IPART
New South Wales

Independent Pricing and Regulatory Tribunal

Evidence Manual Commercial Lighting Energy Savings Formula

Deemed Energy Savings Method

Energy Savings Scheme
April 2016

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V1.1	Change in Chapter 1 and Table 7.4.1 to advise that guidance for roads and public spaces will available soon.	5 August 2014
V2.0	Consultation draft – inclusion of evidence requirements for lighting for roads and public spaces and updates to several requirements such as BCA requirements.	20 August 2015
V2.1	Inclusion of evidence requirements for lighting for roads and public spaces and updates to several requirements such as BCA requirements.	22 December 2015
V2.2	Updated to reflect amendments to the ESS Rule.	April 2016

Contents

1 About this document

The Energy Savings Scheme (**ESS**) reduces electricity consumption in NSW by creating financial incentives for organisations to invest in energy savings projects. Energy savings are achieved by Accredited Certificate Providers (**ACPs**) installing, improving or replacing energy savings equipment. Companies that become ACPs can create energy savings certificates (**ESCs**) by carrying out these activities. They can then sell those ESCs to Scheme Participants, who have an obligation under the ESS to meet energy savings targets (which can be met by purchasing and surrendering ESCs).

This Evidence Manual (the manual) explains the minimum evidence requirements for ACPs seeking to create and register ESCs from upgrades of building lighting and/or lighting for roads and public spaces using the Commercial Lighting Energy Savings Formula method of the ESS.

It should be read in conjunction with the *Evidence and Certificate Registration Pack – Commercial Lighting Energy Savings Formula* (the Evidence Pack),[1] which is a spreadsheet designed to record the required evidence.

The manual does not cover evidence requirements for upgrades of lighting for traffic signals. If you plan to seek accreditation for such upgrades, please contact the Scheme Administrator for guidance.

This guide does not provide information about the Public Lighting Method, which provides an alternative method to calculate energy savings from upgrades of public lighting where:

- the luminaire is owned and/or maintained by a Distributor[2] or Roads and Maritime Services (**RMS**), or
- a Council or RMS that is the customer of a Distributor requests the upgrade from the Distributor that owns the luminaire in writing.

Please refer to the Public Lighting page of the ESS website for further information.

1.1 Who should use the manual

You should use this manual if you are:

1 The Evidence Pack and other relevant documents are available on the ESS website at: http://www.ess.nsw.gov.au/Methods_for_calculating_energy_savings/Commercial_Lighting

2 'Distributor' refers to a person who owns, operates or controls a distribution system. *ESS Rule*, cl 10.

- Accredited to implement a Recognised Energy Saving Activity (RESA) that involves upgrades to building lighting and/or lighting for roads and public spaces. It will help you ensure that all the evidence you need to calculate energy savings and register ESCs from that RESA is properly recorded and stored.
- Seeking accreditation for a RESA that will involve upgrades to building lighting and/or lighting for roads and public spaces. It will help you to understand the evidence requirements you will need to meet to create and register ESCs.

1.2 The manual's purpose

The manual's purpose is to supplement the *Method Guide - Commercial Lighting Energy Savings Formula*[3] (the Method Guide) by providing detailed guidance on the documents and records that you (as an ACP) are required to keep to demonstrate the eligible energy savings from your RESA before creating ESCs. Like the Method Guide, the manual does not replace the provisions of:

- Part 9 of the *Electricity Supply Act 1995* (Act)
- Part 6 of the *Electricity Supply (General) Regulation 2014* (Regulation), and
- the *Energy Savings Scheme Rule of 2009* (ESS Rule).

As an ACP, you are also required to meet any additional requirements specified by the Scheme Administrator in your Accreditation Notice.

If there is any inconsistency between these provisions and the manual, the provisions prevail.

As an ACP, you are responsible for ensuring that all the ESCs you create from a RESA are created in accordance with the provisions of the Act, the Regulation and the ESS Rule.

The ESS Rule was amended on 15 April 2016. The information in this Evidence Manual reflects the requirements of the ESS Rule as amended and should be referred to for all implementations from that date. Where changes have been made to a section of this Evidence Manual as a result of amendments to the ESS Rule, the section will be highlighted and marked with the following symbol:

Note that the previous version of the ESS Rule may still be used to calculate energy savings arising from an implementation with an implementation date before 15 April 2016, provided that:

- no previous applications to register ESCs in respect of that implementation have been made prior to 15 April 2016, and

[3] http://www.ess.nsw.gov.au/Methods_for_calculating_energy_savings/Commercial_Lighting

- the application to register ESCs in respect of those energy savings is made on or before 30 June 2016.

ACPs who intend to calculate energy savings under the previous version of the ESS Rule should refer to version 2.1 of this Evidence Manual.[4]

1.3 The manual's structure

The manual is structured as follows:

- Chapter 2 outlines the process for creating and registering ESCs from energy savings under the Commercial Lighting Energy Savings Formula method (the method)
- Chapter 3 provides an overview of the Evidence Pack and guidance on when you should complete its various sections
- Chapter 4 provides detailed guidance on the evidence you must collect and attach to the Evidence Pack to support claimed energy savings from upgrades of building lighting
- Chapter 5 provides detailed guidance on the evidence you must collect and attach to the Evidence Pack to support claimed energy savings from upgrades of lighting for roads and/or public spaces
- Appendix A and Appendix B summarise all evidence requirements for upgrades of building lighting and roads and public spaces in table form.

2 Calculating and creating ESCs

As the Method Guide explains, an **implementation** is a site-specific commercial lighting upgrade conducted under a RESA. The energy savings resulting from an implementation are calculated using:

- equations 6, 9 and either equation 7 or equation 8 from the ESS Rule, and
- the relevant tables from Schedule A of the ESS Rule (see section 4 of the Method Guide for more detail).

Equation 1 of the ESS Rule is used to calculate the number of ESCs that may be created from the energy savings calculated in relation to an implementation.

4 Available here: http://www.ess.nsw.gov.au/Methods_for_calculating_energy_savings/Document_archive

Equation 1

$$\textit{Number of Certificates} = \Sigma_{\textit{Implementations}}\ \textit{Electricity Savings} \times \textit{Electricity Certificate Conversion Factor} + \textit{Gas Savings} \times \textit{Gas Certificate Conversion Factor}$$

2.1 Applying to register ESCs

Certain information must be submitted to us **before an ACP applies to register** ESCs created from energy savings arising from an implementation or implementations.[5] ACPs are to provide the required information by completing an Implementation Data Sheet[6] and submitting it through the ESS Portal.[7] The Implementation Data Sheet will include a calculation of the number of ESCs to be created in accordance with Equation 1 in the ESS Rule.

This calculation involves multiplying the electricity savings arising from the implementation or implementations by the certificate conversion factor for electricity (1.06).[8]

The result is the total number of ESCs that ACPs can apply to register from the implementation or implementations. If the result is not a whole number, it is rounded down to the nearest whole number.

There are no restrictions on how many implementations can be bundled together in the same Implementation Data Sheet. However:

- ACPs must apply to register all ESCs included in an Implementation Data Sheet in a single application
- ACPs cannot split energy savings calculated from a single implementation across two or more Implementation Data Sheets, and
- each Implementation Data Sheet must only include the calculation of energy savings that are taken to have occurred in the same calendar year (commonly referred to as 'vintage').

When determining how many implementations to bundle in the same Implementation Data Sheet, ACPs should consider:

5 *ESS Rule*, cl 6.8
6 The implementation data sheet is available at: http://www.ess.nsw.gov.au/registry/creating_certificates
7 Information and access to the portal can be found here: www.ess.nsw.gov.au/ESS_Portal
8 *Electricity Supply Act 1995*, section 130(1)

- the ESC creation limit specified in their Accreditation Notice, as they must be able to register all the ESCs in the bundle at the same time, and
- the cost of registering the ESCs.[9]

More information on applying to register the creation of ESCs can be found on our website.

2.2 Acceptance of lighting equipment

Lighting equipment that is listed in Table A9.3 of the ESS Rule must be accepted by the Scheme Administrator as meeting the equipment requirements **before** ESCs can be created. The equipment in that table includes:

- LED based equipment
- induction luminaires, and
- other emerging lighting technologies that do not fall into one of the listed categories.

Once the equipment has been accepted and is on the public list, ACPs wanting to use the equipment must register their intention through the Emerging Lighting Technology (ELT) Portal. The ELT Portal is also used for submission of applications for acceptance of ELTs and tracking application progress.

Information on how to apply to have equipment accepted or to register to use equipment can be found on the website: www.ess.nsw.gov.au/Projects_and_equipment/Lighting_Technologies/Using_Lighting_Technologies_for_Commercial_Lighting.

Evidence of the equipment being accepted should include either:

- an acceptance letter issued by IPART, or
- reference to the public list of ELTs at: http://www.ess.nsw.gov.au/ELT/Product_Search.

Note that from 8 December 2015 IPART no longer issues acceptance letters for ELT products as the details of accepted products are all available on the public list of ELTs.

9 The ESC registration fee must be paid in a single payment for all ESCs registered in a single bundle. Payment for a single bundle cannot be split into two payments. Refer: www.ess.nsw.gov.au/Registry/Registering_certificates

2.2.1 Modified Luminaires – LED Linear Lamps

Under the Commercial Lighting Energy Savings Formula, Modified Luminaire – LED Linear Lamps are included in the ESS Rule Table A9.3 Other Equipment Classes for Lighting Upgrades.

A Modified Luminaire – LED Linear Lamp is defined in the ESS Rule as 'a T5, T8 or T12 luminaire that has been modified for use with an LED linear Lamp. This involves modifying, removing or rendering redundant any wiring or structure of the Luminaire, beyond the replacement of a starter'. As such, the ESS Rule treats the entire Modified Luminaire as a single product, rather than several related items of equipment. This means that Modified Luminaires that use different original luminaires, LED lamps or construction methods are treated as different products under the ESS.

ACPs wishing to register to use a Modified Luminaire – LED Linear Lamp should be aware that acceptance only applies to the modified luminaire specified in the acceptance. ACPs need to ensure that their completed modified luminaire is identical to the accepted luminaire. At a minimum this requires:

- the original luminaire to be the same model as listed in the acceptance
- the LED Linear Lamp or modification kit used to be the same model as listed in the acceptance, and
- the modification (including wiring changes and accessories used) is to be conducted in accordance with the manufacturer's instructions.

In addition, the modification must be carried out by a licensed electrician.

3 Overview of the Evidence Pack

The Evidence Pack consists of six sections:

- Section 1 – Implementation details
- Section 2 – Upgraded areas details (for each area of the implementation)
- Section 3 – Declaration of compliance with AS/NZS 1680 and Building Code of Australia (BCA)[10] – Building lighting
- Section 4 – Evidence of energy savings – Building lighting
- Section 5 – Declaration of compliance with AS/NZS 1158 – Lighting for roads and public spaces
- Section 6 – Evidence of energy savings – Lighting for roads and public spaces

[10] The Building Code of Australia (BCA) is part 1 and part 2 of the National Construction Code (NCC).

Each of these sections has unique requirements and may require sign-off by different people at different stages of the implementation, depending on your business model. Some of the sections specify supporting evidence that you must attach to the Evidence Pack.

You will need to complete different sections depending on the nature of the implementations covered in the Evidence Pack:

- for implementations with only building lighting components, you will need to complete Sections 1, 2, 3 and 4
- for implementations with only lighting for roads and public spaces components, you will need to complete Sections 1, 2, 5 and 6, or
- for implementations with both building lighting and lighting for roads and public spaces components, you will need to complete Sections 1-6the Evidence Pack.

If you are nominated as the energy saver, you will also need to attach a nomination form that was completed and signed by the original energy saver before the implementation date (ie, the date that the lighting upgrade was completed). This nomination form can be created from the nomination form template.[11]

An overview of each section of the Evidence Pack is provided below.

3.1 Section 1 – Implementation details

Section 1 of the Evidence Pack can be used to record information about the implementation and associated energy savings. It comprises four sub-sections, all of which must be completed either during the implementation or after it is completed.

3.1.1 Section 1.1 – Purchaser details

Section 1.1 of the Evidence Pack records information about the purchaser/original energy saver (OES).[12] Table 3.1 describes the information required for each field of this section.

Table 3.1 Information required in Section 1.1

Field name	Description
Name of purchaser (OES)	The name of the purchaser (OES)

[11] The nomination form template for this method can be found on the ESS website at http://www.ess.nsw.gov.au/Methods_for_calculating_energy_savings/Commercial_Lighting

[12] See section 3 of the Method Guide for definitions of the purchaser and OES.

Field name	Description
Business name (OES)	The business name of the purchaser
ABN (if any)	The Australian Business Number
Business classification	The business classification of the entity utilising the end-use services (as per Table A18 of Appendix D of the Method Guide)
End-use services type	The end-use services provided by the lighting equipment (as per Table A17 of Appendix D of the Method Guide)

3.1.2 Section 1.2 – Lighting upgrade summary

Section 1.2 of the Evidence Pack records information about the implementation. Table 3.2 describes the information required for each field.

Table 3.2 Information required in Section 1.2

Field name	Description
Address, suburb & postcode	The address of the site in NSW, at which the implementation has taken place, including the suburb and postcode. If the lighting is of a road or a public space, you must provide the name and location of the road(s) or public space(s) or the geographic location(s) (geographical coordinates in a GIS[13]).
Phone number	The phone number of the purchaser (OES).
Implementation ID	The unique ID that you create and give to each of your implementations. You may use an identifier that best suits your processes.
Implementation date	The implementation date is the date the lighting upgrade was completed
Baseline determination[14]	For building lighting components of the upgrade, please tick the appropriate box next to either Option 1 or Options 1 & 2. If you choose 'Yes' in Option 1 and 'No' in Option 2, your implementation must comply with the requirements of BCA Part J6, and you will need to provide: ▾ the area of the space that is subject to the lighting upgrade, and ▾ the space type (in accordance with BCA Part J6). If the implementation is for roads and public spaces or it has a component of lighting for roads and public spaces, you must tick 'Yes' in Option 3 and complete Sections 5 and 6 of the Evidence Pack.
Activity summary	A brief summary of the main equipment and work involved in the lighting upgrade.

13 Geographical Information System

14 When entering baseline determination information, if your answer is 'Yes' in Option 1 and 'No' to Option 2, you must use equation 8 in your Energy Savings calculations. In this case, please contact the Scheme Administrator for further guidance.

3.1.3 Section 1.3 – Calculated energy savings

In Section 1.3 of the Evidence Pack, you need to provide the sum of the energy savings from each space (as identified in Section 2 of the Evidence Pack) of the implementation, and the resulting number of ESCs that can be created. Table 3.3 describes the information required for each field.

Table 3.3 Information required in Section 1.3

Field name	Description
Energy savings (in megawatt hours, MWh)	This figure is the sum of the energy savings from all the spaces within the implementation – as identified in Section 2 of the Evidence Pack
Indicative Energy Savings Certificates (ESCs)*	The ESCs attributable to the implementation (calculated by multiplying the energy savings by the certificate conversion factor of 1.06)
Minimum purchaser (OES) co-payment (excluding GST)	The minimum amount (in dollars) the purchaser must contribute to the cost of the implementation to satisfy clause 9.4.1(e) of the ESS Rule ($5 per MWh of energy savings)
Actual purchaser (OES) co-payment (excluding GST)	The amount (in dollars) the purchaser paid towards the cost of the implementation

* The 2014 amendment to the ESS Rule changed how energy savings are to be converted to ESCs. It now requires an ACP to add up the energy savings from each implementation for which it seeks to apply to register ESCs. Then, the ACP must apply the certificate conversion factor to the total energy savings to calculate the number of ESCs. This may result in a small increase in the number of ESCs compared to the previous Rule (where the certificate conversion factor was applied to the energy savings from each implementation).

3.1.4 Section 1.4 – Personnel involved

All lighting upgrades must be performed by appropriately trained persons, and undertaken by, or supervised by, a licensed electrician.[15]

Section 1.4 records the details of the installer of the lighting equipment, and the details of the licensed electrician (if not the installer) who supervised the implementation.

3.2 Section 2 – Upgraded areas details

In Section 2 of the Evidence Pack, you need to detail the existing and new lighting equipment, as well as the BCA classification (for building lighting) and space type of all areas of the implementation. Table 3.4 specifies the information required for each field. The Evidence Pack allows you to add as many areas as necessary.

15 www.ess.nsw.gov.au/Methods_for_calculating_energy_savings/Commercial_Lighting

Table 3.4 Information required in Section 2

Field name	Description
Lighting upgrade address	The address of the site (in NSW) at which the implementation has taken place, including the suburb and postcode. If the lighting is of a road or a public space, you must provide the name and location or the geographic location.
Upgrade area description	A description of the area (eg, the administration building, or the marketing floor) that is the subject of the lighting upgrade.
Space type of the upgrade area	The space type as per the BCA and as defined in Table A10.2 of Appendix D of the Method Guide. For lighting for roads and public spaces, please select the 'Other spaces not defined above' option.
Building classification	The building classification under the BCA as specified in Table A10.3 of Appendix D of the Method Guide. For Lighting for Roads and Public Spaces use Roads and Public Spaces.
Annual operating hours	The default annual operating hours as defined in either Table A10.2 or A10.3 of Appendix D of the Method Guide.
Available air conditioning	Indicate if air conditioning is available for the upgraded area. This determines if the Air Conditioning Multiplier is applied in the calculations, as set out in Table A10.5 of Schedule A of the ESS Rule.
Existing End-User Equipment (EUE)	The existing lighting equipment in place before the implementation took place, including: ▾ equipment class (as per Tables A9.1 and A9.3 of Appendix D of the Method Guide) ▾ quantity ▾ control gear (as per Table A9.5 of Appendix D of the Method Guide) ▾ Nominal Lamp Power (NLP) / Lamp Circuit Power (LCP) (as applicable), and ▾ control system(s) (as per Table A10.4 or A10.4A of Appendix D of the Method Guide).
New End-User Equipment* (EUE)	The newly installed lighting equipment comprising the implementation, including: ▾ equipment class (as per Tables A9.1 and A9.3 of Appendix D of the Method Guide) ▾ quantity ▾ control gear (as per Table A9.5 of Appendix D of the Method Guide) ▾ NLP / LCP (as applicable), and ▾ control system(s) (as per Table A10.4 or A10.4 A of Appendix D of the Method Guide).
Project Manager / installer/electrician declaration	Section 2.2 must be signed-off by the person responsible for overseeing/supervising the lighting upgrade. It might be an ACP Project Manager, the installer, or the licensed electrician who supervised the lighting upgrade (if the licensed electrician is not the installer). In all cases, the implementation of the equipment has to be undertaken by a licensed electrician. A signed Certificate of Compliance of Electrical Work (CCEW) will be required.

Note*: The new EUE included in Table A9.4 of Appendix D of the Method Guide must meet the Equipment Requirements, as published by the Scheme Administrator:
www.ess.nsw.gov.au/Projects_and_equipment/Lighting_Technologies

For further information please refer to sections 4.2.2 for building lighting and 5.2.3 for lighting for roads and public spaces.

3.3 Section 3 – Declaration of compliance with AS/NZS 1680 and BCA requirements – Building lighting

Section 3 of the Evidence Pack requires you to declare that the building lighting components of the implementation meet or exceed the relevant performance requirements, as discussed in section 3.7 of the Method Guide and required by clause 9.4.1(c) of the ESS Rule. It must be completed and signed by the person responsible for ensuring compliance with these requirements.

Section 3 also includes four parts (Parts A to D) which require you to indicate whether certain performance requirements were considered, assessed and verified. You need to complete Part A, **either** Part B **or** C, and Part D. Whether you must complete Part B or C depends on whether you used lighting design software to design the upgrade, and thus which method you must use to verify compliance with AS/NZS 1680:

- Method A – the Design and Verification Approach (use Part B of Evidence Pack), or
- Method B – the Illumination Measurements Approach (use Part C of Evidence Pack).

(These methods and the supporting evidence you must collect are discussed in Chapter 4 of this manual.)

Where the building lighting components of the implementation are outside the scope of AS/NZS 1680 you may apply to have another benchmark approved by the IPART.[16] Any other benchmark should be approved by IPART before the lighting upgrade is completed. See section 3.7 of the Method Guide for more information.

3.4 Section 4 – Evidence of energy savings – Building lighting

Section 4 of the Evidence Pack is a checklist to confirm that you have sufficient evidence to support your ESC claim for the building lighting components of the implementation. It asks you to indicate the supporting evidence you have collected to meet:

- general requirements
- calculation parameters evidence requirements, and
- other specific evidence requirements (such as BCA and AS/NZS 1680 compliance requirements).

16 Apply by email to ESS_Compliance@ipart.nsw.gov.au

Each requirement has multiple parameters, and the checklist identifies the evidence required for each parameter. Where you can choose from a range of evidence, the options are provided in a 'drop down' list.

A detailed description of each piece of required evidence is provided in Chapter 4 of this manual. A 'quick reference' table summarising the required evidence is provided in Appendix A of this manual.

Once the checklist has been completed and the required evidence compiled, this evidence must be attached to, or kept with, the Evidence Pack to support ESC creation.

3.5 Section 5 – Declaration of compliance with AS/NZ 1158 – Lighting for roads and public spaces

Section 5 of the Evidence Pack requires you to declare that the lighting for roads and public spaces components of the implementation meet or exceed the relevant performance requirements, as required by clause 9.4.1(b) of the ESS Rule. This section must be completed and signed by the person responsible for ensuring compliance with these requirements, and this person must meet the minimum training requirements for this role, specified in the Method Guide.

You are also required to indicate whether the lighting for roads and public spaces components involve "Vehicular traffic (Category V) lighting" or "Pedestrian area (Category P) lighting", and whether compliance with specific design and installation parameters has been verified.

The supporting evidence you need to collect for this section is discussed in Chapter 5 of this manual.

3.6 Section 6 – Evidence of energy savings – Lighting for roads and public spaces

Section 6 of the Evidence Pack is a checklist confirming you have sufficient evidence to support your ESC claim for the lighting for roads and public spaces components of the implementation. It asks you to indicate the supporting evidence you have collected to meet:

- general requirements
- calculation parameters evidence requirements , and
- other specific evidence requirements (such as AS/NZS 1158 compliance requirements).

Each requirement has multiple parameters, and the checklist identifies the evidence required for each parameter. Where you can choose from a range of evidence, the options are provided in a 'drop down' list.

A detailed description of each piece of required evidence is provided in Chapter 5 of this manual. A 'quick reference' table summarising the required evidence is provided in Appendix B of this manual.

Once you have compiled the checklist and collected all the required evidence, attach this evidence to the Evidence Pack to support ESC creation.

4 Evidence of energy savings – Building lighting

As the previous chapter discussed, Section 4 of the Evidence Pack is a checklist to be used to confirm you have sufficient evidence to support your ESC claim for all building lighting components of the implementation. It asks you to indicate the supporting evidence you have collected to meet:

- general requirements
- calculation parameters evidence requirements, and
- other specific evidence requirements (such as BCA and AS/NZS 1680 compliance requirements).

This chapter provides more detail on document types you must collect and attach to the Evidence Pack to meet each of these requirements. A table summarising these evidence requirements for 'quick reference' is provided in Appendix A.

For information about how to complete Section 4 of the Evidence Pack, see section 3.4 above.

4.1 General requirements

Prior to creating ESCs for an implementation, **you must collect evidence supporting the details of the lighting upgrade as this will be checked at audit.**

4.1.1 Nomination of energy saver

If you are not the purchaser, you must have a completed, signed nomination form from the purchaser nominating you as the energy saver. You can create a nomination form using the nomination form template[17] for the Commercial Lighting Energy Savings Formula method on the ESS website.

[17] The nomination form template for this method can be found on the ESS website at http://www.ess.nsw.gov.au/Methods_for_calculating_energy_savings/Commercial_Lighting

4.1.2 Implementation date

The implementation date is the date the lighting upgrade is completed. Table 4.1 lists the documents you need as evidence of the implementation date. You only need one of these documents.

Table 4.1 Implementation date – evidence requirements

Provide one of the following	
Document type	**Requirements**
Certificate of Compliance – Electrical Work (CCEW)	The CCEW signed and dated by the licensed electrician who undertook the work, clearly showing the date on which the work was completed and the address of the lighting upgrade.
Tax invoice	A valid tax invoice for the work carried out. The invoice must: ▾ show the completion date and address ▾ identify the recipient ▾ identify the supplier (including their ABN), and ▾ provide a brief description of the equipment or service provided (itemised if possible).
Completion / Commissioning report	The report must: ▾ be produced by the party responsible for the commissioning of the upgraded lighting system ▾ clearly identify the location where the lighting upgrade occurred, and ▾ show the implementation date and be signed by the person responsible for the commissioning of the upgraded lighting system.

4.1.3 Original energy saver

As stated in the Method Guide, the original energy saver (**OES**) is the person who purchases or leases the lighting equipment or service that enables the energy savings to be made. Table 4.2 lists the documents you can use as evidence of the OES.

Table 4.2 Original energy saver – evidence requirements

Document type	**Requirement**
1. Nomination as energy saver	
Nomination form	The signed nomination form (as explained in section 4.1.1 above).
2. Co-payment requirement – provide one of the following	
Tax invoice	A tax invoice for the sale or lease clearly showing the original energy saver paid for the lighting upgrade. This will be used by the auditor to verify that the purchaser paid a minimum of $5 per MWh saved as a result of the lighting upgrade.

Document type	Requirement
Sales ledger	A copy of, or extract from, a sales ledger clearly showing that the original energy saver paid for the lighting upgrade. This will be used by the auditor to verify that the purchaser paid a minimum of $5 per MWh saved as a result of the lighting upgrade. The sales ledger, or extract, must be certified as true and correct by the Original Energy Saver and the ACP.

4.1.4 Energy savings calculations

You can calculate energy savings using our *Commercial Lighting Calculation Tool*[18] (CLCT), or with your own calculation tool. If you use your own tool, you should compare its outputs against those from the CLCT to check its accuracy. In either case, you must keep a copy of the calculations and have them available for audit purposes.

You can only use our CLCT if you are determining the baseline using equation 7 of the ESS Rule. If you are determining the baseline using equation 8 of the ESS Rule, you must contact IPART for further guidance.

Table 4.3 shows the documents you must keep as evidence supporting your calculations. Further detail on the baseline determination is provided in section 4.2 below.

Table 4.3 Energy savings calculation – evidence requirements

Provide one of the following	
Document type	**Requirement**
IPART issued CLCT	You must keep a copy of the report showing the inputs and outputs with each Evidence Pack. The electronic copy must be available at audit.
Your own calculation tool (if applicable)	You must keep a copy of the tool/report showing the inputs and outputs of the calculation tool with each Evidence Pack. The electronic copy must be available at audit.

4.1.5 Recycling requirements

Accredited Certificate Providers are responsible for ensuring that lighting equipment removed or replaced during the lighting upgrade is disposed of appropriately. Furthermore, if the implementation:

- is in a Metropolitan Levy Area (ie, an area with a postcode listed in Table A25 of the ESS Rule), and

[18] The Commercial Lighting Calculation Tool is available on the ESS website at http://www.ess.nsw.gov.au/Methods_for_calculating_energy_savings/Commercial_Lighting

- has an implementation date on or after 15 May 2016,

any lighting equipment containing mercury must be recycled in accordance with the recycling requirements of a recycling program such as 'Fluorocycle' or equivalent.[19]

You must collect evidence, such as a recycling receipt or certificate, to demonstrate that you have complied with this requirement.

4.2 Calculation parameter evidence requirements

The energy savings from an implementation are calculated using the details of the pre-implementation and post-implementation lighting systems. You must keep evidence supporting each of the calculation parameters, as discussed below.

We consider proposals to collect evidence not currently included in this Manual on a quarterly basis. If you wish to propose alternative evidence, please email ESS_Compliance@ipart.nsw.gov.au. If we accept your proposal, it will be included in the next regular update of this manual, at which point you can use that evidence.

4.2.1 Baseline determination

To determine your baseline energy consumption, you must use either equation 7 or equation 8 of the ESS Rule, depending on which of the following scenarios apply.

Scenario 1

If your lighting upgrade is part of a refurbishment that would not otherwise need to comply with Part J6 of the BCA, you must use equation 7 of the ESS Rule.

Scenarios 2 and 3

If your lighting upgrade is part of a refurbishment that would otherwise need to comply with Part J6 of the BCA, there are two possible scenarios:

- **Scenario 2** – if the IPD of the existing lighting is less than or equal to the maximum IPD allowed under Part J6 of the BCA, you must use equation 7 of the ESS Rule.
- **Scenario 3** – if the IPD of the existing lighting is greater than the maximum IPD allowed under Part J6 of the BCA, you must use equation 8 of the ESS Rule.

[19] Further information about Fluorocycle can be found here: http://www.fluorocycle.org.au/

The BCA provides a tool[20] you can use to check whether the existing lighting system is compliant with Part J6 of the BCA.

You are also required to collect the evidence outlined in Table 4.4 below to support your baseline determination.

Table 4.4 Baseline determination – evidence requirements

Provide each of the following that is relevant to your scenario	
Document type	**Requirement**
BCA declaration (scenarios 1, 2 and 3)	The BCA declaration included in *Section 3 – Evidence of energy savings – Building lighting* of the Evidence Pack.
Lighting diagram or floor plan (scenarios 1, 2 and 3)	A **professionally drawn lighting diagram**[21] or floor plan of the area. The diagram must be accurately dimensioned to allow for calculation of the room area.
Copy of the development consent/certificate (for scenarios 2 and 3)	The development consent/certificate showing the date it was issued.
IPD calculations (for scenarios 2 and 3)	IPD calculations as part J6 of the BCA performed by the lighting upgrades solution provider, showing whether the existing lighting meets the maximum IPD requirements of the BCA Part J6 or not.

4.2.2 Lamp type and Nominal Lamp Power (NLP)

You need to provide evidence of the lamp type(s) and NLP of both the pre-existing lighting system (ie, **pre-implementation**) and the upgraded lighting system (ie, **post-implementation**). You need to provide additional evidence if the upgrade involves modifying fluorescent luminaires to accommodate LED tubes.

Pre-implementation lamp type and NLP

You need to provide one or more document types listed in Table 4.5 that clearly identify the pre-implementation lamp type and NLP.

20 www.abcb.gov.au/major-initiatives/energy-efficiency/lighting-calculator

21 **Professionally drawn or drafted diagram –** diagrams or plans drafted using accepted industry conventions, symbols, perspectives, units of measurements and notations systems which are usually generated by a professional draftsperson or with the aid of a Computer Aided Design (CAD) system.

Table 4.5 Pre-implementation lamp type and NLP – evidence requirements

Provide one or a combination of the of the document types below	
Document type	**Requirement**
Geo-tagged[22] photos	Photographs of the existing lamps. The photos must: ▾ be clear and in focus ▾ include any relevant markings ▾ include a date stamp showing the date they were taken, and ▾ include the GPS derived latitude and longitude coordinates. This should be stored in the metadata and generated automatically by the device used to take the photos. *If the photograph is to be used as evidence of NLP, the photograph must show the removed lamps with any markings showing the NLP.*
Asset register	Extracts from an asset register showing the existing lighting at the site and signed by the original energy saver. The extract(s) must be certified as true and correct by the purchaser.
Lighting diagram	A professionally drawn lighting diagram showing the location and type of each luminaire or lamp. The type of lamp can be shown on the diagram or through the use of a legend. *If the lighting diagram is to be used as evidence of the NLP, it must clearly show the NLP of each lamp type.*
Disposal receipt	A receipt issued by a recycler or collector responsible for the disposal of the original lamps. The receipt must show: ▾ an itemised breakdown of the disposed equipment (showing the lamp type), and ▾ the date they were received.
Certificate of Compliance – Electrical Work (CCEW)	The CCEW must be signed and dated by a licensed electrician. It must clearly show the type of lamp that was removed and its NLP.

If the pre-implementation lighting equipment is an Emerging Lighting Technology (ELT),[23] you must use an LCP value accepted by the Scheme Administrator in calculating the energy savings. In this situation there are two possible scenarios:

- the pre-implementation lighting equipment is on our public list of accepted ELTs. In this case, you must register to use the LCP value through the ELT Portal before creating ESCs,[24] or

22 Geo-tagging is the process of adding geographical identification metadata to a photograph. This is done by assigning at least latitude and longitude to the image.

23 As listed in Table A9.3 of Appendix D of the Method Guide.

24 You can access this list and register to use a product and on that list and its associated LCP through the ELT Portal: www.ess.nsw.gov.au/Projects_and_equipment/Lighting_Technologies/Using_Lighting_Technologies_for_Commercial_Lighting.

- the pre-implementation lighting equipment is **not** on our public list of accepted ELTs. In this case, you need to apply for acceptance of the ELT but do not need to follow the complete ELT approval process.[25]

Post-implementation lamp type and NLP

You need to provide one or more of the document types listed in Table 4.6 that clearly identify the post-implementation lamp type and NLP. If the post-implementation lighting equipment is an ELT,[26] you can only use products that have been accepted by us (as outlined above).

Table 4.6 Post-implementation lamp type and NLP – evidence requirements

Provide one or a combination of the document types below

Document type	Requirement
Geo-tagged photos	Photographs of the existing lamps. Photos must: ▼ be clear and in focus ▼ include any relevant markings ▼ include a date stamp showing the date they were taken, and ▼ include the GPS derived latitude and longitude coordinates (which should be stored in the metadata and generated automatically by the device used to take the photos). *If the photograph is to be used as evidence of the NLP, it must clearly show the NLP marked on the lamp.*
Manufacturer's datasheet	An official specification or data sheet from the manufacturer showing the lamp type. *If the Datasheet is to be used as evidence of the NLP, it must clearly show the specific NLP for each lamp type.*
Lighting diagram	A professionally drawn lighting diagram showing the location and the type of each luminaire or lamp. Note: The type of lamp can be shown on the diagram or through the use of a legend. *If the lighting diagram is to be used as evidence of the NLP, it must clearly show the NLP for each lamp type.*
Tax invoice	A valid tax invoice for the work carried out. It must: ▼ contain an itemised list of the lamps provided and/or installed ▼ identify the recipient, and ▼ identify the supplier (including their ABN).
'As Built' lighting model / drawing	The 'As Built' Lighting Model/Drawing must: ▼ be provided by the party completing the lighting upgrade, and ▼ clearly show the type of lamp. *If the As Built Lighting Model/Drawing is to be used as evidence of the NLP, it must clearly show the NLP for each lamp type.*

25 For more information email ESS_lighting@ipart.nsw.gov.au

26 As listed in Table A9.3 of Appendix D of the Method Guide.

Provide one or a combination of the document types below	
Document type	**Requirement**
Laboratory test report	A test report issued by a NATA[27] (or equivalent) laboratory clearly showing the NLP.
Registered information	Data from an independent organisation such as MEPS[28] or Lighting Council of Australia showing the NLP.
Certificate of Compliance – Electrical Work (CCEW)	The CCEW must be signed and dated by the licensed electrician who undertook the work. It must clearly show the type of lamp that was installed.

Implementation involves modification to fluorescent luminaires to accommodate LED linear lamps

To create ESCs from implementations that involve newly modified luminaires with LED linear lamps (LED tubes), you must have the modified luminaire including the LED linear lamp accepted as meeting the equipment requirements for 'Modified Luminaire – LED Linear Lamp'. Effectively, we treat your modified luminaire as if it is a new product. You need to provide testing, certification, compliance and supporting documentation for this luminaire to us for assessment.

Please refer to our website for additional information related to the use and acceptance of Modified Luminaires.

LED linear lamps submitted to IPART for acceptance before 1 July 2014

An alternative process is available for modified luminaires used in implementations where:

- the implementation occurred before 1 July 2015, and
- the modification of the linear fluorescent luminaire included an LED tube that was submitted to IPART for acceptance before 1 July 2014.[29]

Where these requirements are met, as an alternative to having the luminaire accepted as meeting the equipment requirements, you can collect the following:

- the IPART acceptance letter for the LED tube used in the modification
- a Certificate of Compliance for Electrical Work (CCEW) covering the modifications performed to the luminaire, signed and dated by the licensed electrician installing or supervising the implementation of the lighting upgrade, and

27 National Association of Testing Authorities.
28 Minimum Energy Performance Standards.
29 The product must have been subsequently accepted by IPART.

- either:
  - a declaration from the electrician who performed the modification stating that it was performed in accordance with the recommendations provided on Modified Luminaires by the Electrical Regulatory Authorities Council, in particular the section, "Requirements for new luminaires (including modified luminaires)",[30] or
  - a Certificate of Suitability for the Modified Luminaire to AS/NZS 60598.2.1.

4.2.3 Control gear (ballasts/transformers)

If the lighting upgrade involves independent control gear, you must collect evidence of the pre-implementation and post-implementation control gear. This evidence must clearly identify:

- the type of driver, transformer or ballast used (eg, electronic/ magnetic), and
- the Energy Efficiency Index (EEI) classification for fluorescent ballasts, where available.

For the pre-implementation gear, you need to provide two of the document types shown on Table 4.7. For the post-implementation gear, you need to provide two of the document types shown on Table 4.8. If you are unable to provide two documents as required, you may be able to provide one document and use the default ballast type identified in the notes to Table A9.2 of Appendix D of the Method Guide. However, you can only use this option if your supporting evidence clearly shows whether the ballast is electronic or magnetic.

Table 4.7 Pre-implementation control gear – evidence requirements

Provide two of the following	
Document type	**Requirement**
Geo-tagged photos	Photographs of the control gear. The photos must: ▾ be clear and in focus ▾ include any relevant markings such as the EEI ▾ include a date stamp showing the date they were taken, and ▾ include the GPS derived latitude and longitude coordinates (which should be stored in the metadata and generated automatically by the device used to take the photos).
Asset register	Extracts from an asset register showing the pre-upgrade control gear at the site and signed by the original energy saver. The extract(s) must be certified as true and correct by the original energy saver.
Lighting diagram	A professionally drawn lighting diagram showing the location and type of the control gear. Note: The type of control gear can be shown on the diagram or through the use of a legend.

[30] Safety of T8 Lamp Replacement Tubes and Modified Luminaires – ERAC Information Bulletin November 2011 #0001

Provide two of the following	
Document type	**Requirement**
Disposal receipt	A receipt issued by a recycler or collector responsible for the disposal of the original control gear. The receipt must show: ▾ an itemised breakdown of the disposed equipment (showing the control gear type), and ▾ the date it was received.
Certificate of Compliance – Electrical Work (CCEW)	The CCEW must be signed and dated by the licensed electrician who undertook the work. It must clearly show the type of control gear that was removed.

Table 4.8 Post-implementation control gear – evidence requirements

Provide two of the following	
Document type	**Requirement**
Geo-tagged photos	Photographs of the control gear. The photos must: ▾ be clear and in focus ▾ include any relevant markings such as the EEI ▾ include a date stamp showing the date they were taken, and ▾ include the GPS derived latitude and longitude coordinates (which should be stored in the metadata and generated automatically by the device used to take the photos).
Manufacturer's datasheet	A specification or data sheet from the manufacturer identifying the type of control gear.
Lighting diagram	A professionally drawn lighting diagram showing the location and type of the control gear. Note: The type of control gear can be shown on the diagram or through the use of a legend.
Tax invoice	A valid tax invoice for the work carried out. It must: ▾ contain an itemised list of the control gear provided or installed ▾ identify the recipient, and ▾ identify the supplier (including their ABN).
Certificate of Compliance – Electrical Work (CCEW)	The CCEW must be signed and dated by a licensed electrician. It must clearly show the type of control gear that was installed.

4.2.4 Lamp quantities

You must collect evidence of the number of lamps installed **in each Space** of the pre-implementation lighting system and the post-implementation lighting system.

Pre-implementation lighting quantities

You must provide a lighting diagram, and at least one of the supporting documents shown in Table 4.9 that clearly identifies the pre-implementation lamp quantities.

Table 4.9 Pre-implementation lamp quantities – evidence requirements

Provide one mandatory document, and at least one of the supporting documents	
Document type	**Requirement**
Mandatory document	
Lighting diagram	A professionally drawn lighting diagram showing the location and type of each luminaire or lamp that is being replaced. Note: The type of lamp can be shown on the diagram or through the use of a legend.
Supporting documents	
Asset register	Extracts from an asset register or schedule showing the number of pre-upgrade lamps installed at the site and signed by the purchaser (OES).
Geo-tagged photos	These are only to be used as evidence in lighting upgrades where fewer than 50 ESCs will be created for that lighting upgrade. The photos must be the original (pre-upgrade) lamps lined up to allow for counting. The photos must: ▾ be clear and in focus ▾ include a date stamp showing the date they were taken, and ▾ include the GPS derived latitude and longitude coordinates (which should be stored in the metadata and generated automatically by the device used to take the photos).
Disposal receipt	A dated disposal receipt listing the number of lamps disposed of. This receipt must be signed by the equipment removing contractor.
Certificate of Compliance – Electrical Work (CCEW)	The CCEW must be signed and dated by a licensed electrician. It must clearly show the type and number of lamps that were removed.

Post-implementation lighting quantities

You must provide a lighting diagram, and at least one of the supporting documents shown in Table 4.10 that clearly identifies the post-implementation lamp quantities.

Table 4.10 Post-implementation lamp quantities – evidence requirements

Provide the one mandatory document, and at least one of the supporting documents	
Document type	**Requirement**
Mandatory document	
Lighting diagram	A professionally drawn lighting diagram showing the location and the type of each luminaire or lamp. Note: The type of lamp can be shown on the diagram or through the use of a legend.
Supporting documents	
Geo-tagged photos	These are only to be used as evidence in lighting upgrades where fewer than 50 ESCs will be created for that lighting upgrade. The photos of the lamps must: ▼ be clear and in focus ▼ show the upgraded lamps in the space ▼ show the number of lamps that have been installed ▼ include a date stamp showing the date they were taken, and ▼ include the GPS derived latitude and longitude coordinates (which should be stored in the metadata and generated automatically by the device used to take the photos).
Certificate of Compliance – Electrical Work (CCEW)	The CCEW must be signed and dated by a licensed electrician. It must clearly show the type and number of lamps that were installed.
Tax invoice	A signed and dated tax invoice showing the type and number of lamps purchased.

4.2.5 Lighting control systems

If your lighting upgrade involves the a lighting control system for which there is a control multiplier in Table A10.4 or A10.4A of Appendix D of the Method Guide, you must collect evidence showing:

- all lighting control devices that are part of the lighting control system
- the type of lighting control system, and
- the lamps/luminaires controlled by the lighting control system.

If the lighting control system is changed as part of the lighting upgrade, then you must collect evidence of the control system both pre-implementation and post-implementation.

You must provide a lighting diagram, and at least one of the supporting documents shown in Table 4.11 for the pre-implementation lighting control systems and for the post-implementation lighting control system if it is changed.

Table 4.11 Lighting control systems – evidence requirements

Provide the one mandatory document, and at least one of the supporting documents	
Document type	**Requirement**
Mandatory document	
Lighting diagram	A professionally drawn lighting diagram showing the location and type of the control system. Note: The type of control system can be shown on the diagram or through the use of a legend. The diagram must clearly show the lighting switch groups controlled by the control system.
Supporting documents	
Geo-tagged photos	The photographs must show the type of lighting control system installed. The photos must: ▾ be clear and in focus ▾ include a date stamp showing the date they were taken, and ▾ include the GPS derived latitude and longitude coordinates (which should be stored in the metadata and generated automatically by the device used to take the photos).
Certificate of Compliance – Electrical Work	A CCEW signed and dated by the licensed electrician who undertook the work, listing the type of control system installed or removed.
Manufacturer datasheet	A datasheet or specification from the manufacturer identifying the type of control system.

Low power mode LCP (multi-mode lighting)

Control Multiplier B in Table A10.4A of the ESS Rule may be used to calculate energy savings from lighting systems that operate in a low power mode when the space is unoccupied.

$LCP_{low\ power}$ is the low power mode LCP which occurs when the space is unoccupied. This is determined at the time of the implementation and must not be adjusted after implementation. $LCP_{low\ power}$ does not need to be approved by the Scheme Administrator, but it must be supported by evidence and verified during audit.

4.2.6 Air conditioning

If the upgraded lighting space has air conditioning available, you must collect evidence showing the air conditioning arrangements for that space where the lighting upgrade has taken place, including vents or outlet locations (see Table 4.12 below). This will support your use of the air conditioning multiplier in the energy savings calculations.

Table 4.12 Air conditioning – evidence requirements

Provide one of the following	
Document type	**Requirement**

Provide one of the following	
Document type	**Requirement**
Geo-tagged photos	The photos must clearly show the air conditioner (including vents and outlets) in the space where the lighting upgrade occurred. The photos must: ▾ be clear and in focus ▾ include date stamp showing the date they were taken, and ▾ include the GPS derived latitude and longitude coordinates. This should be stored in the metadata and generated automatically by the device used to take the photos.
Lighting diagram	The lighting diagram must: ▾ clearly show the location of each air conditioning unit/outlet, and ▾ be signed by the ACP and the original energy saver.
HVAC plan	The HVAC plan must: ▾ clearly show the area where the lighting upgrade occurred and the location of each air conditioning unit/outlet, and ▾ be signed by the ACP and the original energy saver.

4.2.7 Lifetime of upgraded lamps (lamp-only replacements)

If your lighting upgrade involves the replacement of the luminaire or control gear (not integrated into the lamp) the default asset lifetime is 10 years. However, if your lighting upgrade involves lamps that can be easily replaced with the original lamp (ie, only the lamp has been replaced) the asset lifetime is determined as per Table A10.1 of Appendix D of the Method Guide. In this situation, you must provide evidence of the lifetime of the lamp (refer Table 4.13 below).

Table 4.13 Lifetime of upgraded lamps – evidence requirements*

Provide one of the following	
Document type	**Requirement**
Manufacturer datasheet	An official specification or data sheet from the manufacturer showing the nominal lamp lifetime in hours.
Laboratory test report	A test report issued by a NATA (or equivalent) laboratory clearly showing the nominal lamp lifetime in hours.
Registered information	Data from an independent organisation such as MEPS or Lighting Council of Australia showing the nominal lamp lifetime.

Note*: For lamp only replacements under the rule, 30,000 hours is the maximum lamp lifetime and 10 years the maximum asset lifetime for building lighting upgrades.

4.3 Other specific evidence requirements

Building lighting upgrades must meet performance and other specific requirements. You must collect evidence to verify your building lighting upgrade complies with these requirements.

4.3.1 AS/NZS 1680 compliance

Building lighting upgrades must meet or exceed the relevant requirements of AS/NZS 1680.

Lighting Solution compliance

To verify your lighting upgrade complies with the standard, you must use one of the following methods:

- **Method A – Design and verification approach.** This involves developing an AS/NZS 1680 compliant upgrade model using lighting design software, and then showing that the lighting upgrade was installed as designed, or
- **Method B – Illumination measurements approach.** This involves taking measurements showing that the lighting upgrade complies with AS/NZS 1680 and confirming that glare control and illumination uniformity has been assessed.

As evidence of your compliance, you must provide a signed Declaration of compliance with AS/NZS and BCA requirements (ie, Section 3 of the Evidence Pack) and the two supporting documents for the method you used, as detailed in Table 4.14 below.

You also need to attach evidence of the relevant qualifications for the person verifying compliance of the lighting upgrade, depending upon the method used.

Table 4.14 AS/NZS 1680 compliance – evidence requirements

Provide one mandatory document and both the supporting documents relevant to the method you used	
Document type	**Requirement**
Mandatory document	
Declaration of compliance with AS/NZS 1680 and BCA requirements	A signed declaration from the lighting upgrade solution provider stating that AS/NZS 1680, glare and illuminance uniformity requirements were satisfied in the delivery of the lighting upgrade. This declaration template is provided at Section 3 of the Evidence Pack. The person verifying and approving the lighting upgrade must have the relevant qualifications as specified in the Method Guide. This will be checked at audit.
Supporting documents for Method A	
AS/NZS 1680 compliant design (Design approach)	A model generated by the lighting upgrade solution provider (using a specialised computer lighting design software) showing that the lighting upgrade complies with the relevant AS/NZS 1680 requirements. The model must be accurate in accounting for lumen depreciation, control of glare and illuminance uniformity.

Provide one mandatory document and both the supporting documents relevant to the method you used	
Document type	**Requirement**
Commissioning declaration (Design approach)	A commissioning declaration from the installer, licensed electrician or project manager who performed or supervised the lighting upgrade, stating that the lighting upgrade was commissioned and implemented as designed.
Supporting documents for Method B	
Illumination measurements (Measurement method)	Illumination measurements carried out in accordance with Appendix B of AS/NZS 1680 by the person responsible for the lighting upgrade. Allowance must be made for lumen depreciation, control of glare and illuminance uniformity.
Lighting diagram (Measurement method)	A professionally drawn lighting diagram showing the locations where the lux measurements were taken. Note: The lux values at these measurement points must be shown either on the diagram or through the use of a legend.

If the lighting upgrade is outside the scope of AS/NZS 1680, and you applied to have another benchmark approved by IPART, you must provide evidence of the approval of this other benchmark at the time of audit.

Electrical compliance

A Certificate of Compliance - Electrical Work (CCEW) must be kept as evidence that the lighting upgrade is compliant with electrical safety and performance requirements. The certificate must:

- be issued, signed and dated by the electrician who performed or supervised the lighting upgrade, and
- include details of the work performed.

4.3.2 BCA classification and compliance

BCA compliance, IPD and safe movement requirements

Building lighting upgrades must comply with the relevant requirements of the BCA, including:

- Illumination Power Density (IPD) requirements in the BCA Part J6, and
- safe movement requirements, as specified in BCA Section F4.4 and AS/NZS 1680.

You will need to attach IPD calculation for each space after the lighting upgrade is completed. The Australian Building Codes Board provides a tool[31] to calculate whether the existing lighting system is compliant with Part J6 of the BCA.

As evidence of your compliance, you must provide a signed Declaration of compliance with AS/NZS 1680 and BCA requirements (ie, Section 3 of the Evidence Pack) and your IPD calculations, as detailed in Table 4.15 below.

Table 4.15 BCA compliance, IPD and safe movement – evidence requirements

Provide both of the following	
Document type	**Requirement**
Mandatory document	
Declaration of compliance with AS/NZS 1680 and BCA requirements	A signed declaration from the lighting upgrade solution provider stating that the BCA requirements of Part J6 and section F4.4 were satisfied. A template for this declaration is provided in Section 3 of the Evidence Pack. It also references AS/NZS 1680.
IPD calculations	The calculations showing the IPD of the space after the lighting upgrade. The resulting IPD for each area must either be equal to, or less than, the maximum allowed under Part J6 of the BCA.

BCA – Space type, building classification and annual operating hours of the site

You need to provide evidence of the space type(s) or building classification for each space where the lighting upgrade took place, to verify that you have used the correct annual operating hours for each space in calculating the energy savings. You must provide:

- geo-tagged photos for the outside part of the premises and interior photos of the upgraded areas (mandatory evidence), and
- one additional piece of supporting evidence, either:
  - of the building classification – Table 4.16 provides guidance of this evidence, or
  - of the space type(s) – Table 4.17 provides guidance on this evidence.

If you propose to use supporting evidence that is not included in these tables, please email us for further guidance at ess_compliance@ipart.nsw.gov.au. We consider such proposals on a case-by-case basis. For example, in some situations, we may accept Construction Certificates issued for building works in the building or part of the building where the lighting upgrade occurred if they include the building classification. Alternatively, we may accept a classification

[31] www.abcb.gov.au/major-initiatives/energy-efficiency/lighting-calculator

of a building or part of a building that an independent and suitably qualified person has determined for ESS purposes or in some cases; we may accept webpage printouts to confirm the building classification or the space type according to its use. When a building or space subject to a lighting upgrade can be classified under different or multiple classifications, the principles laid out in BCA clause A.3.3 and A.3.4 under Part A3 must be applied. These clauses are reproduced in Box 4.1.

Box 4.1 BCA clauses that must be applied when a building or space can be classified under different or multiple classifications

"A3.3 Multiple Classification

Each part of the building must be classified separately, and:

(a)

(i) where parts have different purposes – if not more than 10% of the *floor area*[32] of a *storey*[33], being 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.

(ii) the provisions of (i) do not apply when the minor use is a laboratory of Class 2,3 or 4 part; and

(b) Classes 1a, 1b, 7a, 7b, 9a, 9b, 9c, 10a, 10b and 10c are separate classification; and

(c) A reference to –

(i) Class 1 – is to Class 1a and 1b; and

(ii) Class 7 – is to Class 7a and 7b; and

(iii) Class 9 – is to Class 9a, 9b and 9c; and

(iv) Class 10 – is to Class 10a, 10b and 10c; and

(d) 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.

Part A3.4 – Parts with more than one classification

(a) Notwithstanding A3.3, a building or part of a building may have more than one classification applying to the whole building or to the whole of that part of the building.

If a building or part of a building has more than one classification applying to the whole building or part in accordance with (a), that building or part must comply with all the relevant provisions of the BCA for each classification."

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[32] **Floor Area** means: In relation to a building – the total area of all storeys; and

(a) In relation to a storey – the area of all floors of that storey measured over the enclosing walls, and includes:

i. The area of a mezzanine within the storey, measured within the finished surfaces of any external walls; and

ii. The area occupied by any internal walls or partitions, any cupboard, or other built-in furniture, fixture or fitting; and

iii. If there is no enclosing wall, an area which has a use that:
    1. Contributes to the fire load; or
    2. Impacts on the safety, health or amenity of the occupants in relation to the provisions of the BCA; and

(b) 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; and

(c) 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; and

(d) 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.

[33] **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:

(a) A space that contains only:
    i. A lift shaft, stairway or meter room; or
    ii. A bathroom, shower room, laundry, water closet, or other sanity compartment; or
    iii. Accommodation intended for more than 3 vehicles; or
    iv. A combination of the above, or

(b) A mezzanine.

Table 4.16 BCA building classification – Evidence requirements

Building Classification	AOH	Description[34]	Supporting evidence requirement (Provide one of the following)
BCA Class 2 buildings (common areas)	7,000	**Common areas**[35] of a residential building, which is a building containing two or more *sole-occupancy units*[36] each being separated by a dwelling.	▾ Site plan clearly showing the common area. ▾ **Professionally drafted Reflected Ceiling Plan**[37] (RCP). ▾ Fire Rating Certificate or fire safety review certificate showing the building classification.
BCA Class 3 buildings (common areas)	7,000	**Common areas** of a Residential Building, other than buildings of Class 1 or 2, which is a common place of long term or transient living for a number of unrelated persons, including: (a) a boarding house, guest house, hostel, lodging house or backpackers accommodation; or (b) a residential part of a hotel or motel; or (c) a residential part of a *school* [38]; or	▾ Site plan clearly showing the common area. ▾ Professionally drafted RCP. ▾ Fire Rating Certificate or fire safety review certificate showing the building classification. ▾ For accommodation facilities for the aged, children or people with disabilities, funded by the government, the National Approved ovider

34 Further guidance is available in the BCA Guides located at www.abcb.gov.au

35 Please note that the ESS Rule defines **Common areas** as:

a. For buildings owned under strata title, the common property as defined in either the *Strata Schemes (Freehold Development) Act 1973* (NSW), or *Strata Schemes (Leasehold Development) Act 1986* (NSW); or

b. For buildings not owned under strata title (eg, under company title), the non-residential property of BCA Class 2 buildings.

36 A **sole-occupancy unit** means a room or other part of a building for occupation by one or joint owner, lessee, tenant, or other occupier to the exclusion of any other owner, lessee, tenant, or other occupier and includes:

(a) a dwelling; or

(b) a room or suite of rooms in a Class 3 building which includes sleeping facilities; or

(c) a room or suite of associated rooms in a Class 5,6,7,8 or 9 building; or

(d) a room or suite of associated rooms in a class 9c *aged care building,* which includes sleeping facilities and any area for the exclusive use of a resident.

37 **Professionally drafted plan –** diagrams or plans drafted using accepted industry conventions, symbols, perspectives, units of measurements and notations systems usually generated by a professional draftsperson or with the aid of a Computer Aided Design (CAD) system.

Building Classification	AOH	Description[34]	Supporting evidence requirement (Pro one of the following)	de
		(d) accommodation for the aged, children or people with disabilities; or (e) a residential part of a *health-care building*[39] which accommodates members of staff; or (f) a residential part of a *detention centre*.[40]	System ID (NAPS ID), or a copy Department of Social Services (DSS) list of low-level care facilities, in which t subject to the upgrade is listed. ▾ For non-government funded care facil Retirement villages), evidence that th registered to be used as a retiremer obtained through the Fair Trading we evidence that the village is accredited Retirement Village Association (RVA).	f the lished acility s (eg, and is village te, or er the
BCA Class 3 buildings (other than common areas)	3,000	Residential Building, other than a building of Class 1 or 2, which is a common place of long term or transient living for a number of unrelated persons, including: (a) a boarding house, guest house, hostel, lodging house or backpackers accommodation; or (b) a residential part of a hotel or motel; or (c) a residential part of a *school*; or (d) accommodation for the aged, children or people with disabilities; or (e) a residential part of a *health-care building* which accommodates	▾ Site plan. ▾ Professionally drafted RCP. ▾ Fire Rating Certificate or fire safety revie certificate showing the building classifica ▾ For accommodation facilities for the age children or people with disabilities, funde government, the National Approved Pro System ID (NAPS ID), or a copy of the Department of Social Services (DSS) published	n. by the er

[38] A **School** includes a primary or secondary school, college, university or similar educational establishment.

[39] A **Health-care building** means a building whose occupants or patients undergoing medical treatment generally need physical assistance to evacuate the building during an emergency and includes:
(a) a public or private hospital; or
(b) a nursing home or similar facility for sick or disabled persons needing full-time care; or
(c) a clinic, day surgery or procedure unit where the effects of the predominant treatment administered involve patients becoming non-ambulatory and requiring supervised medical care on the premises for some time after the treatment.

[40] **Detention Centre** means a building in which persons are securely detained by means of the built structure including a prison, remand centre, juvenile detention centre, holding cells or psychiatric detention centre.

Building Classification	AOH	Description[34]	Supporting evidence requirement (Provide one of the following)
		members of staff; or (f) a residential part of a detention centre.	list of low-level care facilities, in which the facility subject to the upgrade is listed. ▾ For non-government funded care facilities (eg, retirement villages), evidence that the land is registered to be used as a retirement village obtained through the Fair Trading website, or evidence that the village is accredited under the Retirement Village Association (RVA).
BCA Class 5 buildings	3,000	An office building used for professional or commercial purposes, excluding buildings of Class 6, 7, 8 or 9.	▾ Site plan. ▾ Professionally drafted RCP. ▾ Fire Rating Certificate or fire safety review certificate showing the building classification.

Building Classification	AOH	Description[34]	Supporting evidence requirement (Pro one of the following)	de
BCA Class 6 buildings	5,000	A shop or other building for the sale of goods by retail or the supply of services direct to the public, including: (a) an eating room, café, restaurant, milk or soft-drink bar; or (b) a dining room, bar area that is not an *assembly building,*[41] shop or kiosk part of a hotel or motel; or (c) a hairdresser's or barber's shop, public laundry, or undertaker's establishment; or (d) market or sale room, show room, or *service station*[42].	▾ Regulatory or contractual operating licer which relates to the classification of the ▾ Site plan. ▾ Web page showing service provided an address. ▾ Fire Rating Certificate or fire safety revie certificate showing the building classifica	ding. e n.
BCA Class 7 buildings	5,000	A building that is used for storage or display of goods or produce for sale by wholesale.	▾ Regulatory or contractual operating licer which relates to the classification of the (where applicable). ▾ Site plan. ▾ Web page showing service provided an address. ▾ Fire Rating Certificate or fire safety revie certificate showing the building classification.	ding e

41 **Assembly building:** Means a building where people may assemble for:
(a) civic, theatrical, social, political or religious purposes including a library, theatre, public hall or place of worship; or
(b) educational purposes in a school, early childhood centre, preschool or the like; or
(c) entertainment, recreational or sporting purposes including:
(i) a discotheque, nightclub or a bar area of a hotel or motel providing live entertainment or containing a dance floor; or
(ii) a cinema; or
(iii) a sports stadium, sporting or other club; or
(d) transit purposes including a bus station, railway station, airport or ferry terminal.

42 **Service Station:** Means a garage which is not a private garage and is for the servicing of vehicles, other than only washing, cleaning or polishing (eg, part of a petrol station, mechanic workshops).

Building Classification	AOH	Description[34]	Supporting evidence requirement (Provide one of the following)
BCA Class 7 (a) buildings **(open air car parks)**[43]	4,500	**An open air space** (ie, no roof at all) used for the parking of motor vehicles but is neither a private garage nor used for the servicing of vehicles, other than washing, cleaning or polishing.	▾ Site plan showing the location of the lights. ▾ Regulatory or contractual operating licence which relates to the classification of the building (if applicable).
BCA Class 7 (a) buildings **(undercover car parks)**	7,000	**A building** used for the parking of motor vehicles but is neither a private garage nor used for the servicing of vehicles, other than washing, cleaning or polishing.	▾ Site plan. ▾ Professionally drafted RCP. ▾ Regulatory or contractual operating licence which relates to the classification of the building (if applicable). ▾ Fire Rating Certificate or fire safety review certificate showing the building classification.
BCA Class 8 buildings **(other than ANZSIC Division C, Manufacturing)**	3,000	A laboratory, or a building in which a handicraft or process for the production, assembling, altering, repairing, packing, finishing, or cleaning of goods or produce is carried out on for trade, sale or gain and **it is not classified** under the *ANZSIC Division C, Manufacturing*[44]*.*	▾ Site plan. ▾ Professionally drafted RCP. ▾ Fire Rating Certificate or fire safety revie certificate showing the building classifica n.
BCA Class 8 buildings **(ANZSIC Division C, Manufacturing)**	5,000	A laboratory, or a building in which a handicraft or process for the production, assembling, altering, repairing, packing, finishing, or cleaning of goods or produce is carried out on for trade, sale or gain **and it is classified** under the *ANZSIC Division C, Manufacturing.*	▾ Site plan. ▾ Professionally drafted RCP. ▾ Company Annual Report. ▾ Fire Rating Certificate or fire safety revie certificate showing the building classifica n.

43 'Open air car-park' is classified as lighting for roads and public spaces and the upgrade must comply with the requirements for lighting for roads and public spaces.

44 **ANZIC Division C – Manufacturing** are units often described as plants, factories or mills and characteristically use power-driven machines and other materials-handling equipment to produce goods (eg, Bottling, canning, vehicle manufacturing, metal transforming, etc.). For the complete list see: www.npi.gov.au/reporting/industry-reporting-materials/anzsic-code-list

Building Classification	AOH	Description[34]	Supporting evidence requirement (Pro one of the following)	de
BCA Class 9a and 9c buildings	6,000	9(a) is a *health-care building*[45], including those parts of the building set aside as a laboratory. 9(c) is an *aged-care building*[46].	**For Health Care buildings:** ▼ Fire Rating Certificate or fire safety revie certificate showing the building classifica ▼ ***Public Health Care building:*** Copy of t Health Care Facilities list published by tl Health Department in its website showir facility subject to the upgrade. ▼ ***Private Health Care building:*** evidence facility being licensed to operate under t *Private Health Facilities Act 2007*[47]. **For Aged-Care buildings:** ▼ Fire Rating Certificate or fire safety revie certificate showing the building classifica ▼ For accommodation facilities for the age funded by the government, the National Approved Provider System ID (NAPS ID	n. ublic NSW ne the n. r a

[45] A **Health-care building** means a building whose occupants or patients undergoing medical treatment generally need physical assistance to evacuate the building in case of an emergency and includes:
(a) a public or private hospital; or
(b) a nursing home or similar facility for sick or disabled persons needing full-time care; or
(c) a clinic, day surgery or procedure unit where the effects of the predominant treatment administered involve patients becoming non-ambulatory and requiring supervised medical care on the premises for some time after the treatment.

[46] **Aged-care building:** Building used for residential accommodation of aged persons who, due to varying degrees of incapacity associated with the aging process, are provided with personal care services and 24 hour staff assistance to evacuate the build during an emergency.

[47] Since 1 September 2010, all licensed private health facilities have been required to comply with the *Private Health Facilities Act 2007* and the licensing standards in the *Private Health Facilities Regulation 2010.* The legislation specifies 18 classes of facilities including, for example: Anaesthesia class, Interventional Neuroradiology class, Radiotherapy class, Rapid Opioid Detoxification class and the Gastrointestinal Endoscopy class.

Building Classification	AOH	Description[34]	Supporting evidence requirement (Provide one of the following)
			copy of the Department of Social Services (DSS) published list of high-level care[48] facilities, in which the facility subject to the upgrade is listed. ▾ For non-government funded aged- care facilities, evidence that the land is registered to be used as a retirement village obtained through the Fair Trading website, or evidence that the village is accredited under the Retirement Village Association (RVA).
BCA Class 9b buildings	2,000	9(b) is an assembly building, including a trade workshop, laboratory or the like in a primary or secondary school, but excluding any other parts of the building that are of another Class. An assembly building is a building where people may assemble for: (a) civic, theatrical, social, political or religious purposes including a library, theatre, public hall or place of worship; or (b) educational purposes in a school, *early childhood centre*[49], preschool or the like; or (c) entertainment, recreational or sporting purposes including: (i) a discotheque, nightclub or a bar area of a hotel or motel providing live entertainment or containing a dance floor; or (ii) a cinema; or (iii) a sports stadium, sporting or other club[50]; or	▾ Site plan. ▾ Professionally drafted RCP. ▾ Fire Rating Certificate or fire safety revie certificate showing the building classifica n.

48 **High-Level care** means that residents need 24-hour nursing in addition to the low-care needs.

49 **Early Childhood Centre** means any premises or part thereof providing or intending to provide a centre-based education and care service within the meaning of the *Education and Care Services National Law Act 2010* (Vic), the Education and Care Services National Regulation and centre-based services that are licensed or approved under State and Territory children's services law, but excludes education and care primarily provided to school aged children in outside school hours settings.

Building Classification	AOH	Description[34]	Supporting evidence requirement (Pro one of the following)	de
		(d) transit purposes including a bus station, railway station, airport or ferry terminal.		
BCA Class 10b buildings	1,000	10(b) is a non-habitable building or structure being a fence, mast, antenna, retaining or free-standing wall, *swimming pool*[51], or the like.	▾ Site plan. ▾ Professionally drafted RCP.	
Roads and public spaces	4,500	A road is the right of way between boundaries of adjoining property for vehicular or pedestrian users. Public Spaces refer to a social public space generally open and accessible to people (eg, public squares, parks, beaches or the like)[52].	▾ Document(s) showing that the design of lighting upgrade for the road and/or pub has to be within the scope of the AS/NZ Standard for pedestrian areas (Category and/or vehicular traffic (Category V) ligh purposes (eg, a Council or Public Autho contract). ▾ Geo-tagged photos accompanied with a map of the road and/or public space are	space 158 erial
Traffic signals	8,760	Means lights used with the purpose of signalling and controlling vehicular traffic.	▾ Lighting upgrades for this building classi require a different RESA accreditation. F contact us for additional guidance.	tion se

50 Including Gyms.

51 **Swimming Pool:** Any excavation or structure containing water and used primarily for swimming, wading, paddling or the like, including a bathing or wading pool, or spa.

52 Lights affixed to the external walls of a building, either in the open or under awnings, or affixed to lights poles lighting outdoor areas within the boundaries of the building private property might be considered to be lighting for public spaces if their purpose is to provide safe movement of vehicles or pedestrians. These types of lighting must adopt the classification of the major classification of the adjacent building; except if the lighting subject of the upgrade is specifically attached (ie, metered to) another storey or part with a different classification (please refer to section 7.4.3 of this Manual for further guidance in multiple classifications) and must comply at least with the safe movement requirements of the AS/NZS 1158 standard.

Table 4.17 Space type – evidence requirements

Space Type[53]	Annual operating hours	Supporting evidence requirement (provide one of the following)
Auditorium, church and public hall	2,000	▾ Site plan. ▾ Professionally drafted RCP. ▾ Fire Rating Certificate or fire safety review certificate showing the building classification.
Board room and conference room	3,000	▾ Site plan. ▾ Professionally drafted RCP. ▾ Fire Rating Certificate or fire safety review certificate showing the building classification.
Carpark – general (undercover) and Car Park - entry zone (first 20 m of travel)	7,000	▾ Site plan. ▾ Professionally drafted RCP showing the entry zone. ▾ Fire Rating Certificate or fire safety review certificate showing the building classification.
Carpark – general (open air)[54]	4,500	▾ Site plan showing the location of the lights. ▾ Regulatory or contractual operating licence which relates to the classification of the building (if ap able). ▾ Geo-tagged photos accompanied with an aerial map of the carpark.
Common rooms, spaces and corridors in a Class 2 building	7,000	▾ Site plan clearly showing the common area. ▾ Professionally drafted RCP. ▾ Fire Rating Certificate or fire safety review certificate showing the building classification.
Control room, switch room, and the like	Value in Table A10.3 of the ESS Rule for BCA classification of the surrounding space	▾ Refer to BCA classification requirements.

53 Further guidance about space types is available in the BCA Guides located at www.abcb.gov.au

54 'Open air car-park' is classified as lighting for roads and public spaces and the upgrade must comply with the requirements for lighting for roads and public spaces, as the lighting upgrade must provide safe movement of vehicles and pedestrians.

Space Type[53]	Annual operating hours	Supporting evidence requirement (provide one of the following)
Corridors	Value in Table A10.3 of the ESS Rule for BCA classification of the surrounding space	▼ Refer to BCA classification requirements.
Courtroom	2,000	▼ Site plan. ▼ Professionally drafted RCP. ▼ Fire Rating Certificate or fire safety review certificate showing the building classification.
Dormitory of a Class 3 building used for sleeping only or sleeping and study	3,000	▼ Site plan. ▼ Professionally drafted RCP. ▼ Fire Rating Certificate or fire safety review certificate showing the building classification.
Entry lobby from outside the building	Value in Table A10.3 of the ESS Rule for BCA classification of the surrounding space.	▼ Refer to BCA classification requirements.
Health-care - children's ward, examination room, patient ward, all patient care areas including corridors where cyanosis lamps are used.	6,000	▼ Fire Rating Certificate or fire safety review certificate showing the building classification. ▼ Public Health Care building: Copy of the public Health Care Facilities list published by the NSW H th Department in its website showing the facility subject to the upgrade. ▼ Private Health Care: evidence of the facility being licensed to operate under the *Private Health Facilities Act 2007* and the *Private Health Facilities Regulation 2010.*
Kitchen and food preparation area	Value in Table A10.3 of the ESS Rule for BCA classification surrounding space	▼ Refer to BCA classification requirements.
Laboratory - artificially lit to an ambient level of 400 lx or more	3,000	▼ Site plan. ▼ Professionally drafted RCP.
Library - stack and shelving area, reading room and general areas	3,000	▼ Site plan. ▼ Professionally drafted RCP.
Lounge area for communal use in a Class 3 building or Class 9c aged care building	7,000	**For Class 3 buildings** ▼ Regulatory or contractual operating licence which relates to the classification of the building. ▼ Site plan clearly showing the common area.

Space Type[53]	Annual operating hours	Supporting evidence requirement (provide one of the following)
		▾ Fire Rating Certificate or fire safety review certificate showing the building classification. **For Class 9c buildings:** ▾ Site plan clearly showing the common area ▾ For accommodation facilities for the aged, funded by the government, the National Approved Provider System ID (NAPS ID), or a copy of the Department of Social Services (DSS) published list of high-level care[55] facilities, in which the facility subject to the upgrade is listed. ▾ For non-government funded aged- care facilities, evidence that the land is registered to be used as a retirement village obtained through the Fair Trading website, or evidence that the village is accredited under the Retirement Village Association (RVA).
Maintained emergency lighting[56]	8,500	▾ Document showing statutory legal requirements for safety or of the related purpose. ▾ Electric lighting design (compliant with AS/NZS 2293.1.)
Museum and gallery - circulation, cleaning and service lighting	2,000	▾ Site plan. ▾ Professionally drafted RCP. ▾ Fire Rating Certificate or fire safety review certificate showing the building classification.
Office	3,000	▾ Site plan. ▾ Professionally drafted RCP. ▾ Fire Rating Certificate or fire safety review certificate showing the building classification.
Plant room	Value in Table A10.3 of the ESS Rule for BCA classification of the surrounding space	▾ Refer to BCA classification requirements.
Restaurant, café, bar, hotel lounge and a space for the serving and consumption of food or drinks	5,000	▾ Regulatory or contractual operating licence which relates to the classification of the building (whe applicable). ▾ Site plan.

55 **High-Level care** means that residents need 24-hour nursing in addition to the low-care needs.

56 **Maintained Emergency Lighting:** A maintained emergency exit sign or "always-on" maintained emergency luminaire as defined in AS/NZS 2293.1: *Emergency escape lighting and exit signs for buildings – System design, installation and operation.*

Space Type[53]	Annual operating hours	Supporting evidence requirement (provide one of the following)
		▾ Web page printouts showing service provided and the address. ▾ Professionally drafted RCP. ▾ Fire Rating Certificate or fire safety review certificate showing the building classification.
Retail space including a museum and gallery whose purpose is the sale of objects	5,000	▾ Published opening hours. ▾ Site plan. ▾ Web page printouts showing service provided and the address. ▾ Professionally drafted RCP. ▾ Fire Rating Certificate or fire safety review certificate showing the building classification.
School - general purpose learning areas and tutorial rooms	3,000	▾ Site plan. ▾ Professionally drafted RCP. ▾ Fire Rating Certificate or fire safety review certificate showing the building classification.
Sole-occupancy unit of a Class 3 building	3,000	▾ Site plan. ▾ Professionally drafted RCP.
Sole-occupancy unit of a Class 9c aged care building	6,000	▾ For accommodation facilities for the aged, funded by the government, the National Approved Pro er System ID (NAPS ID), or a copy of the Department of Social Services (DSS) published list of high vel care facilities, in which the facility, subject to the upgrade is listed. ▾ For non-government funded aged- care facilities, evidence that the land is registered to be used as a retirement village obtained through the Fair Trading website, or evidence that the village is accredited under the Retirement Village Association (RVA).
Storage with shelving no higher than 75% of the height of the aisle lighting	5,000	▾ Regulatory or contractual operating licence which relates to the classification of the building (where applicable). ▾ Site plan. ▾ Web page printouts showing service provided and the address. ▾ Professionally drafted RCP.
Storage with shelving higher than 75% of the height of the aisle lighting	5,000	▾ Regulatory or contractual operating licence which relates to the classification of the building (where applicable). ▾ Site plan. ▾ Web page printouts showing service provided and the address. ▾ Professionally drafted RCP.

Space Type[53]	Annual operating hours	Supporting evidence requirement (provide one of the following)
		▾ Fire Rating Certificate or fire safety review certificate showing the building classification.
Service area, cleaner's room and the like	Value in Table A10.3 of the ESS Rule for BCA Classification of the surrounding space	▾ Refer to BCA classification requirements.
Toilet, locker room, staff room, rest room and the like	Value in Table A10.3 of the ESS Rule for BCA classification of the surrounding space	▾ Refer to BCA classification requirements.
Wholesale storage and display area	5,000	▾ Regulatory or contractual operating licence which relates to the classification of the building (where applicable). ▾ Site plan. ▾ Web page printouts showing service provided and the address. ▾ Professionally drafted RCP.
Other spaces not defined above	Value in Table A10.3 of the ESS Rule for BCA classification of space	▾ Refer to BCA classification requirements.

Emerging Lighting Technologies (ELT) and Special Lamp Circuit Power

The use of the following equipment in a lighting upgrade must be accepted for use by IPART prior to implementation:

- non-standard lighting equipment such as LEDs, induction lamps and emerging lighting technologies, and
- specific Lamp Circuit Power (LCPs) with a value different to the NLP for a standard lighting product.

You can apply for acceptance of non-standard lighting equipment via IPART's ELT portal:

http://www.ess.nsw.gov.au/Projects_and_equipment/Lighting_Technologies

For more information about non-standard lighting equipment, please refer to the ESS Website[57] and the Lighting Equipment Requirements Guide[58].

Lighting quality statement

As an ACP, you must provide the purchaser with the Building Lighting Information Sheet[59], completed with your contact details. The Building Lighting Information Sheet is developed by us and is available on the ESS website.

Once the lighting upgrade is implemented, you need to sign the Lighting Quality Statement that is attached to the Building Lighting Information Sheet. The statement declares that the relevant lighting requirements have been met for the lighting upgrade. The statement must then be co-signed by the purchaser. You also need to provide to the Purchaser a Maintenance Schedule that is attached to the statement. This Maintenance Schedule must be provided by the party responsible for the lighting installation ('lighting upgrade solution provider'), which may be you or a company you are working with.

You must keep a copy of the statement and maintenance schedule as evidence supporting your ESC claim. This evidence will be checked at audit and may be checked by us.

57 http://www.ess.nsw.gov.au/ELT
58 http://www.ess.nsw.gov.au/Projects_and_equipment/Lighting_Technologies
59 The Lighting Information Sheet is available on the ESS website at: www.ess.nsw.gov.au/Methods_for_calculating_energy_savings/Commercial_Lighting.

5 Evidence of energy savings – Lighting for Roads and Public Spaces

As Chapter 3 discussed, Section 6 of the Evidence Pack is a checklist confirming you have sufficient evidence to support your ESC claim for all lighting for roads and public spaces components of the implementation. It asks you to indicate the supporting evidence you have collected to meet:

- general requirements
- calculation parameters evidence requirements , and
- other specific evidence requirements (such as AS/NZS 1158 compliance requirements).

This chapter provides more detail on document types you must collect and attach to the Evidence Pack to meet each of these requirements. A table summarising these evidence requirements for 'quick reference' is provided in Appendix B.

For information about how to complete Section 6 of the Evidence Pack, see section 3.6 above.

5.1 General requirements

Prior to creating ESCs for an implementation, **you must collect evidence supporting the details of the lighting upgrade as this will be checked at audit.**

5.1.1 Nomination of energy saver

If you are not the purchaser, you must have a completed, signed nomination form from the purchaser nominating you as the energy saver. You can create a nomination form using the nomination form template[60] for the Commercial Lighting Energy Savings Formula method on the ESS website.

5.1.2 Implementation date

The implementation date is the date the lighting upgrade is completed. Table 5.1 lists the documents you need as evidence of this date. You only need one of these documents.

[60] The nomination form template for this method can be found on the ESS website at www.ess.nsw.gov.au/Methods_for_calculating_energy_savings/Commercial_Lighting

Table 5.1 Implementation date – evidence requirements

Provide one of the following	
Document type	**Requirement**
Certificate of Compliance – Electrical Work (CCEW)	The CCEW signed and dated by the licensed electrician who undertook the work, clearly showing the date on which the work was completed and the address (location details) of the lighting upgrade.
Tax invoice	A valid tax invoice for the work carried out. The invoice must: ▼ show the completion date and address (location details) ▼ identify the recipient ▼ identify the supplier (including their ABN), and ▼ provide a brief description of the equipment or service provided (itemised if possible).
Completion / Commissioning report	The report must: ▼ be produced by the party responsible for the commissioning of the upgraded lighting system ▼ clearly identify the location where the lighting upgrade occurred, and ▼ show the implementation date and be signed by the person responsible for the commissioning of the upgraded lighting system
Public Lighting inventory registers	An extract of the relevant public lighting inventory published by Utility companies showing the post-implementation lighting equipment at the relevant geographic location and its installation date.

5.1.3 Original energy saver

As stated in the Method Guide, the original energy saver (OES) is the purchaser.

The purchaser is the person who purchases or leases the goods or services that enable the relevant Energy Savings to be made. The purchaser cannot be:

- a person who is an ACP that is not the owner, occupier or operator of the site,[61] and
- a person who purchases the goods or services for the purpose of reselling the End-User Equipment, unless the resale will be an inclusion in a contract for the sale of land, or the sale of a lot in a strata scheme.[62]

Table 5.2 lists the documents you must provide as evidence of the OES.

61 ACPs that are the nominated energy saver will typically fall under this category and be precluded from being the purchaser.

62 Wholesalers will typically fall under this category and be precluded from being the purchaser.

Table 5.2 Original energy saver – evidence requirements

1. Energy Saver – provide the following	
Document type	**Requirement**
Nomination form	The signed nomination form (as explained in section 5.1.1 above).

2. Co-payment requirement – provide one of the following	
Document type	**Requirement**
Tax invoice	A tax invoice for the sale clearly showing the original energy saver paid for the lighting upgrade. This will be used by the auditor to verify that the purchaser paid a minimum of $5 per MWh saved as a result of the lighting upgrade.
Contract with a Council or Public Local Authority	A contract showing the amount paid by the Council or Local Authority for a lighting upgrade to roads and/or public space. This will be used by the auditor to verify that the purchaser paid a minimum of $5 per MWh saved as a result of the lighting upgrade.
Sales ledger	A copy of, or extract from, a sales ledger clearly showing that the original energy saver paid for the lighting upgrade. This will be used by the auditor to verify that the purchaser paid a minimum of $5 per MWh saved as a result of the lighting upgrade.

5.1.4 Energy savings calculations

You can calculate energy savings using either our *Commercial Lighting Calculation Tool (CLCT)*[63], or with your own calculation tool. If you use your own tool, you should compare its outputs against those of the *CLCT*. In either case, you must keep a copy of the calculations and have them available for audit purposes.

Table 5.3 shows the documents you must keep as evidence supporting your calculation. Further detail on the baseline determination is provided below.

Table 5.3 Energy savings calculation – evidence requirements

Provide one of the following	
Document type	**Requirement**
IPART issued CLCT	You must keep a copy of the report showing the inputs and outputs with each Evidence Pack. The electronic copy must be available at audit.
Your own calculation tool (if applicable)	You must keep a copy of the tool/report showing the inputs and outputs of the calculation tool with each Evidence Pack. The electronic copy must be available at audit.

63 The Commercial Lighting Calculation Tool is available on the ESS website at: www.ess.nsw.gov.au/Methods_for_calculating_energy_savings/Commercial_Lighting Please contact the Scheme Administrator if you require assistance in using the tool.

5.2 Calculation parameter evidence requirements

The energy savings from an implementation are calculated using the details of the pre-implementation and post-implementation lighting systems. You must keep evidence supporting each of the calculation parameters, as discussed below.

We consider proposals to collect evidence not currently included in this manual on a quarterly basis. If you wish to propose alternative evidence, please email ESS_Compliance@ipart.nsw.gov.au. If we accept your proposal, it will be included in the next regular update of this manual, at which point you can use that evidence.

5.2.1 Baseline determination

To determine the baseline energy consumption for lighting for roads and public spaces, you must use equation 7 of the ESS Rule. You must also collect one or more documents, as specified in Table 5.4 below.

Table 5.4 Baseline determination – evidence requirements

Provide the following	
Document type	**Requirement**
Document showing the lighting upgrade has to comply with the AS/NZS 1158 Standard	Document(s) showing that the lighting upgrade for the road and/or public space has to be within the scope of the AS/NZS 1158 Standard for pedestrian areas (Category P) and/or vehicular traffic (Category V) lighting purposes (eg, a Council or Public Authority contract).

5.2.2 Equipment class and Lamp Circuit Power (LCP)

You need to provide evidence of the equipment class of the pre-implementation lighting (as detailed in Table 5.5) and for the post-implement lighting (detailed in Table 5.6).

This evidence, together with the evidence discussed in sections 5.2.3 and 5.2.4 below, will also provide evidence to show that you have used the correct LCP in your energy savings calculations. You do not need to provide any specific additional evidence on the LCP.

The LCP to be used in lighting for roads and public spaces is specified in Tables A9.2 and A9.4 of the ESS Rule as follows:

a. For equipment class **"Lighting for Roads and Public Spaces or traffic signals (other than LED lighting)"** the specific lighting equipment LCP to be used is listed as the *'NSW Load'* in the AEMO list of "*NEM Unmetered Loads"*[64]. You are required to use as LCP the 'NSW Load' that corresponds to the appropriate 'Nominal Device Type' and 'Nominal Device Rating (w)'.

b. For the equipment class **"LED Luminaire – Street lighting"** you must get an ELT acceptance with an approved LCP value or use the approved value published on our website.

Table 5.5 Pre-implementation equipment class—evidence requirements

Provide one or a combination of the following	
Document type	**Requirement**
Geo-tagged[65] photos	Photographs of the existing lamps. The photos must: ▾ be clear and in focus ▾ include any relevant markings ▾ include a date stamp showing the date they were taken, and ▾ include the GPS derived latitude and longitude coordinates. This should be stored in the metadata and generated automatically by the device used to take the photos.
Asset register	Extracts from an asset register showing the existing lighting at the site. The extract(s) must be certified as true and correct by the purchaser.
Lighting diagram	A **professionally drawn lighting diagram** [66]showing the location and type of each luminaire or lamp. The type of lamp can be shown on the diagram or through the use of a legend.
Disposal receipt	A receipt issued by a recycler or collector responsible for the disposal of the original lamps. The receipt must show: ▾ an itemised breakdown of the disposed equipment (showing the lamp type), and ▾ the date they were received.
Certificate of Compliance – Electrical Work (CCEW)	The CCEW must be signed and dated by a licensed electrician. It must clearly show the type of lamp that was removed.
Public Lighting inventory registers	An extract of the relevant public lighting inventory published by Utility companies showing the existing pre-implementation lighting equipment at the relevant geographic location.

64 http://www.aemo.com.au/Electricity/Policies-and-Procedures/Metrology-Procedures-and-Unmetered-Loads/NEM-Unmetered-Loads

65 Geo-tagging is the process of adding geographical identification metadata to a photograph. This is done by assigning at least latitude and longitude to the image.

66 **Professionally drawn or drafted diagram –** diagrams or plans drafted using accepted industry conventions, symbols, perspectives, units of measurements and notations systems and usually generated by a professional draftsperson or with the aid of a Computer Aided Design (CAD) system.

Table 5.6 Post-implementation equipment class—evidence requirements

Provide one or a combination of the following	
Document type	**Requirement**
Geo-tagged photos	Photographs of the existing lamps. Photos must: ▾ be clear and in focus ▾ include any relevant markings ▾ include date stamp showing the date they were taken, and ▾ include the GPS derived latitude and longitude coordinates (which should be stored in the metadata and generated automatically by the device used to take the photos).
Manufacturer's datasheet	An official specification or data sheet from the manufacturer showing the lamp type.
Lighting diagram	A professionally drawn lighting diagram showing the location and type of each luminaire or lamp. Note: the type of lamp can be shown on the diagram or through the use of a legend.
Tax invoice	A valid tax invoice for the work carried out. It must: ▾ contain an itemised list of the lamps provided and/or installed ▾ identify the recipient, and ▾ identify the supplier (including their ABN).
Certificate of Compliance – Electrical Work (CCEW)	The CCEW must be signed and dated by the licensed electrician who undertook the work. It must clearly show the type of lamp that was installed.
Public Lighting inventory registers	An extract of the relevant public lighting inventory published by Utility companies showing the post-implementation lighting equipment at the relevant geographic location and the installation date.

5.2.3 For the upgraded equipment class "Lighting for roads and public spaces or traffic signals (other than LED lighting)

Where the post-implementation equipment class is **"Lighting for Roads and Public Spaces or traffic signals (other than LED lighting)"**, you must provide additional evidence. This evidence varies, depending on the specific lighting equipment used:

- If the upgraded equipment is one of the standard equipment classes for lighting upgrades listed in Table A9.1 of the ESS Rule (and Appendix D of the Method Guide) you need to provide the evidence detailed in Table 5.7.
- If the upgraded equipment is one of the other equipment classes listed in Table A9.3 of the ESS Rule (and Appendix D of the Method Guide), you need to provide the evidence detailed in Table 5.8.

Table 5.7 Standard equipment classes listed in Table A9.1 of the ESS Rule — evidence requirements

Provide the following, plus at least 2 documents listed in Table 5.6	
Document type	**Requirement**
For Category P lighting (Pedestrian Area), evidence that the equipment is a permissible luminaire for that space according to tables 2.6 to 2.10 of the *AS/NZS 1158.3.1 – Pedestrian Area (Category P) lighting – Performance and design requirements* Standard. **For Category V lighting (Vehicular Traffic)**, evidence that the equipment meets the requirements of *AS/NZS 60598.2.3 Luminaires – Particular Requirements – Luminaires for road and street lighting* Standard.	Manufacturer's Datasheet or specifications, Manufacturer's/supplier declaration substantiated by reference to appropriate test reports from a laboratory that is accredited by NATA or IANZ or an overseas laboratory that is accredited under a mutual recognised agreement with either of these bodies.

Table 5.8 Other equipment classes listed in Table A9.3 of the ESS Rule — evidence requirements

Provide the following, plus at least 2 documents listed in Table 5.6	
Document type	**Requirement**
IPART acceptance letter	The letter issued by IPART accepting the use of the equipment listed in Table A9.3 of the ESS Rule. (Emerging Lighting Technology acceptance letter). Note: From 8 December 2015 IPART no longer issues acceptance letters as the accepted equipment is published on the website (www.ess.nsw.gov.au/ELT/Product_Search)
Evidence that the equipment meets the relevant requirements of the *AS/NZS 60598.1.1 – Luminaires – General Requirements* and tests Standard, the *AS/NZS 60598.2.3 Luminaires – Particular Requirements – Luminaires for road and street lighting* (for Category V lighting – Vehicular Traffic) , and the *SA/SNZ TS 1158.6 – Luminaires - Performance.*	Manufacturer's Datasheet, Manufacturer's/supplier declaration substantiated by reference to appropriate test reports from a laboratory that is accredited by NATA or IANZ or an overseas laboratory that is accredited under a mutual recognised agreement with either of these bodies.

5.2.4 For the upgraded equipment class "LED Luminaire – Street Lighting – For Street/Public Lighting"

Where the post-implementation equipment class is LED Luminaire – Street Lighting – For Street/Public Lighting" you need to provide the additional evidence shown in Table 5.9.

Table 5.9 Upgraded equipment class "LED Luminaire - Street Lighting" – evidence requirements

Provide the following, plus at least 2 documents listed in Table 5.6	
Document type	**Requirement**
IPART acceptance letter	The letter issued by IPART accepting the use of the LED Luminaire. (Emerging Lighting Technology acceptance letter). Note: From 8 December 2015 IPART no longer issues acceptance letters as the accepted equipment is published on the website (www.ess.nsw.gov.au/ELT/Product_Search)
Evidence that the equipment meets the relevant requirements of *AS/NZS 60598.1.1 – Luminaires – General Requirements* and tests Standard, the *AS/NZS 60598.2.3 Luminaires – Particular Requirements – Luminaires for road and street lighting* (for Category V lighting – Vehicular Traffic), and the *SA/SNZ TS 1158.6 – Luminaires - Performance.*	Manufacturer's Datasheet, Manufacturer's/supplier declaration substantiated by reference to appropriate test reports from a laboratory that is accredited by NATA or IANZ or an overseas laboratory that is accredited under a mutual recognised agreement with either of these bodies.

5.2.5 Lamp quantities

You must provide evidence of the number of lamps installed in each space of the pre-implementation lighting system (as shown in Table 5.10) and the post-implementation lighting system (as shown in Table 5.11).

Table 5.10 Pre-implementation lamp quantities – evidence requirements

Provide the mandatory document and one of the supporting documents	
Document type	**Requirement**
Mandatory document	
Lighting diagram	A professionally drawn lighting diagram showing the location and type of each luminaire or lamp. Note: The type of lamp can be shown on the diagram or through the use of a legend.
Supporting documents	
Asset register	Extracts from an asset register or schedule showing the number of pre-upgrade lamps installed at the site and signed by the purchaser (OES).
Disposal receipt	A dated disposal receipt listing the number of lamps disposed of. This receipt must be signed by the equipment removing contractor.
Certificate of Compliance – Electrical Work (CCEW)	The CCEW must be signed and dated by a licensed electrician. It must clearly show the type and number of lamps that were removed.

Provide the mandatory document and one of the supporting documents	
Document type	**Requirement**
Public Lighting inventory registers	An extract of the relevant public lighting inventory published by Utility company showing the number of pre-implementation lighting equipment at the relevant geographic location.

Table 5.11 Post-implementation lamp quantities – evidence requirements

Provide the mandatory document, and one of the supporting documents	
Document type	**Requirement**
Mandatory document	
Lighting diagram	A professionally drawn lighting diagram showing the location and type of each luminaire or lamp. Note: The type of lamp can be shown on the diagram or through the use of a legend.
Supporting documents	
Certificate of Compliance – Electrical Work (CCEW)	The CCEW must be signed and dated by a licensed electrician. It must clearly show the type and number of lamps that were installed.
Tax invoice	A signed and dated tax invoice showing the type and number of lamps purchased.
Public Lighting inventory registers	An extract of the relevant public lighting inventory published by Utility company showing the number of post-implementation lighting equipment at the relevant geographic location and the installation date.

5.2.6 Lighting control systems

If your lighting upgrade involves a lighting control system for which there is a control multiplier in Table A10.4 and A10.4A of Appendix D of the Method Guide, you must collect evidence showing:

- all lighting control devices that are part of the lighting control system
- the type of lighting control system, and
- the lamps/luminaires controlled by the lighting control system.

If the lighting control system is changed as part of the lighting upgrade, then you must collect evidence of the control system both pre-implementation and post-implementation.

You must provide a lighting diagram, and at least one of the supporting documents shown in Table 5.12 for the pre-implementation lighting control systems, and for the post-implementation lighting control system if it is changed.

Table 5.12 Lighting control systems – evidence requirements

Provide the one mandatory document, and at least one of the supporting documents	
Document type	**Requirement**
Mandatory document	
Lighting diagram	A professionally drawn lighting diagram showing the location and the type of control system. Note: The type of control system can be shown on the diagram or through the use of a legend. The diagram must clearly show the lighting switch groups controlled by the control system.
Supporting documents	
Geo-tagged photos	The photographs must show the type of lighting control system installed. The photos must: ▾ be clear and in focus ▾ include a date stamp showing the date they were taken, and ▾ include the GPS derived latitude and longitude coordinates (which should be stored in the metadata and generated automatically by the device used to take the photos).
Certificate of Compliance – Electrical Work	A CCEW signed and dated by the licensed electrician who undertook the work, listing the type of control systems installed or removed.
Manufacturer datasheet	A datasheet or specification from the manufacturer identifying the type of control system.

5.2.7 Lifetime of upgraded lamps

If your lighting upgrade involves the replacement of the luminaire or control gear (not integrated into the lamp) the default asset lifetime is 12 years. However, if your lighting upgrade involves lamps that can be easily replaced with the original lamp (ie, only the lamp has been replaced) the asset lifetime is determined as per Table A10.1 of Appendix D of the Method Guide. In this situation, you must provide evidence of the lifetime of the lamp (refer Table 5.13 below).

Table 5.13 Lifetime of upgraded lamps – evidence requirements

Provide one of the following	
Document type	**Requirement**
Manufacturer datasheet*****	An official specification or data sheet from the manufacturer showing the nominal lamp lifetime in hours.
Laboratory test report	A test report issued by a NATA (or equivalent) laboratory clearly showing the nominal lamp lifetime in hours.
Registered information*	Data from an independent organisation such as MEPS or Lighting Council of Australia showing the nominal lamp lifetime.

Note*: For lamp only replacements under the rule, 30,000 hours is the maximum lamp lifetime and 12 years the maximum asset lifetime for lighting for roads and public spaces upgrades.

5.3 Other specific evidence requirements

There are specific performance and other requirements for upgrades of lighting for roads and public spaces. You must collect evidence to verify your lighting upgrade complies with these requirements.

5.3.1 AS/NZS 1158 compliance

Roads and public spaces lighting upgrades must meet the relevant requirements of AS/NZS 1158. To verify your lighting upgrade complies with the standard you must provide one mandatory document, and one supporting document that varies depending on whether the implementation involves Vehicular traffic or Pedestrian area upgrades. See Table 5.14 below.

You also need to attach evidence of the relevant qualifications for the person verifying compliance of the lighting upgrade.

Table 5.14 AS/NZS 1158 compliance – evidence requirements

Provide one mandatory document, and one supporting document for either Vehicular Traffic (Category V) upgrades or Pedestrian Area (Category P and PX) upgrades	
Document type	**Requirement**
Mandatory document	
Declaration of compliance with AS/NZS 1158 – Lighting for roads and public spaces	A declaration signed by the lighting upgrade solution provider that the lighting upgrade has been verified as per section 2.11 of AS/NZS 1158.1.1-Vehicular traffic (Category V) lighting-Performance and design requirements, or as per section 2.10 of AS/NZS 1158.3.1-Pedestrian Area (Category P) lighting-Performance and design requirements (whichever is relevant). A template for this declaration is provided at Section 5 of the Evidence Pack. The person verifying and approving the lighting upgrade must be in possession of the relevant qualifications as specified in the Method Guide. This will be checked at audit.
Supporting document for Vehicular traffic (Category V) lighting upgrades	
Relevant documentation as specified in Appendix D of AS/NZS 1158.1.1	At a minimum, a statement signed by the lighting upgrade solution provider responsible for providing the lighting solution with qualifications satisfying the client and any regulatory requirements.**
Supporting document for Pedestrian Area (Category P) lighting upgrades including Pedestrian Crossings (Category PX)	
Relevant documentation as specified in Appendix E of AS/NZS 1158.3.1 or Appendix D of AS/NZS 1158.4 (Pedestrian Crossings)	At a minimum, a statement signed by the by the lighting upgrade solution provider responsible for providing the lighting solution with qualifications satisfying the client and any regulatory requirements.**

** This statement must either:

a. certify that the lighting upgrade meets both the design and all requirements of the relevant AS/NZS 1158 Standard part and include details of any complying reductions that have been utilised in the design process; or

b. identify and justify any aspects of the lighting upgrade that do not comply with the design brief or the AS/NZS 1158 Standard.

c. Verify that the provided lighting solution meets the requirement of the relevant asset owner (eg, Utilities, Rail Corp, Government, etc.) Standard, developed in accordance with AS/NZS 1158.

5.3.2 Electrical compliance

A Certificate of Compliance - Electrical Work (CCEW) must be kept as mandatory evidence. The certificate must:

- be issued, signed and dated by the electrician who performed or supervised the lighting upgrade, and
- include details of the work performed.

Where CCEWs are not produced, you may suggest other suitable evidence that demonstrates that compliance with the relevant electrical installation standards has been achieved for any particular project and that the installation was performed or supervised by a licensed electrician. The suitability of the alternative evidence will be considered on a case by case basis.

5.3.3 Lighting for roads and public spaces classification and Annual Operating Hours

Lighting for roads and public spaces is one of the classifications listed in Table A10.3 of the ESS Rule (Appendix D of the Method Guide) and it has a designated value of 4,500 annual operating hours.

In order to show that you are applying the correct space type (ie, it is with the Scope of AS/NZS 1158), you must provide:

- geo-tagged photos and an aerial map of the road and/or public space. (mandatory evidence), and
- document(s) showing that the design of the lighting upgrade for the road and/or public space is within the scope of AS/NZS 1158 for Vehicular Traffic (Category V) and/or Pedestrian Areas (Category P and PX) lighting purposes. This documentation could be, for example, a contract with a local council or the local traffic authority.

6 Glossary

Table 6.1 Glossary of terminology, acronyms and their description

Acronym	Description
ACP	Accredited Certificate Provider
AOH	Annual Operating Hours
BCA	Building Code of Australia. Part of the National Construction Code (NCC)
CCEW	Certificate of Compliance - Electrical Work
CLCT	Commercial Lighting Calculation Tool
EEI	Energy Efficiency Index
ESCs	Energy Savings Certificates
ESS	Energy Savings Scheme
GPS	Global Positioning System
Glare	Difficulty seeing in the presence of a very bright light and possibly cause discomfort or inability to see
HVAC	Heating, Ventilation and Air Conditioning
Implementation	A site-specific lighting upgrade
Implementation date	The date when the lighting upgrade was completed
Implementation ID	A unique ID to be given to each implementation by an ACP
IPD	Illumination Power Density, a measure of the power required to light a given area. Measured in watts per square meter
IPART	Independent Pricing and Regulatory Tribunal of NSW
Illuminance	The amount of light that falls on a surface per unit area and is commonly referred as “Lighting Level” (measured in Lux)
LCP	Lamp Circuit Power in watts
Licensed Electrician	A person that holds a licence to carry out low voltage electrical work in NSW without supervision. However, a licensed electrician must also be registered as an electrical contractor to contract, or offer to contract, or to carry out electrical installation work
Lighting upgrade	The replacement of existing general lighting EUE with new general lighting EUE that consumes less electricity, or the modification of existing general lighting EUE resulting in a reduction in the consumption of electricity compared to what would have otherwise been consumed
Lumen	The unit of luminous flux, which is a measure of the total amount of visible light emitted from a light source
Lumen Depreciation	The decrease in lumen output from a lamp over time
Lux	The unit of illuminance (1 lux equals 1 lumen per square meter) (lm/m^2)
MEPS	Minimum Energy Performance Standards
MWh	Megawatt hour (unit of energy)
NLP	Nominal Lamp Power: the power consumption of a lamp excluding any external control gear
NATA	National Association of Testing Authorities

Acronym	Description
Nominated energy saver	A person nominated to be the energy saver by the *original* energy saver and satisfying the conditions of clause 5.2(b) of the ESS Rule
Original energy saver	The person defined as the purchaser in clause 9.4.3 of the ESS Rule with reference also to clause 5.2 of the ESS Rule
Purchaser	The original energy saver (OES) for the lighting upgrade (refer to clause 9.4.4 of the ESS Rule)
Registration ID	The Registration ID given to the ACP after the submission of clause 6.8 relevant data
RCP	Reflected Ceiling Plan
RESA	Recognised Energy Savings Activity
Watt	The unit of electrical power

Appendices

A Summary of evidence requirements in Section 4 - Building Lighting of the Evidence Pack

Table A.1 below summarises the documents that must be attached to your Evidence Pack to meet the minimum evidence requirements for energy savings from the building lighting components of an implementation. The table shows each parameter of an implementation, the possible acceptable evidence for that parameter, and the section of this manual that provides additional explanatory information.

Table A.1 Summary of evidence requirements for building lighting components

Evidence type	Conditions	Document collection requirement	Document type	Location in the manual
General Requirements				**4.1**
Nominated energy saver	Mandatory	▾ 1 document	▾ Signed nomination form	**4.1.1**
Implementation date	Mandatory	▾ 1 document	▾ Certificate of Compliance - Electrical Work (CCEW), or ▾ Tax invoice, or ▾ Contractor Completion/ Commissioning Report	**4.1.2**
Original energy saver (co-payment requirement)	Mandatory	▾ 1 document	▾ Tax invoice (to verify the minimum $5 co-payment for MWh saved as result of the lighting upgrade), or ▾ Sales ledger (to verify the minimum $5 co-payment for MWh saved as result of the lighting upgrade).	**4.1.3**
Energy savings calculations	Mandatory	▾ 1 document	▾ IPART Commercial Lighting Calculation Tool, or ▾ ACP's own calculation tool	**4.1.4**

Evidence type	Conditions	Document collection requirement	Document type	Location i the manua
Calculation Parameter Evidence Requirements				**4.1.5**
Baseline determination	1. Where the upgrade is not required to comply with Part J6 of the BCA.	▾ 2 mandatory documents	▾ Declaration of compliance with AS/NZ 1680 and BCA, and ▾ Lighting diagram	**4.2.1**
	2. Where the upgrade is required to comply with Part J6 of the BCA and the existing lighting meets or is below the maximum IPD requirements of Part J6 of the BCA.	▾ 3 mandatory documents plus the IPD calculations to support the use of equation 7	▾ Declaration of compliance with AS/NZ 1680 and BCA, and ▾ Lighting diagram, and ▾ Documentation showing BCA approval number and date of issue, and ▾ IPD calculations to support the use of equation 7	
	3. Where the upgrade is required to comply with Part J6 of the BCA and the existing lighting does not meet the IPD requirements of Part J6 of the BCA.	▾ 3 mandatory documents plus the IPD calculations to support the use of equation 8	▾ Declaration of compliance with AS/NZ 1680 and BCA, and ▾ Lighting diagram, and ▾ Documentation showing BCA approval number and date of issue, and ▾ IPD calculations to support the use of equation 8	

Evidence type	Conditions	Document collection requirement	Document type	Location in the manual
Lamp type and nominal lamp power	At least one document for pre- and post-implementation must show the NLP	*Pre-implementation* ▾ 1 or a combination of documents to evidence the Lamp type and NLP	***Pre-implementation*** ▾ Geo-tagged photos ▾ Asset register ▾ Lighting diagram ▾ Disposal receipt ▾ CCEW	
		Post-implementation ▾ 1 or a combination of documents to evidence the Lamp type and NLP	***Post-implementation*** ▾ Geo-tagged photos ▾ Manufacturer datasheet ▾ Lighting diagram ▾ Tax invoice ▾ As Built Lighting Model/Drawing ▾ Laboratory test report ▾ Registered information ▾ CCEW	**4.2.2**
Remote control gear (ballasts/transformers)	Where the lighting upgrade involves external control gear	*Pre-Implementation* ▾ 2 of the documents shown at right	***Pre-implementation*** ▾ Geo-tagged photos ▾ Asset Register ▾ Lighting Diagram ▾ Disposal Receipt ▾ CCEW	**4.2.3**
		Post-Implementation ▾ 2 of the documents shown at right	***Post-implementation*** ▾ Geo-tagged photos ▾ Manufacturer datasheet ▾ Lighting diagram ▾ Tax invoice ▾ CCEW	

Evidence type	Conditions	Document collection requirement	Document type	Location i the manua
Lamp quantities	Mandatory	*Pre-implementation* ▾ 1 mandatory document, and ▾ 1 supporting document *Post-implementation* ▾ 1 mandatory document, and ▾ 1 supporting document	***Pre-implementation*** ▾ **Mandatory document:** – Lighting diagram ▾ **Supporting documents:** – Asset register, or – Geo-tagged photos (only for small upgrades), or – Disposal receipt, or – CCEW ***Post-implementation*** ▾ **Mandatory document:** – Lighting diagram ▾ **Supporting documents:** – Geo-tagged photos, or – Tax invoice, or – CCEW	**4.2.4**
Lighting control systems	Where the upgrade involves a lighting control system	▾ 1 mandatory document, and ▾ 1 supporting document	▾ **Mandatory document:** – Lighting diagram ▾ **Supporting documents:** – Geo-tagged photos, or – CCEW, or – Manufacturer datasheet	**4.2.5**
Air conditioning	Where the air conditioning multiplier is used in calculations	1 document	▾ Geo-tagged photos, or ▾ Lighting diagram, or ▾ HVAC plan	**0.0.0**
Lifetime of upgraded lamps	Where the upgraded lamps can be easily replaced	1 document	▾ Manufacturer datasheet, or ▾ Laboratory test report, or ▾ Registered information	**4.2.7**

Evidence type	Conditions	Document collection requirement	Document type	Location in the manual
Other Specific Evidence Requirements				**4.3**
AS/NZS 1680 compliance	Mandatory: ▾ except where the upgrade is outside the scope of the AS/NZS 1680 standard. In this case you will have to attach the approval of a different benchmark.	1 mandatory document, and either: ▾ 2 'Method A' supporting documents, **or** ▾ 2 'Method B' supporting documents	▾ **Mandatory document:** – AS/NZS 1680 Declaration (Evidence Pack Section *3*) – Certificate of qualifications / training ▾ **Method A supporting documents:** – AS/NZS 1680 design documents, and – Commissioning declaration ▾ **Method B supporting documents:** – Illumination measurements, and – Lighting diagram	**4.3.1**
BCA Compliance requirements of upgrades: ▾ IPD requirements (Part J6), and ▾ Safe movement, Section F4.4	Mandatory	▾ 2 documents	– **D**eclaration of compliance with AS/NZS 1680 and BCA (Evidence Pack *Section 3*), and – Achieved IPD calculations for the each space showing that it is equal or less than the maximum IPD specified in Part J6 of the BCA	**4.3.2**
Electrical compliance	Mandatory	▾ 1 document	▾ Certificate of Compliance – Electrical Work (CCEW)	**4.3**
BCA classification (all upgrades) to support: ▾ Space type ▾ Building classification, and ▾ Annual operating hours of the site/spaces	Mandatory	▾ 1 mandatory document, and ▾ 1 supporting document	▾ **Mandatory document:** – GEO located photo(s) ▾ **Supporting document**: – Please refer to Table 4.16 or Table 4.17 of this manual to find the acceptable supporting documents for each space type/BCA classification.	**4.3.2**

Evidence type	Conditions	Document collection requirement	Document type	Location i the manua
Emerging lighting technology or special lamp circuit power	Where the upgrade involves products classified as Emerging Lighting Technologies (Evidence to be kept in a central location rather than with each Document Pack.)	*Emerging Lighting Technology* ▾ 1 mandatory document *Special Lamp Circuit Power* ▾ 1 mandatory document	***Emerging Lighting Technology*** ▾ ELT acceptance letter(s) ***Special Lamp Circuit Power*** ▾ LCP acceptance letter(s) (or information as published on the public list of accepted ELTs)	**4.3**
Lighting quality statement	Mandatory	▾ 1 document	▾ Signed Lighting Quality Statement (by the ACP and co-signed by the purchaser)	**4.3**

B Summary of evidence requirements in Section 6 – Lighting for roads and public spaces of the Evidence Pack

Table B.1 below summarises the documents that must be attached to your Evidence Pack to meet the minimum evidence requirements for energy savings from the lighting for roads and public spaces components of an implementation. The table shows each parameter of an implementation, the possible acceptable evidence for that parameter, and the section of this manual that provides additional explanatory information.

Table B.1 Summary of evidence requirements for lighting for roads and public spaces components

Evidence Type	Conditions	Document collection requirement	Document type	Location in the Manual
General Requirements				**5.1**
Nominated energy saver	Mandatory	▾ 1 document	▾ Signed nomination form	**5.1.1**
Implementation date	Mandatory	▾ 1 document	▾ Certificate of Compliance - Electrical Work (CCEW), or ▾ Tax invoice, or ▾ Contractor Completion/ Commissioning Report	**5.1.2**
Original energy saver	Mandatory: ▾ Co-payment requirement	▾ 1 document	**Co-payment requirement:** ▾ Tax invoice (to verify the minimum $5 co-payment for MWh saved as result of the lighting upgrade), or ▾ Contract with a council or public local authority (to verify the minimum $5 co-payment for MWh saved as a result of the lighting upgrade, or ▾ Sales ledger (to verify the minimum $5 co-payment for MWh saved as result of the lighting upgrade).	**5.1.3**
	▾ Beneficiary of the services provided by the EUE requirement	▾ 1 document	**Beneficiary of the service provided by the EUE requirement:** ▾ Signed Nomination Form	
Energy savings calculations	Mandatory	▾ 1 document	▾ IPART Commercial Lighting Calculation Tool – Lighting for roads and public spaces, or ▾ ACP's own calculation tool	**5.1.4**

Evidence Type	Conditions	Document collection requirement	Document type	Location in the Manual
Calculation parameter evidence requirements				**5.2**
Baseline determination	Mandatory: 1. Where the upgrade is required to comply with AS/NZS 1158 Standard	▾ 1 required document	▾ Document(s) showing that the design of the lighting upgrade for the road and/or public space has to be within the scope of the AS/NZS 1158 Standard for pedestrian areas (Category P) and/or vehicular traffic (Category V) lighting purposes (eg, a Council or Public Authority contract).	**5.2.1**

Evidence Type	Conditions	Document collection requirement	Document type	Location in the Manual
Equipment class and Lamp Circuit Power (LCP) for standard equipment listed in Table A9.1 of the ESS Rule[67]	Mandatory	*Pre-implementation* ▾ 1 document or a combination of documents to evidence the Equipment Class. *Post-implementation* ▾ 1 mandatory document, and ▾ 1 or more supporting documents to evidence the lamp type	***Pre-implementation*** ▾ Geo-tagged photos ▾ Asset Register ▾ Lighting Diagram ▾ Disposal Receipt ▾ CCEW ***Post-implementation*** **Mandatory document:** ▾ **For category P lighting (Pedestrian Area)**, evidence that the equipment is a permissible luminaire according to tables 2.6 to 2.10 of the *AS/NZS 1158.3.1 – Pedestrian Area (Category P) lighting – Performance and design requirements* Standard. ▾ **For category V lighting (Vehicular Traffic),** evidence that the equipment meets the requirements of *AS/NZS 60598.2.3 Luminaires – Particular Requirements – Luminaires for road and street lighting* Standard **Supporting documents:** ▾ Geo-tagged photos ▾ Manufacturer Datasheet ▾ Lighting Diagram ▾ Tax invoice ▾ CCEW	**5.2.2 and 5.2.3**

[67] The evidence provided to support the pre-implementation and upgraded equipment class for conventional lighting technologies listed in Table A9.1 of the ESS Rule will also support the LCP value listed as the 'NSW load' in the AEMO list of 'NEM Unmetered Loads'

Evidence Type	Conditions	Document collection requirement	Document type	Location in the Manual
Equipment class and Lamp Circuit Power (LCP) for other equipment listed in Table A9.3 of the ESS Rule	Mandatory	*Pre-implementation* ▾ 1 or more supporting documents to evidence the equipment class *Post-implementation* 2 mandatory documents, and ▾ 1 or more supporting documents to evidence the lamp type	***Pre-implementation*** ▾ Geo-tagged photos ▾ Asset Register ▾ Lighting Diagram ▾ Disposal Receipt ▾ CCEW ***Post-implementation*** **Mandatory documents:** ▾ IPART acceptance letter for the lighting equipment listed in Table A9.3 of the ESS Rule (or information as published on the public list of accepted ELTs). ▾ Evidence that the equipment meets the relevant requirements of the *AS/NZS 60598.1.1 – Luminaires – General Requirements and tests* Standard, the A*S/NZS 60598.2.3 Luminaires – Particular Requirements – Luminaires for road and street lighting* (for Category V lighting – Vehicular Traffic), and the *SA/SNZ TS 1158.6 – Luminaires – Performance*. **Supporting documents:** ▾ Geo-tagged photos ▾ Manufacturer Datasheet ▾ Lighting Diagram ▾ Tax invoice ▾ CCEW	**5.2.2 and 5.2.3**

Evidence Type	Conditions	Document collection requirement	Document type	Location in the Manual
Equipment Class and Lamp Circuit Power (LCP) for the category **"LED Luminaire-Street Lighting"** listed in table A9.3 of the ESS Rule (ie, a LED luminaire intended for use as streetlight as defined in AS/NZS 60598.2.3 Particular requirements – Luminaires for road and street lighting)	Where the upgrade involves products classified as Emerging Lighting Technologies	*Post-implementation* ▾ 2 mandatory documents ▾ 1 or more supporting documents to evidence the lamp type	***Post-implementation*** **Mandatory documents:** ▾ IPART acceptance letter for the lighting equipment listed (or information as published on the public list of accepted ELTs), and ▾ Evidence that the equipment meets the relevant requirements of *AS/NZS 60598.1.1 – Luminaires – General Requirements and tests* Standard, the *AS/NZS 60598.2.3 Luminaires – Particular Requirements – Luminaires for road and street lighting* (for Category V lighting – Vehicular Traffic), and the *SA/SNZ TS 1158.6 – Luminaires – Performance.* **Supporting documents:** ▾ Geo-tagged photos ▾ Manufacturer datasheet ▾ Lighting diagram ▾ Tax invoice ▾ CCEW	**5.2.4**

Evidence Type	Conditions	Document collection requirement	Document type	Location in the Manual
If the upgrade involved the modification to fluorescent luminaires to accommodate LED Tubes (only those LED Tubes submitted to IPART for acceptance prior to 1 July 2014 and subsequently accepted can be installed in a 'Modified Luminaire – LED Linear lamp').	Mandatory	*2* mandatory documents 1 supporting document	**Mandatory documents:** ▾ IPART acceptance letter for the LED linear lamp (or information as published on the public list of accepted ELTs), and ▾ CCEW signed by the electrician who undertook the work **Supporting documents:** ▾ Declaration from the relevant licensed electrician that the modifications were performed in accordance with the guidelines provided in ERAC Information Bulletin 'Safety of T8 Lamp Replacement Tubes and Modified Luminaires', or ▾ Certificate of Suitability for the Modified Luminaire.	**5.2.4**

Evidence Type	Conditions	Document collection requirement	Document type	Location in the Manual
Lamp quantities	Mandatory	*Pre-implementation* ▾ 1 mandatory document, and ▾ 1 supporting document *Post-implementation* ▾ 1 mandatory document, and ▾ 1 supporting document	***Pre-implementation*** ▾ **Mandatory document:** – Lighting diagram ▾ **Supporting documents:** – Asset Register, or – Disposal receipt, or – CCEW ***Post-implementation*** ▾ **Mandatory document:** – Lighting diagram ▾ **Supporting documents:** – Tax invoice, or – CCEW	**5.2.5**
Lighting control systems	Mandatory: ▾ Where the upgrade involves a lighting control system.	▾ 1 mandatory document, and ▾ 1 supporting document	▾ **Mandatory document:** – Lighting diagram ▾ **Supporting documents:** – Geo-tagged photos, or – CCEW, or – Manufacturer datasheet	**5.2.6**
Lifetime of upgraded lamps	Mandatory: ▾ Where the upgraded lamps can be easily replaced.	1 mandatory document	▾ Manufacturer datasheet, or ▾ Laboratory test report, or ▾ Registered information	**5.2.7**

Evidence Type	Conditions	Document collection requirement	Document type	Location in the Manual
Other Specific Evidence Requirements				**5.3**
AS/NZS 1158 compliance	Mandatory: ▾ Except where the upgrade is outside the scope of the AS/NZS 1158 standard. In this case you will have to attach the approval of a different benchmark.	▾ 2 mandatory document for all upgrades ▾ I mandatory document for: – Vehicular traffic (Category V) lighting upgrades, or – Pedestrian area (Category P) including pedestrian crossings (Category PX)	▾ **Mandatory document for all upgrades:** – Declaration of compliance with AS/NZS 1158 (Evidence Pack Section 5) – Certificate of qualifications / training. **Mandatory document for Vehicular traffic upgrades:** ▾ The relevant documentation specified in Appendix D of AS/NZS 1158.1.1 **Mandatory document of pedestrian areas upgrades:** ▾ The relevant documentation specified in Appendix E of AS/NZS 1158.3.1 or Appendix D of AS/NZS 1158.4 (Pedestrian Crossings).	**5.3.1**
Electrical compliance	Mandatory	▾ 1 mandatory document	▾ Certificate of Compliance – Electrical Work (CCEW)	**5.3.2**
Lighting for roads and public spaces Annual Operating Hours	Mandatory	▾ 1 mandatory document	▾ Documentation evidence that the design of the lighting upgrade is within the scope of the AS/NZS 1158 Standard. This documentation could be, for example, a contract with a council or the local traffic authority.	**5.3.3**