

ESCO Moldova - Transforming the market for Urban Energy Efficiency in Moldova by introducing Energy Service Companies

Components – Outcomes - Outputs and Activities

The proposed project is broken down in 4 project Components and 4 expected Outcomes as follows:

- Component 1: Green Urban Development Plan for Chisinau:
Outcome 1: Green Urban Development Plan Adopted by City of Chisinau
- Component 2: Creation and Operation of ESCOs
Outcome 2: ESCO Business Model in Moldova is operational
- Component 3: ESCO Market Operation
Outcome 3: Financial Mechanism and Financial Support available to ESCOs
- Component 4: ESCO Market Operation - Replication and Dissemination
Outcome 4: EPC Projects Replicated in Other Municipalities and Information Disseminated

Outcome1: Green Urban Development Plan Adopted by City of Chisinau

120. Component 1 focuses on developing the green urban development plan for Chisinau in line with the Urban Development Plan (UDP) in order to give a “green focus” and special emphasis on energy efficiency in the building sector. Component 1 is important as it will help define: i) the specific areas in which the municipal ESCO will invest; ii) a strategy to finance the necessary investments to achieve the emissions reduction targets established by the City; iii) the development of a ‘Green Procurement Guide’. Its adoption will ensure that all public tenders meet minimum standards of environmental integrity, and iv) to provide guidelines to other major municipality to implement the same green strategy towards their urban development objectives. The Green Procurement Guide will be prepared with the aim to be readily transferred to other towns and cities of Moldova.

Output 1.1: Drafting of the Chisinau Urban Green Development Plan.

121. The Urban Development Plan (UDP) has already been drafted by the municipal authority. The project team will provide TA to the municipality with the aim of drafting GUDP in line with the updated and approved UDP. The TA will be carried through the following set of sub-activities:

Activity 1.1.1: Green Urban Development Situation Analysis

122. Conduct a situation and gap analysis, including a review of the 2025 Urban Development Plan, national and municipal energy efficiency programs and action plans, ongoing programs, the legal and regulatory framework, and capacity.

- Activity carried out by the PMU with the assistance of international and national consultants.
- Expected Output: Comprehensive Review Report

Activity 1.1.2: Baseline Inventory

123. Construct a Baseline Emissions Inventory (BEI) and Energy Consumption Baseline, a Business as Usual (BAU) Scenario and an Energy Efficiency Scenario.

- Sub-activity carried out by the PMU with the assistance of national consultants.
- Expected Output: Baseline Report

Activity 1.1.3: Green Development Status and Trends in Chisinau

124. Describe the status and trends of key sustainability indicators, including biodiversity, air and water quality indicators in accordance with the National Report¹ for UNCSO 2012 “Rio+20”.

- Activity carried out by the PMU with the assistance of international and national consultants.
- Expected Output: input to 1.1.4

Activity 1.1.4: Municipal GHG Emissions Reduction Target

125. Propose sustainability targets and conduct a Gap Analysis. Energy consumption and emissions targets are consistent with sector-based targets in Activity 1.3 and Baseline 1.1.2

- Activity jointly carried out by the PMU and the municipal authority with the assistance of international and national consultants.
- Expected Output: Agreement on targets.

Activity 1.1.5: Review of Key Barriers

126. Review key barriers in Moldova and Chisinau to reaching sustainability targets and for the creation of sustainable and profitable ESCOs, and make recommendations.

- Activity carried out by the PMU with the assistance of international and national consultants.
- Expected Output: input to 1.1.7

Activity 1.1.6: Green Growth Economic Instruments

127. Review the potential of green growth economic instruments to increase energy efficiency and reduce GHG emissions in Chisinau.

- Activity carried out by the PMU with the assistance of international and national consultants.
- Expected Output: input to 1.1.7

Activity 1.1.7: Institutional Recommendations towards Targets

128. Make policy, financing, regulatory, and institutional recommendations to reach the sustainability targets.

- Activity jointly carried out by the PMU and the municipal authority with the assistance of international and national consultants.
- Expected Output: A set of recommendations to remove barriers, roll out the green growth Instruments with the aim of achieving targets.

Activity 1.1.8: Institutional Recommendations towards ESCO Development

129. Make policy, financing, regulatory, institutional recommendations to create an enabling environment towards the market development of ESCOs.

- Sub-activity jointly carried out by the PMU and the municipal authority with the assistance of international and national consultants.
- Expected Output: Plan to advance the ESCO business model as a green growth instrument within the GUDP.

Activity 1.1.9: Drafting of the Green Urban Development Plan

130. Prepare the draft and final version of the GUDP and recommendations on the best way to adapt the Chisinau GUDP for other Moldovan Cities. The GUDP must encompass the replication strategy in other cities in Moldova.

¹This report was developed as part of the National preparatory process of the Republic of Moldova to the United Nations Conference on Sustainable Development 2012 “Rio+20” (UN CSD 2012). The document was prepared within a broad participatory process, coordinated by the National Working Group Rio+20 (formed from representatives of the Office of the President, Parliament, Governmental Agencies (ministries), representatives of major stakeholders and NGOs and chaired by the Ministry of Environment and State Chancellery), followed by national consultations of the draft report and recommendations and launching of the report at the National Conference on Sustainable Development,

- Sub-activity jointly carried out by the PMU, international and national consultants and the municipal authority.
- Expected Output: GUDP and Synthesis Report as well as information dissemination

Output 1.2: *Preparation of a Resource Mobilization Plan for the Sustainable Energy Action Plan (SEAP) for Chisinau.*

131. Efficient energy demand management is crucial for the sustainable development of any country, as it has a direct influence on the advancement of green urban development and the well-being of the population. Taking into account the deficit in traditional energy sources and the increasing cost of energy on the national market, efforts of the municipal authorities are focused on increasing energy efficiency, among others, in institutional and residential buildings owned and operated by the municipality. The importance of energy management for the emergence of a 'greener' municipal development is covered by the SEAP already drafted by the municipality. Its purpose is to encourage and support local authorities in beneficiary countries to allow municipalities to achieve and implement a more sustainable local energy policy via signing up to the Covenant of Mayors. By committing to this initiative, the goal of the SEAP Covenant signatories is to meet and exceed the European Union's objective to reduce CO₂ emissions by 20% by 2020.

132. The SEAP is a key document that shows how a Covenant signatory will reach its commitment by 2020. It uses the results of BEIs to identify the best fields of action and opportunities to reach the local authority's CO₂ reduction target. It also defines concrete reduction measures, together with timeframes and assigned responsibilities. Signatories commit themselves to submitting their SEAP within the year following adhesion.

133. The main target sectors of the SEAP are: buildings, equipment/facilities and urban transport. The updated SEAP may also include actions related to local electricity production and to local heating/cooling generation.

- Activity jointly carried out by the PMU, international and national consultants.
- Expected Outputs: (i) The development of BEIs in Chisinau based on output 1.1.2; (ii) Resource Mobilization Plan for the implementation of Sustainable Energy Action Plan (SEAP) for Chisinau.

Within the current UNDP project framework, Activity 1.2 focuses on the building sector. To this end, the project will carry out the following sub-activities:

Activity 1.2.1: SEAP Gap Analysis

134. Building on the Gap Analysis (Sub-activity 1.1.1), identify resource and capacity needs to implement and comply with the SEAP requirements.

- Activity carried out by the PMU with the assistance of international and national consultants.
- Expected Output: Working material reviewed and discussed with the municipal authority. Input to Sub-activity 1.2.3.

Activity 1.2.2: Review Financing Options/Opportunities

135. Review public, private, external and other financing options, private sector financing opportunities, and project financing.

- Activity carried out by the PMU with the assistance of international and national consultants.
- Expected Output: Investor Guide for ESCO development. Input to Sub-activity 1.2.3.

Activity 1.2.3: Draft of the Platform towards Chisinau's Cooperation with the EU Covenant of Mayors.

136. Review of jurisdictional and institutional relationship between Chisinau and other EU Covenant of Mayors, and make recommendations for cooperation and coordination to reach sustainability targets. Create an enabling environment for ESCOs and make rulings on a list of voluntary commitments to fulfil

requirements related to the membership in the EU Covenant of Mayors, including case studies on existing SEAPs.

- Activity carried out by the PMU with the assistance of international and national consultants.
- Expected Output: Guidelines in preparation for signing up to the EU Covenant of Mayors.

Activity 1.2.4 GUDP implementation Partners

137. The Project Manager (PMU) will meet with all donors identifies in Table 2 with the aim of advancing the GUDP implementation. Within the UNDP project framework, the main deliverable of Component 1 is the GUDP and there is no provision in terms of TA for the challenging implementation phase.

- Sub-activity jointly jointly carried out by the Project Manager and the UNDP.
- Expected Output: RMP drafted and additional Technical Assistance for implanting the GUDP

Output 1.3: Green Procurement Guidelines (GPG) for the City of Chisinau

Activity 1.3: Drafting of the Green Procurement Guidelines (GPG) for the City of Chisinau.

138. The GPG is a basic tool for implementing the GUDP. Within the UNDP project framework, the project team provided GPG for the building sector, inclusive of institutional and residential buildings owned and operated by the municipality.

139. The GPG define Chisinau's minimum requirements for Green Procurement Management. The responsibility for implementing GPG lies not within any single municipal department, but with every person involved in the procurement process. This includes maintenance, management, administrative staff, as well as building and project managers who requisition products or services in the building sector. Each person has a role to play in ensuring that the City of Chisinau complies fully with procurement preference requirements. In other words, virtually every employee has some level of responsibility.

140. The Green Procurement Guidelines to be developed and possibility adopted deal with:

- (i) Green procurement processes for goods, services and construction across all stages from planning and acquisition through use, maintenance and disposal.
 - (ii) Minimum and target environmental standards for tenders regarding inter alia, greenhouse gases and climate change, resource efficiency, solid waste, hazardous waste, and biodiversity.
 - (iii) Green procurement tools for the Moldovan context, including a Green Procurement Checklist and a tool to integrate green procurement processes into existing departmental management systems.
- Activity carried out by the PMU with the assistance of international and national consultants.
 - Expected Output: Green Procurement Guidelines in the building sector.

Output 1.4: Targets for Emissions Reduction and Prioritization by the City of Chisinau

Activity 1.4: Review and Define Targets for Emissions Reduction and Prioritization by the City of Chisinau.

141. Activity 1.4 summarizes Activities 1.1 to 1.3 to deal with the sector-based targets to be included in the GUDP as follows:

- (i) Define sector-based targets from the Baseline and Energy Efficiency Scenario.
- (ii) Building on the baseline emissions inventory (BEI) and cost-effectiveness analysis identify priority areas of reform.
- (iii) Recommend energy efficiency and emissions reduction measures and estimate associated costs and highlight barriers.

- Activity carried out by the PMU with the assistance of international and national consultants.
- Expected Outputs: GUDP Report and information dissemination.

Outcome 2 ESCO Business Model in Moldova is operational

142. Activities and Sub-activities to achieve Outcome 2 aim at strengthening the capacity of established Energy Service Providers and creating EE project opportunities. As a result of Component 2 a series of 20 EE projects will be implemented in the Chisinau area and the ESCO business model will work in Moldova.

Output 2.1: Training Program Design and Delivery

Activity 2.1: Training needs assessment and training program design

143. In Moldova a few consulting firms (Appendix 5) claim to be ESCOs, but in practice the ESCO business model is not truly developed. Based on meetings and site visits of a few EE projects in the building sector, one can say that the technical capacity is available on the market. This is indeed a solid asset. The project can rely on 10 Energy Service Providers to implement the ESCO business model. As a result of the project, the target is to have at least 3 ESCOs that are fully operational and active on the market in Moldova over the upcoming 4 years and for longer.

144. The training sessions and modules will be delivered to target groups, including a few EEA staff members, which will be involved as trainers later on at the stage of dissemination and replication in other municipalities.

145. The training beneficiaries are broken down in 4 target groups:

- Candidate ESCOs, currently acting as Energy Service Provider or Consulting Firms (List at Appendix 5);
- Building managers and maintenance managers at the municipal level;
- Financial institutions or commercial banks, and
- Likely Trainers (EEA)

146. The first stage is to proceed with a comprehensive needs assessment among those target groups in regard to the following training priority topics:

- ESCO Concept Review
- Feasibility Studies and IGA
- EE Projects Risk Mitigation
- ESCO Contractual Approaches
- M&V of Project Performance
- ESCO Project Financial Analysis
- Project Development Cycle and Sales Strategies
- ESCO Business Plan Development
- EPC Modality, ESCO Registry and Tendering Procedures.

- Activity carried out by the PMU with the assistance of international and national consultants and EEA. Training material prepared by the Int'l expert.
- Expected Outputs: Training plan, training materials and training deliveries to trainers of trainees. The EEA acting as trainers of trainees, will review the training materials and attend all training sessions.

Activity 2.1.1: Training Components Delivery to ESCOs

147. ESCOs are the key and priority target group. Based on meetings with 10 Energy Service Providers (ESP: Appendix 5), most of them have the appropriate technology-based technical capacity to deal with EE projects. On the other hand, although they are aware of the ESCO business model, the capacity and knowledge related to EPC modality and financial analysis are quite limited. The ESCO training program component will aim at developing their capacity to become involved as technical and financial partners (that is to say, as ESCOs).

148. The ESCO training program is broken down in three modules:

Module 1: ESCO Business Model:

- ESCO Concept Review
- Project Development Cycle and Sales Strategies
- ESCO Business Plan Development
- ESCO Contractual Approaches
- ESCO Registry and Tendering procedures.

Module 2: Technical Training

- Feasibility Studies and IGA
- EE Projects Risk Mitigation
- M&V of Project Performance

Module 3: Financial Analysis and EPC modality

- ESCO Project Financial Analysis and Project Financing
- EPC modality

- Activity carried out by the PMU with the assistance of international and national consultants and EEA. The training material will be mainly developed by the international consultant. The EEA should be involved in the training component related to feasibility studies. A few EEA team members will attend the training sessions with the aim of replicating the training delivery in other municipalities. The expected training duration is 2 days per module.
- Expected Outputs:
 - (i) at least 5 ESPs can intervene as ESCOs in the implementation of EE projects as per the EPC modality and can proceed with the ESCO market development in Chisinau and other cities in the building sector.
 - (ii) 3 training modules will be delivered;
 - (iii) at least 30 ESP staff members will be trained.

Activity 2.1.2: Training Components Delivery to Financial Institutions (FIs)

149. Capacity building program to enhance the knowledge and skills of professionals within financial institutions and EEF in order to help banks to understand and assess the opportunities and risks, as well as to overcome perception barriers associated with financing EE projects carried out in accordance with EPC modality. The main focus will be on the principles and backgrounds of ESCO/EPC financing schemes especially from the perspective of financing institutions.

150. The training session (or workshop) will address the following priority topics:

- (i) EPC modality and contract review;
- (ii) EE project cost estimates and technical analysis;
- (iii) M&V procedures and billing;
- (iv) Risk analysis and management

- Activity carried out by the PMU with the assistance of international and national consultants and EEA. The training material will be mainly developed by the international consultant. The EEA

should be involved in the training component related to EE project cost estimates and technical analysis.

- Expected Output: EEF and at least 3 commercial banks will attend the training session. Financing decision makers must be knowledgeable of EPC modality and costs, pros and cons, risks and constraints. Training session: 1/2 day.

Activity 2.1.3: Training Delivery to Building Managers, Maintenance Staff and Building Users

151. The EPC cannot achieve its objective without the implementation of a tight and continuous energy management procedure, at least during the payback period (3 to 4 years). To perform on the long run, active EE measures and even passive ones must be maintained and correctly used by maintenance people, building managers and building users. With the aim of securing the energy performance of EE measures and to increase energy efficiency in their facilities, relevant staff members and building users must be involved at the earliest stage. In this context the trainer (international expert) will deal with the following training priority targets:

- EPC modality, ESCO roles, tasks and responsibilities; technical features of EE measures and M&V procedures. The target group will be municipal managers and decision makers.
- Energy management in institutional and residential buildings: The target group will be building managers.
- Energy efficiency measures features and operation, cost effectiveness and M&V (reporting): The target group will be technical and maintenance staff.
- Activity carried out by the PMU with the assistance of international and national consultants and EEA. The training material will be mainly developed by the international consultant. The EEA should be involved for the components related to energy efficiency measures features and operation, cost-effectiveness and M&V. A few EEA team members will be trained with the aim of replicating the training delivery in other municipalities.
- Expected Output: Efficient building operation and successful implementation of EPCs in municipal buildings. Three workshops will be held and at least 100 individuals will be trained. Training duration: 1 day per workshop.

Output 2.2: *Technical Partnerships and Working Agreements.*

Activity 2.2: Draft and Formalize the Technical Partnerships and Working Agreements

152. The project involves two key technical institutional partners: the EEA and the municipality of Chisinau. A clear and comprehensive working agreement must be duly agreed between key technical partners to know “who-do-what” at different stages from Year 1 to Year 4.

153. In regards to technical issues, it is crucial to rule on who is doing what with the aim of avoiding effort duplication or a misunderstanding of expectations. All parties must share the same understanding and agree on their role and responsibility through a flexible Technical Partnership Agreement between the PMU, EEA and Chisinau technical department. The EEA’s agreement will be in line with the in-kind co-financing commitment.

- Activity carried out by the PM and technical partners. The PM will draft the preliminary Partnership Agreement to be discussed and revised by Chisinau and the EEA.
- Expected Output: Standing Technical Agreement duly approved by all parties (EEA, Chisinau and the PMU).

Output 2.3: EE Projects Selection

Activity 2.3: EE project Analysis and Screening

154. Activity 2.3 is spread on 2 years or shorter with the aim of carrying out 40 energy audits and selecting 20 EE projects through sub-activities as follows:

Activity 2.3.1: Energy Audits (EA) Program in Public and Residential Buildings in Chisinau.

155. Energy Audit reports are a basic tool to identify sites and buildings with the most attractive EE potential. Because the ESCO project intends to implement 20 EE projects through the EPC modality, it is recommended to carry out about 40 EA with the aim of selecting 20 EE projects. EE projects will be implemented over a period of 3 years, from Year 1 to Year 3. The EA will identify a few EE projects for each site or building. EE projects cannot be achieved all at the same time in a particular building. The EE project implementation should be preferably split in 2 or 3 phases spread over 2 or 3 years through different EPCs duly signed for that purpose. In other words, having more than one EPC project in the same building is possible if the projects are phased.

156. The PMU will prepare or revise and improve the existing EA templates (2). The templates will be reviewed by the EEA. Energy Audits will be outsourced by the municipality in batches of 10 sites or buildings per lot. At least 20 EA will be carried out during the first 6 months of the project implementation, and others (20) later on during Year 2 with the aim of having carried out 40 energy audits by the end of Year 2.

- Activity carried out by the municipality and the selected national consultants. The PMU will provide assistance in terms of quality control and planning.
- Expected Outputs: 20 EA reports in Year 1 and 20 in Year 2.

Activity 2.3.2: EE Project Screening and Pre-Selection.

157. The EA reports deal with a few EE measures that are not equally attractive in terms of cost effectiveness and payback period. In essence, the PMU will recommend EE measures mainly based on three criteria: (i) the implementation cost and (ii) the payback period² and energy savings, and (iii) readily measurable savings. To be selected, EE measures must have an implementation cost (equipment and installation) lower than \$250,000 and a payback period shorter than 5 years³. Based on EA reports, the PMU will draft a review note to evaluate each site and recommend the priority EE measures and sites. The decision on the EE projects and measures to be implemented will be made by the municipality.

158. The EE projects screening procedure is carried out as follows:

- (i) Preliminary EE project sites identification: By the PMU and the municipality.
 - (ii) Energy Audits in 40 buildings by Chisinau (2 stages: 20 in Yr 1 and 10 in Yr 2)
 - (iii) Pre-selection of 20 EE project sites: By Chisinau and provision of technical advice by the PMU and EEA.
- EE projects screening by the PMU and joint decision by the municipality and the PMU.
 - Expected Outputs: 20 EE projects selected.

Output 2.4: EE projects implementation

The PMU will implement 20 EE projects from Year 1 to Year 3 through sub-activities as follows:

Activity 2.4.1: Request for Qualification for short listing ESCOs.

159. During the project preparation stage, the project design team met with 10 Energy Service Providers (ESPs) with the aim of getting their feedback on the project objectives and the best way to advance the development of the ESCO business model. Some of them are very specialized in terms of EE

² The EA will analyse a series of EE measures regardless of the PBP. The EA will recommend a basket of EE measures having average gross PBP of 5 years or shorter. Other EE measures will be recommended for implementation through the long-term investment budget and achieved out of the EPC modality. Because of the EEF's grant, the effective PBP of the EPC should be between 3 and 4 years. By making the selection on the PBP criteria, ESCOs and the FI mitigate the risk and will have a better business turnover in regard to EE investments. The NPV criterion is appropriate in the situation where the investor is the facility owner. The ESCO business model is quite different: the investor is the ESCO and the financier is a third party and both parties intend to mitigate the risk. In the ESCO business the risk increases with the PBP because of deviations that can occur with the duration.

³ It is expected that the EEF will provide a grant with the aim of shortcoming the payback period under 4 years, preferably 3 years.

technologies, others are consulting firms, while a number of others are construction firms. Although their various technical capacities will be useful to carry out EE projects, they all needed to learn more about the EPC modality, financial analysis and ESCO business model development.

160. Because the UNDP project aims at supporting the ESCO market development rather than setting up a PPP or brand new companies, the prioritized approach will be to pre-select at least 5 ESPs with the aim of implementing 20 EPC projects. Because ESCOs must carry out a Feasibility Study (FS) for each site or building, it would be inefficient asking several ESCOs to carry out the same FS. In addition, ESCOs are required to carry out FS at their own budget. Consequently, the most appropriate way to proceed is by establishing a shortlist of 5 ESCOs to limit the number of FS and mitigate any disturbance of building maintenance staff and occupants. Pre-selected firms can be a joint-venture between existing firms.

161. To this end, the PMU will carry out 4 sub-activities:

- (i) Draft of detailed selection criteria and guidelines mainly related to:
 - Technical capacity;
 - Financial capacity;
 - EE track record in the building sector.
- (ii) Hold an information sharing and dissemination workshop for ESPs to:
 - Explain the guidelines for short listing candidate ESCOs;
 - Get the ESPs' feedback in regard to the criteria; and.
 - Explain the Request for Qualification (RFQ) procedure.
 - The PMU will draft the RFQ documents and will jointly manage the pre-selection procedure with Chisinau.
 - Expected Output: 3 ESPs selected.

Activity 2.4.2: Request for Proposal (RFP) for the Implementation of EPC Projects

162. Based on the selected sites or buildings, the municipality will launch a series of 5 RFPs that will include 4 EE projects per RFP. The series of RFPs will be spread over Years 1 to 3.

163. The EE projects granting criteria will be as follows:

- (i) The payback period (with preference given for projects with shorter payback periods);
- (ii) The implementation costs;
- (iii) The quality of the EE equipment,
- (iv) The implementation calendar, and;
- (v) Reliable M&V protocol and savings metering procedures.

164. The Feasibility Study (FS) is mandatory to submit proposals. The FS will comply with the template outlined by the PMU. The ESCOs will not be required to bid for 4 EE projects included in the lot. Each ESCO will define its priority according to its capacity.

165. The RFP stage is broken down in 2 steps as follows:

- Request for Proposals - EE project implementation (a total of 4 EE projects per lot): The same procedure will be repeated 5 times. The key document of the proposal will be a thorough Feasibility Study for each project. After the project evaluation stage the selected ESCO(s) will receive Notification EE project-based. Based on this Notification, the ESCO(s) will draft a bankable document to be submitted to EEF and the selected FI. ESCOs can bid for 1 to 4 EE projects per lot.
- Project financing recommendations to FI and EEF: Based on the selected EE projects and ESCO(s), the LGF Committee will submit a technical recommendation to the financial partners (bank and EEF) to support the bankable document prepared by selected ESCO(s).

- Request for Proposal documents and RFP management will be carried out by the PMU on behalf of the municipality in accordance with municipal regulations.
- Expected Outputs: Notification to selected ESCOs for 4 EPC projects. The RFP procedure will be repeated 5 times over 3 years.

Activity 2.4.3: Financial Arrangement Related to Loan Guarantees, Grants and Project Financing: EPCs Ready for Implementation.

166. Project financing arrangements with the financial institution (loan and guarantee) and EEF (project-based grants for EE investments) will be based on the bankable documents and FS: The financial institution will be selected by tender as this institution will benefit from a \$900,000 loan guarantee facility.

167. Financial arrangements and agreements with financial institutions and EEF are made by the ESCOs.

- Outputs expected:
 - (i) Loan Guarantee approval by the FI;
 - (ii) Loan approval by the FI;
 - (iii) Grant agreement approval by the EEF;
 - (iv) EPC duly signed: ESCO and Chisinau

Activity 2.4.4: EE Projects Implementation-Commissioning and Completion

168. The EPC Projects Implementation and Completion takes place within 3 months of the EPC signature. The project completion is broken down into 9 steps as follows:

- EE Project implementation approval (EPC signature): By Chisinau and ESCO
 - Equipment installation and EE improvements: By ESCO(s)
 - Commissioning report: by ESCO
 - EE Project Commissioning approval (EE project-based): By Chisinau
 - First payment to ESCO(s): Commissioning report confirms the acquisition of equipment, its installation and full operation (test results and energy savings), the service and equipment supply costs are fully paid off to the equipment suppliers and ESCO(s) through the EE loan: By the FI.
 - Equipment ownership will then be transferred to Chisinau: by ESCO(s).
 - Two heating seasons M&V and quarterly reports for billing: By ESCO(s)
 - During the first two heating season periods, payments are made as per the M&V results: by Chisinau.
 - The whole project cost payments stream to FI: After two heating seasons, the steady payments stream will be calculated in accordance with the M&V results throughout the payback period: by Chisinau.
- Activity carried out by ESCOs
 - Expected output: 20 EE projects implemented in accordance with the EPC modality

Activity 2.4.5: Monitoring and Verification reports and EPC Billing to Chisinau

169. The EPCs projects supported by the ESCO Moldova Project will be required to comply with the International Performance Measurement and Verification Protocol (IPMVP) for the development of the Monitoring & Development protocol or the M&V protocol developed by the *Association of Energy Engineer of Moldova*. Monitoring and Verification over 2 heating seasons is an essential step to demonstrate that the installed EE measures are really working. EPCs require explicit proof that savings really occur.

170. Stipulating a certain performance requires that all parties agree on:

- i) The baseline for estimating savings;
- ii) How to estimate partial savings during installation;

- iii) Impact of cross effects between measures, if any;
- iv) The procedure and technology to proceed with energy consumption metering of EE equipment or building component. As a rule four options are considered: (a) Engineering calculations based on spot measurements; (b) Engineering calculations based on short-term monitoring; (c) Billing analysis at the whole-building level using statistical methodology; (d) Calibrated engineering simulation models. The most appropriate procedure to figure savings will be selected in accordance with the EE measures;
- v) Correction for weather (degrees-days), occupancy changes, and structural modifications or other modifications that might interfere with simply comparing the pre- and post-retrofit utility bills;
- vi) Reporting schedule (Quarterly) and format;
- vii) ESCO's billing to client: format and schedule (quarterly);
- viii) Spot Cross-checking procedure.

171. Basically, the IPMVP is a set of common sense procedures. The important requirement is that the M&V reports state the accuracy of the savings estimate.

172. The training related to the IPMVP or the national M&V protocol is planned in Sub-activity 2.1.

173. ESCOs will be required to submit M&V reports in accordance with the EPC requirement and the M&V report template.

174. The PMU will outline the M&V report template in accordance with the agreed protocol.

175. The EEA will increasingly proceed with spot inspection of sites with the aim of double checking data provided by the ESCO, at least once a year.

Output 2.5: M&E System and Reporting

Activity 2.5: Design and Implementation of the ESCO Moldova M&E System and Reporting

176. The M&E system aims at providing reliable data and progress in accordance with the UNDP and GEF requirements.

- M&E system design and report templates: by the PMU
- Output expected: Reliable M&E system and report templates.

Outcome 3 Financial Mechanism is available to ESCOs

177. The project Outcome 3 is achieved through a series of 8 activities that will be mainly carried out by the PMU with the aim of developing the financial mechanism (LGF) and making available EE projects financing through the EEF and the selected financial institution (bank).

Output 3.1: Agreement on LGF Regulation and Operational Guidelines

Activity 3.1.1: Drafting of the Agreement on LGF Regulation and Operational Guidelines

178. This activity must be carried out at the very early stage of the project implementation. The PMU will outline the first draft of the regulation. The final regulation and procedure must be jointly adjusted by the PMU and the selected financial institution responsible for managing the LGF. The final LGF regulation must be approved by the UNDP CO, the City of Chisinau, the selected Bank and other relevant players.

- Although the PMU will be primarily responsible for drafting the LGF Regulation, the EEF will serve as key advisor in addition to input as an international advisor.
- Expected Output: The LGF regulation is approved and ready for implementation.

Activity 3.1.2: Preparation of LGF Information Booklet

179. ESCOs, municipal decision-makers as well as building managers and ESCOs must clearly understand the financial mechanism in term of modalities and conditions. The PMU will draft the LGF Booklet for that purpose and will hold a workshop to announce the establishment of the LGF and to explain the procedures and conditions.

- The PMU (PM and national consultant) is primarily responsible for drafting the LGF Booklet.
- Expected Output: ESCOs and stakeholders as well as EE project beneficiaries are knowledgeable about the LGF.

Output 3.2: *Financial Institution and Partnership Agreement*

Activity 3.2: Selection of the Financial Institution and Partnership Agreement

180. Request for Proposal (RFP) to select the FI and duly sign the agreement on the operation of the LGF in line with the LGF regulation. Draft TORs for selecting the financial institution, as well as the list of potential banks, are provided at Appendix 10.

- The RFP procedures will be carried out by the PMU. The agreement signatories will be: the UNDP, PMU and municipality of Chisinau.
- Expected Output: LGF fully operational.

Output 3.3: *Financial Partnership and Working Agreement with the EEF*

Activity 3.3: Draft and Formalize the Financial Partnership and Working Agreement with the EEF

181. Beyond the LGF regulation, merely a set of requirements, procedures and conditions to commit the loan guarantee to ESCOs, the PMU must also draft a working agreement to involve the key institutional financial partner (EEF) within the EE projects financing scheme. Other partners in this agreement will be the City of Chisinau and UNDP. The working agreement will contain provisions to transfer ownership of the LFG to the EEF at the end of the project to ensure that the LFF continues to operate after the project has finished.

- Activity to be carried out by the PMU with the support of national consultants.
- Expected Output: Working Agreement ESCO Moldova Project and the EEF duly signed.

Output 3.4: *Model Energy Performance Contract - EPC*

Activity 3.4: Drafting of the Model EPC

182. This activity intends to draft 2 “first-out” model EPC documents: The first for institutional/public/office buildings, the second for the residential sector.

- Activity to be carried out by the PMU and international/national consultants.
- Expected Output: 2 Model EPCs

Output 3.5: *LGF Management and Accountability Arrangements.*

Activity 3.5: Set up the LGF Management and Accountability Arrangements.

183. Set up of the LGF Management Committee (LGFMC) with the aim of recommending to FIs EE projects that are subject to securing (i) a financing guarantee, (ii) an EE Loan and EEF grant. For each ESCO’s project, the recommendation will be based on the technical quality of the EE project and its compliance to the EPC modality and conditions. The committee members should belong to:

- the PMU
- Municipality of Chisinau
- EEA

184. FIs (commercial banks and EEF) cannot be committee members because the LGFMC's responsibility is to provide recommendations to FIs.

Output 3.6: *LGF Operations Monitoring and Reporting*

Activity 3.6: Preparation of templates related to LGF Operations monitoring and reporting.

185. The commercial bank is required to submit Quarterly Operation Reports related to the LGF and the performance of the EE projects in terms of commitments, reimbursements and/or payment defaults. The report will be a Table (format to be jointly defined by the PMU and the commercial bank) and a narrative discussion on outstanding issues.

186. The PMU will be responsible for submitting annual LGF performance and operation reports to the UNDP CO, Chisinau, EEF, EEA, MoF, MoE and MoEnv.

- The commercial bank will submit quarterly LGF Activity reports to the PMU. The PMU will then draft the annual reports to be sent to the UNDP CO, MoEnv, EEF, EEA, and obviously to Chisinau.
- Output expected: Quarterly LGF Operations Reports and Annual Reports.

Output 3.7: Exit Strategy and New Regulation Framework

Activity 3.7: Drafting of the Exit Strategy and New Regulation Framework

187. The LGF should continue its operations after completion of the UNDP project. The exit strategy must focus on the standing LGF operations with the aim of keeping the current objective. The LGF should become one of the financial mechanisms available in Moldova and should work together with and in addition to other EEF financing components and programs. Based on its successful implementation, the standing LGF should serve as a teaser to raise other funds available from the donor community involved in Moldova. Conditional to GoM's approval, the ownership of the LGF should be transferred from the UNDP to the EEF for a similar and sustainable purpose over a period of 5 years or longer, after project completion

188. The exit strategy must be outlined and drafted in Year 3 of the project timeframe. An adjusted and improved LGF regulation should be drafted at that time. For reasons of independence and effectiveness, the LGF management should be still in the hands of the selected financial institution. The exit strategy and decision must be discussed at the end of Year 2 and after the loan guarantee fund has been operational for at least 6 months and has already signed its first agreements with the aim of reaching a joint agreement as soon as possible and well before the end of the project.

189. The outline, first draft and final exit strategy will be prepared by the PMU in line with significant input from the EEF and other key ministries. The strategy must also be approved by the UNDP as a key document prior to proceeding with the asset transfer at the end of the UNDP project timeframe.

- Activity to be carried out by the PMU and national consultant.
- Expected Output: Approved Exit Strategy.

Outcome 4 EPC Projects and GUDP replicated in other Municipalities and Information Dissemination

190. Outcome 4 focuses on a transformative impact on the greening of cities and towns in the Republic of Moldova. A replication strategy for ESCO activities towards the green urban development needs will be elaborated at the stage of the preparation of the Green Urban Development Plan (Outcome 1). At least one other city should embark on the greening investments. At the stage of the EE projects implementation through the Energy Performance Contract approach, other municipalities will be invited to attend the training sessions related to the municipal sector. In addition, the project will provide other municipalities with reports, studies and templates as well as the needed TA within Component 4. At least 1 other municipality must replicate EE efficiency improvements with the support of ESCOs.

191. The lessons learned study from the implementation of Chisinau GUDP will be prepared which will help inform other municipalities and complement the final project evaluation. Finally, an end of project workshop should disseminate the lessons learned and project results (Case Studies). Component 4 also

encompasses activities related to M&E.

Output 4.1: EPC Case Studies and GUDP Lessons Learnt Study

Activity 4.1: Preparation of EPC Case Studies and GUDP Lessons Learnt Study

192. Drafting of Case Studies related to the most successful EPC projects.

- Case Studies drafted and GUDP lessons learnt report: by the PMU.
- Expected Outputs: 10 EPC Case Studies and 1 GUDP Lessons learnt report.

Output 4.2: GUDP and EPC replication in other cities

Activity 4.2: Preparation of information dissemination materials

193. Support at least two other Municipalities to implement EE projects in accordance with the EPC modality in public buildings and Green Urban Development Plan (GUDP). Provision of TA to other municipalities to develop their own GUDP on the model established in Chisinau.

194. The basic material for promoting the ESCO business model will be a set of Case Studies (10) and the Chisinau GUDP developed at the earliest stage of the ESCO Moldova project implementation (Outcome 1).

195. In the first stage the target municipalities will be required to carry out a survey to preliminarily estimate the “greening needs” and energy savings potential and to identify a few target buildings, both residential and public/institutional A baseline of Municipalities (2) will be required to be carry out the energy audits in the target buildings. To this end, the PMU will provide guidelines and guidance to municipalities.

- Support and TA to other municipalities provided by the PMU.
- Expected Outputs: 1 other municipalities implemented EPC projects and embarked on the GUD pattern

Output 4.3: Information- Sharing and Project Closing Workshop

Activity 4.3: Preparation of the project final report and closing workshop

196. The basic material prepared by the project will be made available to all major cities in Moldova. An EPC and GUDP kit containing all needed documents will be shared with other municipalities and other institutional decision makers in key ministries and agencies.

197. The EPC and GUDP kit will be presented to a large range of stakeholders (public, municipal and private) during the project closing workshop.

- Closing workshop: by the PMU.
- Expected Output: Information shared with key decisions makers and closing workshop.

Output 4.4: Mid-term Evaluation

Activity 4.4: Carry out the mid-term evaluation by an independent team of national and international consultants.

198. The mid-term evaluation will be carried out in accordance with the GEF guidelines by independent consultants.

Output 4.5: Final Evaluation

Activity 4.5: Carry out the final evaluation by an independent team of national and international consultants.

199. The mid-term evaluation will be carried out in accordance with the GEF guidelines by independent consultants.