, transformers, lamps or T5 adaptors are installed in the space:<br><br>The lowest manufacturer's rated lifetime (in hours and not exceeding 30,000 hours) for a lamp that is in the space before the lighting upgrade is undertaken divided by Annual Operating Hours, to a maximum of 10 years | **(A)**<br>If, as part of the lighting upgrade:<br><br>i) the lamp is removed from a multiple lamp fitting from which no more than half of the installed lamps are removed; and<br><br>ii) any ballast or transformer associated with the removed lamp is decommissioned:<br><br>The manufacturer's rated lifetime (in hours and not exceeding 30,000 hours) for the lamp divided by Annual Operating Hours, to a maximum of 10 years | **(C)**<br>In any other case, the manufacturer's rated lifetime (in hours and not exceeding 30,000 hours) for the lamp divided by Annual Operating Hours, to a maximum of 10 years | The manufacturer's rated lifetime (in hours and not exceeding 30,000 hours) for the lamp divided by Annual Operating Hours<br><br>*Which means:*<br><br>Lowest manufacturer's rated lifetime hours of pre-upgrade lamp (not exceeding 30,000) AOH | RLH of <u>original</u> lighting |

[18] Rated lifetime hours

| Case # | Scenario | Asset lifetime reference | Equation 2 (J6) – baseline regulation wording | Equation 3 (non-J6) – baseline regulation wording | Equation 4 (U) – upgrade regulation wording | Asset lifetime – regulation wording | RLH[19] data inputs required |
|---|---|---|---|---|---|---|---|
| 5 J6 | Lamp fitting removed or decommissioned – J6 | **J6-C only** | **(C)**<br>In any other case, the lowest manufacturer's rated lifetime (in hours and not exceeding 30,000 hours) for a lamp that is in the space after the lighting upgrade is undertaken divided by Annual Operating Hours, to a maximum of 10 years | *Not applicable* | *Fitting removed as part of upgrade – no equation for operating period* | The manufacturer's rated lifetime (in hours and not exceeding 30,000 hours) for the replacement lamp divided by Annual Operating Hours<br><br>(**Note** – this would only occur if a new fitting, ballast or transformer is not installed after the fitting is removed)<br><br>*Which means:*<br><br>Lowest manufacturer's rated lifetime hours of post-upgrade lamp (not exceeding 30,000)/AOH | RLH of upgrade lighting |
| 5 Non-J6 | Lamp fitting removed or decommissioned – Non-J6 | **Non-J6-B only** | *Not applicable* | **(B)**<br>If, as part of the lighting upgrade, the lamp is removed and not replaced and:<br><br>i) the ballast or transformer associated with the lamp is replaced; or<br><br>ii) the light fitting in which the lamp was installed is removed-<br>10 years | *Fitting removed as part of upgrade – no equation for operating period* | 10 years | None |

[19] Rated lifetime hours

### ‘Any other case’

When undertaking an **upgrade that cannot be defined using the previous tables**, use the following figures as a guide to identify the correct asset lifetime references to use ‘any other case’. Remember:

- Use the decision matrix in Table 8 to decide what an asset lifetime means in practical terms.
- Take note of the asset lifetime that best suits your upgrade for J6 or Non-J6 and U.
- Use Table 9 to find the chosen asset lifetime references and make sure their match explains your project scenario.
- Matches in both figures have been colour coded to aid in ease of use.
- Full scenario details are provided in Table 9, including the Regulation wording.
- The Case # is intended to assist in identifying and communicating particular asset lifetime references. It does not need to be recorded or included as a data input.

Table 8: Asset lifetime scenarios - any other case - decision matrix

| Asset lifetime | In any other case |
|---|---|
| J6-A | × |
| J6-AB | × |
| J6-B | × |
| J6-C | ✓ |
| Non-J6-A | × |
| Non-J6-AB | × |
| Non-J6-B | × |
| Non-J6-C | × |
| Non-J6-D | × |
| Non-J6-E | ✓ |
| U-A | × |
| U-AB | × |
| U-B | × |
| U-C | ✓ |

Table 9: Asset lifetime reference scenarios - any other case - regulation wording

| Case # | Scenario | Asset lifetime reference | Equation 2 (J6) – baseline regulation wording | Equation 3 (non-J6) – baseline regulation wording | Equation 4 (U) – upgrade regulation wording | Asset lifetime – regulation wording | RLH[20] data inputs required |
|---|---|---|---|---|---|---|---|
| 8 J6 | Any other case | **J6-C and U-C** | **(C)**<br>In any other case, the lowest manufacturer's rated lifetime (in hours and not exceeding 30,000 hours) for a lamp that is in the space after the lighting upgrade is undertaken divided by Annual Operating Hours, to a maximum of 10 years | *Not applicable* | **(C)**<br>In any other case, the manufacturer's rated lifetime (in hours and not exceeding 30,000 hours) for the lamp divided by Annual Operating Hours, to a maximum of 10 years | The manufacturer's rated lifetime (in hours and not exceeding 30,000 hours) for the lamp divided by Annual Operating Hours<br><br>*Which means:*<br><br>Lowest manufacturer's rated lifetime hours of pre-upgrade lamp (not exceeding 30,000) AOH | RLH of upgrade lighting |
| 8 Non-J6 | Any other case | **Non-J6 and U-C** | *Not applicable* | **(E)**<br>In any other case, the manufacturer's rated lifetime (in hours and not exceeding 30,000 hours) for the lamp divided by Annual Operating Hours, to a maximum of 10 years | **(C)**<br>In any other case, the manufacturer's rated lifetime (in hours and not exceeding 30,000 hours) for the lamp divided by Annual Operating Hours, to a maximum of 10 years | The manufacturer's rated lifetime (in hours and not exceeding 30,000 hours) for the lamp divided by Annual Operating Hours<br><br>Which means:<br>Lowest manufacturer's rated lifetime hours of pre-upgrade lamp (not exceeding 30,000) AOH | RLH of original lighting |

[20] Rated lifetime hours

Table 10: Asset lifetime reference scenarios - J6 Summary

| Case # | Project form | Scenario | Asset lifetime reference | Equation 2 (J6) – baseline regulation wording | Equation 4 (U) – upgrade regulation wording | Asset lifetime | RLH data inputs required |
|---|---|---|---|---|---|---|---|
| 2 | Installing new lighting components | New fittings, ballast or transformer (and any associated lamp or reflector) installed, with no other lighting equipment (except control devices) | **J6-A and U-B** | **(A)** | **(B)** | 10 years | None |
| 3 | | Lighting control device installed | **J6-AB and U-AB** | **(AB)** | **(AB)** | 5 years | None |
| 4 | Replacing lighting components | Lamp (only) removed and not replaced while associated ballast or transformer are replaced | **J6-A only** | **(A)** | *Lamp removed as part of upgrade – no equation for operating period* | 10 years | None |
| 6 | | Lamp replaced – with ballast or transformer replaced | **J6-A and U-A** | **(A)** | **(A)** | 10 years | None |
| 7 | | Lamp replaced – but not ballast or transformer | **J6-C and U-C** | **(C)** | **(C)** | Lowest manufacturer's rated lifetime hours of post-upgrade lamp (not exceeding 30,000) AOH | RLH of upgrade lighting |
| 1 | Removing or decommissioning lighting components | Multiple lamp fitting de-lamped | **J6-B and U-C** | **(B)** | **(C)** | Lowest manufacturer's rated lifetime hours of post-upgrade lamp (not exceeding 30,000) AOH | RLH of original lighting |
| 5 | | Lamp fitting removed or decommissioned | **J6-C only** | **(C)** | *Fitting removed as part of upgrade – no equation for operating period* | Lowest manufacturer's rated lifetime hours of post-upgrade lamp (not exceeding 30,000) AOH | RLH of upgrade lighting |
| 8 | Any other case | Any other case | **J6-C and U-C** | **(C)** | **(C)** | Lowest manufacturer's rated lifetime hours of post-upgrade lamp (not exceeding 30,000) AOH | |

Table 11: Asset lifetime reference scenarios - Non-J6 Summary

| Case # | Project form | Scenario | Asset lifetime reference | Equation 3 (non-J6) – baseline regulation wording | Equation 4 (U) – upgrade regulation wording | Asset lifetime | RLH[21] data inputs required |
|---|---|---|---|---|---|---|---|
| 3 | Installing new lighting components | Lighting control device installed | **Non-J6-AB and U-AB** | **(AB)** | **(AB)** | 5 years | None |
| 4 | Replacing lighting components | Lamp (only) removed and not replaced while associated ballast or transformer are replaced | **Non-J6-B only** | **(B)** | *Lamp removed as part of upgrade – no equation for operating period* | 10 years | None |
| 6 | | Lamp replaced – with ballast or transformer replaced | **Non-J6-C and U-A** | **(C)** | **(A)** | 10 years | None |
| 7 | | Lamp replaced – but not ballast or transformer | **Non-J6-D and U-C** | **(D)** | **(C)** | Lowest manufacturer's rated lifetime hours of post-upgrade lamp (not exceeding 30,000) AOH | RLH of upgrade lighting |
| 1 | Removing or decommissioning lighting components | Multiple lamp fitting de-lamped | **Non-J6-A and U-C** | **(A)** | **(C)** | Lowest manufacturer's rated lifetime hours of post-upgrade lamp (not exceeding 30,000) AOH | RLH of original lighting |
| 5 | | Lamp fitting removed or decommissioned | **Non-J6-B only** | **(B)** | *Fitting removed as part of upgrade – no equation for operating period* | 10 years | None |
| 8 | Any other case | Any other case | **Non-J6-E and U-C** | **(E)** | **(C)** | Lowest manufacturer's rated lifetime hours of post-upgrade lamp (not exceeding 30,000) AOH | RLH of original lighting |

[21] Rated lifetime hours

## 1.10. Annual operating hours

Another factor in the abatement calculation is the 'annual operating hours'. Determining this correctly is another important aspect of undertaking this activity. You should ensure that both you and any relevant staff fully understand how this aspect of how the calculation works.

The annual operating hours are determined in Schedule 34 of the Principal Regulations. Table 12 and Table 13 below set out the operating hours for different space types as defined in the Principal Regulations. Note that an Illuminated Power Density (IPD) is only applicable to J6 upgrade projects.

Also note that when creating activities and using the online calculator, the options listed Table 13 are only relevant and needed should they be called upon in the Annual Operating Hours column in Table 12 (for example in space type "Corridor"). In all other instances, the Space Type option selected will provide the annual operating hours for the abatement calculation; a BCA classification is not required and is not used in the abatement calculation.

For Non-J6 projects (only) when using the calculator, if you are upgrading a space type that is not listed in the Annual Operating Hours column in Table 12, then you need to select Unlisted space type (highlighted in red in Table 12) and then select a BCA classification that would apply to that space type from Table 13.

Table 12: Space type, annual operating hours and IPD

| Space type | Annual operating hours | IPD (used for J6 only) |
|---|---|---|
| Auditorium, church and public hall | 2,000 | 10 |
| Board room and conference room | 3,000 | 10 |
| Carpark - entry zone (first 20 m of travel) | 7,000 | 25 |
| Carpark – general (undercover) | 7,000 | 6 |
| Common rooms, spaces and corridors[22] in a Class 2 building | 7,000 | 8 |
| Control room, switch room, and the like | Value based on BCA classification – see Table 13 | 9 |
| Corridors | Value based on BCA classification – see Table 13 | 8 |
| Courtroom | 2,000 | 12 |

[22] The definition of common areas is as follows:
(i) For buildings owned under strata title, the common property as defined in the *Owner Corporations Act 2006* (VIC); or
(ii) For buildings not owned under strata title (eg under company title), the non-residential property of BCA Class 2 buildings.

| Space type | Annual operating hours | IPD (used for J6 only) |
|---|---|---|
| Dormitory of a Class 3 building used for sleeping only | 3,000 | 6 |
| Dormitory of a Class 3 building used for sleeping and study | 3,000 | 9 |
| Entry lobby from outside the building | Value based on BCA classification – see Table 13 | 15 |
| Health-care - children's ward & examination room | 6,000 | 10 |
| Health care - patient ward | 6,000 | 7 |
| Health care - all patient care areas including corridors where cyanosis lamps are used | 6,000 | 13 |
| Kitchen and food preparation area | Value based on BCA classification – see Table 13 | 8 |
| Laboratory - artificially lit to an ambient level of 400 lx or more | 3,000 | 12 |
| Library - reading room and general areas | 3,000 | 10 |
| Library - stack and shelving area | 3,000 | 12 |
| Lounge area for communal use in a Class 3 building or Class 9c aged care building | 7,000 | 10 |
| Maintained emergency lighting | 8,500 | 1 |
| Museum and gallery - circulation, cleaning and service lighting | 2,000 | 8 |
| Office - artificially lit to an ambient level of 200 lx or more | 3,000 | 9 |
| Office - artificially lit to an ambient level of less than 200 lx | 3,000 | 7 |
| Plant room | Value based on BCA classification - see Table 13 | 5 |
| Restaurant, café, bar, hotel lounge and a space for the serving and consumption of food or drinks | 5,000 | 18 |
| Retail space including a museum and gallery whose purpose is the sale of objects | 5,000 | 22 |
| School - general purpose learning areas and tutorial rooms | 3,000 | 8 |
| Sole-occupancy unit of a Class 3 building | 3,000 | 5 |
| Sole-occupancy unit of a Class 9c aged care building | 6,000 | 7 |
| Storage with shelving no higher than 75% of the height of the aisle lighting | 5,000 | 8 |
| Storage with shelving higher than 75% of the height of the aisle lighting | 5,000 | 10 |

| Space type | Annual operating hours | IPD (used for J6 only) |
|---|---|---|
| Service area, cleaner's room and the like | Value based on BCA classification – see Table 13 | 5 |
| Toilet, locker room, staff room, rest room and the like | Value based on BCA classification – see Table 13 | 6 |
| Wholesale storage and display area | 5,000 | 10 |
| Unlisted space type (***Non-J6 Projects Only***) | Value based on BCA classification – see Table 13 | N/A |
| Unlisted space type with illuminance of not more than 80 lx (***J6 Projects Only***) | Value based on BCA classification – see Table 13 | 7.5 |
| Unlisted space type with illuminance between 81 lx and 160 lx (***J6 Projects Only***) | Value based on BCA classification – see Table 13 | 9 |
| Unlisted space type with illuminance between 161 lx and 240 lx (***J6 Projects Only***) | Value based on BCA classification – see Table 13 | 10 |
| Unlisted space type with illuminance between 241 lx and 320 lx (***J6 Projects Only***) | Value based on BCA classification – see Table 13 | 11 |
| Unlisted space type with illuminance between 321 lx and 400 lx (***J6 Projects Only***) | Value based on BCA classification – see Table 13 | 12 |
| Unlisted space type with illuminance between 401 lx and 480 lx (***J6 Projects Only***) | Value based on BCA classification – see Table 13 | 13 |
| Unlisted space type with illuminance between 481 lx and 540 lx (***J6 Projects Only***) | Value based on BCA classification – see Table 13 | 14 |
| Unlisted space type with illuminance between 541 lx and 620 lx (***J6 Projects Only***) | Value based on BCA classification – see Table 13 | 15 |

Table 13: Building (BCA) classification and relevant operating hours

| Space type | Annual operating hours |
|---|---|
| Class 2 (common areas) | 7,000 |
| Class 3 (common areas) | 7,000 |
| Class 3 (other than common areas) | 3,000 |
| Class 5 | 3,000 |
| Class 6 | 5,000 |
| Class 7a (carparks other than open air) | 7,000 |
| Class 7b | 5,000 |
| Class 8 (Division C ANZSIC) | 5,000 |
| Class 8 (other than Division C ANZSIC) | 3,000 |
| Class 9a | 6,000 |
| Class 9b | 2,000 |
| Class 9c | 6,000 |
| Class 10b | 1,000 |

### Upgrades occurring in spaces/buildings with different or multiple classifications

When a building or space subject to a lighting upgrade can be classified under different or multiple classifications, the principles as laid out below must be applied.

Each part of the building which is the subject of the upgrade works must be classified separately. For these classifications, the following definitions apply:

- Where parts have different purposes (if not more than 10% of the floor area[23] of a storey[24]) and where the minor use is used for a purpose which is a different classification, the classification applying to the major use may apply to the whole storey.

[23] **Floor Area** means:

1. In relation to a building: the total area of all storeys.
2. In relation to a storey: the area of all floors of that storey measured over the enclosing walls, including
   a) the area of a mezzanine within the storey, measured within the finished surfaces of any external walls
   b) the area occupied by any internal walls or partitions, any cupboard, or other built-in furniture, fixture or fitting
   c) if there is no enclosing wall, an area which has a use that contributes to the fire load; or impacts on the safety, health or amenity of the occupants in relation to the provisions of the BCA.
3. In relation to a room: the area of the room measured within the finished surfaces of the walls, and includes the area occupied by any cupboard or other built-in furniture, fixture or fitting.

- The provisions of (a) (above) do not apply when the minor use is a laboratory of Class 2, 3 or 4.
- BCA classifications classes 1a, 1b, 7a, 7b, 9a, 9b, 9c, 10a, 10b and 10c are each regarded as separate classifications.
- A reference to:
  - Class 1 – refers to Class 1a and/or 1b
  - Class 7 – refers to Class 7a and/or 7b
  - Class 9 – refers to Class 9a, 9b and/or 9c
  - Class 10 – refers to Class 10a, 10b and/or 10c.
- A plant room, machinery room, lift motor room, boiler room or the like must have the same classification as the part of the building in which it is situated.
- If a building or part of a building has more than one classification applying to the whole building or part in accordance with (a) (above), that building or part much comply with all the relevant provisions of the BCA for each classification.

It is recommended that APs read Part A3 of the NCC Building Code of Australia – Volume One (as amended from time to time), and Part A3 of the Guide to the BCA - Volume One. Both documents are available online and their contents should assist in the identification of space types.

### External lighting affixed to eligible buildings or structures

The principles outlined in the above section ('Upgrades occurring in spaces/buildings with different or multiple classifications') do not apply to external lighting affixed to eligible buildings or structures. In this case the major BCA classification of the building or structure applies, and therefore the applicable annual operating hours.

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4. In relation to a fire compartment: the total area of all floors within the fire compartment measured within the finished surfaces of the bounding construction, and if there is no bounding construction, includes an area which has a use which contributes to the fire load.

In relation to an atrium: the total area of all floors within the atrium measured within the finished surfaces of the bounding construction and if no bounding construction, within the external walls.

[24] Storey means a space within a building which is situated between one floor level and the next floor level above, or if there is no floor above, the ceiling or roof above, but not:

1. A space that only contains:
   a) a lift shaft, stairway or meter room
   b) a bathroom, shower room, laundry, water closet, or other sanity compartment
   c) accommodation intended for more than 3 vehicles
   d) a combination of the above.
2. A mezzanine.

### Class 10b structures

The BCA defines a Class 10b structure as “a structure being a fence, mast, antenna, retaining or free-standing wall, swimming pool, or the like”.

Please note that free-standing lights, street lights, traffic lights or similar, **are not** regarded as a light affixed to a Class 10b structure and are instead a form of NBB lighting.

### Upgrades occurring in portable buildings

Portable buildings are classified according to their use and have special compliance requirements due to the portable nature of the structure. Portable buildings must be either permanently situated in their current location or, if not permanently situated, must be subject to a robust compliance regime, approved by the commission prior to the activity being undertaken. APs wishing to undertake activities in these buildings should contact the commission to discuss the specific nature of documentation required.

Further details can be found in the *Explanatory Note – building based lighting upgrade – part 2: compliance requirements*.

### Register of BCA classification determinations

The commission published a Register of BCA classification determinations which is available on the VEET website. This register clarifies which classification is applicable to various space types in response to queries we have received. All accredited persons are required to apply the relevant BCA classification as detailed in the register for the corresponding space type.

If despite your best endeavours you are unable to confidently identify the right classification, please email your query to VEET support (veet@esc.vic.gov.au).

## 1.11. Lamp circuit power if baseline lamp not in Table 1 of Schedule 34

Regulations 6C(2) and 10(3) allow the commission to determine LCP for existing lamps which don’t appear in Table 1 of Schedule 34, following an application from an AP. The commission will accept applications via email for the following two categories of baseline lamp:

1. Lamp technologies included in Table 14. The LCP will be determined based on the evidence provided by the applicant, as noted in Table 14.
2. Lamps which do not appear in Table 14, but have previously been approved by the commission for installation in the VEET scheme. The LCP will be determined from the product approval application laboratory test report, based on the evidence provided by the applicant, as noted in Table 14.

Applications should be made via email to veet@esc.vic.gov.au and include the following information:

1. Product brand
2. Product model
3. Product lamp type (from column 1 of the table below).

You must attach the required evidence (based on the lamp type) listed in the appendix below to your application.

Applications will be assessed by the commission and approval will be forwarded to successful applicants via email. The approval email will detail the process to be used by the AP when uploading the VEEC creation form for affected activities.

For all other lamp technologies, APs should contact us to determine an appropriate application process.

Table 14: List of lamp technologies

| Type of lamp | Required evidence |
|---|---|
| LED lamp with integrated driver with no associated legacy ballast connected | A geotagged photo evidencing brand, model, NLP, and type of lamp |
| Non-integrated LED lamp with remote driver or extra low voltage lighting converter (ELC) | A geotagged photo evidencing brand, model, NLP, lamp type and driver or ELC of lamp |
| 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 | A geotagged photo evidencing brand, model, NLP, lamp type and ballast of lamp |
| 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 | A geotagged photo evidencing brand, model, NLP, lamp type and ballast of lamp |
| LED lamp with integrated driver, connected with a legacy ballast used for a T5 linear or circular fluorescent lamp | A geotagged photo evidencing brand, model, NLP, lamp type and ballast of lamp |
| 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 | A geotagged photo evidencing brand, model, NLP, lamp type and ballast of lamp |
| LED lamp with integrated driver, connected with a legacy ballast used for a CFL, marked with an EEI of >B or a magnetic ballast with no EEI marked. | A geotagged photo evidencing brand, model, NLP, lamp type and ballast of lamp |
| LED integrated luminaire | A geotagged photo evidencing brand, model, NLP and type of lamp |
| Non-integrated LED luminaire with remote driver | A geotagged photo evidencing brand, model, NLP, lamp type and driver of lamp |
| LED lamp with integrated driver, connected with a legacy magnetic ballast used for HID lamps | A geotagged photo evidencing brand, model, NLP, lamp type and ballast of lamp |
| LED lamp with integrated driver, connected with a legacy electronic ballast used for HID lamps | A geotagged photo evidencing brand, model, NLP, lamp type and ballast of lamp |
| Induction lamp with integrated ballast | A geotagged photo evidencing brand, model, NLP and type of lamp |
| Induction lamp with non-integrated ballast | A geotagged photo evidencing brand, model, NLP, lamp type and ballast of lamp |
| Self-ballasted Mercury Vapour lamp | A geotagged photo evidencing brand, model, NLP and type of lamp |

For all other lamp technologies, APs will need to contact the commission in order to determine an appropriate application process.

## 1.12. Technology types – conventional and emerging

Any product installed as part of a lighting upgrade must first be approved by the commission. This is to ensure that the product is awarded the correct wattage factor for the purposes of the VEEC calculation, among other reasons.

One factor in the VEEC calculation is the Lamp Circuit Power (LCP), which refers to the combined power draw of the lamp and control gear for each light fitting. For some well-established types of technology, such as linear fluorescents, the LCP is determined by adding a default factor to the Nominal Lamp Power (NLP) of the lamp. These are referred to as conventional or 'non-emerging technology'.

For less established types of technology, the LCP is determined using laboratory tests conducted on the lamp and the control gear it will be installed with. An example is an MR16 LED downlight and its associated driver – these types of products are referred to as 'emerging technology'. Table 15 lists both types of product.

Table 15: Conventional ('non-emerging') vs emerging technologies

| Conventional ('non-emerging') technologies | Emerging technologies |
|---|---|
| T12, T8 or T5 linear fluorescents | T5 adaptor assemblies (kits) |
| Compact fluorescents (CFLs) | LEDs |
| Tungsten or halogen incandescents | Induction lamps |
| Metal halides | Other lighting not listed under 'conventional' |
| Mercury vapour | |
| High pressure sodium (HPS) | |

There are different documentary requirements depending on which category your product falls into. The product approval Section 2.3 outlines these documentary requirements.

Please note that lighting control devices, including VRUs, are separate to the 'conventional vs emerging technology' distinction. These devices have their own documentary requirements, detailed in Section 2.3.

## 1.13. Compliance with AS/NZS 1680

To be considered a compliant installation, each upgrade must demonstrate compliance with the relevant sections of AS/NZS 1680, which is the standard governing internal lighting. For VEET, the upgrade must meet:

- the minimum illuminance requirements of AS/NZS 1680:0:2009 (safe movement)
- the recommended maintained illuminance of AS/NZS 1680.1:2006 (task based lighting).

Anyone engaged in this activity should keep a copy of these standards. Appropriate methodologies for ensuring compliance are contained within the standards' appendices.

### Maintained illuminance, relamping cycles and lumen depreciation

Table 3.1 of AS/NZS 1680.1 specifies the minimum *maintained* illuminance for the upgrade. This is a separate measure from the amount of illuminance achieved on the day of the upgrade. Maintained illuminance refers to the amount of illuminance the upgrade must achieve during the period of the relamping cycle (sometimes called a maintenance cycle).

The relamping cycle is the period after which the lamps should be replaced in order to remain compliant with the illuminance levels specific by Table 3.1 of AS/NZS 1680.1. You must recommend a relamping cycle to the client, measured in hours. This figure is recorded on the AS/NZS 1680 compliance declaration associated with the upgrade (more information on this declaration below). The relamping cycle is one of the factors you use to determine how much lumen depreciation to expect.

The nominated relamping cycle gives you the period over which you must calculate the anticipated lumen depreciation. Lumen depreciation refers to how much the amount of light emitted by the lamp will reduce over time. Different types of technologies have different typical lumen depreciation curves. Some deplete relatively quickly, some hardly deplete at all. Even different models of the same type of technology can have dramatically different lumen depreciation curves, depending on the quality of the componentry.

Figure 2 provides an example of how the lumen depreciation would be calculated for the installation of a particular LED product.

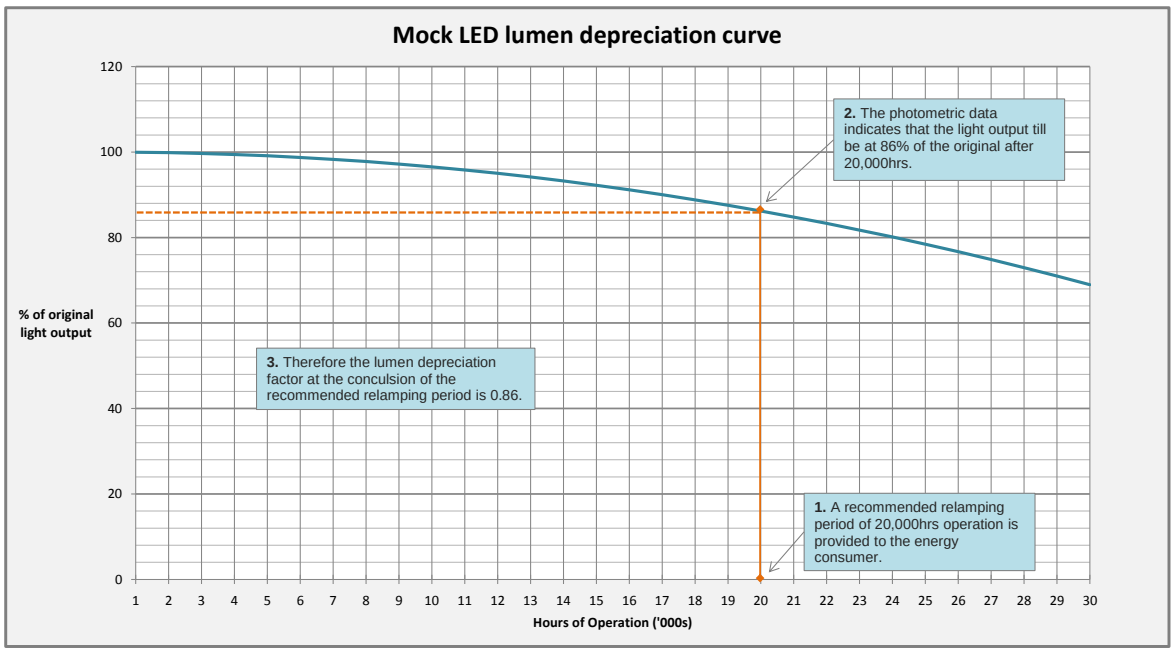



Figure 2: Example workings to establish lumen depreciation

## AS/NZS 1680 compliance declaration

The commission has prepared a template to streamline your compliance with this requirement. This template is called the AS/NZS 1680 compliance declaration. You must complete an AS/NZS 1680 compliance declaration for each upgrade you undertake. The template can be downloaded from the business sector assignment form page of the VEET website.

On the declaration, you are required to provide the following information:

- whether you undertook computer based lighting design
- the qualifications of the lighting designer (if you undertook lighting design)
- further details about the qualifications of the lighting designer, if the lighting designer was not affiliated with the Illuminating Engineering Society of Australia and New Zealand (IESANZ)
- the light level verification method you used
- the qualifications of the person who undertook the light level verification
- further details about the qualifications of the person who undertook the light level verification, if they were not affiliated with the IESANZ
- various supporting evidence.

## Maintained illuminance table

One component of the AS/NZS 1680 compliance declaration is the maintained illuminance table. Explanatory material regarding the maintained illuminance table is contained in the template itself. Before engaging in an upgrade, you should be very familiar with the data requirements of this table, including the need to record a recommended relamping period (in hours). Consult the template for more details.

### AS/NZS 1680 assessor qualifications

The commission does not currently impose any minimum training or qualifications for conducting lighting design or lux reports (except for where an AP has applied for an exemption to AS/NZS 1680.0:2009 and/or AS/NZS 1680.1:2006 (Table 3.1) in place of a more suitable lighting standard). However, in both instances you should satisfy yourself that the personnel you engage are sufficiently skilled and experienced to ensure that your upgrades meet the requirements of AS/NZS 1680 as they apply to VEET. If unsure, you should consult the lighting design peak body, the Illuminating Engineering Society of Australia and New Zealand (IESANZ).

## 1.14. Required training and qualifications

### Occupational health and safety

In 2013, the commission implemented a mandatory safety training (MST) regime for installers operating under the VEET scheme in business and non-residential activities.

This MST regime imposes obligations on installers which operate in addition to the conditions imposed on installers by other occupational health and safety (OH&S) legislation. In particular, the commission requires all lighting upgrades to be undertaken by electricians licensed by Energy Safe Victoria.

## 1.15. Assignment of rights to VEECs

A consumer needs to complete and sign a VEEC assignment form when assigning their right to create VEECs to a third-party AP. A VEEC assignment form needs to collect the information necessary for APs to create certificates and demonstrate compliance with the legislation. VEEC assignment form templates are available on the VEET website.

You may customise your own VEEC assignment form to incorporate additional explanatory text, company logos and other features. When applying for accreditation, you will need to provide a copy of the VEEC assignment form for review by the commission as part of your accreditation application process. The commission requests that changes to VEEC assignment forms also be submitted to the commission for review.

You must give a copy of the VEEC assignment form, or another document containing the same information, to consumers at the time of signing. Additionally, you must ensure that all personal information collected in the VEEC assignment form is held in accordance with the Information Privacy Principles (IPPs) under the *Privacy and Data Protection Act 2014* (Vic). Details of how to comply can be found at www.privacy.vic.gov.au.

# 2. End to end process

This section steps through a notional VEET lighting upgrade processes, in order to place the explanatory material in context. A high level overview of this process is provided by Figure 3. Actual business processes will vary considerably and you may find this notional process bears little resemblance to your own systems. The structure is not prescriptive, but is designed for ease of reference.

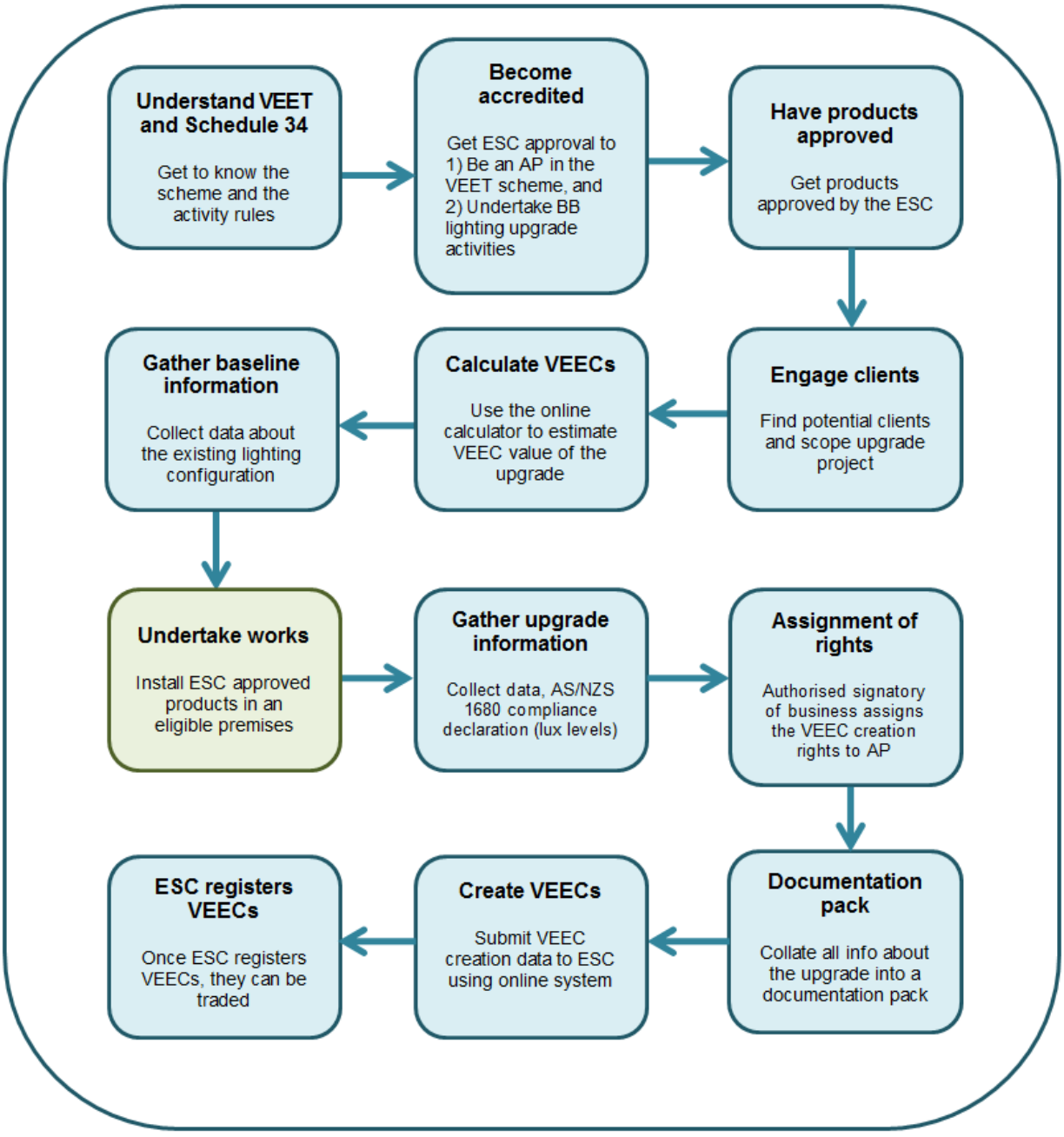



Figure 3: End to end process

## 2.1. Understand VEET and schedule 34

Participating in the VEET scheme can be challenging, especially at the start. Before engaging in any upgrade works, make sure you understand how the scheme works, including all facets of this end-to-end process description.

## 2.2. Become accredited

In order to create Victorian energy efficiency certificates (VEECs) for your BB lighting upgrade activities under VEET, you must be:

1. approved by the commission to become an accredited person (AP) under the VEET scheme
2. approved by the commission to undertake BB lighting upgrade activities under the VEET scheme.

You may apply for both approvals at the same time by completing and submitting an accreditation pack. The commission has prepared an accreditation pack to provide guidance on the accreditation and activity approval process. You can download this document from the VEET website.

For organisations that have already received their approval to become an AP, you must apply for approval to undertake the lighting upgrade activity by completing an application for additional activities form. The commission has prepared an additional activity pack, containing this form, to provide guidance on this process. This document is also available from the VEET website.

As part of applying for approval to undertake this activity, you are required to submit copies of the following documents based on the templates provided on the VEET website:

- VEEC assignment form
- VEET Upgrade data summary
- AS/NZS 1680 compliance declaration (with maintained illuminance table).

More information about these documents and their purpose is included below.

## 2.3. VEET products

To create Victorian energy efficiency certificates (VEECs) from any lighting upgrade, the product installed must be listed on the VEET product register with a status of ‘approved’.

For APs and VEET account holders (including manufacturers) seeking to add a new product to the product register, an application must be submitted to the commission using the online product application tool via your VEET account so that the commission can verify that the product is capable of meeting the minimum criteria required by the Principal Regulations.

For more information about the product application and assessment process, please refer to the *Explanatory note – lodging a product application*, which contains a detailed step-by-step guide to getting a product listed for each prescribed activity category on the VEET register of products.

## 2.4. Engage clients

There are a number of important factors to consider when engaging clients for an upgrade that will be used to create VEECs. In addition to the usual process of developing a business case, you should ensure you consider the following points:

- Is the job eligible? Is the upgrade eligible under the terms laid out in Section 1.2 of this document?
- What will be the AS/NZS 1680 requirements? Does the client understand the requirements of AS/NZS 1680 as they apply to VEET? What are the AS/NZS 1680 requirements going to be for this project? Will the intended lighting design meet the applicable standards? Do you have access to the relevant photometric data?
- What additional products will need to be approved? Will the upgrade require the installation of products for which you are not currently approved? If so, you should collate the necessary documentary evidence and lodge the required product approvals as soon as possible to avoid delays.

## 2.5. Pre-calculate VEECs

In order to quote for a job, develop a business case, or in other scenarios, you may need to do a forward estimate of the number of VEECs an upgrade will generate. The commission provides a VEEC calculator on the VEET website for this purpose.

The calculator is designed to accommodate all possible variations of upgrade permitted under the Principal Regulations and can therefore be quite complex to understand and use. The following section provides a guide on how to determine the types of data required based on the various scenarios you may be calculating VEECs for.

To use the calculator, you need information relating to both the baseline and the upgrade scenarios. This can include the space type in which the upgrade is occurring, the relevant asset lifetime reference and whether you're installing conventional (non-emerging) technology or emerging technology. You may also need the NLP or LCP of both the baseline and upgrade lamps, information about any lightning control devices, and information about the lifetime of the lamps.

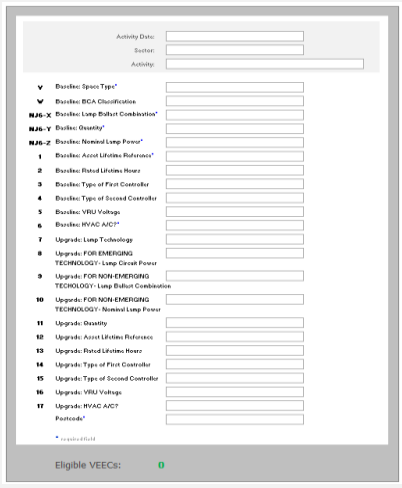
The type of upgrade you're undertaking (based on asset lifetime reference and technology type) will determine the data you will need to enter. In any scenario, there will be some fields you must leave blank.

Figure 4 introduces the basic functionality of the calculator. Figure 5 and Figure 66 use a stylised representation of the calculator to show what data you'll need to enter based on the scenario of the upgrade.

APs are strongly recommended to develop their own calculators and compare their results against the VEEC calculator on the VEET website.

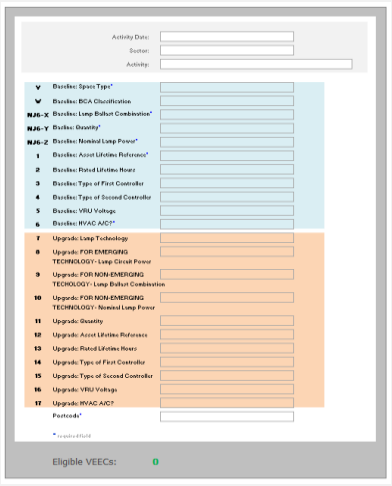
***VEET Website***

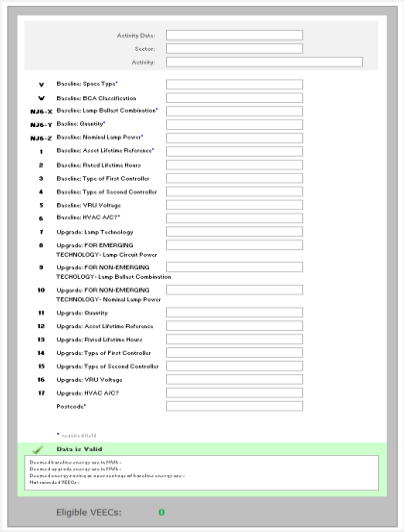
Select the relevant Sch 34 calculator (either J6 or Non-J6) from the VEET website.

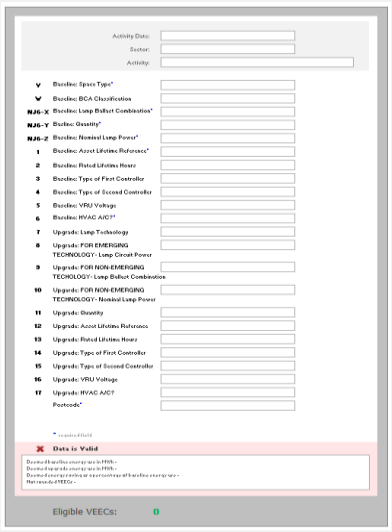


***Baseline and upgrade fields***

The fields shaded blue in this diagram collect information about the baseline, while the orange shaded fields collect info about the upgrade







***Workings***

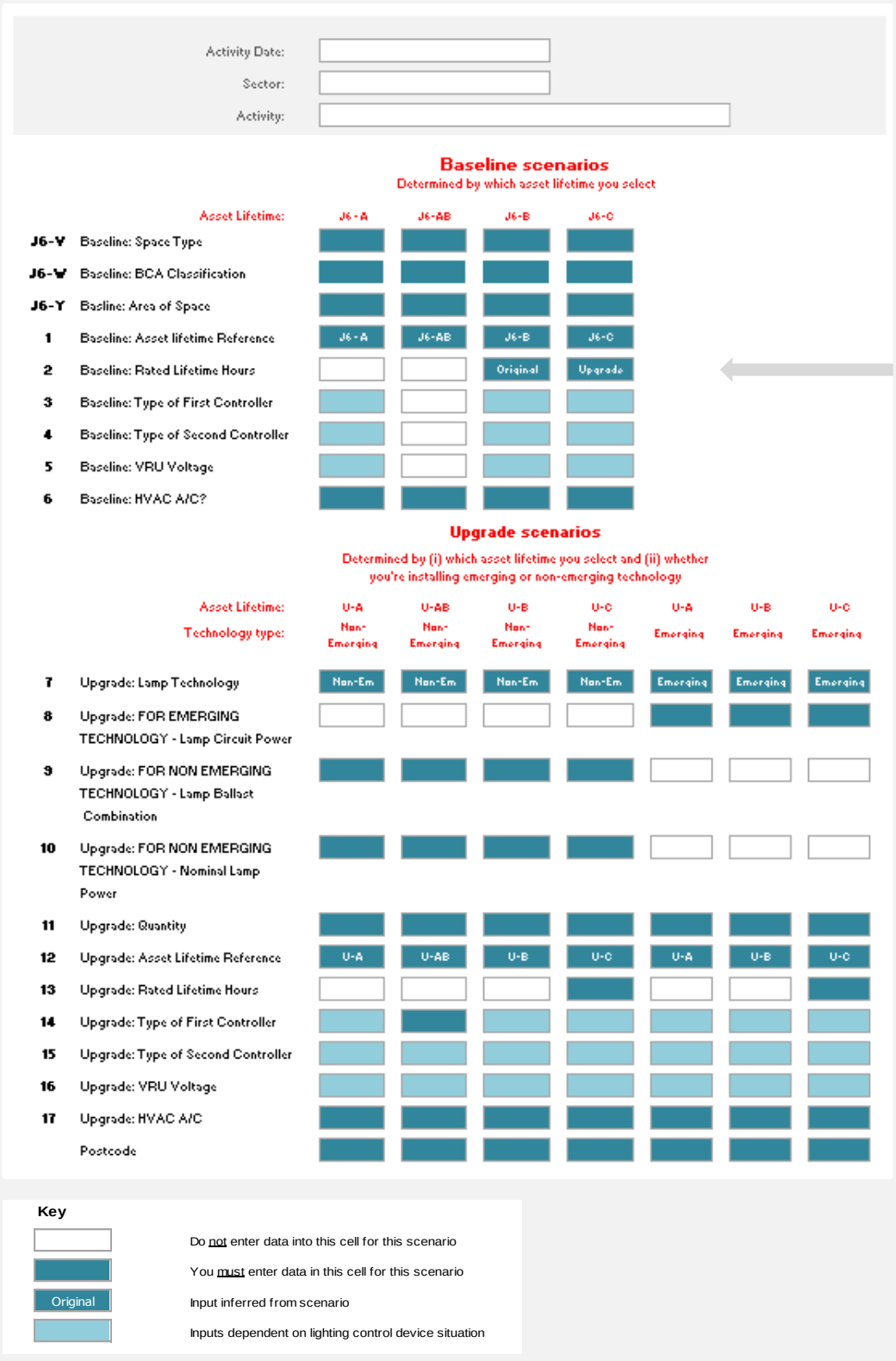
Deemed baseline and upgrade MWh figures, and deemed percentage energy savings, are displayed here to allow you to trouble shoot and sense test your results.

***Basic troubleshooting***

If you get a green tick and green shading after hitting the 'calculate' button, it means the data is 'VALID' and a valid VEEC value is displayed.

If you get a red cross and red shading after hitting the 'calculate' button, it means the data is 'INVALID'. Even if a VEEC value is displayed, this value is not valid. In this instance you must correct the data errors and recalculate until you get a green tick and shading before relying on the VEEC amount provided.

Figure 4: VEEC calculator - basic functionality

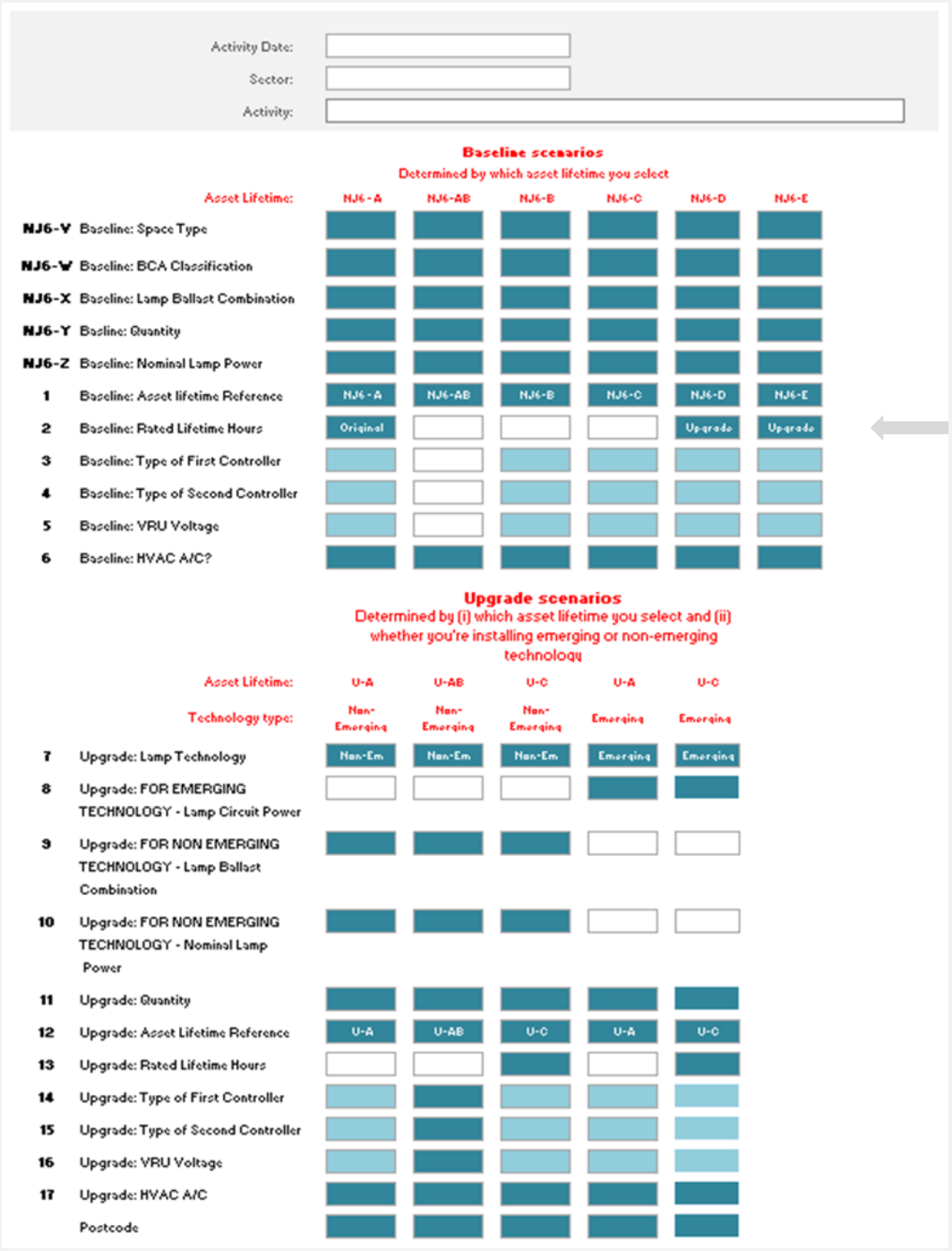



*Where it says 'upgrade' in the baseline scenarios for J6-C, you must enter the rated lifetime hours of the lamps that you install, even though the field is part of the 'baseline' calculation (i.e. if you pick Non-J6-D and you are replacing T8s with a rated lifetime of 5,000hrs with LED tubes with rated lifetime of 20,000hrs, you need to put 20,000 in this field.)*

Please note: the reference # (e.g. J6-W) is intended to assist in identifying and communicating particular scenarios, it does not need to be recorded or included as a data input

(RM C/12/20721)

Figure 5: VEEC calculator - variable data requirements - J6 scenarios




*Where it says 'upgrade' in the baseline scenarios for NJ6-D and NJ6-E, you must enter the rated lifetime hours of the lamps that you install, even though the field is part of the 'baseline' calculation. (ie if you pick Non-J6-D and you are replacing T8s with a rated lifetime of 5,000hrs with LED tubes with rated lifetime of 20,000hrs, you need to put 20,000 in this field.)*

Please note: the reference # (e.g. J6-W) is intended to assist in identifying and communicating particular scenarios, it does not need to be recorded or included as a data input

(RM C/12/20721)

Figure 6: VEEC calculator - variable data requirements - Non-J6 scenarios

## 2.6. Gather baseline information

In order to create VEECs for an upgrade, you must have collected all the relevant baseline information. This includes the space type, number, type and NLP and/or LCP of the pre-existing lamps, and potentially their rated lifetime. Other relevant information includes the number and type of the control gear, and the configuration of any existing lighting control devices.

You must also determine whether the area undergoing a lighting upgrade is air-conditioned or not (air-conditioning, for the purposes of this activity, is a heating, ventilation and air-conditioning, or 'HVAC', system).

In the event you require more specific guidance about the data requirements for a given upgrade, refer to the VEET upgrade data summary template on the VEET website, the upload form, or to the Principal Regulations themselves.

There are a number of other types of information you will need to gather for your records, beyond the data you need to create VEECs using the online system. Ensure you consult the relevant section of *part 2: compliance requirements* of this explanatory note for full details (available from the VEET website). Contact the VEET support team if you are unsure of your obligations.

## 2.7. Undertake works

The highest priority while undertaking the upgrade is that all relevant OH&S laws, standards and precautions are observed.

You will also need to ensure that your staff or subcontractors collect any relevant compliance information about the upgrade progresses, including the EEI markings or types of any ballasts/control gear and sample photos of the decommissioned equipment.

Under the Principal Regulations, the upgrade is deemed to have occurred on the day the installation is completed.

## 2.8. Gather upgrade information

In addition to the baseline information, you must take care to collect all relevant upgrade information. This includes information about AS/NZS 1680 compliance, such as an AS/NZS 1680 compliance declaration signed by your Upgrade Manager and the client, as well as the associated maintained illuminance table and photometric data (if required).

In the case of very large upgrades (in major buildings such as universities or hospitals), there may be some limited scope to 'rationalise' aspects of the data you collect about the upgrade (as opposed to subdividing all data by calculation zone). The commission will consider well thought out proposals in this regard, provided (i) they do not undermine the auditability of the upgrade, (ii) the upgrade is sufficiently large, and (iii) the AP has a good compliance record.

## 2.9. Obtain assignment of rights

Before VEECs can be created, there must be an assignment of rights between the energy consumer and the AP. You must ensure that the person signing on behalf of the client, the 'authorised signatory', does indeed bear legal authority to sign on the behalf of that entity.

## 2.10. Decommission any removed lighting equipment

Any lighting equipment you replace or remove must be decommissioned for the upgrade to be eligible under VEET. This includes control gear such as ballasts or transformers. Details of an AP's decommissioning practices must be supplied to the commission for review before being approved to undertake the lighting upgrade activity.

Evidence of decommissioning must be retained by the AP and supplied to the commission for inspection on request. Please see *part 2: compliance requirements* of this explanatory note for more details on record keeping requirements.

Any existing lighting products that are being decommissioned as part of the lighting upgrade should be disposed of in an environmentally responsible and verifiable manner. The commission expects APs to recycle the components of the decommissioned product wherever possible.

## 2.11. Collate documentation pack

Having collected all the relevant baseline and upgrade information to support your claim for VEECs, you must collate the required data into a 'documentation pack', with a completed 'documentation pack coversheet' for the upgrade. You must use the template provided by the commission for the documentation pack coversheet, available from the VEET website. For reference, Table 16 reproduces the documentation checklist form the documentation pack coversheet. *Part 2: compliance requirements* of this explanatory note provides more details about the commission's expectations of these items of documentation.

Table 16: Documentation list

| Documentation list – Please tick | | | |
|---|---|---|---|
| 1 | Assignment form | | |
| 2 | VEET Upgrade Data Summary | | |
| 3 | AS/NZS 1680 Compliance Declaration | | *Including any associated tables, photometric data and lux reports, if necessary.* |
| 4 | VEET Upgrade Schematic & Legend (Baseline) | | |
| 5 | VEET Upgrade Schematic & Legend (Upgrade) | | |
| 6 | Geocoded photos | | |
| 7 | Invoice for works (copy) | | |
| 8 | Decommissioning evidence (copy) | | |
| 9 | Certificate of electrical safety (COES) *(if required)* | | |
| 10 | Building permit *(if required)* | | |
| 11 | Space type evidence | | |

## 2.12. Create VEECs using VEET online system

To create VEECs, an AP must submit certain information to the commission. VEEC creation requests can be made either through the use of a bulk upload form, or by making a single entry through the online user interface (UI). APs that are approved to undertake the lighting upgrade activity are able to access upload forms via their online account on the VEET website.

The Principal Regulations establishing the lighting upgrade activity contemplate a wide range of scenarios, relative to other VEET activities. By ‘scenarios’ we mean types of upgrade that are distinguished according to the nature of the work undertaken. Delamping, for instance, represents a different scenario to replacing T8s with T5 adapters, even if both occur as part of a Non-J6 upgrade.

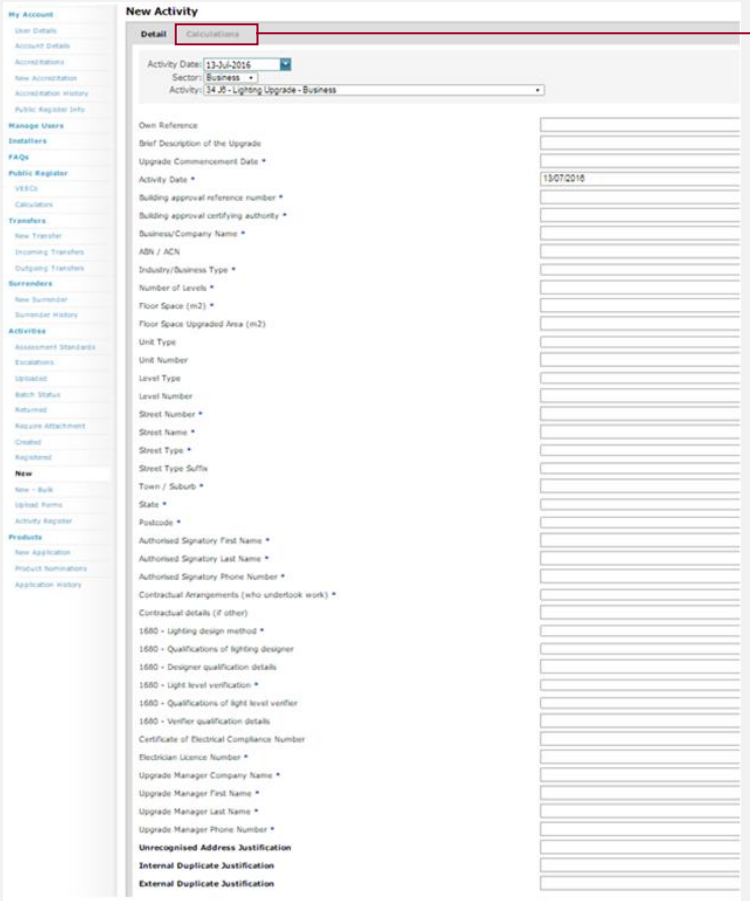
Each scenario has specific data input requirements. Because the user interface has been designed to accommodate multiple scenarios, users must take care to ensure they have collected and input the relevant data in each case (this means you will always need to leave some fields blank.)

Figure 77 introduces the user interface with a series of screenshots, while Figure 8 and Figure 9 outline the data inputs required for the various J6 and Non-J6 scenarios.

***Tabs system***

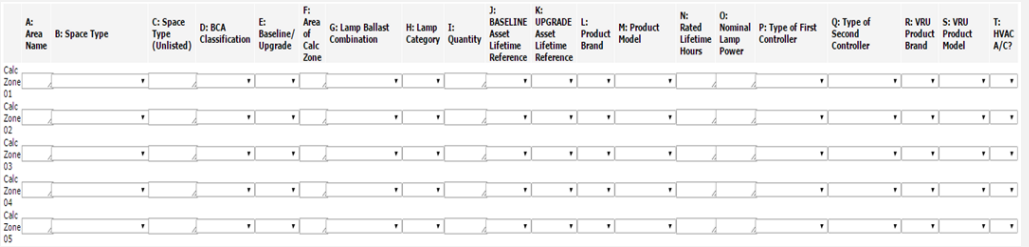
The UI has been divided into two tabs: detail and calculations. The former collects high level information about the upgrade, while the latter collects the data required to perform the abatement calculations.

Navigate between them using the tab names as marked below.



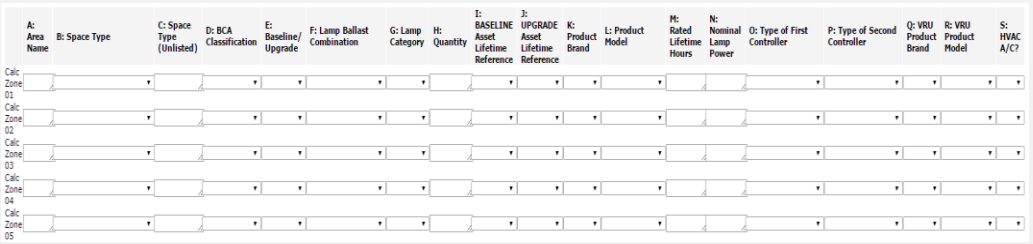

***J6 calculations tab***

The calculations tab contains a grid designed to accommodate the data requirements of range of upgrade scenarios.




***Non-J6 calculations tab***

The calculation tabs for J6 and Non-J6 vary a little due to differences in the data requirements for each variation of the activity.




***Maximum of 50 calculation zones***

The UI and upload form can accommodate up to 50 calculation zones. If a user requires additional calculation zones they should contact the commission.

Figure 7: Schedule 34 user interface

Figure 88 below defines each of the 15 scenarios applying to J6 upgrades, along with the VEEC Creation data requirements for each. Where the data inputs can be inferred from the nature of the scenario, input is shown in white text. Note that the Controller Type fields should only be completed if a lighting control device was present in that scenario, and the VRU Brand and Model fields should only be completed if one of the lighting control devices is a Voltage Reduction Unit (VRU) (all VRUs must be approved by the commission before they can be installed).


Figure 8: VEEC creation - variable data requirements - J6 scenarios

RM ref: C/12/20721

Figure 99 below defines each of the 14 scenarios applying to Non-J6 upgrades, along with the data requirements for each. Information about lighting control devices and VRUs in respect of J6 upgrades applies equally in the below scenarios.


Figure 9: VEEC creation - variable data requirements - Non-J6 scenarios

RM ref: C/12/20721

## 2.13. The commission assesses VEEC creation application

To successfully create VEECs, the data uploaded for a particular activity must pass the website's validation and address verification checks. After you press the 'create' button for validated activities, the VEECs associated with that upgrade are created and are assigned unique ID number. The commission then assesses those certificates and will decide whether to register them.

If you are new to the lighting activity, your VEEC applications will begin in the 'stage 1' stream. In this stage, the commission will request you submit the documentation pack associated with your first few upgrades. Once the commission is satisfied with the quality and reliability of your documentation packs, your applications will move into the 'stage 2' stream and you will no longer have to submit the documentation pack for each upgrade in order to have your certificates registered.

In the stage 2 stream, instead of performing desk audits on every upgrade, the commission utilises a risk analytics tool to monitor and highlight any risk factors in your creation data. The commission constantly updates its risk analytics tool based on trends in the scheme, information about individual APs and installers, data on specific types of product, and other factors. All stage 2 stream VEEC creations are subject to this process, allowing the commission to focus its assessment regime based on the risk profile of a particular upgrade. In this stage, the commission may request you submit the documentation pack associated with 'high risk' upgrades.

You should note that the commission may require you to submit the documentation pack associated with any given upgrade before deciding to register the certificates. You must always possess a complete and accurate documentation pack for each upgrade you have undertaken.

## 2.14. The commission registers VEECS

The commission will raise and forward an invoice in due course for VEECs accepted in order to complete the registration process. Once payment is received, the commission registers the certificates and notifies the AP that the certificates are now valid and therefore available to be traded and/or surrendered to the commission.

# 3. Other matters

## 3.1. Seeking assistance

If you encounter difficulties when participating in this activity, you should in the first instance consult the explanatory material listed in the Introduction of this document. This includes the VEET website FAQ section (see the top right hand corner of the page) which has a special section dedicated to Schedule 34 queries.

If you are unable to resolve your issue using the publicly available material, please contact the VEET support team on (03) 9032 1310 or veet@esc.vic.gov.au.

## 3.2. Legal context for this document

The commission has prepared this explanatory note document as a general summary of relevant parts of the

- *Victorian Energy Efficiency Target Act 2007*
- *Victorian Energy Efficiency Target Regulations 2008*
- *Victorian Energy Efficiency Target Scheme Guidelines*.

This document should not be relied upon as substitute for legal advice and should be read in conjunction with the above source documents. In the event of inconsistency between this explanatory note document and the above source documents, the content in the source documents takes precedence.

## Document version control

The RM reference for this document is: C/12/11919

| Version | Amendments made | Date published |
|---|---|---|
| V 4.14 | Creation of new Building Based Lighting Explanatory Note for Schedule 34, using existing Commercial Lighting EN | 1 August 2016 |
| V 4.15 | Update for consistency between NBB and BB ENs in terms and definitions | 1 September 2016 |
| V 5.0 | Update for introduction of large energy user regulatory amendments. | 1 August 2017 |
| V 6.0 | Update to replace reference to the ERAC Bulletin with reference to AS/NZS 60598.2.1 2014.<br>Update to new Victorian Energy Upgrades template. | 21 December 2017 |
| V 6.1 | Inclusion of discount factor changes which apply from 1 February 2018 and 1 May 2018. | 29 January 2018 |
| V6.2 | Addition of reference to Register of BCA classification determinations and the eligibility/compliance requirements relating to portable buildings (section 1.10) | 26 February 2018 |
| V6.3 | Update to clarify the commission's position on the eligibility of upgrades under the scheme that replace existing inoperable products | 19 April 2018 |
| V6.4 | Update to include process for applying for LCP for emerging products under the scheme (section 1.11) | 28 June 2018 |