



STEPPING

*Supporting The EPC Public Procurement IN
Going-beyond*

Module 9 – Guarantee Phase



Share of savings and penalties

Within an EPC process, in the offer the company guarantees the energy saving %, declares the amount of investment it can cover, indicates what % of financial saving will be acknowledged to the client and sets the contract duration. The call is assessed through the criteria of the value for money, taking into account the overall economic and technical elements.

The awarded ESCO is obliged to undertake the measures and to provide other services (maintenance, training, communication, ...) but normally does not provide the fuel and it does not have the responsibility on all the energy systems (in charge of the ordinary manager). The company is in charge only for the part of the system it has implemented measures on. The guarantee is expressed through formulas foreseeing a payment to the client in case consumption is higher than the amount set in the call. In case of energy saving higher than the guaranteed ones, a % of this is kept by the client (Sharing savings).



Share of savings and penalties

There are a range of options when it comes to the ESCO taking some of the risk that a project may not deliver the energy savings originally envisaged. For instance, in a *performance payment* arrangement it might be agreed that 80% of the ESCOs fees are fixed, but 20% is variable based on the extent to which savings materialise and are verified as projected.

In a case where an ESCO is delivering savings through facility and energy management activities, rather than investments, a *gain-share* arrangement could be that the ESCO gets a percentage of the value of the savings achieved. In a *performance guarantee* the ESCO might only receive the final payment once it demonstrates that savings reach a particular level, either in energy or percentage terms.

In all these cases the ESCO supplies a product or service and assumes a degree of performance risk, but much of the risk remains with the customer; the ESCO's payment is not entirely or directly based on the level of savings achieved.



Share of savings and penalties

The **performance indicators** used for monitoring the goals of a set energy saving can also drive the technical solutions which will be finally presented by the participating ESCos.

Additionally to energy consumption indicators (expressed in terms of primary energy or final energy), it is recommended to report in the Call:

- ***An objective of CO2 emissions avoided***
- ***An objective related to energy produced from RES (renewable energy sources).***

This drives technical solutions more often produced at local level and more environmental friendly.

It is in crucial in this process that each part is aware of the risks it runs or wish to transfers.



Share of savings and penalties

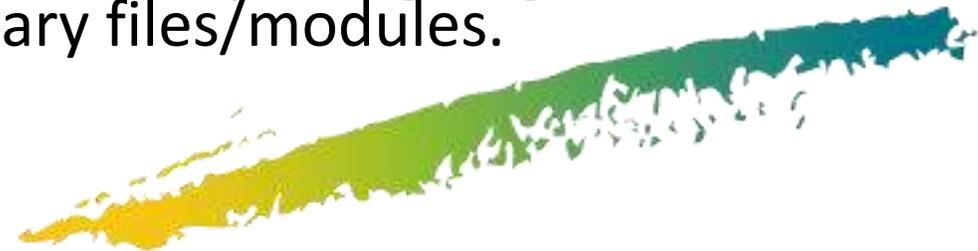
The *EPC comfort score for the building pool* is the average of the EPC-comfort scores of the individual administrative buildings, weighted according to the floor surface of each building. The ESCO will receive a financial bonus if the EPC-comfort score becomes higher than the baseline value and will have to pay a penalty if the measured score will become lower.

The Comfort performance guarantee can be integrated in an EPC-contract on a quite similar way as the energy savings guarantee. i.e. in a Belgian EPC-project initiated by Fedesco the ESCO receives a bonus (pays a penalty) of 1 € per % increased (decreased) comfort score and per m² floor surface. The baseline value is the comfort score as surveyed before the start of the EPC-project.

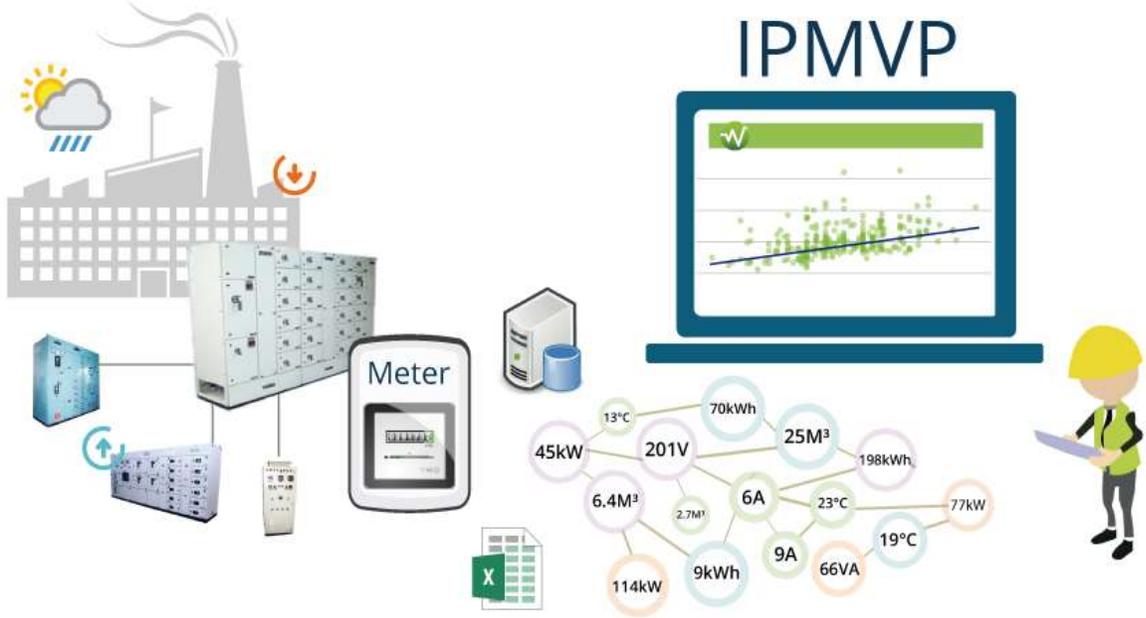


Measurement and Verification Plan

- In each contract year of the EPC, the ESCO has to provide a proof of energy savings. The basis for this are the energy bills for the contract buildings which the client is obliged to provide for the relevant settlement periods. If **defined so in the contract**, also meter reading or reports of the energy management tools may be sufficient.
- The ESCO then has to determine the adjusted net amount of savings actually achieved using the calculation rules in accordance with the EPC contract, in a manner which is comprehensible to the client, enter the amount and its remuneration claim into the settlement sheet and present the sheet to the client.
- The calculation method for the settlement is analogous to that for the baseline determination. In addition, some adjustment steps are necessary (day, price, climate and usage adjustment) that establish comparability between reference year and settlement year. For the determination of the settlement, either the calculation file for the energy costs baseline handed over upon signing of the contract is updated or the contractor uses proprietary files/modules.



Measurement and Verification Plan



Source: wattics.com



Measurement and Verification Plan

There are three different measurement options, which can be used in the verification of the energy savings. This calculation determines the difference between the reference and the measured values. The verification options are the following:

- *Option 1: Use measured values*
- *Option 2: Measurement of individual power parameters in combination with operands*
- *Option 3: Mathematical methods by using authorized M&V methods.*

Differences between these options are related e.g. to the way how following factors are taken into consideration: the implementation effort, the ongoing costs in the verification process, the costs of tracking changes, and the risks for the contractor related to the achievement of the energy savings.



Measurement and Verification Plan

Monitoring and verification of guaranteed savings is often complex and may lead to debates between the ESCO and the building owner.

Adjustments may be required regularly, depending on, for example:

- Weather conditions.
- Changes in consumer behaviour.
- Type, intensity and frequency of building use.
- Installation or additional, or removal of old consumer devices.
- Replacement of old consumer devices by new, more energy efficient devices.
- Changes in building structures (additional renovations) and of installed facilities

During the preparation of tender documents it is necessary to identify the tools for the monitoring, verification and reporting of the performance achieved by the successful bidders and a System of Monitoring and Verification of Performance (SMVP) can provide a periodic scheduling of control activities, a constant monitoring in electronic format of data, a seasonal report of performance data for the reference periods, an electronic data store, and finally the exchange of updated information following simple written request of the client.



Measurement and Verification Plan

As energy cost and consumption are too often invisible to all but a select few within an organization, a sound measurement and verification plan (M&V) can help confirm actual energy cost savings through Comprehensive Measurement – Tasked to an ESCO, this process uses industry best practices to measure savings created within an individual facility through an energy efficiency, water efficiency or renewable energy initiative.

While using these protocols has become almost “mandatory”, the resulting costs can be expensive based on project type and scope. This makes matching the approved measurement strategy to the level of risk vitally important.

Confirming energy cost savings depends on factors related to the risk of noncontract performance. If risk is low, the effort applied to measure and verify may be limited in intensity. Savings are calculated using a simple formula: Energy Savings = Base Year Energy Use – Post Retrofit Energy Use + or – Adjustments

Adjustments – significant changes in weather differences, operational hours – provide a more realistic comparison of post-retrofit conditions to those of the base year. If these factors are left unaccounted for, it is possible that any realized savings would be improperly calculated.



Measurement and Verification Plan -*Third Party Verification*

In situations where the ESCO has more experience than the building owner:

- Municipalities will often engage the services of a neutral third party to review the ESCO's reports, ensure transparency and confirm unbiased results.
- Important if you are counting on project savings to pay your financing obligation and looking to confirm the ESCO is meeting your energy savings guarantee.
- Begin this initiative along with the measurement and verification plan.
- This “trust but verify” arrangement ensures both parties believe the information that determines payments is valid and accurate.



Measurement and Verification Plan - *Post-Project Risk Mitigation*

Following these steps can mitigate against potential risks:

- Improve engineering design and project budgeting by including all project deliverables and line item costs in the project's total economic snapshot.
- Document all financial transactions to enable auditing by an independent third-party. Critical for projects where energy savings are central to performance-based payments and/or an EPC guarantee.
- Increase the chances of securing financing with the best terms possible. A realistic plan can boost investor confidence in your energy efficiency initiatives.
- Manage energy budgets more effectively. Measurement and verification guidelines help govern energy use to account for budget variances and adjust for changing facility-operating conditions.



Measurement and Verification Plan - *Post-Project Risk Mitigation*

- Systems tend to drift from their optimal settings after implementation, and new issues arise over time as building environments inevitably change. Measurement of post-retrofit performance is only useful to the extent that corrective action is taken as issues are identified. This process has been termed “Monitoring-based Commissioning,” and refers to the process of optimizing building operations on a continuous basis. As with the M&V, this function can either be carried out with in-house resources or may be contracted to a third party.
- The mere presence of new equipment does not guarantee optimal performance; ongoing maintenance, measurement and verification, and performance evaluation are critical to the long-term success of EPC projects and also for the enforcement of the performance guarantee, if applicable. The owner and/or operator as well as the service provider have responsibilities in this ongoing process. Even in a short-term performance assurance option, post-implementation performance should still be closely monitored.
- If the owner or operator is not capable of executing proper operation and maintenance of the project(s) after the retrofit, the owner/operator should request a proposal for such services from the implementing or other service provider. In this circumstance, the owner/operator would need to execute a separate contract to ensure such proper operation and maintenance is provided to ensure performance goals are achieved.



End of Module 9



See details on...

Pilot Implementation Handbook *and related annexes:*

- ***Annex A - Action template for EPC in public buildings to be included in the SEAP/SECAP***
- ***Annex B - Recommendations from previous projects/organisations expert on EPC***
- ***Annex C - The European EPC Code of Conduct***

