

Organisation of operational framework for Energy Service Companies (ESCO) CWP.08.MD (AHEF.119.MD)

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Abbreviations

AHEF	Ad hoc Expert Facility
EC	European Commission
EE	Energy Efficiency
EEA	Efficiency Agency of Moldova
EEF	Energy Efficiency Fund
EPC	Energy Performance Contract
ESCO	Energy Service Company
EU	European Union
ITS	INOGATE Technical Secretariat
MDL	Moldovan Leu
NEEAP	National Energy Efficiency Action Plan
ToR	Terms of Reference
TPF	Third party finance
VAT	Value added tax

1. PART 1 – EUROPEAN COMMISSION

1.1. Background

Assignment Title:	Organisation of Operational Framework for Energy Service Companies (ESCO), CWP.08.MD (AHEF.119.MD)
Country and Dates:	Chisinau, Moldova, March-June 2015
Beneficiary Organisation:	Energy Efficiency Agency of Moldova (EEA)
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Deliverables Produced	Developed draft legislation acts, presentations and this final report
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1.2. Essence of the Activity

The Technical Assistance (TA) assignment on the Organisation of Operational Framework for Energy Service Companies was implemented during the period March-June 2015. The TA was requested by the Energy Efficiency Agency of Moldova (EEA) that is the main responsible body for the implementation of the state policy for improvement of EE and development of RES in the country.

This assignment aimed to provide a contribution to the improvement of energy efficiency in Moldova through energy performance contracting (EPC) and the further approximation of its national legislative framework with that of the EU. The specific goals included the development of model EPC for public and private sectors as well as guidelines on the procurement and implementation of EPC that could then be further adopted as a secondary legislation in Moldova.

As an additional activity to support the adoption of model EPC in Moldova and in other PCs, ITS conducted a combined event on lessons learned on EPC, EU experience and applicability in the Partner Countries which took place in Stockholm, Sweden, between 9 and 11 February 2016. The event showed the implementation of the EPC in practice and provided participants with the set of effective tools on how to improve the efficiency in buildings and promote viable energy service markets in their countries.

The ITS fully achieved the overall and specific objectives of the TA assignment (see section 2.2) that were related to the development of secondary legislation for the efficient promotion of ESCO market and the approximation of Moldova with EU legislation.

1.3. Key Findings

1. There is no experience in the procurement and the implementation of EPC in Moldova. The successful implementation of first EPCs projects is very important to the sustainability of the ESCO scheme in the future.

2. The Energy Efficiency Agency of Moldova is significantly understaffed and does not have sufficient capacity and resources to support the implementation of EPC projects. The EEA has officially submitted to the Government of Moldova proposals to change the status of the EEA from public authority to public institution with an independent budget. Once approved, this will help to improve the capacity of the Agency and will indirectly influence on the facilitation of EPC in Moldova.

3. The efficient coordination of ITS activities with the UNPD project “ESCO Moldova” ensured the sustainability of ITS assistance and helped to avoid any overlapping between projects.
4. The Energy Efficiency Fund (EEF) of Moldova has an excellent experience in providing financial support to EE projects and can become instrumental in financing EPC projects in the future.
5. Most of the local authority budgets in Moldova do not have sufficient financial resources to maintain the statutory indoor climate during the heating season. This may lead to situation when the implementation of EE measures does not bring energy savings, but the improvement of indoor climate. Thus, ESCO projects should primarily target those public buildings that maintain statutory indoor climate conditions.

1.4. Ownership and Benefits of the Activity

The main benefits of the activity for the Beneficiaries are:

1. The Moldovan experts and decision makers improved their understanding on the procurement and implementation of EPC in accordance with the EU best practices.
 2. The draft legislation acts developed within this assignment will allow Moldovan decision makers to reduce risks and facilitate sustainable growth and development of ESCO market .
- The Beneficiaries took ownership in the following way:
 1. The Beneficiary and local stakeholders provided ITS with all requested information and necessary support during the preparation and implementation stages.
 2. In September 2015, the Moldovan Government’s Steering Committee on ESCOs adjusted the legislative proposals contained in Annex 1 of this Report, to the requirements of Moldovan legislation framework and officially submitted them for approval to the Public Procurement Agency. According to the information provided by the EEA, the official approval and publication of ITS proposals is expected in summer 2016.

1.5. Recommendations

1. The developed model EPC must be implemented in Moldova gradually in order to enable all involved stakeholders to gain necessary experience.
2. The current legislation on public procurement is considered to be a key obstacle for implementing EPC in Moldova. Moldova is in the process of changing its public procurement procedure to be in conformity with the Public Procurement Directive of EU 2014. Once transposed into Law, this will remove the identified barrier to EPC.
3. The EEF should change the financial support scheme and start financing EPC projects in the future. The financing of EPC by the EEF will ensure the guaranteed payback of investments, minimise risks for ESCOs and the owners of the buildings as well as reduce the payback period due to the fact that the Fund can attract money from the IFI at the lower interest rate.
4. The reference value (baseline) should be established with respect to actual energy consumption. Thus, an EPC might not be applicable for buildings in which owners do not maintain statutory indoor

climate conditions as the real payback period after the implementation of EE measures and maintaining such an indoor climate might be longer than 10 years.

5. The experience in Sweden shows that the cost is about double for the ESCO in comparison with the normal contracting model. Nevertheless, some building owners continue to use the EPC model because of the high value to the guaranteed energy savings.

6. It is crucial to develop ESCOs' skills to propose energy saving measures that practically result in savings. This is a hard-earned experience that is developed and honed over time. Normally a portfolio of buildings of at least 30 000 m² built-up area is required for a feasible EPC project and the situation in Moldova has to evolve whereby an ESCO can undertake an EPC for portfolios of such size.

7. Thus, it is strongly recommended for Moldova to start with smaller projects. All could be done as per the EPC model except that the savings should not be guaranteed. Each one of the potential Moldovan EPC contractors needs to carry out at least three small projects without guaranteed savings in order to gain highly valuable experience.

1.6.Challenges Faced

The ITS experts had an efficient cooperation with the beneficiary, the EEA, and did not face any challenges during the preparation and the implementation of the TA assignment.

Table 1. Impact Matrix

Impact Area	Developments	2012 (%)*	Feb 2016 (%)*
Policy	<i>Support of the implementation of EED and its elements related to ESCO</i>	0%	70%
Regulation	<i>Support of the development and approval of model EPC</i>	10%	80%
Technology	<i>Support of the development and utilisation of modern EE technologies, primarily in buildings.</i>	5%	50%
Environment	<i>An EPC project can provide guaranteed energy savings that might not be achieved under the normal contract conditions</i>	5%	55%
Economics	<i>Indicators of decreased energy dependency</i>	4%	14%
Social	<i>Better indoor climate and living conditions for citizens.</i>	5%	45%

* The impact is estimated based on the experts' opinion under the current circumstances and can be changed over time

2. PART 2 – BENEFICIARY

2.1 Executive Summary

This report examines the results of the assignment "Organisation of operational framework for Energy Service Companies (ESCO)" implemented by the EU funded INOGATE Technical Secretariat (ITS) project. **It is important to note that this assignment has already yielded a major impact and in a short period of time. In September 2015, the Moldovan Government's Steering Committee on ESCOs adjusted the legislative proposals contained in Annex 1 of this Report, to the requirements of Moldovan legislation framework and officially submitted them for approval to the Public Procurement Agency. According to the information provided by the EEA, the official approval and publication of ITS proposals is expected in summer 2016.**

This assignment aimed to provide a contribution to the improvement of energy efficiency in Moldova through energy performance contracting (EPC) and the further approximation of its national legislative framework with that of the EU in this area. The specific goals included the development of model EPC for public and private sectors as well as guidelines on the procurement and implementation of EPC that could then be further adopted as a secondary legislation in Moldova.

Energy Service Companies have been operating in the EU for many years and can help their customers to reduce energy consumption and carbon emissions in the most cost-effective way. An energy performance contract is a solution provided by ESCO that can guarantee the results and take the performance risk, funding the improvements from the savings they deliver. This report proposes ways to transpose EU best practice on EPC into the national legislative framework of Moldova. The second part of the report consists of four key chapters and annexes.

Chapters 2.1 -2.2 are the standard parts of an ITS report that provide information about the objective and the essence of the assistance as well as background information on the scope of work, site visits and activities under this assignment.

Chapter 2.3 analyses the current legislation and institutional frameworks in the area of EPC in Moldova and establishes a specific baseline for the evaluation of the results of this assistance in the future.

Chapter 2.4 summarises key findings and identifies obstacles for the implementation of EPC in Moldova.

Chapter 2.5 offers key conclusions and recommendations based on analysis of the current situation and findings presented in Chapters 2.3 and 2.4. The recommendations include a developed set of documents for the public and private procurement of EPC. The list of developed documents is attached as an annexe to this report. The presentations given by the ITS experts during the two missions to Moldova as well as developed documents can be downloaded from the INOGATE web portal by the following link:

<http://www.inogate.org/activities/504?lang=en§ion=documents#documents>

2.2 Introduction

The assignment was carried out in compliance with the application for technical assistance “MD-119, Organisation of operational framework for Energy Service Companies (ESCO)” submitted by the Energy Efficiency Agency of Moldova (EEA). The assignment was implemented by the EU funded INOGATE Technical Secretariat (ITS) project during the period March- June 2015.

The scope of work according to the Terms of Reference (ToR) included the following tasks:

1. Review of the current legislative framework and identification of obstacles to the successful implementation of EPC in Moldova.
2. Review the actual state of play of providing energy services and concluding EPC in Moldova during the first mission.
3. Development of proposals for the improvement of the current legislative framework and draft legislation acts according to the EU best practice and the requirements of the Efficiency Directive 2012/27/EU:
 - a. Model EPC for the public sector;
 - b. Model EPC for the private sector;
 - c. Methodology for energy performance contracting in the public sector based on best practices (economic feasibility assessment, distribution of extra project benefits, etc.);
 - d. Guidelines for the elaboration of terms of reference for energy performance contracting in the public sector (technical requirements, tender procedures and requirements, etc.).
4. Discussion of the preliminary proposals and the developed draft secondary legislation with the beneficiary during the second mission.
5. Finalisation of draft legislation and proposals for changing other related legislation framework.
6. Reporting.
7. Collaboration with beneficiary to facilitate the submission of ITS draft legislation for approval.
8. Monitoring of the adoption and implementation of the recommended legislative acts and collaborate when necessary with the beneficiary.

The first six tasks of this assignment have been fully implemented and reflected in this report. Tasks 7 and 8 will be implemented as follow-up activities according to the standard INOGATE procedures. The monitoring exercise will be conducted with respect to the baseline indicators developed in section 2.4 of the report.

The assignment started with an analysis of Moldovan legislative framework and fact-finding mission to Chisinau in March 2015. The mission provided an opportunity for the ITS experts to familiarise themselves with the legal context and local practices for the implementation of energy efficiency measures and to present the EU experience in implementing EPC. During a second mission to Chisinau in May 2015, the ITS experts discussed preliminary recommendations and draft legislation developed within this assignment with the Energy Efficiency Agency and other interested stakeholders in Moldova.

2.3 Analysis of current situation in Moldova

2.3.1 Analysis of current legal framework relevant to the EPC

The legislative framework relevant to the implementation of energy performance contracting (EPC) in Moldova includes the following legislation acts (in chronological order):

Primary legislation:

- Law on Quality in Constructions No. 721 dated 02.02.1996;
- Law on condominium in housing sector, No. 913 dated 30.03.2000;
- Law on Local Public Finances No. 397 dated 16.10.2003;
- Law on Public Procurement, No. 96 dated 13.04.2007;
- Law on Energy Efficiency, No. 142 dated 02.07.2010;
- Law on Energy Performance of Buildings No. 128 dated 11.07.2014;

Secondary legislation:

- National Energy Efficiency Action Plan for 2013-2015 (NEEAP), approved by Government Decision No. 113 dated 07.02.2013;
- Regulation on the provision of energy services, approved by Government Decision No. 1093 dated 31.12.2013.
- Regulation on the Organisation and Operation of the Energy Efficiency Fund, approved by Government Decision No. 401 dated 12.06.2012.
- Standard documentations for the public procurement of goods and services, approved by Government Decision No. 763 dated 11.10.2012.
- Standard documentation for the public procurement of works, approved by Government Decision No. 1121 dated 10.12.2010.

The short information about the identified legislative acts and their relevance to the scope of this EPC is provided below:

Primary legislation

Law on Quality in Constructions No. 721 dated 02.02.1996;

The Law defines the legal, technical, economic and organisational basis for the quality assurance in building construction and renovation. According to the Law the renovation of the buildings (including energy renovation) can be performed only on the basis of a project developed by licensed individuals or legal entities. The law assigns the State Service for the monitoring and examination of projects and buildings as the responsible body for the assessment of compliance with regulatory requirements for buildings in Moldova.

Law on condominium in housing sector, No. 913 dated 30.03.2000;

This law establishes the framework for creation, exploitation and management of condominiums that are the associations of co-owners of apartment buildings. This law is indirectly relevant to this assignment as the condominium can potentially conclude an EPC for the improvement of energy efficiency of the whole apartment building. According to Article 14 of the Law, the owners of the

apartment can pay their utility bills (or part of the utility bills) to the condominium based on the additional contracts with energy utilities. The latter scheme allows the application of EPC for the association of co-owners of an apartment building.

Law on Local Public Finances No. 397 dated 16.10.2003;

The Law regulates budgeting of administrative-territorial entities in Moldova. According to Article 2, each budget of administrative-territorial entities includes budget allocations for all public buildings that are fully or partially financed from this overall budget. Article 3 of the Law also guarantees the financial independence of local budgets and stipulates that any savings achieved on expenditures remain at the disposal of the relevant local authorities.

According to the analysis of the document, the Law in Moldova does not contain clear barriers for the implementation of EPC (e.g. savings remain at the disposal of local authorities and there are no requirements for local authorities to pay energy bills based on the factual consumption of the public buildings etc)¹. Article 19 foresees that public authorities should develop their planned budgets according to the guideline developed by the Ministry of Finance. Thus, if this guideline includes recommendations on EPC, this will significantly facilitate the implementation of ESCO services in Moldova.

Law on Public Procurement, No. 96 dated 13.04.2007;

The Law regulates the procurement of work, goods and services by public authorities if their costs exceed the equivalent 2,500 EUR (for works) and 2,000 EUR (for goods and services). The Law also assigns the Public Procurement Agency as a key administrative body to regulate, supervise and monitor public procurement.

The key barrier of the law to the development of EPC is that it stipulates separate tender procedures for work, goods and services (Article 19). To provide consistency of public procurement, the law also foresees the development of separate standard documentation for the public procurement of works (including design services) goods and services. Taking into account that EPC comprises all three types of activities (consultancy services, procurement of energy efficiency goods and installation works) each activity according to this law should be procured separately.

According to the information provided by the Ministry of Finance during the first mission, the Law is being revised with respect to the EU procurement Directives (2004/18/EC & 2004/17/EC) and a new version of the document will be adopted soon.

¹ This contrasts with situation of other PCs whereby perverse budgetary incentives prevent building owners from effecting energy saving measures because all financial benefits from improved efficiency would revert to the central exchequer through lower budget allocations in subsequent years rather than remaining in local authority hands. This is part of a wider dynamic afflicting many public administrations and is best summed up in the term “use it or lose it” i.e. if the budget is not fully spend it year X then savings will be deducted from the budget of year Y. Moldova also benefits from not restricting its local authorities from paying exclusively for actual energy costs thereby allowing them the latitude to contract ESCO services for example.

Law on Energy Efficiency, No. 142 dated 02.07.2010;

The Law transposes the key requirements of the Directive 2006/32/EC “On energy end-use efficiency and energy services” into the Moldovan legislative framework as a part of the obligations under the Energy Community Treaty. It lays down the general framework for providing energy services and introduces the EPC concept. The document also assigns the responsibilities of the Energy Efficiency Agency (EEA) as an administrative body for the improvement of energy efficiency in the country. According to the information provided by the EEA during the first mission, the Law is being revised and a new version of the document will be adopted soon.

Law on Energy Performance of Buildings No. 128 dated 11.07.2014;

The Law transposes the Directive 2010/31/EU “On the energy performance of buildings” into the Moldovan legislative framework as a part of the obligations under the Energy Community Treaty. It stipulates the responsibilities of the EEA and local authorities to facilitate, promote and support the improvement of energy efficiency in buildings taking cost-effectiveness into account. Thus, EPC can be one of the optimal solutions for the implementation of cost-effective energy efficiency measures in buildings.

The Law came into force on the 1st of January 2015 excluding requirements for the efficiency of ventilation, cooling and lighting that come into effect from the 1st of January 2017. It should also be noted that the Law foresees the development of a number of secondary legislative acts that should be developed by July 2015 and which indirectly support the implementation of EPC, i.e. minimum energy performance requirements for renovated buildings.

Secondary legislation

NEEAP for 2013-2015, approved by Government Decision No. 113 dated 07.02.2013;

The development and approval of a National Energy Efficiency Action Plan (NEEAP) was one of the obligations under the Energy Community Treaty. Article 112 of the document is specifically devoted to the promotion of EPC through the development of model contracts and guidelines for local authorities as well as the enhancement of capacity and awareness raising. However, the NEEAP does not foresee any energy savings achieved by means of EPC, but assigns the EEA as the responsible body for the development/improvement of legislative framework for EPC. The same responsibilities were assigned to the EEA by the Regulation on the provision of energy services (below).

Regulation on the provision of energy services, approved by Government Decision No. 1093 dated 31.12.2013.

The Regulation transposes some of the requirements of Directive 2012/27/EU “On energy efficiency” in the Moldovan legislative framework as a part of the obligations under the Energy Community Treaty. This is a key legislative act that is relevant to the scope of this assignment (see Chapter 2.2). The Regulation approves a general framework for the implementation of EPC and assigns the following responsibilities on the EEA:

- a) To disseminate information about available contracts for the provision of energy services and their terms;

- b) To disseminate information about available financial instruments, incentives, grants and loans to support the development of energy services;
- c) To ensure public access to the updated list of energy service providers;
- d) To develop a model energy performance contract;
- e) To develop guidelines on energy performance contracts;
- f) To provide information to the public about best practices on EPC, including cost-benefit analysis using the life cycle approach.

The Regulation also provides specific requirements for the EPC that should be taken into account for the development of a model EPC and guideline.

Regulation on the Organisation and Operation of the Energy Efficiency Fund, approved by Government Decision No. 401 dated 12.06.2012.

The Regulation defines the functioning and management of the Fund as well as establishing financial support schemes for improving the energy efficiency of a wide range of beneficiaries in Moldova and covering all types of buildings. According to EEF rules, financial support or grants can be provided if the beneficiary meets the following criteria:

- The project must involve energy saving technologies;
- The amount requested from the Fund must be within the maximum limit defined by the Administration Board of EEF for the respective year;
- The own contribution of the beneficiary must be at least 20%;
- Energy efficiency projects must have a maximum payback period of seven years (baseline energy consumption should be calculated with respect to maintaining the statutory² indoor climate conditions);
- Renewable energy sources projects must have a maximum payback period of 15 years;
- The beneficiary must not have any outstanding debts to the national public budget and must be creditworthy.

The above financial support scheme should be considered as one of the social tools for the improvement of indoor climate conditions in public buildings rather than a cost-effective instrument for the improvement of the energy efficiency of those buildings. The required payback period of seven years is based on energy savings calculated with respect to the theoretical energy consumption needed to maintain statutory indoor climate conditions. In comparison with the EPC, it neither takes into account real energy savings nor requires the verification and measurement of the

² The Moldovan legislative framework stipulates different requirements for indoor climate conditions for varying types of building and purposes to which they are put. For example, the Sanitary Regulations and Standards for Schools (SanPiN № 2.4.2.576-96) envisages the following temperature requirements for school buildings: 18-20 °C for training rooms, 15-17°C for sport halls, 17-21 °C for libraries, 16-19° C for halls and cloakrooms etc.

achieved savings. As one of the potential proposals, the Fund can finance EPC in the future, provided the relevant amendments are made to the Regulation.

Standard documentation for the public procurement of goods and services, approved by Government Decision No. 763 dated 11.10.2012.

The standard documentation was developed according to the requirements of the Law on Public Procurement and comprises a number of documents, including a tendering procedure manual, templates of tendering documentation and a standardised agreement for the procurement of goods and services. Taking into account that EPC should comply with the standardised practice of concluding agreements, the model EPC should either provide references to the existing standardised documentation or foresee the development of standard documentation for the public procurement of EPC.

Standard documentation for the public procurement of works, approved by Government Decision No. 1121 dated 10.12.2010.

This is the document similar to the one above that also includes a number of standardised documents for the procurement of works. It should also be noted that the document envisages separate procedures for the procurement of works and designing services.

To summarise, the Moldovan legal framework supports the development and implementation of EPC in the long term. The key bottleneck of the framework is the public procurement legislation that provides for the separate procurement of works, goods and services. However, the primary and secondary legislation on public procurement are expected to be amended due to the transposition of the EU procurement Directives (2004/18/EC & 2004/17/EC) into the national legal framework. Being a Contracting Party of the Energy Community has also helped Moldova to significantly improve its legislative framework on energy efficiency during the last five years.

2.3.2 Institutional framework for ESCO services

According to the analysis conducted, the institutional framework for the implementation of ESCO services includes the following organisations and institutions that will be directly and indirectly involved in the development and implementation of EPC in Moldova:

- Ministry of Economy - responsible for the development of the state policy on energy efficiency (EE) and renewable energy sources (RES) in the country;
- Energy Efficiency Agency (EEA) – a main responsible body for the implementation of state policy for improvement of EE and development of RES in the country. EEA is also responsible for the development of model energy performance contracts (EPC), guideline on EPC and promotion of implementation of EPC in Moldova (see section 3.1).
- Public Procurement Agency – an administrative body subordinated to the Ministry of Finance that regulates, supervises and monitors public procurement. In practice, the Public Procurement Agency will supervise the procurement of EPC by local authorities.
- Ministry of Finance - responsible for the development of state policy on public procurement. The Ministry will be actively involved in discussions on the changes to state and local budget legislation for the successful implementation of EPC;

- Energy Efficiency Fund (EEF) – attracts investments and finances the implementation of EE projects. The EEF has a portfolio of successful EE projects that can be used as case-studies for the implementation of EPC and can potentially finance EPC in the future;
- Pool of energy auditors - companies or individuals certified by the EEA that can potentially perform as ESCOs or provide consultancy services to local authorities to support procurement and implementation of EPC;
- UNDP-ESCO – GEF-funded project that provides on-going technical support to the AAE on the development and promotion of EPC. The project can potentially provide consultancy services to local authorities to support procurement and implementation of EPC during the project time.
- Local authorities – owners of the public buildings for which the improvement of EE measures can be implemented using EPC.

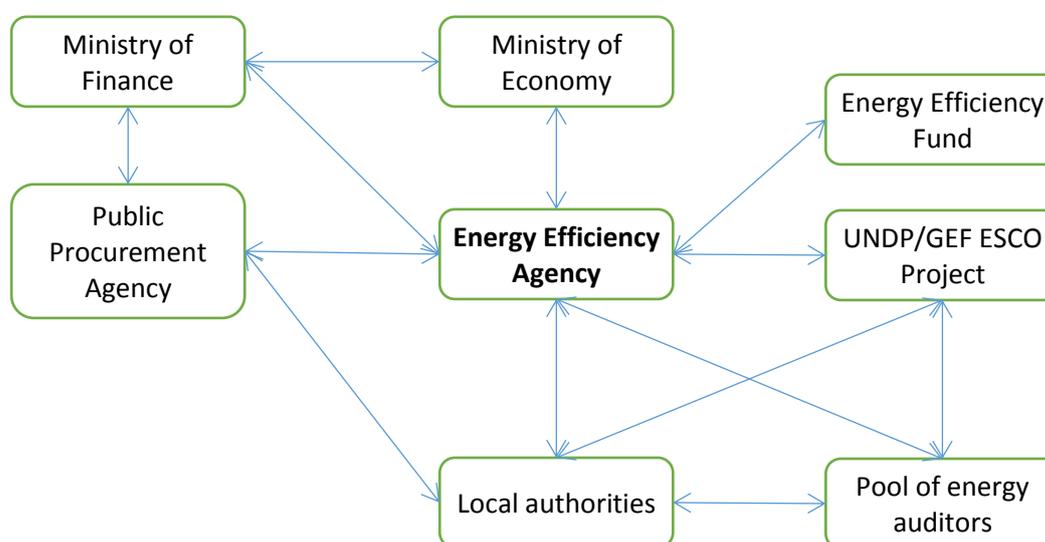


Figure 2.1. Principal institutional framework for ESCO services in Moldova

The INOGATE Technical Secretariat Project (ITS) was intentionally not included in the above framework as it represents short-term support to the EEA beneficiary. In general, the current institutional framework and coordination of activities among all interested stakeholders are sufficient for the successful improvement of the legislative framework and implementation of EPC.

2.3.3 Baseline indicators

According to the analysis conducted in Sections 2.3.1- 2.3.2 of this Report, ITS experts developed the following baseline indicators that should be taken into account for monitoring and follow-up activities:

- **As there is no direct legislation on ESCO's other than Regulation № 1093 (see section 2.3.1.), therefore the adoption in Moldova of the secondary legislation on ESCOs, including the model EPC that have been developed with ITS assistance, is a direct, tangible and highly important impact of this assignment.**
- There is no experience in the procurement and the implementation of EPC in Moldova. Thus the increased capacity of local stakeholders, number of implemented EPC in the country,

amount of investments and GHG emissions avoided using EPC should be considered as a direct impact of ITS assistance. It is worth emphasising that the familiarisation with new concepts for procuring and implementing EPC in Moldova is akin to planting a seed, which over time will grow and expand into a developed and increasingly sophisticated network. The intervention of the ITS assistance in this field will have definitely contributed to the organic growth of EPC in Moldova over coming months and years.

2.4 Main findings and identified barriers

During two missions to Moldova, ITS experts conducted a number of meetings with the beneficiary, Energy Efficiency Agency and other interested stakeholders, including the Ministry of Economy, Ministry of Finance, Energy Efficiency Fund, Public Procurement Agency, UNDP-ESCO project and energy consulting companies that can potentially become ESCOs. As a result of discussions held, ITS experts identified the following key findings:

1. The EEA is significantly understaffed and does not have sufficient capacity and resources to support the implementation of EPC projects in Moldova. During the visits of ITS experts, there were only five full-time employees in the Agency, including a director and deputy director, whereas the Agency's organogram envisaged 11 staff members. Taking into account that the level of remuneration of EEA's employees is 2-4 times less than in the private sector, the potential for the improvement of this situation without fundamental changes in the status of the Agency is very low. According to the Agency's information, the proposals for changing the status of the EEA from public authority to public institution with an independent budget were officially submitted to the Government of Moldova last year. Provided that the proposals are approved by the Government, this will help to improve the capacity of the Agency and will indirectly influence on the facilitation of EPC in Moldova.
2. A 4-year UNDP/GEF-funded project "ESCO MOLDOVA" commenced in October 2014 and is located in the EEA's premises. This creates significant opportunities for the development of EPC in Moldova as the EEA staff and UNDP experts can collaborate on a daily basis. The UNDP project can potentially provide consultancy services to local authorities in order to support procurement and implementation of EPC during the project time. The efficient coordination of ITS activities with the UNDP project can also ensure the sustainability of ITS assistance and help to avoid any overlapping between projects.
3. During 2012-2015, the Energy Efficiency Fund (EEF) approved financing for 169 projects focused on the implementation of energy efficiency measures in public buildings. The total amount of grants provided by the EEF for these projects is about 284,1 mln MDL (14.2 mln EUR). Unfortunately, there is no available information on the change in energy consumption of those public buildings that received EEF grants and implemented EE measures. This data should be collected and analysed as case studies for the potential application of feasible EPC contracts in Moldova.

The EEF finances up to 80% of the cost of EE measures proposed in an energy audit report that is developed by an energy auditor certified by the EEA. The main criteria for providing finances for an EE project is that the payback period of the project should not exceed 7 years (see Section 3.2 for other criteria). It should also be highlighted that the Fund's calculation of payback period is based

not on the actual energy consumption, but on a theoretically calculated level of energy consumption assuming the requirements for statutory indoor climate conditions and energy efficiency of the buildings elements (see example below). Thus, it might be assumed that as long as the Fund finances 80% of the investment without proper requirements for the measurement and verification of the achieved savings, no building owner will opt for an EPC. As one of the potential proposals, the Fund should amend the financial support scheme and start financing EPC projects in the future.

4. Most of the local authority budgets in Moldova do not have sufficient financial resources to maintain the statutory indoor climate during the heating season. This results in the situation whereby municipalities recommend that public buildings implement additional conservation measures such as switching off heating system from 16:00 to 7:00 during the week and also over weekends when the temperature outside is above 0 C°. Such measures make the indoor climate of those buildings even less legally acceptable than before. While this leads to a substantial reduction of energy consumption, it also leads to the deterioration of indoor climate which in turn makes it difficult or impossible to implement EPC in those buildings because the real EPC payback period may become unacceptably long following the implementation of EE measures and maintaining the statutory indoor climate.

For example, in 2014 the EEF financed the implementation of energy efficiency measures in a hospital owned by IMSP "Asociatia Medicala teritoriala Botanica". According to the energy audit report provided by the beneficiary, the simple payback period of EE measures with respect to the theoretically calculated consumption (needed to provide statutory indoor climate conditions) is about six years. If the calculation takes into account the factual consumption, the payback period goes up to 17 years (see document 1.7. in Annex 1). And, finally, when the calculation includes the ESCO's fee for guaranteed energy savings and 18% annual interest rate on the amount of MDL borrowed from the bank, the EPC contract becomes unprofitable for the building owner (see document 1.9. in Annex 1). The payback period of these two examples is neither economically viable nor applicable for EPC in Moldova as according to the Regulation № 1093 (see Section 3.1.), the duration of EPC should not exceed ten years.

According to the consultations with the certified energy auditors from "Techno Consulting and design Ltd", and "Dumit Group Consulting Ltd." the above situation is applicable to 97-98% of the public buildings in Moldova for which they have conducted energy audits. Thus, EPC in Moldova can potentially be implemented only in those public buildings that maintain statutory indoor climate conditions regardless the amount of energy consumed.

5. Moldovan energy consulting companies that can potentially become ESCOs do not have enough funds to finance EPC project from their own resources. Thus, there are two options available for the Moldovan ESCO market:

- Third party finance (TPF) – whereby an ESCO attracts money for the implementation of the EPC from the bank. This approach has number of drawbacks for Moldova: 1) the ESCO has no records of previously implemented EPC which increases risk for bankers, 2) the ESCO has no collateral as the purchased equipment will be installed in the client's building and 3) due to higher risk factors associated with the ESCO, the interest rate will be much higher than for the same purposes by the local municipality or public building.

- Customer finance - when the owner of the buildings covers all of the expenses from own funds or funds borrowed at a bank. The ESCO in this case only guarantees the energy performance of the building according to the EPC.

The latter option is preferable for Moldova as it reduces risks for potential ESCO companies as well as reduces the costs of the EPC as the municipality can attract money from banks at lower interest rates than ESCOs.

6. There is no experience in the procurement and the implementation of EPC in Moldova. This creates a raft of uncertainties regarding the application of EPC under the country's current legislative framework, including the following:

- If the costs of work on the improvement of EE measures exceed 10% of the value of the building, it should increase the equity value of the building;
- According to the Law on Public Financing, the Ministry of Finance should recommend the methodology for the calculation of energy costs for EPC in their budgeting guideline for local authorities;
- According to the Public Procurement Law, public authorities should arrange procurement and conclude contracts separately for goods and services, works and designing services. Taking into account that the amount of energy for EPC should be based on the baseline scenario, the local authorities should be able to fix their baseline energy consumption for the whole period of validity of EPC.

The Ministry of Finance's view is that according to the EU-Moldova Association Agreement³, the Law on Public Procurement should be revised with respect to the EU procurement Directives (2004/18/EC & 2004/17/EC). Thus, the latter issue will be resolved through the approximation of procurement procedures with existing practices in the EU which when completed will remove such obstacles for procurement of EPC.

It should also be noted that the Public Procurement Agency and the Ministry of Finance suggested that there might be some other barriers that can be identified and addressed only after the development and submission of model EPC for their review.

7. Prices of the heat energy for residential consumers in Moldova are excluded from VAT. At the same time VAT is included in the heat prices for legal entities including the owners of public buildings. Thus, EPC contracts with the owners of public buildings will be more feasible in comparison with the EPC concluded with the association of co-owners of an apartment building because their heating costs are higher as a result of VAT charges.

³ http://eeas.europa.eu/moldova/pdf/eu-md_aa-dcfta_en.pdf

2.5 Conclusions and recommendations

Recommendations:

1. Improvement of the current legislative framework. As a part of this assignment, the INOGATE Technical Secretariat Project developed a Guideline and Basis of EPC Tenders to be transposed into the Moldovan legislative framework. The model EPC for public and private sectors as well as the methodology for energy performance contracting is the parts of Basis of EPC Tenders (i.e. standard documentation for the procurement of EPC). The full list of the documents developed within this assignment is in Annex 1.

The suite of documents has been prepared by the ITS experts ready to be adopted in full-fledged Energy Performance Contracts. The documents and templates have been prepared in a tried and appropriate way so as to result in guaranteed energy savings for building owners. The template has rigid conditions and follow-up techniques so as to guarantee the building owner a pay-back of his/her investment within the agreed time. Furthermore, the consequence of non-performance from the ESCO side is fully in keeping with European contractual norms. Finally, the energy saving performance is more accurately determined as it is followed up by readings from energy meters and not derived by speculative calculations, thereby removing the possibility of result manipulation. It is a clear and strong recommendation of this assignment, that purely theoretical calculations for EPC are abandoned in favour of the measurement of actual gains recorded by energy meters as this provides a sounder basis for building owners and ESCOs to apportion costs and benefits. This in turn reduces risks to both parties thereby facilitating improved market conditions for the growth and development of ESCOs

The EPC model must be gradually implemented in Moldova enabling all involved stakeholders to gain experience; EPC contractors (ESCOs), Building owners, EPC consultants (at present the UNDP project), banks or other financiers and other related government departments.

2. Public procurement procedure. The current legislation on public procurement is considered to be a key obstacle for implementing EPC in Moldova. Taking into account that Moldova is in the process of changing its public procurement procedure to be in conformity with that of the EU, the Public Procurement Directive of EU 2014, is adopted in the Template prepared by the ITS experts. Once transposed into Law, this will remove the identified barrier to EPC.

3. Financing. Under the current EEF's scheme of financing 80% of EE measures without proper requirements for the measurement and verification of the achieved savings, it is assumed that no building owners will opt for EPC. Thus, it is a clear recommendation by the ITS experts that the Fund should change the financial support scheme and also start financing EPC projects in the future. The financing of EPC by the EEF will ensure the guaranteed payback of investments, minimise risks for ESCOs and the owners of the buildings as well as reduce the payback period due to the fact that the Fund can attract money from the IFI at the lower interest rate.

The developed Guideline and Standard Documentation (see Annex 1) is worked out with the assumption that it is less expensive (due to lower interest rates) for a building owner to borrow money from a bank for the investment compared with what an ESCO would have to pay. During the first mission, information was provided that showed that an ESCO would have to pay about 18 %

interest on loans. Such high capital cost will be impossible to fit into the present regulation of 10 years payback.

4. Finding profitable energy saving measures. In an energy performance contract the building owner stipulates the parameters to be adopted for the cost-benefit analysis (CBA) of his/her project, such as pay-back time, depreciation period and the interest rate. The ESCO has to find and tailor energy saving measures accordingly. The contractor's skill to propose energy saving measures that practically result in savings is a hard-earned experience and is developed and honed over time. The qualified, certified energy auditors (in Sweden and other EU member states and also probably in Moldova) are very good in their academic work, but they do not normally have the skill/knowledge to assess what in reality will be the actual result of the different measures proposed. Even in the EU, experience has shown that in approximately half of buildings under EPC the results of the measures are less than expected, whilst in the other half they are much greater than expected. This makes a powerful case for aggregating a larger number of buildings together for an ESCO contract whereby the possibility to show an overall improvement is much greater. This point is addressed in Recommendation 6 below, 'Minimum Building Portfolio'.

5. Reference value (baseline). The reference value (baseline) should be established with respect to actual energy consumption. Thus, an EPC might not be applicable for buildings in which owners do not maintain statutory indoor climate conditions as the real payback period after the implementation of EE measures and maintaining such an indoor climate might be longer than 10 years.

Establishing a reference value (baseline) in an EPC must be based on accurate, high quality statistics related to actual average energy consumption. It must also be established before any energy efficiency measures are executed. The value is used as reference to which the actual result i.e. following the implemented energy efficiency measures, is compared. The actual results as well as reference value are arrived at based on energy billing meter readings. This is critically important because it is the only way to verify the real saving achieved. Academic or speculative energy saving calculations should therefore be ruled out. The result must be "razor-sharp" in order to obtain objectivity and equity to the building owner as well as to the ESCO. The main task is to effect those energy efficiency measures that will make the energy billing meters to spin at a lower speed in order to reduce energy costs and the savings will repay the investment.

6. Minimum building portfolio needed for a successful EPC. A minimum portfolio of buildings is needed for two main reasons.

Firstly, the overhead costs for the ESCO are high and need to be spread-out. To carry out energy saving measures, during a short time period, and in buildings where the normal activities of the building owner/user must continue while energy saving work takes place, requires special arrangements by the ESCO.

Secondly, the risk to guaranteed savings is high and from the ESCO's profit there should be a minimum level of contingency in order to pay fines during phase 3 of the project in case savings do not reach the guaranteed level. An example from the second year follow up statement for the EPC-project of the Municipality of Lycksele in Sweden can demonstrate a typical case. The contract included a portfolio of 49 buildings with a built-up area of 94 985 m². In 25 out of total 49 buildings

the savings achieved were less than the guaranteed level. In other buildings however, the results were better. Adding together all the results the overall result was positive, i.e. the total saving was above the guaranteed level. However, as has been shown, the result was better in some buildings than in others. The ESCO in the Lycksele project is one of the two biggest and most experienced ESCOS in Sweden with activities worldwide. When in their contract, 25 of 49 buildings, in a portfolio of 94 985 m², do not reach the goal, it can be understood that a one-building EPC contract will not be appropriate. Furthermore, in Moldova there are no ESCOs with a proven track-record of practical experience. In such circumstances it would be unethical to lead them to guarantee savings (to the extent as per the regulation) in contracts where the portfolio may be just one or two buildings. If the ECSO is unlucky it could be bankrupt after its first contract. Normally a portfolio of buildings of at least 30 000 m² built-up area is required and the situation in Moldova has to evolve whereby an ECSO can undertake an EPC for portfolios of such size.

7. High overhead costs and ESCO risks. Due to high overhead costs and the high risk associated with guaranteed energy savings, the cost for getting energy saving measures implemented by ESCOs is much higher than executing such measures in the normal contracting model (i.e. without guaranteed savings). The experience in Sweden shows that the cost is about double for the ESCO. Nevertheless, some building owners continue to use the EPC model for the following reasons:

- Decision-makers give high value to the guaranteed savings and that they will get back the invested amount in 10 years (or the number of years they define as an acceptable pay-back period);
- Under the normal contracting model (without guaranteed savings) the period of implementation tends to be much longer than for EPC contracts and with considerably less quantity of savings;
- The EPC model tends to be a much speedier option with more measures accomplished in a shorter time period;
- Where the normal contracting model (without guaranteed savings) is adopted the usual annual budgeting procedure is followed. As there is always high competition for resources in any budget, it is often easy to postpone the energy saving measures and allocate funds for other purposes considered a higher priority by decision-makers. In contrast, when an EPC contract is signed the full contract amount will be allocated and during the execution of the project cannot subsequently be reallocated to other purposes due to the binding contract in place.
- Where the normal contracting model (i.e. without guaranteed savings) is adopted only the building owner bears the consequences in the case that the energy saving measures do not result in the expected savings. The investment will then be considered a failure from the repayment point of view. Under EPC the risk is shared with the ECSO, which makes it preferable to the normal contracting model for the building owner.

8. Commencement of the EPC model in Moldova. It is strongly recommended to start with smaller projects. All could be done as per the EPC model except that the savings should not be guaranteed. Each one of the potential Moldovan EPC contractors needs to carry out at least three small projects without guaranteed savings in order to gain highly valuable experience. The results and follow up of the EEF projects are an important input to the Moldovan EPC model. It is highly recommended that the EEF adopt the follow up model that is a part of the EPC template

presented by the ITS experts as this would provide an excellent knowledge-base for the new Moldovan EPC- contractors (ESCO). Furthermore, it will give an indication of how much the actual savings as a result of different energy saving measures will be in different types of buildings.

9. When is the EPC model preferable? In EU, as well as in Moldova, not all energy saving projects will suit the EPC model. The situation in Sweden for example is, in fact, that the majority of projects are not carried out following the EPC model. The EPC model is not a ‘one-size-fits-all’ solution and various other options are applied worldwide but each according to the local situations. Each will therefore, depend on the prevailing circumstances, preferences and property management principals of each building owner.

10. General conditions of contracts. Since general conditions of contracts for Design and Construct Contracts and for Property Management and Facility Management Contracts are not available in Moldova it is suggested that such general conditions of contracts are developed there. The adoption of the Public Procurement Directive of EU 2014 into Moldovan law will provide a significant boost for EPC in the country through the removal of barriers and constraints.

The conditions of contracts of the developed legislative acts have as base the Swedish general conditions of contracts (see document 2.16-2.18 in Annex 1). Changes of some conditions in these documents have been made so as to fit the Moldavian circumstances. However a Moldavian lawyer specialised in formulating contracts for building works would be required to verify the conditions of contracts.

11. Capacity of the Energy Efficiency Agency. The adoption of the proposals of changing the status of the EEA from public authority to public institution, submitted to the Government of Moldova in 2014, will furthermore, help to improve the capacity of the Agency and indirectly influence on the facilitation of EPC in Moldova in the future. The EEA is heavily understaffed and does not have sufficient resources to provide consultancy services to local authorities in order to support the implementation of EPC. However, during the period 2015-2018 this function can be undertaken by the UNDP/GEF-funded “ESCO MOLDOVA” project that is located in the EEA’s premises.

Conclusion

The implementation of the ITS assistance to Moldova has provided an excellent foundation for the development and expansion of EPC as a key means of improving energy efficiency in the country. The tangible results of this intervention have been:

1. In September 2015, the Moldovan Government’s Steering Committee on ESCOs adjusted the legislative proposals contained in Annex 1 of this Report, to the requirements of Moldovan legislation framework and officially submitted them for approval to the Public Procurement Agency. According to the information provided by the EEA, the official approval and publication of ITS proposals is expected in summer 2016.

2. The drafting and adoption of secondary legislation on ESCOs, including model EPC is also direct and highly important impact of this assignment.

3. Elsewhere, the other less immediately tangible but no less important impacts of this intervention lie in the expanded capacity of Moldovan stakeholders in procuring and implementing

EPC as a viable and successful means of drastically improving energy efficiency in the country. This intervention is a necessary but not sufficient condition of achieving the desired impacts nevertheless, it is a seed which has been planted by the ITS project which, in combination with the demonstrated impacts listed above, is certain to yield the successful growth and expansion of EPC measures in Moldova over coming years.

Annex 1

List of developed legislation acts to support implementation of ESCO in Moldova

1. EPC guideline⁴:

- 1.1. Process description
- 1.2. Time Schedule, example, EPC Project Moldova
- 1.3. Employer's work in an EPC Project
- 1.4. Total budget, example, EPC Project Moldova
- 1.5. Example of LCP calculation EPC Moldova GR1093
- 1.6. Total budget, example AMTB_1 , EPC Project Moldova
- 1.7. Example AMTB_1 LCP calculation EPC Moldova
- 1.8. Total budget, example AMTB_2 , EPC Project Moldova
- 1.9. Example AMTB_2 LCP calculation EPC Moldova

2. Basis of EPC Tender:

- 2.1. Tender invitation with Response form
- 2.2. Information regarding the competence- and creativity test
- 2.3. Tender Form
- 2.4. Calculation model for weighting of criteria for determining the most economically advantageous tender
- 2.5. Calculation model for volumetric weighting of average contractor's fee
- 2.6. Contract agreement form of Principal Agreement for EPC project
- 2.7. Contract agreement form of Agreement for Phase 1
- 2.8. Contract agreement form of Agreement for Phase 2
- 2.9. Contract agreement form of Agreement for Phase 3
- 2.10. Excel sheet showing⁵:
 - list of buildings with energy statistics (columns A-D);
 - calculations of energy savings as a part of project development report (columns E-CW)
 - calculations of actual annual energy savings, annual statement (columns CX-ED)
- 2.11. Administrative instructions; Phase 1 and 2
- 2.12. Specifications for project development report from Phase 1
- 2.13. Special directions; Phase 3
- 2.14. Specification of contract work Phase 3
- 2.15. Public Procurement directive of EU2014
- 2.16. ABT 06: General Conditions of Contract for Design and Construct contracts for building, civil engineering and installation works⁶
- 2.17. ABFF 04: General Conditions of Contract for Work in Property⁷

⁴ Documents numbered 1.1. to 1.9 (EPC Guideline). have been prepared as a background to the other documents and to enable simulations to be made in order to apply actual prevailing aspects and parameters in Moldova

⁵ Same xls document where different columns are used during different stages of the project

⁶ Standard document

⁷ Standard document.

- 2.18. Aff Definitions 04⁸
- 2.19. Definition of major divergence of indoor climate and routines
- 2.20. Administrative instructions; Phase 1 and 2, Private Sector⁹

All developed documents can be downloaded from the INOGATE webportal by the following link:

<http://www.inogate.org/activities/504?lang=en§ion=documents#documents>

⁸ Standard document.

⁹ All documents of the template, apart from “Administrative instructions; Phase 1 and 2”, can be used in the Public sector as well as in the Private sector. Therefore “The Administrative instructions Private sector; Phase 1 and 2” is also included.