

# MEASUREMENT AND VERIFICATION SCOPE OF WORK

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The overview general scope of work for conducting Measurement & Verification for a project has to undergo five fundamental stages (scoping, M&V plan, Baseline, Post-Implementation & Performance Assessment phases) as according to the IPMVP 2009 guideline document. Below is the break down of the activities done in each of the five stages mentioned above?

## **(i) Do/issue scoping report study and scoping report**

The purpose of the M&V scoping study is to provide an overview and description of the planned project specific intervention. The scoping study includes a description of the planned measures that are under consideration by the ESCO. It also describes how these measures can result in potential energy- and cost savings and provides the preliminary impacts expected by the ESCO and the M&V team. Information on the parties (M&V Team, ESCO and Client) involved in the project is also included in this scoping report. The work involves includes:

- Site audit of the facility under the new intervention
- Quantify the old system according to grades e.g. different light fixtures to be graded according to wattage
- Partial measurement of the energy demand of the old system
- Interview the facility managers & obtain energy related documentation of the facility
- Process the data & finally write the report that is submitted to all the stakeholders involved in the project.

## **(ii) Develop/issue an agreed upon M&V plan**

This plan also provides information on the parties (M&V Team, ESCO and Client) involved. The description of the selection of the M&V option is also presented herein along with conceptual description of the methods which will be used in the M&V process and the methodologies used to complete the M&V project activities.

M&V activities planned for this project are as follows:

- Developing thorough understanding of the M&V scoping report and the challenges involved in the task at hand.
- Classifying the M&V project according to the relevant international and South African performance measurement and verification protocols, from which the methodology can be ascertained.
- Developing the most suitable baseline model.
- Obtain pre-implementation data from the ESCO
- Based on the obtained pre-implementation data, characterize and verify results of baseline model.
- Obtain buy-in from all stakeholders on the baseline and savings calculation methodology.
- Develop specification and installation procedures for project – specific metering for post implementation metering. Acquire and install the necessary equipment and start collecting post-implementation data.

**(iii) Develop/issue an agreed upon M&V baseline and M&V baseline report**

Included in this report is a general description of the project, measurements method and the calculated baseline power demand for the whole facility. Information on the parties (M&V Team, ESCO and Client) involved in the projects is also included in this baseline report. A baseline represents what the electricity usage would have been without the new intervention. For a project it is necessary to quantify the impact of the following variables:

- The service level of the initial system
- The amount and type of equipment that was installed before the retrofit; and
- The actual amount of power used by each old system.

The same variables will be quantified to evaluate the impact of the new system. Baseline adjustments will be needed when:

- Additional activities outside the given scope of these projects are implemented by the same ESCO, within this Project.
- The client performs a system alteration not covered by the scope of this project, but it does affect the project's baseline and actual electricity use.
- Facility voltage has changed significantly

**(iv) Do/issue post implementation report**

The purpose of this study is to provide an overview and the actual planned project specific DSM intervention that was implemented. The following will be done:

- Site audit to verify the actual project implementation. This phase provides information regarding the implementation deviations from the agreed plan as in the M&V plan.
- Deviations are also reported

**(v) Do/issue performance assessment (s) and report (s) as agreed upfront within M&V plan**

The purpose of the M&V Performance assessment report is to provide an overview and description of the implemented planned project specific project intervention. The report includes a description of the planned measures that were under consideration by the ESCO. It also describes how these measures resulted in potential energy- and cost savings and provides the final impacts as determined by the M&V team.

**(vi) Develop/Issue a final performance assessment certificate**

This stage provides the actual average demand reduction of the project after 2 or 3 Performance assessments. This is done if the project monthly savings varies due to other factors that may entail the ESCO to do the necessary corrections in order to meet the intended target.

**(vii) Do monthly/quarterly/bi-annually savings reports (As agreed upfront within M&V plan)**

**(viii) Do annual savings report (As agreed upfront within M&V plan)**