



energy savings
Industry Association

**ESIA Submission
Lighting Activities Issues Paper
December 2019**

Victorian Energy Upgrades (VEU)

Resubmitted 27 February 2020

Submitted via the portal <https://engage.vic.gov.au/victorian-energy-upgrades/lighting>

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Introduction

The Energy Savings Industry Association (ESIA) is pleased to make this submission in response to the Victorian Energy upgrades (VEU) Lighting Activities Issues Paper released on 5 December 2019 by the Victorian Department of Environment, Land, Water and Planning (DELWP).

About ESIA

The Energy Savings Industry Association (ESIA) is the peak national, independent association representing and self-regulating businesses that are accredited to create and trade in energy efficiency certificates in market-based energy efficiency schemes in Australia. These activities underpin the energy savings schemes which facilitate the installation of energy efficient products and services to households and businesses. Members represent the majority of the energy efficiency certificate creation market in Australia. Schemes are established in Vic, NSW, SA and ACT. Members also include product and service suppliers to accredited providers within the schemes. As well, the ESIA represents member interests in national initiatives that include energy efficiency such as the Federal Government's Climate Solutions Fund.

Further engagement with the Victorian Government

We welcome the opportunity to discuss this submission prior to a Response to Consultation scheduled for publication in February 2020. For any queries, please contact comns@esia.asn.au

The VEU Lighting Issues Paper seeks feedback on:

1. The future direction of lighting activities in VEU program
2. The technical changes proposed within this document (which will be drafted in the Specifications)
3. The remaining opportunities for lighting upgrades under the VEU program
4. What impact the proposed changes may have on meeting the 2020 target
5. How the proposed changes to lighting activities will impact program participants. (p5)

The following questions are posed for consideration:

1. Which of the proposed lighting changes are most relevant to you?
2. Does the Lighting Issues Paper accurately reflect your experience and address issues you have experienced?
3. What are your views on the relative merits of options 1 and 2 for phase out of Part 21 and Part 34 activities?
4. General comments on the proposed changes and discussion points contained in the Issues Paper. (Source: <https://engage.vic.gov.au/victorian-energy-upgrades/lighting>)

General response

ESIA opposes all proposed options in the VEU Lighting Activities Issues Paper

The ESIA supports the strategic policy goals that the Victorian Government is seeking to achieve with proposed method changes to lighting under the Victorian Energy Upgrades (VEU) program, however we oppose all the proposed options detailed in the Issues Paper to achieve these goals.

None of the proposed options to change Part 21 or 34 are consistent with the key principles of best practice energy efficiency scheme design which we discuss in this response. We particularly oppose proposed removal of some lighting activities under Part 34 on these grounds.

Moreover, the proposed approaches risk inadvertently driving up sovereign risk and Victorian Energy Efficiency certificate (VEEC) prices and delaying transition to non-lighting activities.

Instead, we recommend alternative approaches to achieving the Government's policy goals and VEU program objectives, which the ESIA strongly supports, to:

1. reduce greenhouse gas emissions;
2. encourage efficient use of electricity and gas; and
3. encourage investment, employment and technology development in industries that supply goods and services which reduce the use of electric and gas by consumers.

Our recommendations will support a manageable transition with upgrades occurring that deliver 'additional' as opposed to 'business-as-usual' (BAU) activity, with lower cost abatement at scale that reduces costs to customers. A case in point: the ESIA accepts that it is not the role of the VEU to deliver 100% saturation of the lighting upgrade market. However, we strongly believe that the Victorian Government should not pass up the opportunity to enable further significant deemed lighting upgrades up to 2025, beyond the proposed February 2021 end date (Option 2) for certain lighting activities.

1000+ jobs lost without reasonable industry transition

The Victorian Government's proposed rapid phase out of deemed lighting presents a genuine shock to the market providing inadequate time for major adjustments including transitioning jobs and skills to the proposed new activities. Around 1,000 jobs would be lost under such a rapid and unwarranted phaseout in less than 12 months from announcement of a final decision, based on estimates by ESIA members.

These losses would come at precisely the time that businesses are being called upon to invest in innovation and retraining of energy efficiency activity experts, sales forces and support staff who require different consideration than, say, electricians who may more easily find transitional contract work. Deep expertise in the VEU will be lost, as occurred in 2014 when the program's future was uncertain prior to the Victorian election which put scheme extension post 2015 at risk under a potential Coalition government which at that time did not support the program. Businesses laid off significant numbers of staff and contractors who were not re-employed following that hiatus.

Such job losses will devastate Victoria's energy efficiency industry when the sector is building capacity and a primary lever empowering consumers to deliver climate change mitigation activity in their own homes and businesses. With the strong smell of bushfire smoke still permeating many inadequately sealed homes across the State (with more to come), proposed options seem acutely unpalatable in terms of sound public policy and political sensitivity.

New activities welcomed

The ESIA recognises and welcomes the importance of introducing and stimulating new activities and methods to achieve the targets proposed in the Regulatory Impact Statement (RIS) VEET (Prescribed Customers and Targets) Regulations 2020. Targets increases from 2021-2025 are greatly welcomed and the ESIA looks forward to consulting further with the Government on those initiatives. We would prefer that the targets in Option 5, rather than the RIS-preferred Option 4, be adopted. This further target increase would be possible should our recommendations be adopted to continue lighting to 2025 with some adjustments and additions, introduce a priority household target, and streamline Project-Based Activities (PBA). *(Refer to ESIA Submission: VEU RIS VEET Amendment Regulations 2020, Appendix 1 - Ideas on streamlining PBA: reducing risk and costs, 31 Jan 2020)*

Additionality

All the proposed options take a binary and inconsistent approach to savings additionality. Whereas in fact, additionality is on a spectrum that measures the likelihood a new activity would not have occurred without the VEU, against the changing rate of Business As Usual (BAU) upgrades over time.

We agree that vast numbers of residential lighting upgrades have occurred under Part 21 and industrial HID upgrades (such as high bays) have occurred under Part 34. Indeed, for all building types, efficient LEDs are becoming the norm for a growing share of new buildings and major refurbishments. However, there is no evidence that residential, commercial or industrial customers are conducting BAU energy efficiency lighting retrofits outside either VEU supported projects or major refurbishments.

Therefore, lighting upgrades remain additional. Indeed, the Government's proposal to transition lighting upgrades from Part 34 to the PBA method is an acknowledgement of this additionality.

However, the likelihood of each new upgrade not being driven by a building refurbishment is gradually decreasing each year. Therefore, we agree that methods should be adjusted to account for these future improvements in baseline energy efficiency. The Government's proposed adjustments, however, are neither grounded in theory nor evidence.

Rather than treating additionality as a binary, the default savings factors should be adjusted to reflect this changing likelihood of the period for which VEU upgrades will bring future savings forward. These adjustments should reflect different rates of BAU refurbishments for different building types and classes. For example, if the average refurbishment period is 15 years for Premium and A grade commercial buildings, and 20 years for industrial and B and C grade commercial buildings, then a building chosen at random could likely undertake a refurbishment (and probably switch to LED lights) in 7.5 and 10 years' time respectively.

Additionality should be based on deemed savings calculations that transparently take into account these periods and the likelihood of LED upgrades for different building types and classes. For a detailed quantitative and qualitative analysis of these energy efficiency scheme lighting factors and trends, refer to the study conducted for the NSW Government in 2017¹.

Unnecessary risk

The lack of sound reasoning for these proposed changes to Parts 21 and 34 suggests that the underlying goal is not actually additionality, but to drive up certificate prices and shift activity to the PBA method.

The ESIA strongly supports Government efforts to increase implementation of projects under the PBA method (*refer to ESIA Submission: RIS VEET Amendment Regulations 2020*). However, we do not support proposed changes to lighting to promote a transition to PBA and non-lighting activities.

On the contrary, arbitrary manipulation of additionality and deeming assumptions and dramatic short-term changes in the market Rule undermine method integrity and investor confidence in the VEU. This increased sovereign risk and transaction costs will likely drive up costs for consumers without proportional increases in benefits.

Market responsiveness: innovation, investment and re-training take years

We encourage the Government to understand that the success of the VEU depends upon a combination of the policy integrity of methods and commercial viability of the market.

The level of savings attributed to an activity and the traded price of certificates both influence the incentives the program provides the market to pursue activities.

However, there are unavoidable lags between when incentives are made available and when the market can deliver them at scale. It took the early innovators two to three years to develop scaled commercial lighting retrofit offerings. It still took followers one to two years to emulate and build on these businesses.

Non-lighting commercial activities will take similar periods to scale up. This is because they typically have significantly higher upfront costs, so the incentive provided by the VEU will be less attractive to customers and require new sales channels and value propositions. Many ESIA members are highly agile and are innovating to develop compelling market offerings for non-lighting VEU upgrades. Notably, the reduction in commercial lighting upgrades under Part 34 that resulted from significant residential lighting giveaways under Part 21 has reduced commercial energy efficiency sales forces that many members must now build up for non-lighting upgrades.

¹ NSW Lighting Market Impact Evaluation: Impact of NSW Government energy efficiency programs – Final Report, Common Capital and Beletich Associates, 1 Nov 2017. Published as ESS 2017-18 Rule Change Consultation Paper Appendix B: https://energy.nsw.gov.au/sites/default/files/2018-09/ESS-2017-18-Rule-change-consultation-paper-Appendix-B_0.pdf

Part 27 remains untapped although significant abatement opportunities exist and Part 35 is also yet to scale up.

Commercial realities

Rather than accelerate the transition to non-lighting activities, the proposed VEU changes risk further reducing the cashflow and sales forces of our members available to transition. This in turn risks a period of high certificate prices and certificate undersupply at a time when businesses must fund innovation in non-lighting offerings out of speculative investment. The increased sovereign risk of what could be perceived as regular and somewhat arbitrary change to VEU methodologies in turn could deter necessary investment in new offerings to deliver VEU targets.

Key principles to drive VEU method development and maintenance

To address these risks and issues, the ESIA has identified seven key principles for the development and maintenance of energy savings scheme methods that should drive proposed and future changes:

1. **Schemes should provide methods for as broad a range of additional energy savings activities as possible** to allow the market to find implementation solutions.
2. **Additionality should reflect the likelihood of an activity occurring in the absence of the scheme** – considering regulatory requirements, the baseline rates of equipment and building stock turnover and the proportion of the market which undertakes early energy savings upgrades in the absence of schemes.
3. **Methods should seek to allow the standardised estimation of the energy savings that could reasonably be expected** from an instance of that activity under normal conditions.
4. **Methods should provide for the estimation of savings and demonstration of implementation in the simplest, lowest cost way**, while providing assurance product and installation quality and safety and mitigation of gaming, proportional risk and impact.
5. **Savings deeming periods should be transparent and based on** a factor of both the timeframes that equipment will last and adjusted for the likelihood it would have been replaced in that period.
6. **Where the savings from given activity can be measured by multiple methods**, measurement approaches should result in outcomes that are on average consistent.
7. **Changes should be made to methods with sufficient notice so as to avoid unreasonable business disruption** (for example stranded investments in products and staff), which in turn would increase compliance costs to cover sovereign risk and drive exit from the market of suppliers the Government requires to deliver new activities. A minimum of 12 months' notice should be required for changes that have a material impact on the commercial viability of activities currently conducted under the scheme, unless safety issues are at stake.

How proposed VEU changes stack up to these principles

The proposed changes to Parts 21 or 34 are not consistent with these principles.

Specific responses

Below, we make recommendations regarding Commercial Lighting (Part 34), Residential Lighting (Part 21), Public Lighting (Part 27) and Non Building Based Lighting (Part 35).

A. Changes to Part 34 (Commercial Lighting)

The Government considers that the reason various lighting technologies proposed to be removed from being eligible activities under Part34 deemed method, by no later than February 2021, is on the basis that these are now BAU.

We understand that these technologies will still be eligible to create Victorian Energy Efficiency Certificates (VEECs) under the Project Based Methodology (PBA).

Deemed lighting methods remain valid inclusions in the VEU as they are more efficient than PBA methods and the Victorian Government supports policy that delivers lowest cost energy savings.

BAU is not the case: The ESIA refutes the claim that the above-mentioned Part 34 lighting upgrades are BAU, this position is based on targeted marketing by members of top ASX 100 companies through to SME corner stores.

If BAU was the case, then:

- **significantly more upgrade work would be occurring now** - particularly in offices, retail (shopping centres) and aged care, health care and education institutions. Key barriers remain including multiple layers of management (owner, third party property manager, tenant) and the slow but worthwhile process of getting decision makers on board. To date, other markets have been easier to penetrate such as industrial, manufacturing and commercial businesses.
- **market penetration would be higher** in jurisdictions across Australia with no energy savings schemes instead of continuing to be flat. (A small exception is for some businesses operating in places with schemes, that they have experienced the benefits and may extend their roll out. Other businesses have consciously only done upgrades in jurisdictions with schemes.)
- **LEDS would be considered for full retrofit at scale across Victoria**, rather than when a major refurbishment takes place (every seven years at a minimum for customers with more sophisticated energy management plans and access to capital etc).

There is no evidence indicating that lighting installers and consumers replace less efficient with more efficient units when a single unit fails. The decision is usually made based on matching the fitting (replacing like with like), ease of replacement, unit cost, visual appeal, brightness and what is available at the point-of-sale. This is generally likely to be the case until bans on inefficient product are mandated and existing stock in Australia has been used up, which could take many years.

Building classification grey areas: There are still considerable untapped opportunities given that there are many office and shop sites, for example, that are eligible for upgrades that can be

reached now that there is more clarity around building classification as provided by the Victorian Government.

Standards too slow to deliver: Until the sale of HIDs and T5s are prohibited under Greenhouse and Energy Minimum Standard (GEMS) or some other government regulation (ie the same rationale as for the removal of Part 21), the replacement of these fittings should continue to be possible under Part 34.

Risk of stalling the market: There is a genuine risk that cost-effective lighting activities will cease without the deemed approach under Part 34. Financial and behavioural barriers to energy efficiency will mean that installations that would otherwise have taken place under Part 34 will no longer occur.

Whilst the VEU program has supported significant levels of commercial lighting upgrades, there are still considerable opportunities that remain that are not likely to be achieved under the PBA methodology. There is reasonable consensus that the high volume of upgrades under Part 21 has slowed Part 34 upgrades during 2019, which is not an indicator of reasonable saturation of 34.

Lighting upgrades under the PBA method may be undertaken by some of the more sophisticated commercial and industrial customers. Importantly however, it will be small to medium sized businesses that will miss out as these upgrades tend to be smaller and with higher transaction costs and transaction friction (eg uncertainty over measurement and delivery in certificate creation) which mean that this cost effective abatement opportunity will be lost.

Mercury to landfill to increase: The Minamata Convention is proposed to reduce replacement of mercury vapor lamps due to signatory countries agreeing to cease manufacture (Australia has not agreed to this). Uncertainty remains as to when Australia will mandate a phase out, and previous experience indicates a leadership position ahead of international actions is unlikely to occur. Even if this mercury-containing product market reduces due to the Minamata Convention supporting for a full ban in years to come, this will not impact the many units in-situ in Victoria. When those units fail, they will likely make their way to landfill without regulated mandatory disposal. This will create increased risks and costs for the Environment Protection Authority and, ultimately, Victorians.

National Construction Code 2019 changes are proposed to have a major impact on the additionality of 34 J6 activities: however, the changes are relevant for new-builds and not the retrofit market which is the sole focus of the VEU.

B. Changes to Part 21 (Residential Lighting)

The Victorian Government is proposing that all lighting upgrades under Part 21 be removed from being eligible activities by no later than February 2021.

Targeted market penetration: In the residential lighting market, for example under Part 21D, without the successful marketing models achievable under the VEU which find the customers and clearly communicate the savings opportunities, households are unlikely to undertake such retrofits that deliver 'additionality' beyond February 2021.

Standards too slow to deliver: Future national and international regulatory changes to lighting cannot be relied upon to support a shift to more energy efficient upgrades. The LED Minimum Energy Performance Standard (MEPS) and Halogen Phase Out is not confirmed: the final date of implementation by the Australian Federal Government for such MEPS, currently considered likely to be in September 2021, is dependent upon the European Union lighting regulations. It would be reasonable not to rely on making a major decision of Part 21 phase out until such time as the Federal Government commits to any regulatory change.

C. Changes to Part 27 (Public Lighting)

The Victorian Government is proposing that although Part 27 (ie road lighting other than traffic lights, or a public or outdoor space that is not a sports field) will remain, mercury vapour lamps will be removed from baseline calculations and no longer generate VEECs.

There has been no uptake in this activity. A major barrier is working with councils which is time-consuming and easier upgrades have occurred instead to date. (It has had greater uptake to date under NSW ESS). Removing it would negate significant abatement opportunities that are additional and not BAU.

Mass changeout of mercury vapour lamps will not occur without support under the VEU and the opportunity to recycle mercury under the VEU will be lost. (*Refer to **Mercury to landfill to increase** in A. above*)

D. Changes to Part 35 (Non-building based Lighting)

The Victorian Government is proposing that although Part 35 will remain (eg lighting in private spaces, car parks and sporting fields), mercury vapour lamps will be removed from baseline calculations and no longer generate VEECs.

There has been little uptake in this activity, with some traction in recent months. Removing it would negate significant abatement opportunities that are additional and not BAU.

Mass changeout of mercury vapour lamps will not occur without support under the VEU and the opportunity to recycle mercury under the VEU will be lost. (*Refer to **Mercury to landfill to increase** in A. above*)

Recommendations

1. General

- a) **Phaseout of proposed lighting activities by 2025 at earliest:** ESIA does not support Option 1 or 2 for proposed phaseouts ranging from August 2020 to February 2021.
- b) **Engage more deeply with industry on specific BAU in-field experience** as a priority.

2. Changes to Part 34 (Commercial Lighting)

a) **Part 34 should continue to include:**

- i. CFL and T5 fluorescent lamps as proposed for T8 and T12 fluorescent lamps.
- ii. HID lamps with a staggered reduction in abatement levels over time.

These lighting technologies continue to be a major opportunity for delivering significant greenhouse gas abatement and energy savings with millions of units still upgradable.

It is unreasonable to terminate this deemed opportunity given that full retrofits are not BAU, and PBA will not deliver as many upgrades. Major upgrade opportunities include:

- i. **HIDS** in warehouses, factories and SMEs
 - ii. **T5, T8 and T12 linear and circular fluorescent lamps and Compact Fluorescent Lamps (CFLs)** in offices, aged and health care and educational institutions. (Notably T5s, T8s and T12s have the same efficiency at 60 Lumens/Watt so should all remain. T5 still offers a material abatement and, although less than T8 and T12, will enable significant upgrades that won't happen otherwise).
- b) **Provide 12 months' notice to reduce deeming periods in the future** to a period based on an analysis of commercial lighting stock turnover rates based on building type and class refurbishment rates. (For example, in 2017 a report for the NSW Government suggested periods current at that time in the order of seven years for Premium and A grade commercial and 10 years for industrial and B and C grade commercial.²)
 - c) **Provide an advanced commitment and build in automatic further reductions annually thereafter**, based on forecast future stock turnover rates.
 - d) **Transition to the PBA method**

If the Government wants to encourage increased implementation of projects under the PBA method – as we believe it should – then this should be done by reducing the complexity of the PBA method.

If the Government is concerned that the high penetration rates of Part 34 HID upgrades increase the likelihood of fraud, then – once recommended changes are made – that concern

² NSW Lighting Market Impact Evaluation: Impact of NSW Government energy efficiency programs – Final Report, Common Capital and Beletich Associates, 1 Nov 2017. Published as ESS 2017-18 Rule Change Consultation Paper Appendix B: https://energy.nsw.gov.au/sites/default/files/2018-09/ESS-2017-18-Rule-change-consultation-paper-Appendix-B_0.pdf

should be managed under the VEU audit and compliance framework, not by arbitrary manipulation of savings calculations and deeming periods.

- e) **Introduce a staggered reduction in abatement factor for Part 34 HIDs, eg:**
 - i. 2021 - 100% of 2020 level
 - ii. 2022 - 80% of 2020 level
 - iii. 2023 - 60% of 2020 level
 - iv. 2024 - 40% of 2020 level
 - v. 2025 - 20% of 2020 level

3. Changes to Part 21 (Residential Lighting)

- a) **Part 21 should phaseout to 2025 with a significant downward adjustment to the abatement factor consistent with the deemed periods used for commercial lighting. This would provide an appropriate decelerator and deliver upgrades at a reasonable price and volume to the market.**
- b) **Provide 12 months' notice to reduce the current ineffective deeming period of 30 years to a period based on an analysis of residential lighting stock turnover rates. (For example, in 2017 a report for the NSW Government suggested a period current at that time of four years.³)**
- c) **Provide an advanced commitment and build in automatic further reductions annually thereafter, based on forecast future stock turnover rates.**

This approach would correct the current market distortions in Part 21, while providing a level playing field and smooth transition to other more additional activities. It would avoid the severe price shocks and stranded investments which are likely to result from the major proposed changes with little notice. The transparent and evidence-based approach to setting of deeming methods will also help restore confidence in method integrity and avoid future distortions from inconsistent savings methodologies.

If the Government is concerned that the high penetration rates of Part 21 upgrades increase the likelihood of fraud, then - once recommended changes are made – that concern should be managed under the VEU audit and compliance framework, not by arbitrary manipulation of savings calculations and deeming periods.

4. Changes to Part 27 (Public Lighting)

- a) **Mercury vapour lamps should remain, and support be provided to overcome key barriers of working with public entities such as councils and their complex decision making and asset management processes, asset ownership and relationships with electricity networks.**

5. Changes to Part 35 (Non-building based Lighting)

- a) **Mercury vapour lamps should remain, and support be provided to overcome key barriers working with customers and their complex decision making and asset management processes, asset ownership and relationships with electricity networks.**

³ Ibid.

Additional benefits of recommendations

- a) **A higher volume of cost-effective lighting upgrades will occur to 2025** which would not otherwise taken place and will mean that the cost to customers of meeting the proposed targets will be lower.
- b) **Lighting market innovation and transformation** will continue more strongly to 2025.
- c) **Smoother transition for industry as it finds new markets to reach the higher targets** which will be require more upgrades to achieve.
- d) **Significant incentives for remaining ‘additional’ lighting upgrades will support** continued jobs and investment and the Victorian economy.
- e) **The most energy efficient, high quality products will remain on the Lighting Register** (with appropriate removal for less efficient product with the introduction of minimum efficacy requirements) so it will remain the unofficial national register for such products to 2025.
- f) **Broader and deeper lighting retrofits are likely to continue** eg lighting scopes with more lighting product options support a fuller retrofit including higher and lower abatement factor products (eg tubes throughout an office, single bulbs in toilets, designer lights in foyers, car parks and emergency lighting). They are also a strong lead generator for deeper retrofits with smart lighting and controls, weather sealing and heating, ventilation and air-conditioning.
- g) **Mercury-containing products will continue to be removed and recycled at scale**, which won’t happen otherwise (eg metal halides). This VEU value-add is significant though not calculated as part of the program’s net economic benefit.

For more information regarding this submission, please email comns@esia.asn.au



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This document includes:

1. **Executive Summary** - summarises key aspects of the ESIA submission of 31 January and additional information explored in the body of the Addendum.
2. **Addendum**

Executive Summary

The ESIA position deviates significantly from the Government's proposal in key areas highlighted in red in Table 1.

Table 1 – Key areas where ESIA position deviates from the Government's Proposal		
Activity	Government Proposal	ESIA Position
Part 34 (Commercial Lighting)		
HID replacement	Phase out by Feb 2021	<i>Phase out to Dec 2025</i>
T5 and CFL replacement	Phase out by Feb 2021	<i>Continue</i>
T8 and T12 replacement	Continue	Continue
Part 35 (Non-building based)		
Mercury vapour lamp replacement	Remove from Aug 2020	<i>Continue</i>
Other lamp replacement	Continue	Continue
Part 27 (Public Lighting)		
Mercury vapour lamp replacement	Remove from Aug 2020	<i>Continue</i>
Other lamp replacement	Continue	Continue
Part 21		
All activities	Phase out by Feb 2021	<ul style="list-style-type: none"> • <i>Phase out to Dec 2025</i> • <i>Abatement factors to reflect those applying to HID replacement (7 years)</i>
Project Based Activities		
		<i>All lighting technologies and space types eligible under PBA</i>

Additional information provided in this Addendum focuses on the case for Part 34 (Commercial Lighting) continuation of certain activity types and is based on new data provided by some ESIA members that are deeply engaged in the sector. These ESIA member businesses will lose 50% to 70% of their pipeline of opportunity under the VEU with proposed changes when considering HID, T5s and CFLs. This equates to the same lost opportunity for emissions abatement. These member businesses stated that pipelines of opportunity for these upgrade types are not drying up, rather they have generally been consistently buoyant even after several years as 'live' jobs. One member alone has 10 times the volume of HID fixtures in their pipeline than that estimated in the Government's lighting modelling report as remaining for industrial buildings.

These types of upgrades are not Business As Usual (BAU) and will continue to deliver additional and significant energy savings and greenhouse gas emissions reductions that will not otherwise be realised without support of the VEU to 2025. These upgrades will support cash flow and investment certainty and confidence as businesses transition to new models to deliver on emerging upgrade opportunities under the VEU. Alternatively, the adverse impacts of an inadequate transition period where an overlap of activity upgrades are less likely to occur, will result in significant job losses (estimated 1,000 FTE positions), as well as loss of skills particularly for non-'free' upgrades. This will come at a time when businesses should ideally be investing and upskilling to support new activities development under the VEU in consultation with government. Further the adverse impact of the corona virus outbreak is impacting LED lighting product supply chains as a majority are manufactured in China. Any slowdown of related upgrades therefore should not be mistaken for market saturation indicated by any reduction in imports, installs and certificate creation.

Addendum

1. Rationale

The Energy Savings Industry Association (ESIA) is pleased to provide on 26 February 2020 this Addendum to our submission of 31 January 2020 in response to the Victorian Energy Upgrades (VEU) Lighting Activities Issues Paper released on 5 December 2019 by the Victorian Department of Environment, Land, Water and Planning (DELWP).

Additional information provided in this Addendum focuses on the case for Part 34 (Commercial Lighting) continuation of certain activity types and is based on new data provided by some ESIA members that are deeply engaged in the sector.

These ESIA member businesses will lose 50% to 70% of their pipeline of opportunity under the VEU with proposed changes when considering HIDs, T5s and CFLs. This equates to the same lost opportunity for emissions abatement. These member businesses stated that pipelines of opportunity for these upgrade types are not drying up, rather they have generally been consistently buoyant even after several years as 'live' jobs.

2. ESIA position deviates significantly from the Government's proposal

The ESIA position deviates significantly from the Government's proposal in key areas highlighted in red in Table 1 below.

Table 1 – Key areas where ESIA position deviates from the Government's Proposal		
Activity	Government Proposal	ESIA Position
Part 34 (Commercial Lighting)		
HID replacement	Phase out by Feb 2021	<i>Phase out to Dec 2025</i>
T5 and CFL replacement	Phase out by Feb 2021	<i>Continue</i>
T8 and T12 replacement	Continue	Continue
Part 21 (Residential Lighting)		
All activities	Phase out by Feb 2021	<ul style="list-style-type: none"> <i>Phase out to Dec 2025</i> <i>Abatement factors to reflect those applying to HID replacement (7 years)</i>
Part 35 (Non-building based)		
Mercury vapour lamp replacement	Remove from Aug 2020	<i>Continue</i>
Other lamp replacement	Continue	Continue
Part 27 (Public Lighting)		
Mercury vapour lamp replacement	Remove from Aug 2020	<i>Continue</i>
Other lamp replacement	Continue	Continue
Project Based Activities		
		<i>All lighting technologies and space types eligible under PBA</i>

3. Saturation of HIDs, T5 and CFL replacements has not been reached

The ESIA supports the Government's position that it is not the role of the VEU to deliver 100% replacement of inefficient lighting fixtures. However, the ESIA strongly maintains that there remains a large enough pool of opportunity to warrant continued inclusion of certain technologies under Part 34 that are proposed to be removed including HIDs, T5s and CFLs.

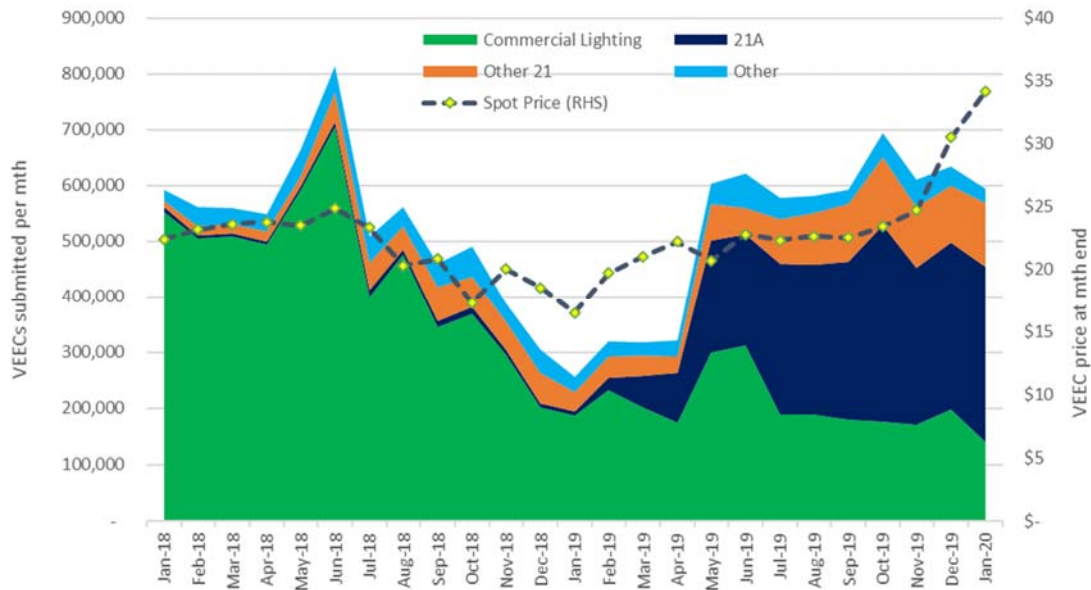
3.1. Why Part 34 VEEC creation has decreased

As opposed to the government's claims of 'saturation', the ESIA provides alternative reasoning for the significant reduction in commercial lighting VEEC creation over the past 18 months:

- The reduction in forward creation from 10 years to seven years for these activities led to a 30% reduction in the number of VEECs that can be claimed, which means that the payback to customers has become significantly longer. This means that the VEEC price needs to be the equivalent of at least \$34 for payback to remain the same as prior to the discount.
- Commercial lighting activities have been squeezed out by the overly generous abatement (more than 34 years of forward creation) for Part 21A activities which means that those upgrades are now free. The VEEC price started to fall from mid-2018, a drop from \$24 to \$18, in response to the expected significant creation to come from Part 21A. The VEEC price subsequently increased from January 2019 due to delays in getting 21A compliance issues resolved such as requiring installation by licensed electricians. The availability of significant levels of VEECs from free 21A activities meant that the VEEC price was lower than otherwise might have been the case and resulted in Part 34 activities being less attractive.
- ESIA members gradually redirected resources to Part 21A rather than Part 34 activities.

Figure 1 demonstrates monthly VEEC creation over the relevant period. Notably, the spot price increased from November 2019 was due to the release of the government's Lighting Issues Paper and VEU Target RIS. The two-month period following was obviously insufficient enough time for the market to switch to Part 34 upgrades, a significant impact being commencement of the Christmas holiday period with businesses, including certificate creators and installers, closing from the Friday before Christmas (19 December) and for much of January. During February there has been a resurgence in commercial lighting VEEC creation and upgrade activity.

Figure 1 – Monthly VEEC creation and VEEC spot price January 2018-2020.



4. The case for extending HID, T5 and CFL technologies under Part 34

The ESIA respectfully submits that a rapid phase-out of HID, T5 and CFL technologies over the next 12 months (by Feb 2021 at latest) would be a major policy mistake. This position is based upon industry evidence that:

- A significant pool of opportunity remains which will not otherwise be upgraded without support from the VEU. New ESIA member data reveals a far greater pool than modelled by the government’s consultant or previously ascertained by members.
- These types of upgrades are not Business As Usual (BAU) and will deliver additional, significant energy savings and greenhouse gas emissions reductions that will not otherwise be realised without support of the VEU to 2025.
- Due to project complexities and long approval processes, a possible a 12-month removal window is signalling uncertainty and investment risk to the market and some negotiations may cease imminently.
- These upgrades will support cash flow and investment certainty and confidence as businesses transition to new models to deliver on emerging upgrade opportunities under the VEU.
- Alternatively, adverse impacts of inadequate transition time, where an overlap of activity upgrades are less likely to occur, will result in significant job losses (estimated 1,000 FTE positions), as well as loss of skills particularly for non-‘free’ upgrades. This will come at a time when businesses should ideally be investing and upskilling to support new activities development under the VEU in consultation with government.
- The adverse impact of the corona virus outbreak is impacting LED lighting product supply chains as a majority are manufactured in China. Any slowdown of related upgrades therefore should not be mistaken for market saturation indicated by any reduction in imports, installs and certificate creation.

5. Lighting modelling report estimates not reflective of industry pipeline data

As acknowledged in the Lighting Modelling report, the modelling is imperfect (pp2-8). Therefore, the ESIA believes data provided by industry regarding sales pipeline opportunities needs serious consideration by government. Samples of evidence provided in this report clearly support the case that the modelling is not reflective of the market opportunity. *(Refer to Appendix 1)*

The ESIA seeks deeper engagement with government in future to test modelling assumption scenarios against industry experience, prior to finalising modelling.

The ESIA seeks clarification on whether the modelling takes into consideration allowance for the pool of opportunity likely to become available with the inclusion of large energy users previously exempted from the VEU.

5.1. HID upgrade opportunities

The Issues Paper states on p20: ‘Recently, the volume of HID lamp replacements has decreased, suggesting the pool of opportunity for replacements is decreasing.’

Opportunities are 10 times more than modelled for industrial upgrades: One ESIA member alone has 10 times the volume of HID fixtures for industrial space types in their pipeline (39,000) than that estimated in the Government’s lighting modelling report for industrial buildings which indicates that the remaining HID opportunity in the industrial sector is 3,236 units at the end of 2019 ¹. (Refer to Figure 2 below, ID26, Stock 2019b).

Saturation estimates for industrial sector unlikely: The report estimates that those 3,236 units are the remainder of a total of 576,000 units (Refer to Figure 2 below, ID 26,27,27a, Stock 2017). This is a saturation of 99.5%, which is highly unlikely or realistic for any upgrade type, and is not supported by industry pipeline intelligence at stated above.

Saturation estimates at the end of 2019 unlikely: The report estimates that the remaining pool of opportunity for HID replacement under Part 34 at the end of 2019 stands at 78,000 fixtures (Refer to Figure 2 below, ID 4,15, 26, Stock 2019b) out of a total of 1.3 million fixtures when considering non-office (571,036), office (167,351) and industrial (575,895) sectors stock. (Refer to Figure 2 below, stock 2017, ID 4,5,5a, 15,16,16a,26,27,27a) This represents a saturation of 94%, which also is highly unlikely or realistic for any upgrade type, and is not supported by industry pipeline intelligence at stated above.

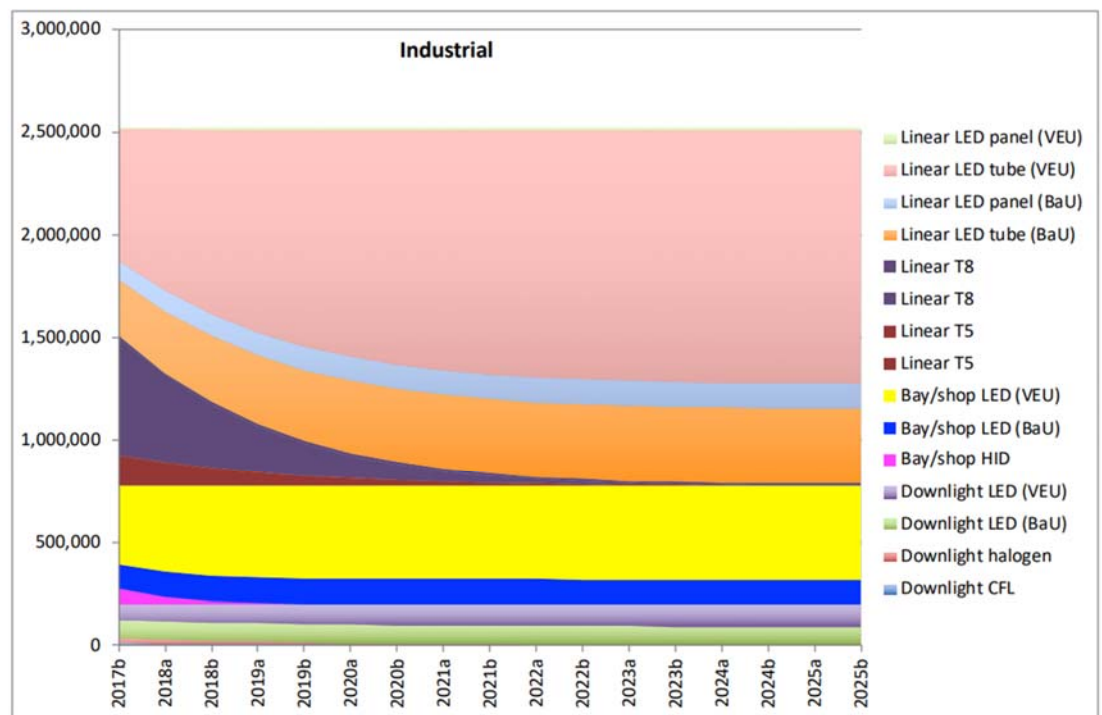
Figure 2 – Excerpt of Annexe 16. Fixture stock – initial estimates

16. Fixture stock - initial estimates										Stock						
ID	Part	Sector	Baseline Fixture	Upgrade Fixture	Stock 2016	Split	Bulb per 6 months (%)	Delta stock 2017	Stock 2017	2017b	2018a	2018b	2019a	2019b	2020a	
1	34	Non-Office	Downlight CFL	Downlight LED (VEU)	172,405	50%		-23,827	148,579	148,579	121,800	99,268	80,233	64,324	51,223	
2	34	Non-Office	Downlight halogen	Downlight LED (VEU)	187,830	50%		-53,468	134,362	134,362	109,341	88,631	71,134	56,599	44,621	
3	34	Non-Office	Downlight LED (BaU)	Downlight LED (VEU)	818,244		5.0%	-18,012	800,232	800,232	849,453	860,057	868,470	875,043	880,081	
4	34	Non-Office	Downlight LED (VEU)	Downlight LED (VEU)	577,388			-19,211	558,177	558,177	604,992	637,913	664,030	689,901	710,261	
5	34	Non-Office	Bay/shop HID	Bay/shop LED (VEU)	135,904			-56,317	79,587	79,587	156,335	86,293	47,831	26,291	14,512	
6	34	Non-Office	Bay/shop LED (BaU)	Bay/shop LED (VEU)	100,773		5.0%	-16,795	83,978	83,978	131,361	138,966	143,048	145,182	146,236	
7	34	Non-Office	Bay/shop LED (VEU)	Bay/shop LED (VEU)	118,361			-19,327	99,034	99,034	283,540	345,778	380,317	399,541	410,289	
8	34	Non-Office	Linear T5	Linear LED tube (VEU)	1,334,156	30%		-504,349	829,807	829,807	1,205,211	969,106	773,840	613,384	482,435	376,131
9	34	Non-Office	Linear T8	Linear LED panel (VEU)	1			-24,480	2,115,557	2,115,557	24,500	24,465	24,328	24,184	24,033	23,876
10	34	Non-Office	Linear T8	Linear LED tube (VEU)	3,359,037	70%		-243,480	3,115,557	3,115,557	3,051,240	2,392,039	1,853,370	1,419,941	1,074,576	802,535
11	34	Non-Office	Linear LED tube (BaU)	Linear LED tube (VEU)	1,055,133	75%	5.0%	-175,995	879,138	879,138	1,231,128	1,389,381	1,511,709	1,610,489	1,684,001	1,741,139
12	34	Non-Office	Linear LED panel (BaU)	Linear LED panel (VEU)	351,713	25%	5.0%	-58,665	293,048	293,048	410,376	463,081	504,484	536,650	561,332	580,007
13a	34	Non-Office	Linear LED tube (VEU)	Linear LED tube (VEU)	450,562	88%		-104,453	346,109	346,109	734,715	1,421,023	1,988,080	2,452,406	2,828,992	3,111,327
13b	34	Non-Office	Linear LED panel (VEU)	Linear LED panel (VEU)	12,869	2%		-8,616	4,253	4,253	21,885	22,360	24,099	25,813	26,993	28,124
14	34	Office	Downlight CFL	Downlight LED (VEU)	50,656	55%		-8,749	41,907	41,907	41,907	37,354	33,248	29,548	26,211	23,220
15	34	Office	Downlight halogen	Downlight LED (VEU)	33,929	45%		-16,034	17,894	17,894	15,306	13,031	11,040	9,299	7,781	6,518
16	34	Office	Downlight LED (BaU)	Downlight LED (VEU)	221,185		5.0%	-4,279	216,906	216,906	225,414	228,148	230,515	232,564	234,128	235,836
17a	34	Office	Downlight LED (VEU)	Downlight LED (VEU)	149,948			-10,514	139,434	139,434	376,502	419,511	478,522	542,565	618,573	688,578
18	34	Office	Bay/shop HID	Bay/shop LED (VEU)	98,442			-10,060	88,382	88,382	76,353	66,131	56,948	48,879	41,807	
19	34	Office	Bay/shop LED (BaU)	Bay/shop LED (VEU)	29,532		5.0%	-4,822	24,710	24,710	34,455	42,619	45,877	48,672	51,060	
20a	34	Office	Bay/shop LED (VEU)	Bay/shop LED (VEU)	88,377			-5,138	83,239	83,239	44,513	31,953	18,599	14,326	9,800	7,483
21	34	Office	Linear T5	Linear LED tube (VEU)	360,644	30%		-88,760	271,884	271,884	315,440	274,665	218,643	208,824	178,787	154,131
22	34	Office	Linear T8	Linear LED tube (VEU)	884,417	70%		-90,440	793,977	793,977	6,433	6,423	6,408	6,392	6,376	6,359
23	34	Office	Linear T8	Linear LED panel (VEU)	1			-24,480	2,115,557	2,115,557	876,077	764,344	665,041	576,361	498,999	430,247
24	34	Office	Linear LED tube (BaU)	Linear LED tube (VEU)	85,355	88%		-11,116	74,239	74,239	11,890	17,813	17,781	17,748	17,715	17,682
25	34	Office	Linear LED panel (BaU)	Linear LED panel (VEU)	285,219	75%	5.0%	-50,440	234,779	234,779	335,659	379,960	418,493	451,906	480,783	509,657
26	34	Office	Linear LED tube (VEU)	Linear LED panel (VEU)	95,073	25%	5.0%	-16,813	78,260	78,260	111,896	126,633	139,497	150,833	160,257	168,544
27	34	Office	Linear LED tube (VEU)	Linear LED tube (VEU)	85,355	88%		-11,116	74,239	74,239	117,080	137,080	154,224	169,413	178,738	186,900
28a	34	Office	Linear LED panel (VEU)	Linear LED panel (VEU)	2,910	2%		-432	2,478	2,478	2,382	2,371	2,379	2,395	2,427	2,503
28b	34	Office	Downlight CFL	Downlight LED (VEU)	17,241	50%		-4,293	12,947	12,947	12,947	9,890	7,461	5,553	4,072	2,938
29	34	Industrial	Downlight halogen	Downlight LED (VEU)	46,957	50%		-23,110	23,847	23,847	21,847	18,990	14,990	11,723	9,077	6,953
30	34	Industrial	Downlight LED (BaU)	Downlight LED (VEU)	81,824		5.0%	-3,210	78,614	78,614	85,034	86,777	88,123	89,145	89,506	89,460
31a	34	Industrial	Downlight LED (VEU)	Downlight LED (VEU)	50,719			-24,104	26,615	26,615	74,932	81,104	86,187	90,341	93,706	96,410
32	34	Industrial	Bay/shop HID	Bay/shop LED (VEU)	138,762			-26,162	112,600	112,600	77,199	34,930	15,805	7,151	3,236	1,464
33	34	Industrial	Bay/shop LED (BaU)	Bay/shop LED (VEU)	101,429		5.0%	-16,938	84,491	84,491	118,547	122,124	123,547	123,982	123,966	123,799
34	34	Industrial	Bay/shop LED (VEU)	Bay/shop LED (VEU)	135,305			-24,424	110,881	110,881	195,129	418,841	436,544	444,762	448,951	450,692
35	34	Industrial	Linear T5	Linear LED tube (VEU)	215,823	20%		-65,365	150,458	150,458	147,414	113,897	87,233	66,207	49,768	37,028
36	34	Industrial	Linear T8	Linear LED panel (VEU)	1			-24,480	2,115,557	2,115,557	1,071	2,393	2,976	2,959	2,840	2,821
37	34	Industrial	Linear T8	Linear LED tube (VEU)	846,965	80%		-261,460	585,505	585,505	113,720	42,476	309,834	222,448	137,207	109,143
38	34	Industrial	Linear T8	Linear LED panel (VEU)	1			-24,480	2,115,557	2,115,557	11,709	11,634	11,556	11,474	11,388	11,299
39	34	Industrial	Linear LED tube (BaU)	Linear LED tube (VEU)	234,987	75%	5.0%	-39,852	195,135	195,135	274,839	301,562	321,936	335,896	346,317	353,657
40	34	Industrial	Linear LED panel (BaU)	Linear LED panel (VEU)	78,429	25%	5.0%	-13,284	65,145	65,145	91,613	100,511	107,109	113,827	115,382	117,807
41a	34	Industrial	Linear LED tube (VEU)	Linear LED tube (VEU)	386,315	88%		-270,373	115,942	115,942	638,754	785,816	906,768	989,520	1,057,171	1,108,044
41b	34	Industrial	Linear LED panel (VEU)	Linear LED panel (VEU)	7,527	2%		-3,496	4,031	4,031	11,018	11,236	11,452	11,695	11,952	12,223
42	35	Non-building	Bay/shop HID	Bay/shop LED (VEU)	3,000			-150	2,850	2,850	2,850	2,381	2,337	2,116	1,916	1,735
43	35	Non-building	Bay/shop LED (BaU)	Bay/shop LED (VEU)	900			-150	750	750	1,050	1,191	1,318	1,432	1,535	1,628
44	35	Non-building	Bay/shop LED (VEU)	Bay/shop LED (VEU)	0			0	0	0	0	0	0	0	0	0
45	35	Non-building	Linear T8	Linear LED tube (VEU)	100,000			-4,000	96,000	96,000	51,101	46,462	41,794	37,126	33,451	30,411

Part of the report modelling discussed above is illustrated in Figure 3 below: Fixture stocks in industrial buildings, p 17, Bay/Shop HID.

Figure 3 – Fixture stocks in industrial buildings

Figure 8: Fixture stocks in industrial buildings



5.2. T5 upgrade opportunities

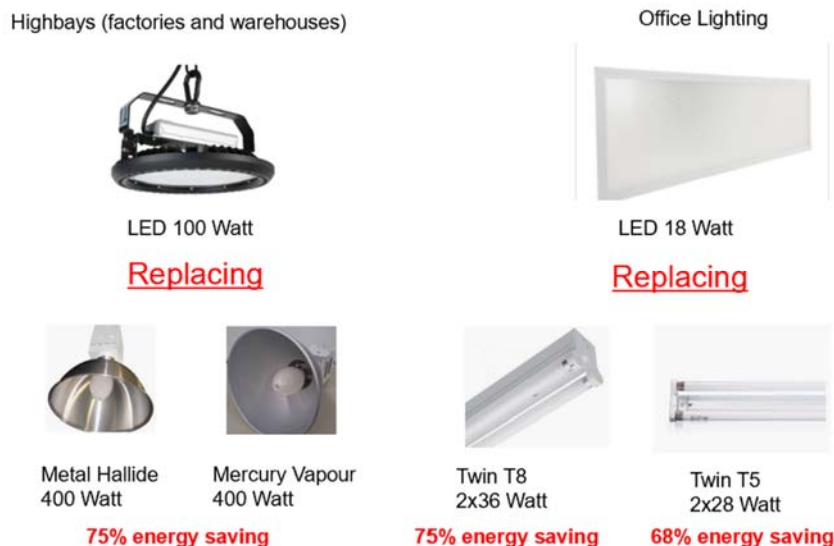
ESIA member experience indicates that a relatively small proportion of offices have had LED retrofits undertaken, which would typically include a significant number of T5 replacements. T5s have been the mandated minimum standard under Building Code for years, hence the prevalence.

T5 and T8 fixture replacement deliver similar energy savings. For example, an LED 18 Watt light can replace either a:

- Twin T5 2x28 Watt fitting – which will deliver a 68% energy savings; or
- Twin T8 2x36 Watt fitting – which will deliver a 75% energy saving.

These savings are comparable to an LED 100-Watt light replacing either a Metal Halide 400-Watt fitting or Mercury Vapour 400-Watt fitting. For this reason, the ESIA proposes the T5s remain under the VEU. (Refer to Figure 4.)

Figure 4 – Comparable energy savings for lighting upgrades: 68-75%



5.3. CFL upgrade opportunities

A significant amount of CFL opportunities exist in member pipelines ranging conservatively up to 10%. These opportunities represent significant abatement potential. For example:

- Twin 22 Watt (plus ballast) total LCP 50W replaced with a 20 Watt LED – will deliver a 60% energy saving; and
- Single 18 Watt (plus ballast) total LCP 26 Watt with a 12 Watt LED – will deliver a 54% energy saving.

One ESIA member company demonstrates that T5 and CFL upgrades represent 30% of their total live pipeline opportunity: around 200,000 VEECs which would likely take two years to deliver assuming these jobs get closed immediately. However, it is more reasonable to expect those jobs will take another six months to close, which leaves a very short installation runway should the proposed Feb 2021 phase-out date proceed.

6. Market saturation in comparison to other jurisdictions

In recent weeks, the ESIA interviewed major lighting supplier members to capture perspectives on remaining opportunities in the retrofit market across Australia. Figure 5 below indicates a reasonable consensus. Notably, the level of market penetration in the retrofit market is influenced by certificate price: a higher price will deliver higher saturation of upgrades as more options become free, as well as lifting penetration of activities that are not free.

Figure 5 – Typical lighting upgrade hot opportunities and market penetration observations

On-the-street experience: typical retrofit lighting upgrade 'hot' opportunities and market penetration observations. (ESIA 26 Feb 2020)											
Typical upgrade	Eg - VEU Activity Type	Incumbent	LED Upgrade	Longterm effective upgrade	Watt reduction	% Watt reduction	Market Penetration				
							VIC	NSW	ACT	SA	QLD
Residential	21D	50W dimmable downlight	5W dimmable downlight	High	45W	90%	Low	Low	Low	Low	Very Low
	21A	75W incandescent/ 45W halogen	7W LED bulb	Low	68-88W	90-85%	Medium - High	Low	High	Medium	Very Low
	21C	50W non-dimmable downlight	5W non-dimmable downlight	Low	45W	90%	High	Low	High	Medium	Very Low
Commercial											
Office buildings	34	35W florescent troffer	24W LED panel	High	14W	31%	Low	Low	Low	Low	Very Low
Office buildings	34	35W florescent batten	24W LED batten	High	11W	31%	Low	Low	Low	Low	Very Low
Sports lighting	34	2000W sports light	600W sports light	High	1400W	70%	Low	Low	Low	Low	Very Low
Factory small-medium	34	400W metal halide high bay	100W LED high bay	High	300W	75%	High	Medium	High	Medium	Very Low
Factory medium-large	34	400W metal halide high bay	100W LED high bay	High	300W	75%	Medium	Medium	Medium	Medium	Very Low

Figure 5 indicates that high saturation has been achieved in Part 34 HID upgrades in small-to-medium factory sites in Victoria. These upgrades are typically simpler and more straightforward sites where decision-making is easier. Such upgrades have typically been free. In comparison, the same upgrade types have had lower uptake in medium-to-large sites where upgrades are often more complex, with multiple layers of decision-making and greater capital contribution costs that extend sales and installation time frames.

7. HID's deliver large abatement opportunities per fitting not reflected in modelling

The lighting modelling focussed on the perceived relatively small number of HID's fixtures remaining. A key justification for retaining HID's is their considerable emissions abatement reduction per fitting. This can be a factor of 8 to 1 per fitting in favour of HID's versus, for example, T8 or T12 technologies. See Figure 6.

Figure 6 – Emission abatement HID versus T8 or T12: 8:1

Area Name	Building Name	Deemed Hours	HVAC	Baseline Lamp Name	Lamp Watts	Ballast Name	Upgrade Name	LCP	VEECS
Office	Class 5 - Office	3,000	Y	T8 or T12	36	EEL=B2 (Magnetic)	LED Panel 25W	25	1.99
Warehouse	Class 7b - Warehouse	5,000	N	MV High Bay	400	Magnetic	High bay 125W	125	16.01

8. HID, T5 and CFL replacement not BAU

8.1. VEU analysis not transparent

The ESIA has requested that the data and consultant's report that influenced this VEU decision be made public.

While this information is not publicly available, it is understood that the report relied in part to lighting product import data which shows a reduction in the number of HID imports and a significant increase in LED imports. Key considerations regarding the use of import data include:

- a) Relying on the number of fixtures is misleading as HID fixtures are significantly higher wattage than other technology types. For example, the generous abatement provided to 21A activities has resulted in very high levels of LED imports over the past year.
- b) The significant reduction in HID fixtures is also likely to result from the growth of LED high bays in the new building and refurbishment market, which is the largest market for lighting. (It is accepted the LED high bays are now BAU in the new and refurbishment market.)
- c) There are still a range of HID fixtures available on the market and being imported to service the maintenance market and there is no reason to believe that customers are replacing failed lamps with anything other than like for like.

8.2. NSW comparison

The NSW Government considers commercial lighting by space type. The NSW Government has acknowledged that the lighting retrofit market remains additional and this is based on the time it takes for a building or site to be refurbished.

Notably, HID replacement (fixtures and fittings) in industrial sites in NSW were increased from 10 to 11.7 years. (See Figure 7) In comparison, in Victoria they were reduced in 2018 from 10 to seven years. These are comparable activities as they both involve replacement of the full fixtures and fittings.

Figure 7 – Years of forward creation for commercial lighting in NSW – by space type

Space type	NSW Previous (Yrs)	NSW – Regional (Yrs)	NSW – Metro (Yrs)
A. Other	10	10	7.3
B. Office	10	10	7.4
C. Industrial	10	11.7	11.7
D. Retail	10	10	7.4
E. Public	10	12	12

For more information regarding this submission, please email comns@esia.asn.au

¹ Lighting Modelling for VEU Program Target Setting – Final Report. Prepared for Department of Environment, Land, Water & Planning (Victoria), 30 May 2019. Beletich and Associates.