PERMANENT

NEWSLETTER 2 – PERMANENT PROJECT – DECEMBER 2010

THE PERMANENT PROJECT

The PERMANENT project is aimed at increasing the knowledge about measurement and verification of energy efficiency and renewable energy projects. Measurement and Verification (M&V) of energy efficiency projects is an important tool towards removing the distrust in these projects from the site of financial institutions and decision makers on corporate level. The projects' main objective is to educate financiers, project developers and energy users about how energy efficiency projects can demonstrate **permanent results**.

The International Performance Measurement and Verification Protocol (IPMVP) and the International Energy Efficiency Financing Protocol (IEEFP) will be the basis for this development.

The PERMANENT project was launched in September 2009 and runs until December 2011 and is financed through the Intelligent Energy Europe Programme.

NEWS FROM PERMANENT

Protocols were translated – the IPMVP and IEEFP protocols were translated into national languages (Czech/Bulgarian/Polish/Romanian/Croatian) and will be published on EVO's website early 2011.

Training materials developed – IPMVP training materials as developed by Maicon (EVO experts) have been adjusted (localised) and translated. They will be finalised for training events (to be started in 2011) – half day, one-day and two-day training events. Also IEEFP training materials are being completed – for half day training and also awareness events.

Trainers in IPMVP & IEEFP were trained in Prague in September – both IPMVP and IEEFP trainers were trained and been approved to run training events within the PERMANENT project (there are two IPMVP trainers at the moment in each partner country).

The final training of IPMVP trainers took place under the lead of John Cowan. In two groups, selected technical experts from ENVIROS (Czech Republic), FEWE (Poland), EnergoEco (Romania), EnEffect & EEE (Bulgaria) and HEP-ESCO (Croatia) received their final 3-day training in Measurement and Verification techniques for energy saving measures so that they would be prepared to train professionals and energy users in their own countries. These national trainings will start as of February 2011.

As part of their training the trainers in IPMVP had to develop **M&V plans** (Measurement & Verification Plans). Two plans were developed for the Czech Republic – one for a building energy saving project and the other one for an industrial project in energy savings.

An M&V plan includes information about the energy saving measure, the IPMVP option to use (i.e. the method for measuring energy savings), the baseline situation before the energy saving measure was implemented and technical details about the ways of measuring and verifying the actual energy savings.

ENVIROS Maicon HEP ESCO EEE Consortium EnergoEco EnEffect consult

eaci Intelligent Energy Europe

At the same time under the lead of Tom Dreessen 2-day training for financial experts was given on financing energy efficiency projects and managing their risks. Economic and financial experts from the above-mentioned organisations were trained with the aim of training financial officers of Local Financing Institutions (LFI).

COUNTRY REPORTS

Country reports were developed for each of the participating countries dealing with the description of:

- Market potential for energy efficiency
- Existing regulatory and legal framework for energy efficiency and its relation to IPMVP and financing energy efficiency in each of the countries
- Existing barriers in financing energy efficiency projects and priorities in financing energy efficiency
- ESCOs and existing barriers to energy services wider utilisation
- Best practices (if any) in M&V

The Country report also provided recommendations regarding additions to IPMVP. These additions have been included in the newest version of IPMVP that was published in September 2010 on EVO's website.

The PERMANENT project was also presented at several international events

Energy Efficiency Business Week – event organised in Prague on November 24, 2010, is a conference bi-annually organised by SEVEn. This year the conference comprised also a specialised seminar/conference about energy services and related European project financed mainly by the Intelligent Energy Europe Programme. And also best practices in energy services were presented in detail.

ESCO EUROPE 2010 – ESCO Europe took place from the 2nd to the 4th of November in Lisbon and brought together over 150 representatives from ESCOs, utilities, municipalities, large energy users, energy agencies, governments and financial institutions to explore the monetization of energy efficiency projects, delivering energy savings, and cost reduction.

ESCO Europe 2010 delivered the insights required to identify the enormous opportunities the European market represents. Leading ESCO's and government organisations delivered the leading case studies of successful implemented ESCO projects and discussed the next steps required to further stimulate the European ESCO market.

WHICH IS WHICH?

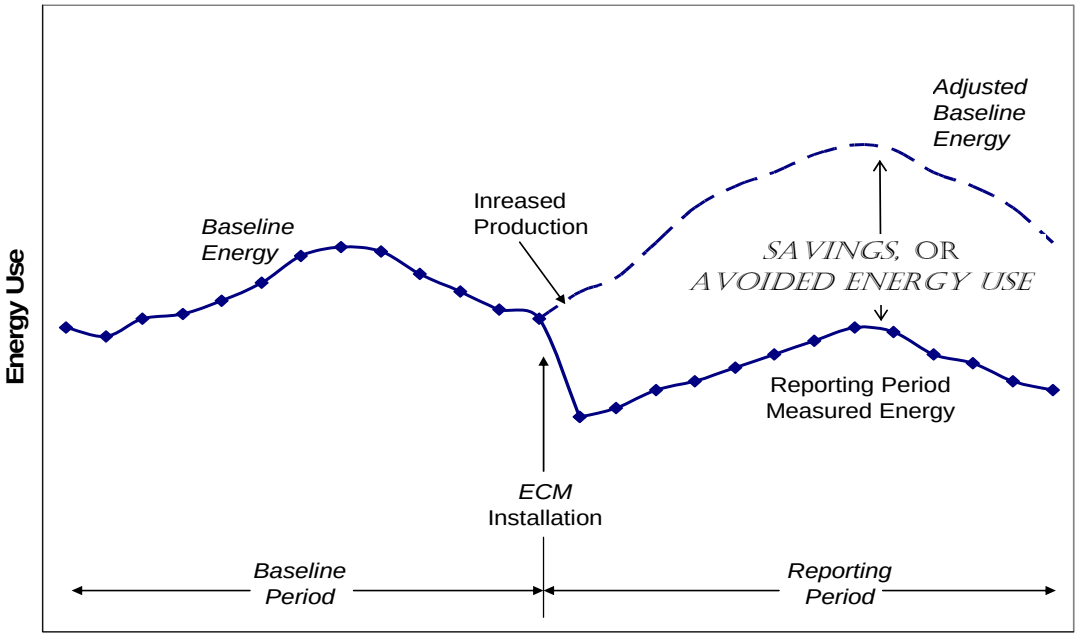
IPMVP – (International Performance Measurement and Verification Protocol)

The results of energy efficiency retrofits cannot be directly measured as they can only be defined by the absence of energy consumption resulting from an action that targeted such reduction. The adage that ***"what cannot be measured cannot be managed"*** cannot be truer than in the context of energy efficiency initiatives. There is thus an important need to measure and verify savings generated by a project.

As savings cannot be directly measured, they can be determined by comparing measured use before and after implementation of a project, making appropriate **adjustments** for changes in conditions. The financial value of energy savings includes all elements that are affected by metered amounts, such as consumption charges, demand charges, transformer credits, power factor, fuel price adjustments, early payment discounts and taxes.

In a simplified way, it can be said that:

Energy (cost) savings = (Baseline Energy – Reporting-Period Energy) ± Adjustments



Source: EVO

Figure 1 – determining energy savings

The term "adjustments" distinguishes proper savings reports from a simple comparison of cost or usage before and after implementation of an energy conservation measure (ECM). Simple comparisons of utility costs without such adjustments report only cost changes and fail to report the true performance of a project. To properly report "savings," adjustments must account for the differences in conditions between the baseline and reporting periods.

IPMVP defines **four options for determining savings** – A, B, C, and D – which cover the scope of potential energy savings projects and enable the bearers to balance the accuracy of measuring with M&V costs.

OPTION A – retrofit isolation – key parameter measurement: A typical application is a lighting retrofit where power draw is the key performance parameter that is measured periodically. Estimate operating hours of the lights based on building schedules and occupant behaviour.

OPTION B – retrofit isolation – all parameters measurement: A typical application is the one of a variable-speed drive and controls to a motor to adjust pump flow.

Measure electric power with a kW meter installed on the electrical supply to the motor, which reads the power every minute. In the baseline period, this meter is in place for a week to verify constant loading. The meter is in place throughout the reporting period to track variations in power use.

OPTION C – whole facility: A typical application is the one of a multifaceted energy management programme affecting many systems in a facility. It includes measuring energy use with the gas and electric utility meters for a twelve-month baseline period and throughout the reporting period.

OPTION D – calibrated simulation: A typical application is a multifaceted energy management programme affecting many systems in a facility but where no meter existed in the baseline period. Energy use measurements, after installation of gas and electric meters, are used to calibrate a simulation. Baseline energy use, determined using the calibrated simulation, is compared to a simulation of reporting period energy use.

The choice among the options involves many considerations, one of which is the definition of the measurement boundary (e. g. an individual building or an entire block.) If the M&V plan calls for determining savings at the facility level, Option C or D may be favoured. However, if only the performance of an individual application itself is of concern, a retrofit-isolation technique may be more suitable (Option A, B or D).

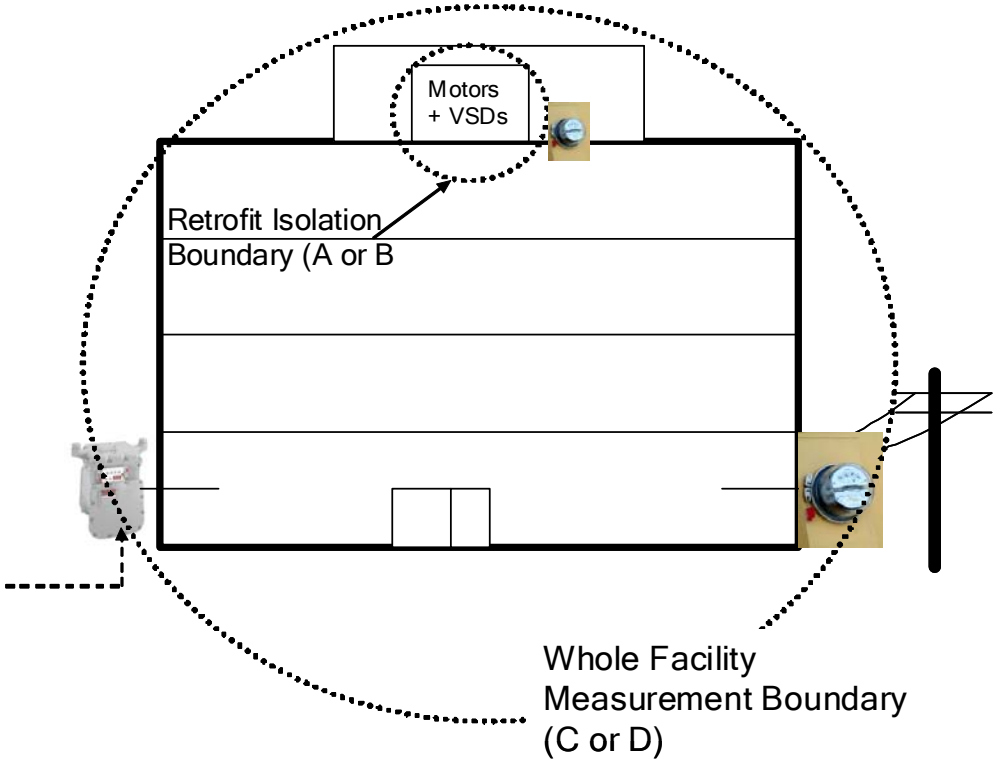


Figure 2 – Determining the measurement boundary

Source: EVO

Measuring and evaluation is done continuously in the long term. As it has been stated, the key part of IPMVP is a concept of the measuring and verification benefits plan (M&V Plan), which is created before the beginning of implementation of savings and serves for verification if the expected results have been achieved after they were implemented.

The current PERMANENT project promotes the methods of measuring and verification among other things – in all partner countries (the Czech Republic, Bulgaria, Croatia, Poland and Romania). One of the aims of the project is to inform end users as well as advisors and ESCO companies, which provide EPC services, about the IPMVP benefits.

IEEFP – (International Energy Efficiency Financing Protocol)

Among the main reasons for developing the IEEFP is overcoming one of the most significant barriers to energy efficiency projects, the lack of commercially viable financing. This lack of financing is **not caused by a lack of available funds** per se, but rather by an inability to access existing funding capacity at local banks and financing institutions (LFIs) on commercially attractive terms. This lack of access is caused by a **"disconnect"** between the traditional lending practices of LFIs and the financing needs of energy efficiency projects.

LFIs typically apply their traditional "asset-based" corporate lending approach for energy efficiency projects that is limited to their lending a maximum of 70%-80% of the value of assets financed (or collateral provided).

Unfortunately there is often little or no collateral value in the energy efficiency equipment once installed in a facility; rather, the value is the cash flow generated from the equipment after installation. To date, most LFIs (due to lack of knowledge) have not recognized nor appear to believe that meaningful cash flow can be generated from energy efficiency projects, or that such cash flow can be relied upon to repay the related loans. Consequently, LFIs generally assign no value to the cash flow generated, thus requiring Hosts to encumber their credit capacity to finance energy efficiency.

IEEFP is an international standardised programme for training financial institutions how to evaluate the risks and benefits of financing Energy Efficiency Projects (EEP). It focuses on the **"Savings Value" of EEPs for loan repayment** and credit capacity analysis.

It provides guidelines and procedures that include:

- Credit, Project Analysis and Loan Application Criteria;
- Investment and Technology Criteria;
- Agreements (for loans, with ESCOs, Construction contracts, etc.);
- Savings Measurement and Verification (according to IPMVP);
- Case Studies, Financial Analysis Tools, etc.).

IEEFP is envisioned to ultimately become the **global "blue print" for educating and training LFIs** around the world on the special intricacies, benefits and risks of financing end-use energy efficiency projects. IEEFP is intended to be a growing set of best practices, resource materials, case studies, standardised tools and guidelines for LFIs, financiers and other energy efficiency stakeholders to support their economic and financial evaluation of energy efficiency projects.

The IEEFP has already been customized into a training programme for Mexican LFIs, reflecting realities of their local market conditions. It is planned to continue applying IEEFP on a "grass roots" country-by-country basis.

At the core of the IEEFP is the need to measure and verify energy savings created by the Energy Savings Projects to ensure sustainability of the reduced energy costs and the resulting available cash flow to repay the LFIs.

TRAININGS

Trainings in IEEFP and IPMVP are being prepared and will be held in Bulgaria, Croatia, Czech Republic, Poland and Romania between February and October 2011.

Newsletter no. 3 will provide more details about the detailed trainings that will be organised in these 5 countries. This newsletter is expected in February 2011.

CONTACT DETAILS

Further information about the PERMANENT project can be gained at the project website:

www.permanent-project.eu

Further information on the project can also be obtained from the project co-ordinator:

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This newsletter is the second in a series to be published every 4th month during the course of the project.