



# Guide for Approved Measurement and Verification Professionals

Project-Based Activities

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# 1. Introduction

## 1.1. About the VEU program

The VEU program is a Victorian Government initiative which commenced on 1 January 2009 and is administered by the Essential Services Commission. The program was established under the Victorian Energy Efficiency Target Act 2007 (the VEET Act) and is administered in accordance with the Victorian Energy Efficiency Target Regulations 2018 (the principal VEET Regulations) and the Victorian Energy Efficiency Target (Project-Based Activities) Regulations 2017 (the PBA Regulations).

The VEU program is designed to make energy efficiency improvements more affordable, contribute to the reduction of greenhouse gases, and encourage investment, employment and innovation in industries that supply energy efficiency goods and services.

Under the program, accredited businesses can offer discounts and special offers on selected energy saving products, appliances and other energy efficiency improvements in homes, businesses or other non-residential premises. The greater the greenhouse gas reduction, the greater the potential saving.

There are many abatement methods or 'prescribed activities' under the program. Undertaking a project-based activity (PBA) project in measurement and verification (M&V) is an eligible prescribed activity under the PBA Regulations.

## 1.2. Purpose of this document

The PBA Regulations require that approved measurement and verification professionals (AM&VP) must be used to confirm the validity of energy models used by APs when implementing a project using the M&V method.

The PBA Regulations establish that to be an AM&VP, a person must meet certain requirements and be approved by the commission. This document explains the role of an AM&VP, its requirements, and how a person can apply to the commission to become an AM&VP.

We have prepared this guide as a summary of, and to provide supplementary information to assist with the interpretation of, relevant parts of the following documents which can be found at [www.esc.vic.gov.au/veu-legislation](http://www.esc.vic.gov.au/veu-legislation):

- Victorian Energy Efficiency Target Act 2007
- Victorian Energy Efficiency Target Regulations 2018
- Victorian Energy Efficiency Target (Project-Based Activities) Regulations 2017
- Victorian Energy Efficiency Target Guidelines

- Measurement and Verification in Victorian Energy Upgrades – Specifications (M&V specifications)

### **1.3. Legal context for this document**

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

For more guidance on measurement and verification, refer to the following documents which are also available at [www.esc.vic.gov.au/victorian-energy-upgrades](http://www.esc.vic.gov.au/victorian-energy-upgrades):

- Measurement and Verification Method Activity Guide
- Measurement and Verification Method Compliance Requirements
- The M&V specifications

## 2. Role of the approved M&V professional

Each M&V project requires an AM&VP to deem appropriate certain aspects of the AP's M&V approach.

There are three stages of the PBA M&V process that involve the AM&VP to varying degrees:

- M&V plan within the project plan: **used as a reference only.**
- Reviewing the impact report: **large degree, reviewing and reporting.**
- Validation report on the impact report: **small degree, advisory only.**

These stages and the AM&VP's involvement in them are described in the following sections.

### 2.1. M&V plan within the project plan

An AP's application for approval of a project plan must identify one of the following methods intended to be used to calculate the reduction in greenhouse gases:

- a) a forward projection of savings using a baseline energy model and operating energy model;
- b) annual reporting of savings using a baseline energy model and measured energy consumption;  
or
- c) a combination of a) and b) comprising a forward projection followed by annual reporting of savings ('top-up').

The project's measurement & monitoring manager (M&MM) must ensure that the M&V plan is written independently of the AM&VP who will assess it. The AM&VP's only involvement with the M&V plan is during their review of the impact report, where they should note the M&V plan and how closely it was followed.

### 2.2. Reviewing the impact report

An AP's application for approval of a project impact report must include the following:

- details of the measurement boundary
- site constants and their standard values
- a calculation of the carbon dioxide equivalent to be reduced using Equation 1<sup>1</sup>
- emissions factors used in abatement calculations
- details of any counted savings
- the baseline energy model in equation form
- the accuracy factor

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<sup>1</sup> See Measurement and Verification in Victorian Energy Upgrades - Specifications available at [www.esc.vic.gov.au/m-and-v](http://www.esc.vic.gov.au/m-and-v).

- for projects using the forward creation method:
  - the operating energy model in equation form
  - a normal year for each independent variable, if relevant
  - interactive energy savings for the normal year
  - the decay factor for each year of the forward creation period
  - a calculation of energy savings using Equation 2<sup>1</sup>
  - a calculation of normal year savings using Equation 4<sup>1</sup>
- for project using the annual creation or top up method:
  - measured energy consumption data for the reporting period
  - measured values for the reporting period for each independent variable, if relevant
  - interactive energy savings for the reporting period
  - previous energy savings calculated using Equation 3<sup>1</sup> for any previous reporting periods, including any negative energy savings;
  - a calculation of energy savings using Equation 3;
  - a calculation of measured annual savings using Equation 5<sup>1</sup>;
- evidence that energy models comply with the statistical requirements;
- evidence that time intervals used to calculate energy savings are eligible time intervals;
- written justification of the steps and decisions taken in completing the calculations.

The measurement & monitoring manager (M&MM) must ensure that the impact report is written independently of the AM&VP who will review it. However the impact report must then be accompanied by a verification report from an AM&VP before we will assess them both. APs must engage an AM&VP who is approved by the commission from the Register of Approved M&V Professionals to write the AM&VP's report.

The AP has the option on whether to engage the AM&VP to undertake a *basic verification report* or a more complex *detailed verification report*. The choice of report is likely to have cost implications for the project as well as timeframe differences:

- The basic report is likely to be low cost, but may take longer to progress through our processes as it is likely to require a greater level of scrutiny.
- The detailed report is likely to be high cost, but may progress through our processes more quickly.

### Basic verification report

The lower cost, basic verification report is the minimum standard necessary to meet the PBA Regulations. This report must review the validity of the approach used in the M&V plan, and assess whether the impact report includes all of the required information, methods, variables and calculations. It is important for APs and AM&VPs to note that, for this type of report, the AM&VP does not assess the correctness of the calculations, they do not guarantee the number of VEECs

that a project should create, and they do not “approve” the impact report. They are essentially only required to review the report and validate the approach taken. In this type of report, the AM&VP **can** insert a standard disclaimer as the information contained in it will be used only as **part** of our approval process.

The basic verification report can be completed by an AM&VP employed by the AP who undertook the project, provided that the AM&VP’s independence from the project can be demonstrated. They cannot have been involved in the development of the project, including the formation of the M&V plan or impact report. The AM&VP and AP will need to declare that they have been completely independent from the project at all times and will need to show that they have sufficient processes in place to convince us that they have met this requirement.

### Detailed verification report

The detailed verification report must meet the minimum requirements of the basic verification report as well as include a full assessment of all data, information, methods and variables. This means that all calculations must be checked for correctness – back to raw data, and all references and other information should be checked to a standard comparable to reasonable assurance. For this report the AM&VP **cannot** insert a standard disclaimer, as this information will be used as a **major** part of our approval process.

The detailed verification report must be completed by an AM&VP who is completely independent from both the project *and* the AP. This means that the AM&VP cannot be an employee of the AP, or any parent or subsidiary company. They also cannot have been involved in the development of the project, including the formation of the M&V plan or impact report.

Note that for either report type, we will **not** reassess the work of the AM&VP at the approval stage. However both types of report may still be subject to an audit between the VEEC creation and VEEC registration stages of the process. The level of scrutiny of any audit will be informed by the type of verification report and the commission’s risk-rating of the AM&VP.

The front page of the verification report must state the report type (that is either: a basic verification report, or a detailed verification report). It must also clearly identify:

- the name of the AM&VP
- the project name
- which impact report is being verified
- whether the impact report under question has been validated by the AM&VP or not.

APs are encouraged to get their impact reports right first time, and not rely on the AM&VP giving detailed feedback. Relying on AM&VP feedback may prove costly and could add significant time to the process.



## 2.3. Validating the impact report

The commission approves the impact report. The commission has specialists who can review the impact report and the AM&VP's report.

We may approve an impact report if it is satisfied that 'the project impact report demonstrates a reasonably accurate and reliable estimate of greenhouse gas emission reduction<sup>2</sup>. If it is not satisfied, we may reject an impact report after also having regard to the AM&VP's report.

## 2.4. Independent M&V advice recommended

The AM&VP must be completely independent of any project they assess: they cannot have any influence on the AP's project, and can only be involved after the impact report has been created.

It is recommended that a suitably qualified M&V practitioner<sup>3</sup> other than the selected AM&VP be involved:

- during the planning phase for each project, prior to commencing measurement and modelling,
- before the implementation period to review the method and parameters used for establishing the baseline energy model, and
- after the project period to review the method and parameters used for establishing the operating period or reporting period energy model.

It is vital for the AP to get the M&V plan right. Not doing so could mean that the eligibility of the project is at risk. VEECs may not be able to be created for projects with poor or incomplete M&V plans and impact reports.

Please note that the commission is not responsible for checking that the submitted M&V plan within the project plan is technically correct or apt for the given situation – this remains the responsibility of the AP. If the project's M&V approach is found to not meet the requirements of the PBA Regulations and any associated compliance requirements, VEECs cannot be created.

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<sup>2</sup> Part 3, 11(6) of the PBA Regulations

<sup>3</sup> This is a recommendation only. The commission does not prescribe the use of this person or their qualification. This person does not need to be independent and can be an employee of the AP or site. This person may be working towards AM&VP status or hold AM&VP status.

### 3. Approved M&V professional requirements

Table 1 provides guidance for a person to become an AM&VP, with the evidence required.

**Table 1: Requirements to be accepted as an approved M&V Professional (refer to the PBA Regulations)**

Requirements	How to meet the requirement	Supporting documentation required
<b>Has an understanding of best practice measurement &amp; verification techniques</b>	<p>Provide written evidence to demonstrate appropriate education, skills, experience and/or training, including:</p> <ul style="list-style-type: none"> <li>• a demonstrated record of performance on similar projects covering a range of end-uses</li> <li>• knowledge of VEU M&amp;V process, VEU legal framework and related requirements</li> <li>• relevant technical skills and knowledge of how energy is used in relevant activities, and</li> <li>• knowledge of the requirements of relevant guides and standards for conducting measurement and verification.</li> </ul>	<p>Copy of current certificate for Certified Measurement and Verification Professional (CMVP®).</p> <p>Copies of certificates for relevant tertiary qualifications (e.g. engineering, mathematics, statistics).</p> <p>Curriculum vitae describing academic and work experience in relation to M&amp;V</p> <p><i>ALL OF THE ABOVE, AND ONE OF THE FOLLOWING</i></p> <ol style="list-style-type: none"> <li>1. A list of at least four M&amp;V projects of any type, including project summaries and role/responsibilities carried out in those projects, including two written client references for these projects, and contact details for two more.</li> </ol> <p>OR</p> <ol style="list-style-type: none"> <li>2. A list of at least three ESC-approved M&amp;V projects (containing an M&amp;V plan and at least one impact</li> </ol>

Requirements	How to meet the requirement	Supporting documentation required
		<p>report) that the applicant has led on (The applicant must have been named as lead on the documents the commission has).</p> <p>OR</p> <p>3. Evidence that the person is a current M&amp;V <b><u>Auditor</u></b> with NSW IPART's PIAM&amp;V process.</p>
<p><b>Has an understanding of how the relevant end-user equipment converts energy into end-use services and is affected by the independent variables.</b></p>	<p>Provide written evidence to demonstrate appropriate education, skills, experience and/or training, including:</p> <ul style="list-style-type: none"> <li>• relevant technical skills specific to the end-user equipment</li> <li>• a demonstrated record of performance on similar projects covering a range of end-uses</li> </ul>	<p><i>ONE OF THE FOLLOWING:</i></p> <ol style="list-style-type: none"> <li>1. Curriculum vitae describing academic and work experience in relation to relevant end user equipment</li> </ol> <p>OR</p> <ol style="list-style-type: none"> <li>2. Evidence that the person is currently approved for the relevant end user equipment type as an M&amp;V Professional with NSW IPART's PIAM&amp;V process.</li> </ol> <p>Note: the evidence provided can be a combination of both 1 and 2 above.</p>
<p><b>Able to perform regression analysis (if relevant).</b></p>	<p>If the AM&amp;VP will be reviewing energy models developed using regression analysis, the AM&amp;VP must demonstrate they have the skills, experience and qualifications to perform regression analysis.</p>	<p>Reports or case studies of M&amp;V plans with regression analysis developed by the applicant in accordance with the IPMVP.</p>

Requirements	How to meet the requirement	Supporting documentation required
<b>Able to perform estimate of the mean analysis (if relevant).</b>	If the AM&VP will be reviewing energy models developed using estimate of the mean, the AM&VP must demonstrate they have the skills, experience and qualifications to perform this type of analysis.	Reports or case studies of M&V projects with estimate of the mean analysis developed by the applicant in accordance with the International Performance Measurement and Verification Protocol (IPMVP).
<b>Able to provide an independent opinion on the validity of the energy models being applied by an AP.</b>	<p>The AM&amp;VP may be a consultant.</p> <p>However, a conflict of interest will occur in the following circumstances:</p> <ul style="list-style-type: none"> <li>– if the M&amp;V professional is reviews the work of their direct employer or the work of a subsidiary company (or other related organisation) of their direct employer</li> <li>– if the M&amp;V professional is responsible for validating their own work, or</li> <li>– if the M&amp;V professional is the person responsible for developing or implementing the project (including developing the energy models that will be applied to each project).</li> </ul> <p>For example, if you are involved in the development of a M&amp;V plan for the project in any way (e.g. you assisted in conducting regression analysis), then you are not able to act as an independent M&amp;V professional to validate the energy models and parameters for that project.</p>	<p>A process or procedure that clearly describes how responsibilities and activities are managed and allocated to all relevant employees involved in the M&amp;V process.</p> <p>This should demonstrate that the AM&amp;VP remains outside the M&amp;V development process and is only involved in the review/validation step.</p>

Requirements	How to meet the requirement	Supporting documentation required
<b>No convictions for fraud or dishonesty.</b>	PBAs are potentially large, expensive and technically difficult. The AM&VP holds a trusted key role in the process.	Signed declaration and Victorian statutory declaration, criminal records check
<b>Have no conflict of interest. This will be determined on a project by project basis.</b>	The AM&VP must declare any direct or indirect personal relationships, affiliations or associations that they have that may give rise to any actual or perceived conflict of interest in relation to their work with the AP or energy consumer. For example, if you act as an M&V professional to verify the energy models used by an AP, then you should not act as the AM&VP in relation to the models you have verified.	A process or procedure in relation to how the applicant (or their employer) manages conflicts of interest. This should demonstrate that they have processes in place to identify, manage and resolve any perceived or actual conflicts of interest that may arise when working with APs.

## 4. Approval of M&V professionals

An application for approval as an AM&VP must be submitted to us, the commission, using the Application for Approved Measurement and Verification Professionals<sup>4</sup> form with any relevant supporting documents attached. The standard expected of AM&VPs is high and the assessment process is rigorous.

Poor quality or incomplete applications may result in the application being refused and the applicant being unable to re-apply for three calendar months.

If a person reapplies for approval after an approval rejection or has their approval withdrawn, subsequent applications must not include M&V projects for projects that were rejected in previous applications. Resubmissions of the same M&V projects used in previous applications will be accepted if we have accepted them previously.

The completed Application for Approved Measurement and Verification Professionals form and any supporting information should be emailed to [amvp@esc.vic.gov.au](mailto:amvp@esc.vic.gov.au).

### 4.1. Approval

Applications for approval need to include information on the types of equipment that the applicant is able to perform as an AM&VP to demonstrate they meet the M&V requirements (refer to section 3). Information must include a description of the applicant's work experience with each type of end-user equipment, including (but not limited to) project description, applicant's role, responsibilities and activities conducted as part of the project.

Similarly, applicants need to provide information on the energy model types they are seeking approval for. Information must include a description of the applicant's skills, practical experience and relevant qualifications with each energy model type. Supporting documentation (e.g. examples of M&V analysis) must be included as evidence.

Project summary documents, such as the M&V plan and other supporting evidence of M&V analysis may also be required to show past M&V experience. These documents may relate to a past project that was implemented in accordance with the IPMVP.

Approved applicants will be added to the Register of Approved M&V Professionals on the VEU Registry. AM&VPs will be expected to review only energy models that relate to the types of equipment and energy model types they have been approved for.

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<sup>4</sup> Application for Approved Measurement and Verification Professionals is at [www.esc.vic.gov.au/m-and-v](http://www.esc.vic.gov.au/m-and-v).

## 4.2. Application assessment

Once a complete application has been lodged, it will be assigned to an analyst to assess:

- whether the applicant meets the requirements to be an AM&VP (refer to Table 1)
- education and work experience relevant to the activity and the type of end-user equipment to be used
- previous performance on other M&V projects developed under the VEU program
- previous performance in other state or national schemes (if relevant)
- previous experience on other M&V projects
- references
- police check (if relevant).

We, the commission, will check an applicant's references and qualifications to confirm the applicant's skills and experience. We may also undertake searches to verify that the applicant is a legitimate registered company or business. By applying for approval as an AM&VP, applicants will be deemed to have authorised us to perform these searches and enquiries.

We may not be able to provide assistance with, or provide specific feedback on, an application, but may require further information or clarification from the applicant. In this case, the applicant will be sent a request for further information (RFI) describing the information required and a deadline for a response.

If an applicant does not satisfy the requirements of an AM&VP in their initial application, or their response to any RFIs, they will not be approved and cannot re-apply for a period of three calendar months. Applicants will only be provided with two opportunities per application to address issues through the RFI process.

The decision of whether to approve or refuse an application is based on all information provided throughout the application process.

Approved applicants will be notified in writing and, if relevant, their name, phone number and email address will be published on the VEU Registry.

Applicants that are refused will be notified in writing and advised that they may re-apply after three months.

## 5. M&V professional performance monitoring

The work of AM&VPs is regularly assessed to ensure they have performed satisfactorily and continue to satisfy the criteria outlined above. We may request relevant documents and reports from APs and the relevant AM&VP for assessment.

If the AM&VP is inactive for a significant period we may request further information to determine if the person's skills are up to date. If issues are identified, the commission will inform the relevant AM&VP and provide an opportunity to respond before any action is taken.

### 5.1. Annual review

We may review all AM&VPs annually to ensure they have maintained their understanding of the M&V requirements under the VEU program. We assess the work of AM&VPs against the principal VEET Regulations, the PBA Regulations and the approved M&V professional requirements described in Table 1.

### 5.2. Audits

The work of AM&VPs may be reviewed by staff from the commission when they conduct audits.

Our audit & compliance staff may review the work of AM&VPs against the principal Regulations, the PBA Regulations, the AM&VP requirements described in Table 1 and relevant auditing guidance.

If we identify any new issues, the AP may be required to submit copies of any documents or reports provided to them by the AM&VP to the commission. We will then review the quality of that material to determine if the AM&VP is meeting the program requirements.

In addition to the above, our PBA specialist staff will assess every project impact report along with the corresponding AM&VP report. Where any discrepancies or issues are found, they can request further information from the AM&VP, the site and/or the AP. Discovery of any anomalies may lead to an audit of the AM&VP as described above.



## 6. Withdrawal of approval

The commission may withdraw approval if it considers that the AM&VP has ceased to satisfy the criteria outlined above. This may include, for example, if an approved M&V Professional:

- allows their CMVP accreditation to lapse,
- does not follow an acceptable approach to verify the validity of the energy models being applied by an AP when implementing an activity,
- does not provide an independent opinion on the validity of the energy models being applied by an AP when implementing an activity,
- is found to have provided false information to the commission or project proponents, such as on reported experience or conflicts of interest,
- has ceased to provide quality service to the commission, including responding to the commission's communications and directives.

Written notice will be provided to the person advising them of the potential withdrawal. We will then consider the AM&VP's response before making any decision to withdraw the approval.

If an M&V professional's approval is withdrawn, the M&V professional will not be able to re-apply for a period of three months. We may or may not approve the M&V professional at that time.

## Document version history

The RM reference for this document is: C/17/14424

Version	Amendments	Date published
1.0	Initial release following the introduction of the <i>Victorian Energy Efficiency Target (Project-Based Activities) Regulations 2017</i> .	1 August 2017
1.1	Updated to clarify the role of AM&VP in assessing impact reports and evidence documents required for an application to become an AM&VP	28 September 2017
2.0	Updated document terminology. Included information on changed independence requirements for AM&VPs for different types of verification reports.	11 December 2018
2.1	Clarified the requirement to provide a Victorian statutory declaration with the application to become an AM&VP	12 September 2019