Preparation of Guidelines for EPC Contracting for ESCOs and Case Study Development – Component I

Turkish Ministry of Energy and Natural Resources
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INTRODUCTION

PROJECT OBJECTIVES

Component I:
Guidelines for EPC contracting for ESCOs and case study development

› Assessment of the energy services market in Turkey and identification of successful models and prevailing barriers
› Recommendations on how to develop the EPC market
COMPONENT I
EPC CONTRACTING AND CASE STUDY DEVELOPMENT

INTRODUCTION

ESCO Model:
› Effective way of facilitating EE investments
› Mechanism to address some of the market barriers and identify EE projects eligible for financing by commercial banks
› Unable to gain traction within the Turkish market so far
› Need for support in Turkey to strengthen the market
CONTENT

1. Data Gathering and Main Findings
2. Basic EPC and ESCO Models
3. Current Turkish EPC Context
4. Success Factors of Private-Sector EPC Markets
5. Recommendations to Develop the EPC Market in Turkey’s Private Sector
6. Proposed Implementation Roadmap

DATA GATHERING
DATA GATHERING PROCESS

Interviews:
Led by local consultants
Stakeholder segmentation:
› Government institutions;
› Non-governmental organizations (NGOs);
› Banks;
› International financial institutions (IFIs);
› International ESCOs;
› Accredited Energy Efficiency Consultancy Companies (EVDs);

Interviews Objectives:
› Explore the interviewees’ experience in EE and EPC
› Gather their opinions regarding the barriers to EPC market development in Turkey and general issues related to EE
› Collect suggested potential solutions to help foster a real EPC market
DATA GATHERING PROCESS

Interviewed organizations: 14, half of them EVDs

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<tr>
<th>Category</th>
<th>Name of Organization</th>
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<tr>
<td>Government</td>
<td>MENR-GDRE</td>
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<tr>
<td>NGOs</td>
<td>ISO</td>
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<td></td>
<td>Enerji Yönetimi Derneği</td>
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<td>Banks</td>
<td>Garanti Bank</td>
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<td>Türkiye Halk Bankası A.Ş.</td>
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<td>IFIs</td>
<td>UNDP</td>
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<td>Accredited EECs (EVDs)</td>
<td>AVD Enerji Verimliği</td>
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<td>Endüstriyel Enerji (Charles)</td>
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Factors for Refusals:

› Fear of providing information to competitors;
› Fear of providing information to government;
› Lack of time, busy with audits (deadline is December 15, 2015);
› Lack of interest in providing information.
DATA GATHERING PROCESS

Difficulties to convince market stakeholders to share information:

› Many preferred to talk over the phone or in person, rather than fill out a survey.
› Many wanted to remain anonymous, worried about negative impacts.
› There is a feeling of hopelessness in the market.

DATA GATHERING PROCESS

Interviews Outputs:

› Quality information was collected, then complemented by Econolur’s current knowledge of financial institutions’ operations in the EE market.
› Information from World Bank, EBRD and KfW programs under implementation was reviewed.
› International ESCOs confirmed that they currently had no EPC activity: market not ready, no interest at this time to develop EPC market.
DATA GATHERING PROCESS

Web-based Survey:
› One for financial experts and another for EE specialists;
› Sent to 26 market players;
› Nine responses received from technical specialists working in an EVD or an ESCO;
› The survey responses were short and lacked details.

DATA GATHERING PROCESS

Literature Review:
Extensive review and analysis of documents from:
› International Institute for Sustainable Development
› Institute for Building Efficiency
› World Bank
› Energy Efficiency and Climate Change (E2C2)
› Centre for Economics and Foreign Policy Studies (EDAM)
› Joint Research Center
› European Bank for Reconstruction and Development
› ESCO Workshop of May 14, 2014 – GEF
BASIC EPC AND ESCO MODELS

DEFINITIONS

Energy Performance Contracting
EPC is a contractual arrangement between a beneficiary and the provider of an EE project where investments in that project are paid in part or in full based on a contractually agreed level of EE improvements and its potential impacts.
DEFINITIONS

Energy Service Company
An ESCO is a natural or legal person that delivers energy services and/or other EE improvement measures to a user's facility or premises, and accepts some degree of financial risk in doing so. The payment for the services delivered is based (either in full or in part) on the achievement of EE improvements and on meeting the other agreed-upon performance criteria.

ESCO ACTIVITIES

Basic concepts of the ESCO business model:
› Repayments from savings allow clients to offset ESCO’s costs
› Savings are guaranteed to offset all implementation costs within a fixed period.
› Savings will be generated on a long-term basis to benefit the client.
ESCO ACTIVITIES

Services provided by an ESCO:
› Development
› Identification of energy conservation measures (ECMs)
› Engineering design
› Financing structure*
› Procurement
› Construction and on-site supervision
› Commissioning
› Capacity building
› Performance guarantees
› Operations and maintenance*
› M&V of savings

*Services not necessarily provided by an ESCO

ESCO ACTIVITIES

ESCOs are generally classified as:
› Independent ESCOs—concentrate on few geographic markets and/or target specific client market segments;
› Building equipment manufacturers—have an extensive network of branch offices;
› Utility companies—regulated or state-owned electric or gas utilities, concentrate on regional markets or focus on the service territories of their parent utilities;
› Other energy/engineering companies—owned by international oil/gas companies, non-regulated energy suppliers or large engineering firms.
ESCO ACTIVITIES

ESCOs can be differentiated on the basis of their marketing approach:

› Technology (boilers, controls, lighting, etc.)
› Sales approach
› Vertical market (schools, hospitals, steel plants, etc.)
› Utility suppliers (electricity, heating/cooling or compressed air, etc.)

ESCO MODELS

Shared-savings EPC
ESCO MODELS

Guaranteed-savings EPC

- Realized energy savings
- Client retains 100% of savings
- Bank loan to client who provides guarantees
- Client reimburses the loan directly to the bank.
- ESCO reimburses for underperformance of the project
- Client pays the ESCO during the implementation

ESCO MODELS

Chauffage

- ESCO supplies energy from facility
- ESCO implements project and owns the energy facility. Typically pays 10-30% equity share.
- Customer pays ESCO for energy
- Bank lends 70-90% of project costs to ESCO. ESCO is the borrower.
- ESCO assigns receivables from customer directly to bank (sometimes pays via bank). Loan is usually secured with energy assets.
ESCO MODELS

Comparison of the various models

<table>
<thead>
<tr>
<th>Contract Type</th>
<th>Who’s Balance Sheet?</th>
<th>Who Bears the Performance Risk?</th>
<th>Project-Specific Financing?</th>
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<tbody>
<tr>
<td>Shared Savings</td>
<td>ESCO</td>
<td>ESCO</td>
<td>Yes</td>
</tr>
<tr>
<td>Guaranteed Savings</td>
<td>Customer</td>
<td>ESCO</td>
<td>Yes</td>
</tr>
<tr>
<td>Chauffage</td>
<td>ESCO</td>
<td>ESCO</td>
<td>No</td>
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</tbody>
</table>

Other types of models:
- Leases
- Other non-recourse financing vehicles

TURKISH CURRENT EPC CONTEXT
GENESIS

› 1980s: Assessment of the country’s RE potential and several energy audits;
› 1990s: Training course on EE management;
› 1997: Establishment of an energy management unit or hiring of an energy manager;
› 1999: First ESCO-like activities by National Britannia Energy Management Services
› 2001: Crisis, impeded the healthy emergence of a Turkish ESCO industry
› 2007: ESCOs emerged together with the country’s Energy Efficiency Law (EEL)

EE LEGAL FRAMEWORK

Law No. 5627

› Enacted in May 2007
› Result of Turkey’s task of complying with EU directives
› Aimed at transforming the energy policies in the government and private sectors
› Covers:
  - administrative structuring;
  - energy auditing;
  - financial instruments and incentives;
  - awareness-raising;
  - establishment of an ESCO market.
› “ESCOs” were referred to as “EVDs”
EE LEGAL FRAMEWORK

Law No. 5627
Place of ESCOs in the organizational structure of Turkey’s EEL

Directive 2012/27/ EU:
› Turkey is in compliance with the Energy Community Acquis ENERGY GOVERNANCE IN TURKEY
› Incorporation into the Energy Community in October 2015
› National EE Action Plan, as required by the Directive, to be adopted
EE LEGAL FRAMEWORK

EVD Registration Process
Authorized EVD requirements: experienced staff, specific equipment, authorization certificates issued every three years by GDRE/authorized institutions

EVDs services:
› Energy director training, energy studies and Energy Improving Project (EIP) preparation, and project implementation;
› Consultancy and energy management services for buildings within the framework of a service agreement

Government Support to EVDs:
› EIPs shall be eligible for a project subsidy - 30% of the project cost:
  - Recovery period: up to 5 years
  - Project cost: up to TRY 1,000,000
› The Directorate of Small and Medium Scale Industry Development and Support Administration shall subsidize EE training, audit and consulting services.
EE LEGAL FRAMEWORK

Government Support to EVDs:
› 20% of the annual energy costs of an industrial enterprise (up to TRY 200,000) shall be paid by the GDRE if the company enters into a voluntary agreement with the DG, committing to reduce its energy intensity by at least 10% within three years.
› The Turkish Scientific and Technological Research Institution (TÜBİTAK) shall subsidize research and development for EE/RE projects.

EE LEGAL FRAMEWORK

EVD Certificates
› The EIE issues EVD certificates in two categories: industrial and buildings
› November 2015: 35 certified EVDs
› 23 EVDs operate in commercial and service buildings
› Unofficially, 50% of ESCOs/EVDs ceased their operations in 2015 (financial hardships)
ANALYSIS OF CURRENT LEGISLATIONS

Private sector
› No apparent legislative issues

Public Sector
No public-sector EPC market.
Some of the identified issues:
› Unsuitable regulations
› Procurement (least-cost approach)
› Length of contract
› Inability to tender before a project is defined
› Internal budget allocation
› Discussions with the Ministry of Finance about public debt.

Current attempt to improve current legislations with by-laws of the 2007 Turkish EE Law.
ANALYSIS OF CURRENT LEGISLATIONS

EVDs Accreditation Scheme
› Creates confusion in the private-sector market
› Focuses on technical expertise rather than on capacity to develop and implement projects under an EPC approach
› Does not provide real added value to implement EPC-based projects;
› EVDs are also identified as auditors and certifiers of building EE; does not highlight any of the actual differences between an ESCO and a consulting firm
› EVDs ≠ ESCOs

Facilitators
› No such role in the private or public sectors

Programs supporting the EPC market development
› No dedicated programs or initiatives: subsidies, tax exemptions, etc., other than the accreditation scheme
EXISTING MARKET

› A very limited number of projects have been implemented using an EPC scheme, all in the private sector.
› ESCOs reluctant to share information
› Three Case studies:
  - Hospital in Ankara: cooling system, EPC model is guaranteed savings, 24 months, financed by a bank, guaranteed annual savings: USD 131,860, achieved: USD 149,321
  - Dairy in Lüleburgaz: heating system, EPC model is a mix of shared savings and guarantee savings, 18 months, financed by own resources, guaranteed annual savings: USD 110,000, achieved: USD 136,750
  - JCI CAROUSEL: outdated facilities, 6.36 years, financed by TurSEFF, achieved savings: USD 510,518

ESCO CAPACITY

Accredited EVDs do not necessarily have the necessary expertise to act as ESCOs.
Lack of expertise in:
› Investment-grade audits (IGAs);
› Risk mitigation;
› Contractual development;
› Project financing;
› Measurement and verification (M&V);
› Technical aspects of EE potential measures within the industrial sector.
FINANCING ACCESS

› Currently, no terms on lending market apply specifically to ESCOs.
› Banks focus on market sectors and transaction types with potential for:
  - high transaction volume;
  - low credit risk;
  - bankable collaterals;
  - low transaction costs of the lending operations.
› ESCO industry in Turkey falls short in all of these categories.

FINANCING ACCESS

Low transaction volume of the ESCO market:
› Enormous theoretical potential;
› Non-financial barriers prevent kick-starting;
› Lack of interest from banks due to the small bankable market potential.

High credit risk of ESCOs:
› Financially weak, being consulting firms or energy auditors on a micro/small scale;
› Lack of practical experience and track record;
› ESCO projects can seem quite large;
› ESCO businesses are misbalanced; ESCOs have one or two clients on an EPC basis.
FINANCING ACCESS

Limited ability of ESCOs to collateralize their debt:
› Few tangible assets;
› Liquidation value is negligible;
› Cannot be ring-fenced.

High transaction costs of ESCO projects:
› A special skill set to be evaluated properly;
› Relatively high transaction costs for project appraisal.

Loan pricing:
› Paybacks of 3-10 years, required financing during 5-12 years;
› Asset-liability mismatch within financing banks.

MARKET AWARENESS

Lack of awareness about EPC concepts at all market levels:
› Concept unknown outside the association representing energy managers: EYODER
› Almost no reference projects

EYODER was established in May 2010 with the following objectives:
› Improve the development of the EE sector;
› Create synergy by bringing energy managers (EMs) and energy service companies (EVD-ESCOs) together;
› Lobby the various stakeholders within government.
OTHER SPECIFIC ISSUES

› ESCOs do not trust that potential clients will pay them.
› ESCO clients do not trust service providers have the capacity to meet expectations.
› Market stakeholders have limited faith in the justice system.
› Long delays in addressing complaints, and rendering fair decisions and enforcing them.

SUCCESS FACTORS OR PRIVATE-SECTOR EPC MARKETS
ESCO TECHNICAL CAPACITIES

Typical ESCO services include:
› IGAs;
› comprehensive engineering design;
› project financing;
› complete installation and commissioning;
› long-term performance guarantees;
› savings measurement and verification;
› ongoing equipment maintenance.

ESCO TECHNICAL CAPACITIES

Other ESCO capacities include:
› Selection of market segments to focus on;
› Understanding of approaches to secure funding;
› Sales and marketing experience.
END-USER AWARENESS AND CAPACITIES

The ESCO client must have the ability to commit to EE:

› managerial level;
› operational level;
› having qualified and motivated maintenance staff;
› operational and maintenance practices.

The client must also have the capacity to contract and understand their own procurement rules. O&M staff must be committed to the operational and maintenance practices of the EE technologies.

MARKET CREDIBILITY AND RELATIONSHIPS

› Relationships with energy end-users is a key element.
› ESCO’s ability to convince a local financing institution (LFI) to participate in the project for financing purposes.
› Analysis of macro-type barriers: economic, political, legal and financial stability of a country to overcome it in a satisfactory manner before any reasonable level of EE can be pursued by ESCOs.
› Hiring professional staff with skills corresponding to the core business of ESCOs after careful review.
ESCO FINANCIAL CAPACITIES

ESCO Creditworthiness
› Exposed to a financial risk stemming from the design of an EPC structure
› Adequate equity level which meets the standards and requirements of LFIs
  - Issue for a number of small ESCOs

ESCO FINANCIAL CAPACITIES

Capacity of ESCOs to Leverage Financing
› Granted long-term reliable financing for EE projects
› Limited financial capacity, energy savings not recognized as collaterals
› Very few LFIs are willing to recognize and accept energy savings from EE projects as collaterals:
  - Start with sufficient equity;
  - Adequate level of capitalization;
  - Carefully managed project portfolio.
RECOMMENDATIONS TO DEVELOP THE EPC MARKET IN TURKEY’S PRIVATE SECTOR

1. BUILDING THE CAPACITY OF ESCOS

ESCOs should perfectly understand the concept of an EPC

The business model defines what internal skills are required
1. BUILDING THE CAPACITY OF ESCOS

Aspiring ESCOs should be trained on:

› Auditing methodologies divided into:
  - Walk-through audits (WTAs) or preliminary audits
  - Investment-grade audits (IGAs)
› EPC contracting;
› Project performance M&V techniques for energy savings achieved.

1. BUILDING THE CAPACITY OF ESCOS

Recommendation No. 1: MENR should subsidy, organize and promote several training sessions for current EVDs.
2. RAISING AWARENESS OF END-USERS

› EPC is not a known concept in Turkey.
› The approach is complex.
› Not many references can be presented to demonstrate its viability.
  ‒ Leads to refusals from potential clients

Recommendation No 2:
MENR should be the leading entity to introduce the concept initiatives, which could include:

› adding a webpage on the Ministry website to introduce the concept;
› setting up short awareness-raising workshops in various cities for varied audiences;
› developing case studies from abroad until those from Turkey become available.

A dedicated association of ESCOs should be used to disseminate information and increase the awareness of end-users
  ‒ If supported and officially recognized by the government, major role in leveraging government efforts.
3. DEVELOPING RECOGNIZED DOCUMENTS FOR MARKET USAGE

Recommendation No. 3:
Widely accepted basic documents developed under MENR leadership and promoted as standards in the country
Proposed documents:
› Contracts
› Request for proposal templates
› Investment-grade audit templates
› M&V plan templates
› Guidelines for customers

4. MAKING CHANGES TO CURRENT CERTIFICATION PROCESS

The current EVD certification process is non-efficient for the following reasons:
› The EVD designation creates confusion: EVDs / ESCOs.
› The qualification process is based only on technical knowledge and not on the needed fundamental skills of an ESCO.
› Many other services unrelated to EPC activities were included in the tasks assigned to EVDs, which creates confusion on what an ESCO really is.
4. MAKING CHANGES TO CURRENT CERTIFICATION PROCESS

Recommendation No. 4:
MENR should restructure the certification scheme:
› auditing and building certification should be separate fields of expertise;
› ESCOs should have a separate certification process based on:
  - internal knowledge and capacity to operate as an ESCO;
  - capacity level to back guarantees or sustain defaults for projects under a shared-savings scheme.
› broaden the definition of ESCOs to not only include engineering and consulting firms but also construction companies, vendors, manufacturers and other larger and financially strong market stakeholders.

Examples of such certification processes in other countries:
Philippines: Managed by the Department of Energy
The criteria for accreditation:
› Financial performance/condition;
› Performance track record/personnel;
› Equipment for energy auditing;
› Experience;
› Demonstrated technical and managerial experience;
› Agreement fulfil the accreditation conditions of the Department of Energy.
### 4. MAKING CHANGES TO CURRENT CERTIFICATION PROCESS

Examples of such certification processes in other countries.

**Singapore**: Managed by the National Environment Agency and the Building and Construction Authority

**Full Accreditation:**
- Completion of a minimum of nine Level III audits and three implementation projects in the past three years;
- At least one Qualified EE expert under full-time employment;
- Calibrated measuring equipment to carry out audits.

**Provisional Accreditation:**
- At least one Qualified EE expert under full-time employment;
- Calibrated measuring equipment to carry out audits.

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### 4. MAKING CHANGES TO CURRENT CERTIFICATION PROCESS

Examples of such certification processes in other countries.

**Dubai**: Managed by the Regulatory and Supervisory Bureau for Electricity and Water Sectors

**Full Accreditation:**
- Three-year operating experience;
- Minimum of six project references showing a breadth of ECMs;
- Employment of at least two staff members, including one CEP and one CMVP;
- Energy audit equipment in place;
- Financial strength, based on last two years;
- Minimum of two years’ operating experience in Dubai.
4. MAKING CHANGES TO CURRENT CERTIFICATION PROCESS

Examples of such certification processes in other countries.

Dubai: Managed by the Regulatory and Supervisory Bureau for Electricity and Water Sectors

Provisional Accreditation:

› Employment of at least one staff member with an engineering degree/CEP;
› Energy audit equipment in place;
› Financial strength based on positive net assets, at least 25% in equity financing.

5. SUPPORTING EARLY DEMONSTRATION PROJECTS

Recommendation No. 5:
The MENR should support the implementation of EPC-based projects through:

› grants to support the whole development phase;
› guarantees to support the financing part;
› grants to offset the cost from using an independent third party in charge of the M&V.

Focus on the EPC approach (for relatively inexpensive projects):

› Implementation of 5 to 20 demonstration projects based on diversity criteria (location, type of facilities, type of technologies used, etc.).
6. SUPPORTING THE DEVELOPMENT OF AN ADAPTED FINANCING OFFER

› Misaligned demand for financing from the ESCOs and available lending products of banks.
› Turkish banks unlikely to change their lending behaviours in the current market context.
› Majority of changes needing to happen first outside of the financial sector:
  - Then, financial institutions can be guided to address market potential more quickly.

Supporting the development of adapted lending products from the banking sector

ESCO projects: impossible to create a separate lending target group
› Across all sectors
› All types and sizes of ESCOs and clients
6. SUPPORTING THE DEVELOPMENT OF AN ADAPTED FINANCING OFFER

Supporting the development of adapted lending products from the banking sector.

**Solution:** Use banker's approach distinguishing between retail, SME and corporate lending and group ESCO projects.

First, development of financial products for EE projects, and then EPC model projects

EE financing models: tailored to priority market sectors for the bank

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**Recommendation No. 6.1:**
The MENR should develop and implement a capacity-building initiative dedicated to financial institutions;
Local financial institutions should be supported in adapting their offers to EE projects and especially to projects developed and implemented byESCOs.
6. SUPPORTING THE DEVELOPMENT OF AN ADAPTED FINANCING OFFER

Developing incentives within the banks for the implementation of EE financing:

› All relevant bank departments should be involved.
› ESCO financial products need to be structured in line with the motivation of the relevant bank units.

Recommendation No. 6.2:
The MENR should consider providing some kind of additional incentives to banks in the early stages (i.e. grants) to increase the financial interest.
› Example: 1% spread on any ten loans to be provided by a bank for an EPC-based transaction

6. SUPPORTING THE DEVELOPMENT OF AN ADAPTED FINANCING OFFER

Developing dedicated financing and delivery models and facilities focused on the development of the ESCO industry:

› Lack of interest from LFIs;
› Setting up dedicated financing facilities outside of the regulatory framework of the commercial banks:
  - i.e. Bulgarian Energy Efficiency Fund (BgEEF), over 160 projects, total project investments around MUSD 45, credit guarantees: 32 projects, total project investments: MUSD 15.5.
6. SUPPORTING THE DEVELOPMENT OF AN ADAPTED FINANCING OFFER

Developing dedicated financing and delivery models and facilities focused on the development of the ESCO industry.

Recommendation No. 6.3:
The MENR should consider dedicated mechanisms to rapidly introduce an adapted financing offer for EPC:
› Help transform the lending market.

7. FAVOURING SMALL AND SIMPLER TRANSACTIONS

Larger-sized projects with low transaction costs: barrier in nascent markets.

Encourage stakeholders to focus on:
› smaller and simpler projects using a single technology;
› on non-process measures in the industrial sector.
7. FAVOURING SMALL AND SIMPLER TRANSACTIONS

Why support small and simple EPC projects
› in such initial stages of a market, positive projects will help garner interest in the concept;
› Limit the risks projects and the complexity of M&V eases the decision-making process for private-sector decision-makers;
› no significant financial risks, diversification at first by having many different smaller projects;

Recommendation No. 7:
The MENR could adopt this approach at least in the early stages

8. INTRODUCING AND SUPPORTING THE ROLE OF FACILITATORS

To grow awareness among stakeholders. The expertise required to understand and adapt the concept to the needs of any given client:
› EE technical opportunities;
› life-cycle cost analyses;
› structuring of business and financing models;
› procurement specifications and procedures,
› EPC contracts;
› M&V of project performance.
8. INTRODUCING AND SUPPORTING THE ROLE OF FACILITATORS

Facilitators can provide the following services:
› Identifying project potential;
› Validating the relevancy of using an EPC approach;
› Designing an adapted procurement methodology and documents;
› Supporting the procurement process;
› Participating in the evaluation process of proposals;
› Facilitating contract negotiations and signature;
› Monitoring project implementation;
› Reviewing M&V plans and reports as developed by ESCOs.

Project facilitation costs make up on average about 3% to 5% of the total investment of the EPC project: high value in comparison with cost.

Recommendation No. 8:
The MENR should consider supporting facilitators by:
› completing a set of training sessions to potential facilitators;
› developing a certification program;
› developing a recertification process;
› creating a code of conduct that must be followed by all facilitators;
› making a set of standard documents;
› implementing a subsidy program.
9. PROMOTING AN INTERNATIONALLY RECOGNIZED M&V PROTOCOL

EE retrofit projects cannot be directly measured M&V in an EPC-based project:

› Limiting uncertainties in the evaluation of the delivered benefits;
› Defining the actual investment (effort and budget) to be allocated for the M&V activity;
› Distributing risks among the parties.

M&V protocol will mitigate the risks that can arise.

Recommendation No. 9:
The MENR promotes the IPMVP, developed and promoted by the Efficiency Valuation Organisation (EVO):

› Most widely used M&V procedure for EPC projects worldwide.

The IPMVP is:
› free of charge;
› easily translatable (already available in multiple language);
› evolving and improving on a regular basis;
› A simple and flexible tool.
9. PROMOTING AN INTERNATIONALLY RECOGNIZED M&V PROTOCOL

IPMVP principles:
› Accuracy
› Completeness
› Conservativeness
› Consistency
› Relevance
› Transparency

10. TRAINING INDEPENDENT M&V SPECIALISTS

M&V is the most fundamental part of any EPC agreement:
› Independent certified M&V specialists are hired by the client and/or the ESCO to design or validate the M&V plans.

Independent M&V specialists should be introduced into the market
› Independent M&V specialists must be certified under an international certification program.
› They cannot have any conflict of interest with any of the two parties involved in the project.
› The most common dedicated certification process worldwide is the Certified Measurement and Verification Professional (CMVP), which is also based on the IPMVP (only one CMVP in Turkey).
10. TRAINING INDEPENDENT M&V SPECIALISTS

Recommendation No. 10:
The MENR should create a list of independent M&V specialists to be used by EPC players (ESCOs and clients) as a reference and offer advanced training. Criteria to be recognized as independent M&V specialists:

› Having recognized M&V certification;
› Having attended advanced training sessions.
In future years, the criteria could be strengthened by adding a minimum number of years of relevant experience.

11. CREATING AN INDEPENDENT ARBITRATION MECHANISM

Arbitration clause to be included into contracts.

Recommendation No. 11:
The MENR could support the mechanism by:

› approaching the International Court of Arbitration of the International Chamber of Commerce (ICC);
› structuring a dedicated mechanism to address EPC-based conflicts;
› participating in the training of experts who could act as arbitrators;
› helping disseminate information on the recognized mechanism in the country.
12. SETTING UP A SUPER ESCO

A Super ESCO: Entity established by a government entity to initiate and/or support capacity building and the activities of other ESCOs, and to facilitate access to project financing.

<table>
<thead>
<tr>
<th>ESCO market barriers in Turkey</th>
<th>How the Super ESCO can address these barriers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Almost no active ESCOs in the market</td>
<td>Super ESCOs could facilitate the creation of an initial real ESCO, jumpstart the market and subcontract private-sector ESCOs to launch their initial operations.</td>
</tr>
<tr>
<td>Low awareness of the ESCO concept from end-users</td>
<td>Super ESCOs could organized marketing campaigns to promote the EPC concept and develop initial projects to be used as demonstration projects. They would also benefit from the aura of being created by the government, which would enhance the credibility of the concept as a whole.</td>
</tr>
</tbody>
</table>
12. SETTING UP A SUPER ESCO

Recommendation No. 12:
The MENR should consider:

› creating and operating a public Super ESCO;
› creating the necessary environment for the EPC market to start up and grow in the private sector.
13. REFRAINING FROM SUBSIDIES AND OTHER TAX INCENTIVES

Low payback on some EE measures:
› Subsidies have not been often used in most countries to help develop specifically the EPC concept.

Recommendation No. 13:
If subsidies are to be used, they can address the initial barriers, as mentioned in the other recommendations, but mainly on a temporary basis.

14. CREATING A PUBLIC SECTOR PROGRAM

The Federal Buildings Initiative (FBI) of Natural Resources Canada:
› Voluntary program facilitating EE projects in buildings owned or managed by the Government of Canada officially launched in 1991;
› Addresses three common barriers: (i) inadequate capital budgets, (ii) lack of reliable information, and (iii) lack of skills to manage retrofits;
› Provides publications, case studies, sample tender documents and model contracts, etc.;
› Maintains a list of qualified ESCO bidders.
14. CREATING A PUBLIC SECTOR PROGRAM

The Federal Energy Management Program (FEMP) of the U.S. Department of Energy:

 › Provides the information, tools and assistance necessary to achieve energy retrofits within more than 350,000 federal buildings.
 › The FEMP fulfils its mission by:
   - providing agencies with training and technical assistance;
   - offering agencies guidance;
   - facilitating agency use of EPC contracts;
   - providing support for and assistance with equipment and approaches.

14. CREATING A PUBLIC SECTOR PROGRAM

Recommendation No. 14:
The MENR should consider:

 › developing a dedicated EPC program for national facilities;
 › promoting the concept at the provincial and municipal levels.
PROPOSED ROAD MAP

PROPOSED IMPLEMENTATION ROAD MAP

<table>
<thead>
<tr>
<th>Prioritization</th>
<th>No.</th>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Top priority</td>
<td></td>
<td>(short term)</td>
<td>-----------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>1</td>
<td>3</td>
<td>Developing Recognized Documents for Market Usage</td>
<td>Develop an accepted set of documents: contracts, investment-grade audits, M&amp;V protocols, etc. that can be recognized as legitimate on the market</td>
</tr>
<tr>
<td>2</td>
<td>5</td>
<td>Supporting Early Demonstration Projects</td>
<td>The MENR should support the implementation of EPC-based projects for demonstration and information dissemination purposes.</td>
</tr>
<tr>
<td>3</td>
<td>7</td>
<td>Favouring Small and Simpler Transactions</td>
<td>Favour the development of smaller and simpler projects that could use only a single technology to facilitate the adoption of the concept by potential ESCO clients.</td>
</tr>
<tr>
<td>4</td>
<td>11</td>
<td>Creating an Independent Arbitration Mechanism</td>
<td>Support the creation of an independent arbitration mechanism that could be used to facilitate the resolution of disputes in EPC projects.</td>
</tr>
</tbody>
</table>
## PROPOSED IMPLEMENTATION ROAD MAP

### Actions that would prove efficient (medium term)

<table>
<thead>
<tr>
<th>Prioritization</th>
<th>No.</th>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>1</td>
<td>Building the Capacity of ESCOs</td>
<td>Offer training to ESCOs on audits, contracts, project financing, M&amp;V, among other topics, to develop the needed offering on the market.</td>
</tr>
<tr>
<td>6</td>
<td>2</td>
<td>Raising Awareness of End Users</td>
<td>Raise awareness of potential project beneficiaries to the needed level so the concept can be well received when presented by ESCOs.</td>
</tr>
<tr>
<td>7</td>
<td>9</td>
<td>Promoting an Internationally Recognized M&amp;V Protocol</td>
<td>M&amp;V is a process which should be recognized by the ESCOs and their clients. The use of a recognized M&amp;V protocol will mitigate the various risks that can arise after project completion.</td>
</tr>
</tbody>
</table>
| 8              | 4   | Making Changes to Current Certification Process | Adapt the current EVD certification to the ESCO market requirements with the following elements as basis:  
> Internal knowledge and capacity to operate as an ESCO  
> Level of financial capacity to back guarantees or sustain defaults in the case of projects under a shared savings scheme |

### To be considered - (long term)

<table>
<thead>
<tr>
<th>Prioritization</th>
<th>No.</th>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>10</td>
<td>Training Independent M&amp;V Specialists</td>
<td>Support the creation of independent certified M&amp;V specialists that could be mandated by both parties in an EPC to design and implement M&amp;V plans used during the EPC to determine the energy and financial savings.</td>
</tr>
<tr>
<td>10</td>
<td>8</td>
<td>Introducing and Supporting the Role of Facilitators</td>
<td>Support the role of facilitators who can play a major and enabling role in ESCO market development. The role of facilitators is to serve as an intermediary between clients and the corporate cultures, interests and expectations of ESCOs during the various phases of the project cycle.</td>
</tr>
<tr>
<td>11</td>
<td>6</td>
<td>Supporting the Development of an Adopted Financing Offer</td>
<td>Support the development of lending products within the banking sector. Develop mechanisms that could favour the interest of EPC within banks for the implementation of EE financing. Consider the creation and operation of a dedicated public financing facility that would address the financing needs of EPC agreements.</td>
</tr>
<tr>
<td>12</td>
<td>14</td>
<td>Creating a Public Sector Program</td>
<td>Consider the creation of a public EPC program to reduce energy consumption in public buildings. These programs, besides their main interest in reducing energy costs for public sector facilities, would create a sustainable market for private sector ESCOs and contribute to the recognition of the EPC concept in the private sector.</td>
</tr>
</tbody>
</table>
CONCLUSION

To assess the ESCO market in Turkey, the concepts of ESCO and EPC must first be redefined.

Many different models can be used by ESCOs to address market barriers and enable the implementation of EE projects:
- Share savings and guaranteed savings are the dominant approaches.

Current ESCO market almost non-existent in Turkey:
- Very limited number of projects implemented in the private sector;
- Great mistrust in the market.
CONCLUSION

EPC Market Shortfalls:
› Accredited EVDs do not have, for the most part, expertise to act as an ESCO.
› EVDs fail to understand critical issues: IGAs, risk mitigation, contractual development, project financing and M&V.
› There is a lack of adapted financing.

CONCLUSION

Actions To Be Taken:
› Accelerating market development and providing favourable context for ESCO business;
› Prioritizing actions to establish a sound basis for ESCO market development without creating distortions or negative experiences;
› Other actions in the medium or the long term to help further support the growth of the market.
EXCHANGE SESSION