

Commercial Lighting Upgrade; Commercial Only	Activity No.
	CL1

## 1. ACTIVITY SPECIFIC DEFINITIONS

**Commercial Lighting** is defined as lighting equipment in use in South Australia for the purpose of:

- lighting for roads and public spaces
- traffic signals
- lighting for commercial or industrial premises classified under the Building Code of Australia as either Class 3, 5, 6, 7, 8, 9, 10 or the Common Areas of Class 2

**Upgrade** means the replacement and/or modification of Existing Lighting Equipment with New Lighting Equipment resulting in a reduction in the consumption of electricity compared to what would have otherwise been consumed.

**Existing Lighting Equipment** means the equipment that provides lighting services that was already installed and in working order at the time of implementation of the activity, including luminaires and/or lamps, control gear, and control systems

**New Lighting Equipment** means the equipment that provides lighting services that is installed as a result of the Upgrade for the purpose of the Activity, including luminaires and/or lamps, Control Gear, and control systems

**Control Gear** means the lighting ballast, transformer or driver.

**ELV** means extra low voltage, not exceeding 50 volts alternating current (AC) or 120 volts ripple free direct current (DC), as defined in AS/NZS 3000 Wiring rules.

**Small Energy Consuming Customer** means a customer consuming less than 160MWh of electricity per National Meter Identifier in the 12 months prior to the upgrade.

**Large Energy Consuming Customer** means a customer consuming more than 160MWh of electricity per National Meter Identifier in the 12 months prior to the upgrade.

## 2. ACTIVITY DESCRIPTION (SUMMARY)

The Activity involves an upgrade to the energy efficiency of Commercial Lighting that results in energy savings as calculated in accordance with this specification.

## 3. ACTIVITY ELIGIBILITY REQUIREMENTS

- (1) The existing lighting equipment must be in working order at time of the upgrade.
- (2) The following Activities are excluded:
  - New lighting installations undertaken as part of new work or refurbishments that require development approval under the *Development Act 1993*
  - Task lighting installations such as portable lighting or desk lamps
  - Installing T5 adaptor kits or installing new lamps into existing T5 adaptor kit fittings

- (3) Where it can be demonstrated that the lamps being replaced have not previously been installed for the purposes of REES, Activity CL1 can be delivered twice per premises, providing all other aspects of the specification are met.

***Additional requirements where recipient of Activity is a large energy consuming customer***

- (4) The recipient of the Activity must cause payment to the installer for the goods and services provided, with the minimum payment requirement being \$1.40 (including GST) per GJ of normalised energy saving as calculated in accordance with this specification.

#### **4. INSTALLED PRODUCT REQUIREMENTS**

- (1) The new lighting equipment must come with a minimum 2 years replacement warranty, and new High Bay lighting with a minimum 5 years replacement warranty.
- (2) At the time of installation, the new lighting equipment must:
  - be on the list of products accepted for installation under the NSW 'Energy Savings Scheme' (ESS), as published by the ESS Administrator, or
  - be an LED linear tube product that is listed on the Victorian Energy Efficiency Target Scheme Product Register, and complies with all relevant requirements of AS/NZS60598.2.1:2014, including amendments.
- (3) Control gear for linear fluorescent lamps manufactured in, or imported into Australia must comply with the requirements in AS/NZS 4783.2-2002.

#### **5. MINIMUM INSTALLATION REQUIREMENTS**

- (1) The Activity must be performed by a licensed electrical worker under the supervision of a licensed electrical contractor
- (2) The Activity must be completed and certified in accordance with any relevant code or codes of practice and other relevant legislation applying to the Activity, including any licensing, registration, statutory approval, Activity certification, health, safety, environmental or waste disposal requirements
- (3) Where relevant, the Activity must achieve the relevant requirements of:
  - AS 2293 Emergency escape lighting and exit signs for buildings
  - AS/NZS 1158 Lighting for roads and Public Spaces
  - AS 2144 traffic signal lanterns
- (4) Where linear fluorescent luminaires are modified to accept linear LED tubes, an Electrical Certificate of Compliance must be provided and retained for verification purposes. The Certificate of Compliance must define the modification work for each type of linear fluorescent luminaire, specify that the modification work include electrical isolation of the legacy ballast (and capacitor if one was present), and specify that the work was performed in accordance with the safety requirements of AS/NZS60598.2.1:2014, including amendments.
- (5) All removed lighting and equipment must be removed in accordance with the Environment Protection (Waste to Resources) Policy 2010 under the *Environment Protection Act 1993*. No fluorescent lighting or any other lighting that contains mercury is to be disposed of to landfill.
- (6) Where linear LED tubes are installed in accordance with the instructions provided with the LED tube, but without removal of legacy ballasts and/or capacitors, installers must:

- Measure and assess the true power factor of the upgraded lighting circuit, with the aim to show the upgrade should not have a detrimental impact on the customer's compliance with:
  - Section 6.5.3 of SA Power Networks Service and Installation Rules, 2016. This requirement can be met by any reasonably verifiable and technically sound means proposed by the installer, and
  - AS/NZS 3000 wiring rules
- Obtain ESCOSA approval for the proposed power factor measurement and assessment methodology prior to proceeding with the installation. Once approved, a methodology can be used across multiple installations, providing the methodology does not change. Evidence that a methodology is approved by the Essential Services Commission of Victoria for the purposes of the Victorian Energy Efficiency Target Scheme will be sufficient to meet this installation requirement.

(7) Each space, after implementation of the Lighting Upgrade must achieve:

- the relevant requirements of AS/NZS 1680
- the requirements of the NCC section F4.4, Artificial Lighting
- an Illumination Power Density that equals or is less than the maximum Illumination Power Density for each space, as defined in Part J6 of the NCC

***Additional requirements where recipient of the Activity is a small energy consuming customer:***

- (8) Where the new lighting installed equipment causes sub-optimal operation, or has not been completed to the demonstrated satisfaction of the recipient with regards to the colour temperature, colour rendering and the illumination levels of the new lighting, the installer shall either reinstall equipment equivalent to the original equipment or replace any components of the equipment that are causing the installation not to operate, at no expense to the recipient. Such a request for reinstatement must be acted upon if made within 20 business days of the installation of the new equipment.
- (9) The installer must make best endeavours to avoid compromising lighting service levels, and lux levels must be maintained at least at the levels prior to the Activity.

## **6. REPORTING REQUIREMENTS**

For verification purposes, the following records will be retained in relation to the Activity:

- (1) Site Name
- (2) Site Address
- (3) The classification of the commercial premises in accordance with Australian and New Zealand Standard Industrial Classification (ANZSIC) codes at the divisional level
- (4) Date of Activity
- (5) Energy saved calculated in accordance with the activity energy saving requirements in this specification

- (6) An output report from the ESS Commercial Lighting Calculation Tool ([www.ess.nsw.gov.au/Methods\\_for\\_calculating\\_energy\\_savings/Commercial\\_Lighting](http://www.ess.nsw.gov.au/Methods_for_calculating_energy_savings/Commercial_Lighting)) - produced using the version of the Calculation Tool current at the time the Activity is undertaken
- (7) All evidence requirements specified by ESCOSA including those required by ESCOSA REES Bulletin No. 20 'REES Commercial Lighting Activities'.
- (8) Proof that all removed lighting equipment (including lamps and control gear) has been properly decommissioned including proof of correct recycling or disposal.
- (9) For linear LED tubes installed without removal of legacy ballasts and/or capacitors, evidence of the true power factor measurement and assessment approach used, and the result of the measurement made.
- (10) Where linear florescent luminaires are modified to accept linear LED tubes, written evidence that the recipient has received, and acknowledged receipt of, written information that the modification work will likely void the original luminaire manufacturer's warranty.
- (11) Evidence that each space, after implementation of the Lighting Upgrade achieves:
  - the relevant requirements of AS/NZS 1680
  - the requirements of the NCC section F4.4, Artificial Lighting
  - an Illumination Power Density that equals or is less than the maximum Illumination Power Density for each space, as defined in Part J6 of the NCC

***Additional requirements where recipient of the Activity is a small energy consuming customer:***

- (12) Evidence that the recipient has received, and acknowledges receipt of, written information on:
  - (a) the details of the new lighting equipment, including colour temperature, colour rendering and illumination levels, and
  - (b) the steps the recipient can take should the new lighting equipment be sub-optimal or unsatisfactory.

***Additional requirements where recipient of the Activity is a large energy consuming customer:***

- (13) A valid tax invoice, clearly showing the completion date, the address, the name and contact details of the person billed for the installation, and the amount charged for the installation.

## **7. ACTIVITY ENERGY SAVINGS**

The normalised energy saving from undertaking this Activity is equal to:

Normalised Energy Saving (GJ) = output from the ESS Commercial Lighting Calculation Tool as expressed in 'saved MWh' x 3.6 up to a maximum of 1,800GJ.

With the exception of lamp only replacements of fluorescent tubes with LED tube products, energy savings for this Activity will be calculated using the deemed energy savings method from Clause 9.4 of the NSW 'Energy Savings Scheme Rule of 2009, Effective from 28 April 2017', or a current rule that supersedes this.

Calculations will use the factors and values from Schedule A – Default Factors and Classifications of the NSW ‘Energy Savings Scheme Rule of 2009, Effective from 28 April 2017’, or a current rule that supersedes this.

For lamp only replacements of fluorescent tubes with LED tube products energy savings will be calculated using the ESS Commercial Lighting Calculation Tool using the lighting category ‘LED Lamp Only 240V – Self Ballasted’.

Where linear fluorescent luminaires are modified to accept linear LED tubes, energy saving will be calculated using the ESS Commercial Lighting Calculation Tool using the lighting category ‘Modified Luminaire (LED Linear Lamp)’.

## **8. GUIDANCE NOTES**

Eligible products under the NSW Energy Savings scheme include products of a class listed in the following:

NSW – ‘Energy Savings Scheme Rule of 2009, Effective from 28 April 2017’ - Schedule A – Table A9.1 ‘Standards Equipment Classes for Lighting Upgrades’, or a current rule that supersedes this, or

NSW ‘Energy Savings Scheme Rule of 2009, Effective from 28 April 2017’ – Table A9.3 ‘Other Equipment Classes for Lighting Upgrades’, or a current rule that supersedes this - Schedule A, or

Products listed under NSW Energy Saving Scheme “Public List of Accepted Emerging Lighting Technologies”

<https://www.ess.nsw.gov.au/Home/About-ESS/Lighting-equipment-requirements/Commercial-lighting-requirements>