



COMMERCIAL LIGHTING ISSUES PAPER

1. INTRODUCTION

The purpose of this discussion paper is to seek stakeholder feedback on:

- the remaining opportunities for commercial lighting upgrades through Victorian Energy Upgrades
- key issues associated with the earlier-than-anticipated achievement of the 2017 Victorian Energy Upgrades program target
- how the rollout of energy efficiency activities, which historically has rapidly expanded and contracted, impacts participants.

Responses to this discussion paper can be lodged by emailing energy.upgrades@delwp.vic.gov.au. Responses should be submitted by Friday 18 August 2017.

2. BACKGROUND

Overview of program

Victorian Energy Upgrades is designed to encourage the uptake of energy efficiency activities.

The program works by placing a liability on certain energy retailers, where they must collectively meet an annual greenhouse gas (GHG) abatement target. The individual retailer liability is calculated with reference to “scheme acquisitions” and the “Greenhouse Gas Reduction Rates” as set in section 31 of the *Victorian Energy Efficiency Target Act 2007*.

The annual GHG abatement target must be met through the uptake of prescribed energy efficiency activities in residential, business and non-residential premises. These activities are specified in the *Victorian Energy Efficiency Target Regulations 2008* and the *Victorian Energy Efficiency Target (Project-Based Activities) Regulations 2017*, and can only be undertaken by Accredited Persons (APs).

Each tonne of GHG emissions abated by a Victorian Energy Upgrades activity generates one Victorian Energy Efficiency Certificate (VEEC). The VEECs are tradeable and must be surrendered by energy retailers to meet the collective annual target.

The revenue APs generate from the sale of VEECs can offset or reduce the cost of the activity (to the AP, consumer or both). The cost of undertaking an energy efficiency activity under the program will depend on the cost of carrying out the activity, the number of VEECs generated and the value of those VEECs. As the VEECs are sold on a market, their value will fluctuate and this can affect the types of upgrades undertaken by APs.

By trading VEECs on a market, APs and energy retailers work to deliver the lowest cost energy efficiency upgrade activities to meet the program’s GHG abatement target.

Program targets

Victorian Energy Upgrades was established under the *Victorian Energy Efficiency Target Act 2007* and commenced on 1 January 2009 with an annual target of reducing lifetime GHG emissions by 2.7 million tonnes per annum.

While initially limited to promoting uptake of energy efficiency activities in residential premises, the program was expanded to the business and non-residential sector in 2012 and the scheme target was doubled to 5.4 million.

Targets for the 2016-2020 period were set in 2015, increasing from 5.4 million in 2016 to 6.5 million in 2020.

Years	Target
2009 to 2011	2.7 million tonnes per year, set in VEET Act
2012 to 2014	5.4 million tonnes per year, set in VEET Regulations
2015	5.4 million tonnes per year, set by Minister
2016 to 2020	5.4 to 6.5 million tonnes per year, set in VEET Act
2021 to 2025	To be set in VEET Regulations
2026 to 2030	To be set in VEET Regulations

Meeting the 2017 target

By the end of 2016, sufficient VEECs had been registered to meet the 2016 Victorian Energy Upgrades target and to supply over 1.9 million certificates towards the 2017 target of 5.9 million VEECs.

By 10 July 2017, sufficient VEECs had been registered to meet the 2017 program target. Lighting upgrade (Schedule 34) activities contributed to 84 per cent of VEECs created since the start of 2017.

Additionality in the program

Under Section 15 of the *Victorian Energy Efficiency Target Act 2007* energy efficiency upgrades can be prescribed activities, and eligible to create certificates, provided the greenhouse gas reduction attributed to the activity would not otherwise have occurred.

The *Victorian Energy Efficiency Target Regulations 2008* (the Regulations) determine the greenhouse gas reduction attributed to a prescribed activity by subtracting the emissions associated with the upgrade activity from a baseline — the hypothetical emissions if the activity had never been undertaken.

Hypothetical baseline emissions are set to account for circumstances where the activity would have occurred outside the program. For example, when lighting equipment is wholly replaced as part of a Schedule 34 upgrade, the baseline assumes this equipment would have otherwise remained in place for 10 years. Whereas when an upgrade occurs as part of a site refurbishment that is required to comply with Section J6 of the building code, the baseline technology is assumed to be the level of efficiency required under the building code.

Changes in circumstance, such as increasing energy costs and improvements to the quality and affordability of energy-efficient technologies, can drive energy efficiency activity – and may mean that projects would occur with no or little incentive offered under Victorian Energy Upgrades. The hypothetical baseline then needs to be adjusted to decrease the number of certificates generated from undertaking that activity.

Recent amendments to the Regulations have adjusted the hypothetical baseline scenario to account for improvements in the efficiency of products installed or available on the market, such as the 2015 amendment to Schedule 21 – Incandescent Lighting and the 2016 amendment for Schedule 24 – High Efficiency Televisions. Section 19 of the Act also allows for the number of VEECs generated from an activity to be reduced without an amendment to the Regulations. This is done by the responsible Minister declaring a discount factor for a schedule or certain activities described within a schedule.

The annual Victorian Energy Upgrade program targets are fixed in advance. The current 2016-2020 targets were set in 2015 and at that time considered some energy efficiency upgrades to be business-as-usual. Where business-as-usual circumstances change during a target period, the baseline emissions assumptions can be adjusted to ensure Victorian Energy Upgrades continues to drive energy efficiency upgrades that are additional to business-as-usual.

3. SCHEDULE 34 LIGHTING UPGRADE ACTIVITIES

The lighting upgrade (Schedule 34) activity for business and non-residential premises was introduced to Victorian Energy Upgrades in May 2012. Since the introduction of this activity, it has accounted for approximately 25 per cent of all VEECs created¹.

Most of the activity in this schedule has occurred since the introduction of variable annual operating hours at the start of 2016. Since then, over 60 per cent of all VEECs created have been from Schedule 34 activities, and this proportion increased to over 80 per cent for 2017².

Lighting upgrades and future targets

The Department of Environment, Land, Water and Planning (the department) is currently analysing Schedule 34 lighting activities in business and non-residential premises.

1. Includes VEECs subsequently withdrawn or refused registration.

2. As at 28 July 2017.

One of the preliminary outcomes of this review is an estimation of the remaining pool of opportunity for this activity, excluding street lighting and other non-building based lighting, as presented in Figure 1. This pool of opportunity represents the inefficient lighting stock installed in buildings and currently eligible for replacement with energy-efficient lighting under Victorian Energy Upgrades.

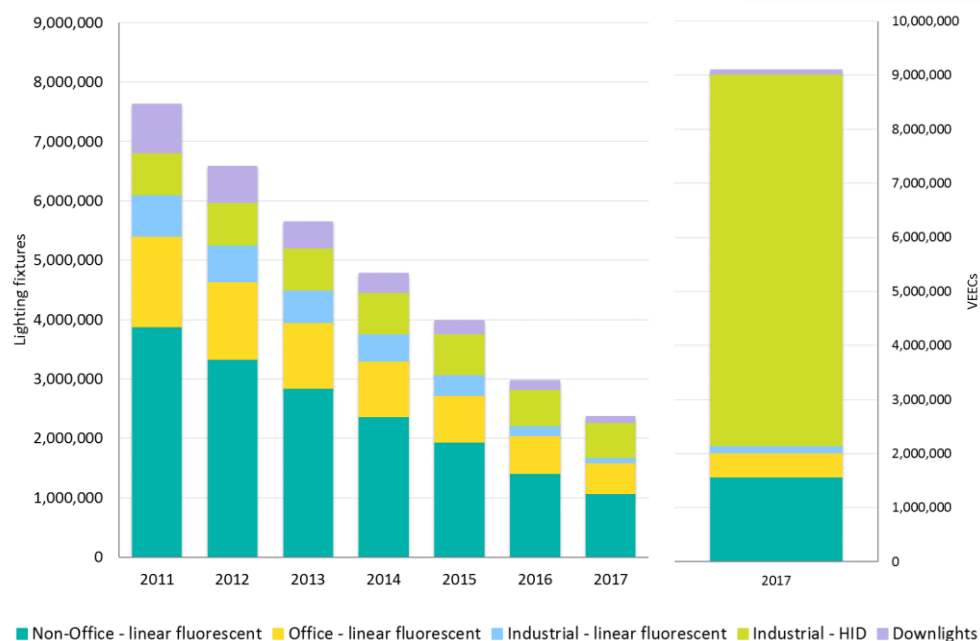


Figure 1. Pool of opportunity for building-based lighting upgrades (Schedule 34) in the business and non-residential sector in terms of lighting fixtures from 2011 to 2017, and VEECs from the 2017 pool. The pool of opportunity considers business-as-usual turnover of lighting equipment and Victorian Energy Upgrades activities. Linear fluorescent lighting has been segregated into non-office (retail, education and health), office and industrial sectors. High intensity discharge (HID) category includes high pressure sodium, mercury vapour and metal halide lamps.

Note: Data from VEEC registrations at 19 April 2017. Lighting fixtures modelling by Beletich Associates.

As illustrated in Figure 1, a significant proportion of the VEECs expected to be created from the lighting upgrade pool of opportunity will be from replacing high pressure sodium, mercury vapour and metal halide lamps with energy-efficient LED lighting. Based on the upgrades undertaken in 2016 for these types of lamps, which are typically in highbay/lowbay and floodlight applications, pre-existing lamps are mostly about 350 to 400W and are replaced with energy-efficient LED lighting of 100 to 150W (see Figure 2).

The lighting upgrade pool of opportunity is estimated to generate 9.1 million VEECs. These VEECs would meet the 2018 target (6.1 million VEECs), and contribute to the 2019 target of 6.3 million VEECs.

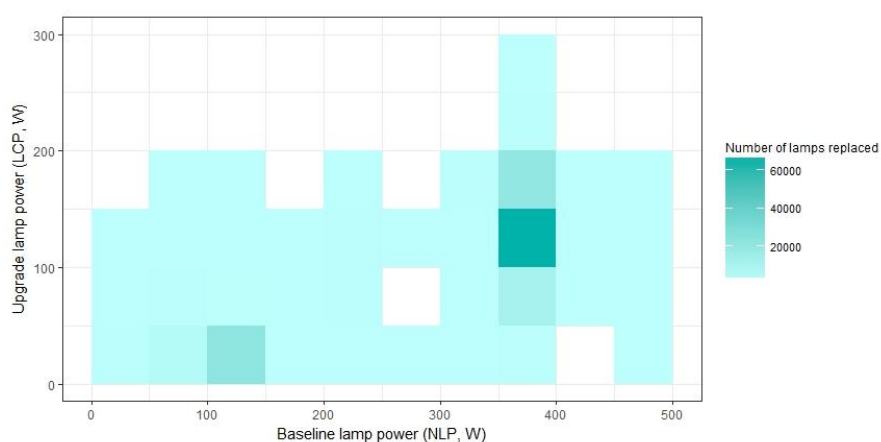


Figure 2. One-for-one highbay and floodlight (high pressure sodium, mercury vapour and metal halide) lamp replacements undertaken during 2016. The most common combination occurred where baseline lamps had a nominal lamp power (NLP) of 350-400W and upgrade equipment had a lamp circuit power (LCP) of 100-150W. This accounted for 66,718 of the 133,617 one-for-one highbay and floodlight lamp replacements in 2016.

Note: Lighting upgrade data based on activities with a 2016 activity date and a status of registered or pending validation as at 7 July 2017. 132,702 of the 133,617 one-for-one replacements fell within the depicted range.

Questions

We are seeking your views and experiences regarding lighting equipment in the business and non-residential sector, as covered by Schedule 34 under Victorian Energy Upgrades:

1. How does the mix of lighting types, as presented in Figure 1, compare to your experiences in the business and non-residential sector?
2. How do the combinations of baseline and upgrade lamp powers depicted in Figure 2 compare to your experiences in lighting upgrades?
3. Have you experienced any difficulties upgrading, or seeking to upgrade, particular types of lighting equipment? Please consider the following aspects in your response
 - a. sales leads, marketing and provision of quotes
 - b. age and types of pre-existing equipment
 - c. technological issues associated with pre-existing and replacement equipment
 - d. receptiveness of different sectors and businesses to undertaking a lighting upgrade.

4. VEEC TRADING PRICE

The VEEC trading price has significantly decreased in recent periods, and is currently at about \$14 after hovering around \$11 for May and June 2017. This low price may be a result of the ability of APs to deliver low-cost lighting upgrade (Schedule 34) activities under Victorian Energy Upgrades due to decreasing equipment costs, but it may also be a consequence of the surplus of VEECs in the trading market.

The number of registrations of residential activities has decreased significantly with the declining price.

Questions

4. What effect does a low VEEC trading price have on your participation in Victorian Energy Upgrades? Have you had any experience with unmet demand for eligible activities?

5. HISTORICAL VEEC REGISTRATIONS

Victorian Energy Upgrades has a history of energy efficiency activities being concentrated on a limited number of activity types at any given period, as shown in Figure 3.

When the program commenced, VEECs were predominantly generated by lamp replacements (under the now-revoked Schedule 16), followed by standby power controllers from mid-2011.

From 2015 to mid-2016, one-for-one lamp replacements under Schedule 21 dominated the program. Non-residential lighting upgrades under Schedule 34 have been the predominant source of VEECs since the second quarter of 2016.

By focusing on a limited number of activity types, APs can purchase energy-efficient products in bulk and engage contractors to undertake specific upgrades for extended periods. This allows APs to gain economies of scale and subsequently deliver low-cost abatement. However, the trade-off to the delivery of this low-cost abatement is that it limits the effective availability of upgrades to specific activities and sectors.

While Victorian Energy Upgrades has historically provided energy efficiency activities focused on the residential sector, the current situation is that APs are predominantly delivering non-residential lighting upgrades under Schedule 34 and the market is not delivering other activities, particularly in the non-residential sector.



Figure 3. Registered VEECs by activity date from 2009 to 2016, at quarterly intervals. Shown are VEECs registered for each of the lighting activities (Schedules 16, 21 and 34), standby power controllers (SPCs, Schedule 29), and all other activities.

Note: VEEC registrations are as of 28 July 2017. VEECs for activities undertaken in 2016 could be created up to 30 June 2017, and are validated by the Essential Services Commission before becoming registered.

Questions

5. Tell us about your experience and challenges encountered when participating, or seeking to participate, in Victorian Energy Upgrades.

6. LOOKING FORWARD

Regulation sunseting

The *Victorian Energy Efficiency Regulations 2008* will sunset (expire) in December 2018. The department will need to remake the Regulations by mid-2018. Note, the sunseting will not include or affect the project based activity regulations.

The department is preparing a Regulatory Impact Statement (RIS) to support the remaking of the Regulations, and this will be subject to a consultation process in 2018. Feedback received on this Issues Paper may be considered in the development of the RIS.

Targets for 2021 to 2025

Over 2017-2018 the department will be building on its work on the lighting upgrade pool of opportunity to explore the remaining capacity for energy efficiency activities in the non-residential and residential sectors as part of its consideration of the 2021 to 2025 program targets.

New targets for 2021-2025 will need to be set by 31 May 2020. While the current Victorian Energy Upgrades program targets for the 2016 to 2020 period are set in the *Victorian Energy Efficiency Target Act 2007*, the targets for the 2021-2025 and 2026-2030 periods can be set by regulations.