Measurement & Verification Professionals

Guide

Energy Savings Scheme

August 2018

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Document Control

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V1.0	Initial release following amendments to the *Energy Savings Scheme Rule of 2009*	June 2016
V1.1	Amended to include additional information about M&V Professional requirements in sections 2 - 4	September 2016
V1.2	Amended to expand and clarify application and performance monitoring requirements in sections 4 - 5	November 2016
V1.3	Updated to reflect amendments to the ESS Rule, clarify additional requirements in Table 3.2, include additional information of amendment process in section 5 and introduce new end-user equipment categories.	August 2018

Contents

1 About this document

The NSW Energy Savings Scheme (**ESS**) reduces energy consumption in NSW by creating financial incentives for organisations to invest in energy saving projects.

Reducing energy consumption in NSW can:

- assist households and businesses to reduce energy consumption and energy costs
- make the reduction of greenhouse gas emissions achievable at a lower cost, and
- reduce the cost of, and need for, additional energy generation, transmission and distribution infrastructure.

Electricity retailers and other mandatory participants (**Scheme Participants**) are obliged to meet energy saving targets. Energy savings are achieved by installing, improving or replacing energy saving equipment. Companies that become Accredited Certificate Providers (**ACPs**) can create energy savings certificates (**ESCs**) from these activities and then sell those ESCs to Scheme Participants. The Independent Pricing and Regulatory Tribunal of NSW (**IPART**) is both the Scheme Administrator and Scheme Regulator of the ESS.

The *Energy Savings Scheme Rule of 2009* (**ESS Rule**) requires that Measurement and Verification (**M&V**) Professionals must be used to confirm the validity of energy models used by ACPs when implementing activities that use the Project Impact Assessment with Measurement and Verification (**PIAM&V**) method.[1] The ESS Rule also establishes that to be an M&V Professional a person must be approved by the Scheme Administrator on the basis that they meet certain requirements.[2]

This guide explains the role of, and requirements to be, an M&V Professional and also explains how a person can apply to be approved as an M&V Professional.

1.1 Legislative requirements

This document is not legal advice. The legal requirements for M&V Professionals participating in the ESS are set out in:

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

1 ESS Rule, cl 7A. For more information on PIAM&V refer to the Method Guide available at: www.ess.nsw.gov.au/Methods_for_calculating_energy_savings/Project_Impact_Assessment_with_MV.

2 ESS Rule, cl 7A.15.

2 Role of the M&V Professional

The ESS Rule requires an M&V Professional to deem as appropriate the following aspects of an ACP's M&V approach for each implementation made under their accreditation:

- the parameters used when measuring energy consumption, independent variables, site constants and any other relevant parameters
- the method for selecting independent variables and site constants
- the measurement procedures
- the normal year (not required for annual creation or top-up)
- the effective range
- the interactive energy savings
- the accuracy factor
- use of a persistence model
- the baseline energy model
- the operating energy model (not required for annual creation or top-up), and
- the sampling method (if applicable).

M&V Professionals must produce an M&V Professional Report with validation and detailed explanatory reasoning for each of the above items. Additional information and a template for the M&V Professional Report can be found on our website.[3]

The role of the M&V Professional is to ensure the M&V approach used by an ACP is appropriate and meets the requirements of the ESS Rule. The review by an M&V Professional must be conducted in accordance with standard quality assurance principles, which means they must be able to provide an independent professional opinion and they cannot peer review their own work. However, this does not prevent an M&V Professional from collaborating with the person conducting the M&V or providing feedback or advice on the selected M&V approach.

For the purpose of reviewing and validating an ACP's proposed M&V approach and energy models, and to allow an ACP to create ESCs, an M&V Professional should be involved at multiple stages of a project. It is recommended that an M&V Professional be involved:

- during the **planning phase** for each implementation, prior to commencing measurement and modelling, to enable the M&V Professional to assess the M&V design
- **before implementation** of the project to review the method and parameters used to establish the baseline energy model, and
- **after the implementation** and commissioning period to review the method and parameters used to establish the operating energy model.

3 Available at www.ess.nsw.gov.au/Methods_for_calculating_energy_savings/Project_Impact_Assessment_with_MV.

Involving an M&V Professional at various project stages may reduce the risk of the M&V approach for the implementation not meeting the requirements of the ESS Rule, and consequently may reduce the risk of invalid ESC creation. Engaging an M&V Professional from the beginning of the project allows the M&V Professional to validate aspects of the M&V approach that can be identified and corrected at early stages.

3 M&V Professional requirements

Table 3.1 provides guidance as to how a person can demonstrate they meet the criteria to be approved by IPART as an M&V Professional, and the supporting documentation that must be provided in the application.

Table 3.1 Requirements to be met to be approved as an M&V Professional (refer clause 7A.15 of the ESS Rule)

Requirements	How to meet the requirement
Has an understanding of: ▼ clause 7A of the ESS Rule (clause 7A.15(a)(i)) ▼ relevant measurement & verification techniques (clause 7A.15(a)(i)), and ▼ how the relevant end-user equipment converts energy into end-use services and is affected by the independent variables (clause 7A.15(a)(ii)).	Provide written evidence to demonstrate appropriate education, skills, experience and/or training, including: ▼ knowledge and understanding of the PIAM&V requirements of the ESS Rule ▼ knowledge of the requirements of relevant guides[a] and standards[b] for conducting measurement and verification ▼ relevant technical skills specific to the end-user equipment ▼ a demonstrated record of performance on similar projects covering a range of end-uses, and ▼ relevant technical skills and knowledge of how energy is used in relevant activities.
Able to perform regression analysis (if relevant) (clause 7A.15(a)(iii)).	If the M&V Professional will be reviewing energy models developed using regression analysis, the M&V Professional must demonstrate they have the skills, experience and qualifications to perform regression analysis.
Able to perform estimate of the mean analysis (if relevant) (clause 7A.15(a)(iv)).	If the M&V Professional will be reviewing energy models developed using estimate of the mean, the M&V Professional must demonstrate they have the skills, experience and qualifications to perform this type of analysis.
Able to calibrate outputs from a computer simulation (if relevant) (clause 7A.15(a)(v)).	If the M&V Professional will be reviewing energy models developed using computer simulation, the M&V Professional must demonstrate they have the skills, experience and qualifications relevant to the computer simulation software used to develop such models, including the ability to calibrate outputs from it.
Has an understanding of the sampling method (if relevant) (clause 7A.15(a)(vi)).	If the M&V Professional will be reviewing energy models developed using sampling, the M&V Professional must demonstrate they have an understanding of sampling.

a Such as the NSW Office of Environment and Heritage's Measurement and Verification Operational Guide.

b Such as the International Performance Measurement and Verification Protocol (IPMVP).

Table 3.2 sets out further requirements that a person must demonstrate an ability to satisfy, and must satisfy on an ongoing basis, when operating as an M&V Professional approved by IPART.[4]

Table 3.2 Additional requirements to be met by M&V Professionals (refer clause 7A.15(a)(vii) of the ESS Rule)

Requirements	How to meet the requirement
Able to provide an independent opinion over the validity of the energy models being applied by an ACP	The M&V Professional may be: ▼ a consultant, or ▼ an employee of the ACP. When a person is an M&V Professional for a PIAM&V project, they: ▼ can provide their professional opinion and expert advice to the ACP in relation to the project and the M&V approach (ie, they can provide feedback to the ACP to assist in the development of the M&V approach for the project) ▼ cannot be responsible for validating their own work (ie, if they develop the energy models for the project they cannot independently validate that they meet the requirements of the ESS Rule), and ▼ must cease their role as the M&V Professional where their ability to provide an independent opinion becomes compromised because of their involvement in the project. For example, if the M&V Professional is responsible for developing the M&V plan and energy models for a project, they cannot validate the energy models for that project. Their level of involvement in the project means they are not able to provide an independent opinion on the validity of the energy models and the M&V approach for that implementation.
No conflict of interest	The M&V Professional 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 ACP. For example, if the M&V Professional is responsible for verifying the energy models used by an ACP, then the M&V Professional cannot also act as the auditor in relation to the models they have verified.

4 The requirements set out in Table 3.2 are additional requirements for the purposes of clause 7A.15(a)(vii) of the ESS Rule.

4 Approval of M&V Professionals

An application for approval as an M&V Professional must be submitted to IPART using the *M&V Professional Application Form*[5] and attaching any relevant supporting documents. The standard expected of approved M&V Professionals is very high and the application and assessment process is rigorous. Applicants must submit complete application forms that satisfy all requirements outlined in this document and include relevant supporting documentation. Poor quality or incomplete applications may result in the application being refused and the applicant being unable to re-apply for three calendar months.

Applicants can apply for either a general approval (section 4.1) as an M&V Professional or with respect to a particular implementation of a recognised energy saving activity (**RESA**) (section 4.2).

If a person re-applies for approval,[6] subsequent applications must include an example *M&V Professional Report* for a different project to previous applications. **Re-submissions of previously assessed M&V Professional Reports will not be accepted.**

The completed *M&V Professional Application Form* and any supporting information should be e-mailed to ESS_Applications@ipart.nsw.gov.au.

4.1 General approval

Applications for general approval need to include information on the end-user equipment categories for which the applicant is qualified to perform as an M&V Professional to demonstrate they meet the M&V requirements (refer section 3). Information must include a description of the applicant's work experience in relation to each end-user equipment category, including (but not limited to) project description, applicant's role, responsibilities and activities conducted as part of the project. Refer to section 2.1 of the PIAM&V Method Guide for further information on end-user equipment categories.

Applicants need to provide information on the energy model types for which the applicant is seeking approval. Information must include a description of the applicant's skills, practical experience and relevant qualifications in relation to each energy model type. Supporting documentation (eg, examples of M&V analysis) must be included as evidence to support the application.

Similarly, applicants seeking approval for the sampling method must include a description of their skills, practical experience and relevant qualifications in relation to sampling.

In the case of energy models developed using computer simulation, applicants seeking approval to use a specific computer simulation software (previously approved by IPART) need to provide information that demonstrates the applicant's skills, practical experience and relevant qualifications and training in relation to such software. Information must also

5 Available at: www.ess.nsw.gov.au/Methods_for_calculating_energy_savings/Project_Impact_Assessment_with_MV.

6 For example, where an applicant was previously refused approval or an approval was withdrawn.

demonstrate the applicant's ability to calibrate outputs from energy models developed using such software.

Applicants also need to provide a completed example of an M&V Professional Report (ie, explanatory reasoning) to demonstrate their understanding of the PIAM&V requirements with respect to at least one end-user equipment category for which they are seeking to be approved as an M&V Professional.[7]

Project summary documents, such as an M&V plan/report and other supporting evidence of the M&V analysis conducted, is also required as context for the example M&V Professional Report. The project documents may relate to a past project that was implemented in accordance with the IPMVP (prior to the ESS Rule), but the example M&V Professional Report must demonstrate the ability of the applicant to review a project against the PIAM&V method requirements of the ESS Rule.

Applicants approved as general M&V Professionals will be added to the published list[8] of approved M&V Professionals on the ESS website.[9] General M&V Professionals will only be able to review energy models that relate to the end-user equipment categories and energy model types[10] for which they have been approved.

4.2 Approval in relation to a RESA implementation

Applications for approval that are specific to the implementation of a particular RESA must include the M&V Professional Report and related M&V plan/report prepared in relation to that implementation.

M&V Professionals approved for a particular RESA implementation will not be added to the published list of approved M&V Professionals and will only be able to review energy models specific to the implementation for which they have been approved.

4.3 Application assessment

Once an application has been accepted as lodged, it will be assigned to an analyst for assessment of:

- whether the applicant meets the requirements to be an M&V Professional (refer to Tables 3.1 and 3.2 above)
- education and work experience of the applicant relevant to:
  - the activity being implemented and the type of end-user equipment and M&V techniques to be used for the implementation in question (if the application is implementation specific), or

7 A template for the M&V Professional Report is available at www.ess.nsw.gov.au/Methods_for_calculating_energy_savings/Project_Impact_Assessment_with_MV.

8 Please note this is a separate list from the PIAM&V auditors on the ESS audit panel.

9 Available at www.ess.nsw.gov.au/Methods_for_calculating_energy_savings/Project_Impact_Assessment_with_MV/List_of_approved_Measurement_Verification_Professionals.

10 Refer clause 7A.2 of the ESS Rule.

  - the type of end-user equipment and M&V techniques to be used in any implementation (if the application is for general approval).

- quality of the example M&V Professional Report and whether the example sufficiently demonstrates the applicant's understanding of the PIAM&V method requirements of the ESS Rule (clause 7A), and
- previous performance of the applicant on other PIAM&V projects developed under the ESS.

IPART will check the applicant's references and qualifications to confirm the applicant's skills and experience. IPART may also undertake searches as necessary to verify that the applicant is a bona fide registered company or business. By applying for approval as an M&V Professional, applicants will be deemed to have authorised IPART to perform these searches and enquiries.

IPART is not able to provide assistance with, or specific feedback on, an application, but may require further information from the applicant or clarification of the information that has been provided. In this case, the applicant will be sent a request for further information (**RFI**), which will describe the information that is required and a deadline for a response. RFIs may also be issued if requirements change during the assessment process, eg, where amendments are made to the ESS Rule during the application assessment process.

If an applicant does not satisfy the requirements to be approved as an M&V Professional in their initial application, or their response to the RFI, they will not be approved and will be **restricted from re-applying for three months**. Applicants will only be provided one opportunity 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.

Applicants that are approved will be notified in writing and, if relevant, their name, phone number and email address will be published on the ESS website.[11]

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

5 Amendment of M&V Professional approval

If required, an M&V Professional can request an amendment to their approval so as to:

- add/remove end-user equipment or energy model types (including types of computer simulation software)[12]
- add/remove the sampling method

11 M&V Professionals with general approval. The list of approved M&V Professionals is available at: www.ess.nsw.gov.au/Methods_for_calculating_energy_savings/Project_Impact_Assessment_with_MV/List_of_approved_Measurement_Verification_Professionals.

12 Software previously approved by IPART.

- modify their procedures to manage conflicts of interest or their process for ensuring provision of an independent opinion, or
- change their approval to general or implementation specific.

M&V Professionals wanting to include additional end-user equipment, energy model types or sampling method must provide supporting documentation that demonstrates their skills and practical experience in relation to the equipment category, model type or sampling method.

In the case of energy models using computer simulation, an M&V Professional wanting to include additional computer simulation software types must provide supporting documentation that demonstrates their skills and practical experience in relation to the relevant software, including their ability to calibrate outputs from energy models developed using that software.

The decision of whether to approve or refuse an amendment is based on all information provided. Approved amendments will be notified in writing and, if relevant, additional end-user equipment and energy model types (with their corresponding date of approval) will be published on the ESS website.

Requests for amendment and any supporting information should be emailed to ESS_Applications@ipart.nsw.gov.au.

A request for amendment is not required to update contact details. M&V Professionals can notify these changes at any time via email.

6 M&V Professional performance monitoring

The work of approved M&V Professionals is regularly assessed to ensure that M&V Professionals have performed satisfactorily and continue to satisfy the above criteria.

IPART may request relevant documents and reports from auditors, ACPs and the M&V Professional for assessment. If the M&V Professional has been inactive, IPART may request a new example of an M&V Professional report to demonstrate that the M&V Professional understands the current requirements of the PIAM&V method (which may change from time to time).

If issues are identified, we will inform the relevant M&V Professional and provide an opportunity to respond before any action is taken.

6.1 Annual review

IPART conducts annual reviews of all approved M&V Professionals to ensure they have maintained their understanding of the PIAM&V method requirements. IPART assesses the work of M&V Professionals against the ESS Rule and the M&V Professional requirements described in Tables 3.1 and 3.2.

6.2 Audits

The work of M&V Professionals is reviewed by auditors from the ESS Audit Panel when they conduct audits of ACPs.[13] Auditors review the work of M&V Professionals against the ESS Rule, the M&V Professional requirements described in Tables 3.1 and 3.2, and relevant auditing guidance. Audit reports are provided to the relevant ACP and IPART.[14] If issues are identified by the auditor, the ACP may be required to submit copies of any documents (reports) provided to them by the M&V Professionals to IPART. We will then review the quality of that material to determine if the M&V Professional is performing their role in accordance with the requirements.

If issues are identified, we will inform the relevant M&V Professional and provide an opportunity to respond before any action is taken.

7 Withdrawal of approval

IPART may withdraw its approval of a person as an M&V Professional if it considers that the M&V Professional ceases to satisfy the criteria outlined above.[15] This may include, for example, if an M&V Professional:

- does not follow an acceptable approach to verify the validity of the energy models being applied by an ACP when implementing an activity, or
- does not provide an independent opinion on the validity of the energy models being applied by an ACP when implementing an activity.

Prior to considering whether to withdraw the approval of an M&V Professional, written notice will be provided to the person advising them of the potential withdrawal. IPART will then consider any information provided by the M&V Professional in response to this notice before making a 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.

13 Refer: www.ess.nsw.gov.au/Audits_and_Compliance/List_of_Auditors
14 Refer: www.ess.nsw.gov.au/Audits_and_Compliance/Audit_and_compliance_guides
15 ESS Rule, cl 7A.15(c).