ENERGY PERFORMANCE CONTRACTING (EPC)

What is Energy Performance Contracting?
The Energy Efficiency Directive 2012/27/EU defines ‘Energy Performance Contracting’ as a contractual arrangement between the beneficiary and the provider of an energy efficiency improvement measure, verified and monitored during the whole term of the contract, where investments (work, supply or service) in that measure are paid for in relation to a contractually agreed level of energy efficiency improvement or other agreed energy performance criterion such as financial savings.

Unlike the traditional contract conditions, the Energy Performance Contracting (EPC) uses the principle of repaying the energy efficiency investments directly from the saved energy costs. Hence the energy service company (ESCO) delivering a typical EPC has to ensure that such savings are actually achieved. Monitoring and Verification of project savings are thus very important.

Legal Notice 196 of 2014 transposing the Energy Efficiency Directive 2012/27/EU specifies the following minimum items to be included in energy performance contracts:

- Clear and transparent list of the efficiency measures to be implemented or the efficiency results to be obtained.
- Guaranteed savings to be achieved by implementing the measures of the contract.
- Duration and milestones of the contract, terms and period of notice.
- Clear and transparent list of the obligations of each contracting party.
- Reference date(s) to establish achieved savings.
- Clear and transparent list of steps to be performed to implement a measure or package of measures and, where relevant associated costs.
- Obligation to fully implement the measures in the contract and documentation of all changes made during the project.
- Regulations specifying the inclusion of equivalent requirements in any subcontracting with third parties.
- Clear and transparent display of financial implications of the project and distribution of the share of both parties in the monetary savings achieved (i.e. remuneration of the service provider).
- Clear and transparent provisions on measurement and verification of the guaranteed savings achieved, quality checks and guarantees.
- Provisions clarifying the procedure to deal with changing framework conditions that affect the content and the outcome of the contract (i.e. changing energy prices, use intensity of an installation).
- Detailed information on the obligations of each of the contracting party and of the penalties for their breach.
What is the European Code of Conduct for Energy Performance Contracting?

The European Code of Conduct for Energy Performance Contracting (EPC Code of Conduct) defines the basic values and principles that are considered fundamental for the successful preparation and implementation of EPC projects within European countries. The EPC Code of Conduct has been developed within the Intelligent Energy Europe project Transparense in cooperation with inter alia EPC providers, clients and European ESCO associations. The two organisations representing ESCOs at the European level – European Association of Energy Service Companies (eu.ESCO) and European Federation of Intelligent Energy Efficiency Services (EFIEES) endorse the European Code of Conduct for EPC and support its use when implementing EPC projects. The EPC Code of Conduct will expectantly serve as a harmonized European quality standard of EPC projects, raise potential clients’ confidence in the business model and thus lead to higher demand for the EPC projects. EPC providers who become signatories of the EPC Code undertake to conduct EPC projects in compliance with the EPC Code of Conduct. It is a voluntary commitment of the EPC providers and is not legally binding.

The EPC Code of Conduct consists of a set of nine guiding principles on EPC projects implementation to support the high quality and transparency of European EPC markets. The principles use the term "savings", which means energy savings and/or related financial savings.

1. **The EPC provider delivers economically efficient savings**

The EPC provider aims at an economically efficient combination of energy efficiency improvement measures. This combination maximises the net present value of an EPC project for the Client defined as the sum of all the discounted costs and benefits (especially operational cost savings) associated with implementing the project.

2. **The EPC provider takes over the performance risks**

The EPC provider assumes the contractually agreed performance risks of the project during the whole duration of the EPC contract (the "contract"). These include the risks of not achieving contractually agreed savings as described below as well as design risks, implementation risks and risks related to the operation of installed measures.

3. **Savings are guaranteed by the EPC provider and determined by M&V**

The EPC provider guarantees that the contractually agreed level of savings will be achieved. If an EPC project fails to achieve performance specified in the contract, the EPC provider is obligated by the contract to compensate savings shortfalls that occurred over the life of the contract. The excess savings should be shared in a fair manner according to the methodology defined in the contract. Contractually agreed savings as well as achieved savings are determined in a fair and transparent manner by Measurement and Verification (M&V) using appropriate methodology (such as International Performance Measurement and Verification Protocol (IPMVP)) as defined in the contract. The contractually agreed savings are determined based on data provided by the Client and realistic assumptions. The achieved savings are calculated as the difference between energy consumption and/or related costs before and after the implementation of energy efficiency improvement measures.

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1 The financial savings include reduction in costs of energy provision and can also include reduction in other operational costs, such as costs of maintenance and workforce.
4. The EPC provider supports long-term use of energy management
The EPC provider actively supports the Client in the implementation of an energy management system during the contract period and eventually after the contract period by agreement. This helps sustain the benefits from the project even after the contract period.

5. The relationship between the EPC provider and the Client is long-term, fair and transparent
The EPC provider works closely with the Client as partners with the common objective of achieving the contractually agreed level of savings. The EPC provider strives to keep its relationship long-term, fair and transparent. Both the EPC provider and the Client provide access to their project-relevant information in a clear manner and both fulfil their obligations according to the contract terms. For instance, the EPC provider is committed to informing the Client about the results of measurement and verification of the savings, while the Client is committed to informing the EPC provider about any changes in the use and operation of its facilities during the contract duration that could affect energy demand.

6. All steps in the process of the EPC project are conducted lawfully and with integrity
The EPC provider and the Client comply with all laws and regulations that apply to the EPC project in the country in which it is implemented. The EPC provider and the Client avoid conflicts of interest and have a zero-tolerance policy to corruption and self-dealing.

7. The EPC provider supports the Client in financing of EPC project
The EPC provider supports the Client in finding the most suitable solution providing for project financing taking into account the relevant conditions of both parties. The capital to finance the EPC project can either be supplied out of the Client's own funds, by the EPC provider or by a third party. Provision of financing by the EPC provider is an option, not a necessary part of the EPC project.

8. The EPC provider ensures qualified staff for EPC project implementation
The EPC provider maintains a qualified staff in order to provide the right technical, commercial, legal and financial know-how and skills. It ensures that its experts have the adequate qualifications and capacities related to the preparation and implementation of the EPC project. Less experience on the Client's side can be balanced by a specialised advisory company (such as an EPC facilitator) that will steer it toward the correct implementation and procurement of the EPC project.

9. The EPC provider focuses on high quality and care in all phases of project implementation
The EPC provider uses well-designed procedures, high-quality and reliable equipment and products, and works with reliable sub-suppliers. It adheres to the principles of ethical business conduct, meets its obligations towards sub-suppliers, and conducts itself responsibly with respect to the Client and its representatives.
Measurement and Verification

In view that Energy Performance Contracting uses the principle of repaying the energy efficiency investments directly from the saved energy costs, measurement and verification of savings is very important. The Efficiency Valuation Organization (EVO) publishes the International Performance Measurement and Verification Protocol (IPMVP) and related documents to increase investment in energy and water efficiency, demand management and renewable energy projects around the world. The following are the key principles of IPMVP. These principles provide the basis for assessing the adherence of an M&V process to IPMVP.

- **Accurate**: M&V reports should be as accurate as can be justified based on the project value. M&V costs should normally be small relative to the monetary value of the savings being evaluated. M&V expenditures should also be consistent with financial implications of over- or under-reporting of a project’s performance. Accuracy trade-offs should be accompanied by increased conservativeness with increased use of estimates and judgements. In addition, accuracy can be influenced by the level of adjustment of energy quantities made to the reporting-period conditions or to some other set of conditions. Accuracy can also be affected by the duration of the baseline period and the reporting period.

- **Complete**: The reporting of energy savings should consider all effects of a project. M&V activities should use measurements to quantify the significant effects, while estimating others.

- **Conservative**: Where judgements are made about uncertain quantities, M&V procedures should be designed to under estimate savings.

- **Consistent**: The reporting of a project’s energy effectiveness should be consistent across:
  - Different types of energy efficiency projects;
  - Different energy management professionals for any one project;
  - Different periods of time for the same project; and
  - Energy efficiency projects and new energy supply projects.

- **Relevant**: The determination of savings should measure the performance parameters of concern, or least well known, while other less critical or predictable parameters may be estimated.

- **Transparent**: All M&V activities should be clearly and fully disclosed. Full disclosure should include presentation of all of the elements defined for the contents of an M&V Plan and a savings report, respectively.
The table below provides an overview of IPMVP options:

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<th>IPMVP Option</th>
<th>How Savings Are Calculated</th>
<th>Typical Applications</th>
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<tr>
<td>A. Retrofit Isolation: Key Parameter Measurement</td>
<td><strong>Savings are determined by field measurement of the energy use of the ECM affected system. Measurement frequency ranges from short-term to continuous, depending on the expected variations in the measured parameter and the length of the reporting period.</strong>&lt;br&gt;Parameters not selected for field measurements are estimated.&lt;br&gt;Estimates can be based on historical data, manufacturer's specifications, or engineering judgement. Documentation of the source or justification of the estimated parameter is required. The plausible savings error arising from estimation rather than measurement is evaluated.</td>
<td>Engineering calculation of baseline and reporting period energy from:&lt;br&gt;— short-term or continuous measurements of key operating parameter(s) and&lt;br&gt;— estimated values&lt;br&gt;routine and non-routine adjustments as required.&lt;br&gt;A lighting retrofit where: 1) power draw is the key performance parameter that is measured periodically and 2) lighting operating hours are estimated based on facility schedules and occupant behaviour.</td>
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<td>B. Retrofit Isolation: All parameter Measurement</td>
<td><strong>Savings are determined by field measurement of the energy use of the ECM affected system. Measurement frequency ranges from short-term to continuous, depending on the expected variations in the savings and the length of the reporting period.</strong>&lt;br&gt;</td>
<td>Short-term or continuous measurements of baseline and reporting period energy, or engineering computations using measurements of proxies of energy uses.&lt;br&gt;Routines and non-routine adjustments as required.&lt;br&gt;Application 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.</td>
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<td>C. Whole Facility</td>
<td><strong>Savings are determined by measuring energy use at the whole facility or sub-facility level. Continuous measurements of the entire facility’s energy use are taken throughout the reporting period.</strong>&lt;br&gt;</td>
<td>Analysis of whole facility baseline and reporting period (utility) meter data.&lt;br&gt;Routine adjustments as required, using techniques such as simple comparison or regression analysis. Non-routine adjustments as required.&lt;br&gt;Multitowered energy management program affecting many systems in a facility. Measure energy use with the gas and electric utility meters for a twelve-month baseline period and throughout the reporting period.</td>
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<td>D. Calibrated Simulation</td>
<td><strong>Savings are determined through simulation of the energy use of the whole facility, or of a sub-facility. Simulation routines are demonstrated to adequately model actual energy performance in the facility. This option usually requires considerable skill in calibrated simulation.</strong>&lt;br&gt;</td>
<td>Energy use simulation, calibrated with hourly or monthly utility billing data. (Energy use modeling may be used to help refine input data).&lt;br&gt;Multitowered energy management program affecting many systems in a facility but where no meter existed in the baseline period. Energy use measurement, after installation of gas and electric meters, is used to calibrate a simulation. Baseline energy use, determined using the calibrated simulation, is compared to a simulation of reporting period energy use.</td>
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*Energy Conservation Measures – ECM: Measures to improve efficiency or conserve energy or water, or manage demand.*
**Please provide your opinion:**

Q1: Is the EPC model suitable for Malta? If yes, for which sectors and in which areas of intervention?

Q2: Would Malta need to have a transitory business model for EPC i.e. contractor is only partly paid for energy efficiency investment from saved energy cost?

Q3: In view that the EPC is a new business model in Malta, would you suggest the need for an EPC facilitator? 

Q4: In order to ensure the smooth development of EPC in Malta, would specialised courses in monitoring and verification of savings be required?

Q5: How do you propose to incorporate maintenance in an EPC contract?

Q6: Would sample contracts facilitate the uptake of EPCs in Malta?

Q7: What would be the best way to promote the uptake of EPCs in Malta?

Q8: Would the requirement for EPC providers to become signatories of the EPC Code increase confidence in the business model?

Q9: Financing institutions will require expert advice as regards the economic feasibility of the proposal and related risks. What would be the preferable model?

Please provide any other comments you wish to contribute vis-a-vis Energy Performance Contracting.

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2 The EPC project facilitator supports the preparation and implementation of the project on behalf of the client, the building owner.