

Kosovo:

***Options for Financing Energy Efficiency in
Public Buildings***

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Energy and Extractives Global Practice Group

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Table of Contents

SECTION 1 - INTRODUCTION	1
IMPORTANCE OF ENERGY EFFICIENCY IN KOSOVO	1
NEED FOR ENERGY EFFICIENCY IN PUBLIC BUILDINGS AND FACILITIES	2
OBJECTIVES	3
OUTLINE OF THIS REPORT	4
SECTION 2 - COUNTRY CONTEXT	5
LEGISLATIVE AND REGULATORY FRAMEWORK	5
<i>Energy Community Treaty</i>	5
KOSOVO LEGAL FRAMEWORK	5
<i>Primary Legislation</i>	5
<i>Secondary Legislation</i>	6
ENERGY CONSUMPTION IN PUBLIC BUILDINGS AND FACILITIES IN KOSOVO	7
<i>Municipal Buildings</i>	7
<i>Central Government Buildings</i>	9
OPPORTUNITIES FOR IMPROVING ENERGY EFFICIENCY	10
SECTION 3 - BARRIERS TO FINANCING PUBLIC SECTOR EE	12
INTRODUCTION	12
BARRIERS TO FINANCING PUBLIC SECTOR EE IN KOSOVO	12
LEGAL AND REGULATORY BARRIERS	13
<i>Barriers related to Equipment and Service Providers</i>	13
<i>Barriers related to End-Users</i>	14
<i>Lack of Access to Commercial Financing</i>	14
<i>Implementation Capacity</i>	14
DONOR-FUNDED ENERGY EFFICIENCY ACTIVITIES	15
SECTION 4 - INTERNATIONAL EXPERIENCE IN FINANCING PUBLIC SECTOR ENERGY EFFICIENCY PROJECTS	18
INTRODUCTION	18
BUDGET FINANCING WITH CAPITAL RECOVERY	19
UTILITY ON-BILL FINANCING	19
ENERGY EFFICIENCY REVOLVING FUND	19
PUBLIC OR SUPER ESCO	20
PUBLIC SECTOR ENERGY EFFICIENCY CREDIT LINE	20
RISK-SHARING FACILITY	20
COMMERCIAL FINANCING, BONDS	21
VENDOR CREDIT AND LEASING	21
LEVERAGING COMMERCIAL FINANCING WITH PRIVATE ESCOS	21
COMPARISON OF THE FINANCING OPTIONS	22
SECTION 5 - ASSESSMENT OF FINANCING AND IMPLEMENTATION OPTIONS FOR KOSOVO	28
CHARACTERISTICS OF FINANCING OPTIONS IN THE KOSOVO CONTEXT	28
<i>Narrowing the Financing Options: Rationale and Results</i>	28
BUDGET FINANCING WITH CAPITAL RECOVERY	30
<i>Overview</i>	30
<i>Funds flow</i>	30
<i>Implementation</i>	31
<i>Technical Assistance</i>	31

ENERGY EFFICIENCY REVOLVING FUND.....	32
<i>Existing Funds</i>	32
<i>Legal Framework</i>	34
<i>Fund Management and Governance</i>	34
<i>Debt Financing Window</i>	35
<i>Energy Services Window</i>	35
<i>Technical Assistance</i>	36
<i>Procurement of Implementation Services</i>	37
<i>Organization Structure</i>	37
<i>Investment Models</i>	37
<i>How KEERF Can Address the Barriers to EE Implementation</i>	39
SUPER ESCO.....	40
<i>Limitations on Growth of ESCOs in Developing Countries</i>	40
<i>Kosovo Super ESCO</i>	41
<i>How KESCO Can Address EE Financing Barriers?</i>	42
THE POTENTIAL ROLE OF IFIS AND DONORS.....	43
<i>Financial Assistance</i>	43
<i>Capacity Building</i>	43
<i>Other Technical Assistance</i>	43
SECTION 6 - MOVING FORWARD	44
ADVANTAGES AND LIMITATIONS OF THE THREE OPTIONS.....	44
MOVING FORWARD ON THE PUBLIC SECTOR EE FINANCING AGENDA.....	45
POSSIBLE FUNDING STRUCTURE.....	45
ROADMAP FOR ESTABLISHING THE KEERF.....	46
SECTION 7 - REFERENCES	47
ANNEX A – KEY ELEMENTS AND POTENTIAL CHANGES IN THE KOSOVO LEGISLATIVE FRAMEWORK	50
KEY ELEMENTS OF THE EXISTING LEGISLATIVE FRAMEWORK.....	50
POTENTIAL CHANGES IN THE LEGISLATIVE FRAMEWORK.....	52
ANNEX B – ADDITIONAL INFORMATION ON SELECTED FINANCING MECHANISMS	54
BUDGET FINANCING WITH CAPITAL RECOVERY.....	54
UTILITY ON-BILL FINANCING.....	55
<i>Key Characteristics</i>	55
<i>Illustrative Examples</i>	55
<i>Advantages and Limitations</i>	56
ENERGY EFFICIENCY REVOLVING FUND.....	57
<i>Financing Windows or Products</i>	57
<i>Risk Guarantee Window</i>	58
<i>Forfeiting</i>	59
DEDICATED EE CREDIT LINES.....	59
RISK-SHARING FACILITY.....	60
SUPER ESCO.....	61
COMMERCIAL FINANCING WITH ESCOS.....	62
ANNEX C - EXAMPLES OF SUPER ESCOS	64
ANNEX D – KOSOVO EE ROUNDTABLE SUMMARY	66

SECTION 1 - INTRODUCTION

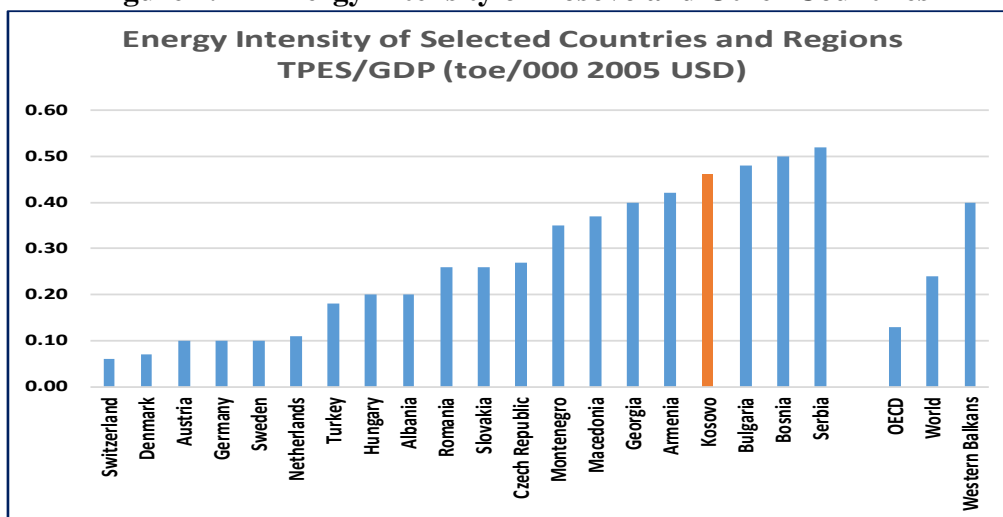
Importance of Energy Efficiency in Kosovo

The Republic of Kosovo, the youngest country in Europe has experienced strong economic growth performance since its formation in 1999. The economic growth is expected to continue at about 4 percent per year in the medium term (World Bank 2014a). The economic growth has led to increased demands for electricity. The existing domestic electricity supply system (which primarily consists of two unreliable lignite-fired power plants that are poorly maintained and operate well below their installed capacity. The reliability of electricity supply is poor and has been cited as one of the major constraints to businesses in Kosovo (World Bank 2014a). Also, as the demand for electricity is outstripping the supply, Kosovo has to rely on unreliable electricity imports. After the planned decommissioning of one of the existing power plants at the end of 2017, there is likely to be additional supply shortfall, further exacerbating the reliability of supply and the need for expensive imports.

With respect to heat supply in Kosovo, the main energy sources for space and water heating in buildings are biomass (mainly firewood) and electricity, together accounting for over 80 percent of heating consumption. The high consumption of unmanaged and unregulated firewood can lead to forest degradation, giving rise to adverse environmental, economic and health impacts. Heating with electricity is highly inefficient, and exacerbates power supply interruptions, especially during the heating season. Kosovo is especially energy supply-constrained during the winter months due to electricity demand for heating. Kosovo has two isolated operating district heating (DH) systems (Pristina and Gjakova), which have been facing serious problems as the heat demand exceeds supply; collection rates are low; fuel costs are high; and thermal losses exceed 18 percent.¹

Figure 1.1 shows a comparison of the energy intensity of the Kosovo economy relative to many other countries in the Western Balkans and the European Union (EU).

Figure 1.1 – Energy Intensity of Kosovo and Other Countries



¹ The situation has improved for DH Pristina as heat supply now exceeds demand, collection rates have increased, and fuel costs are lower.

Source: IEA 2015

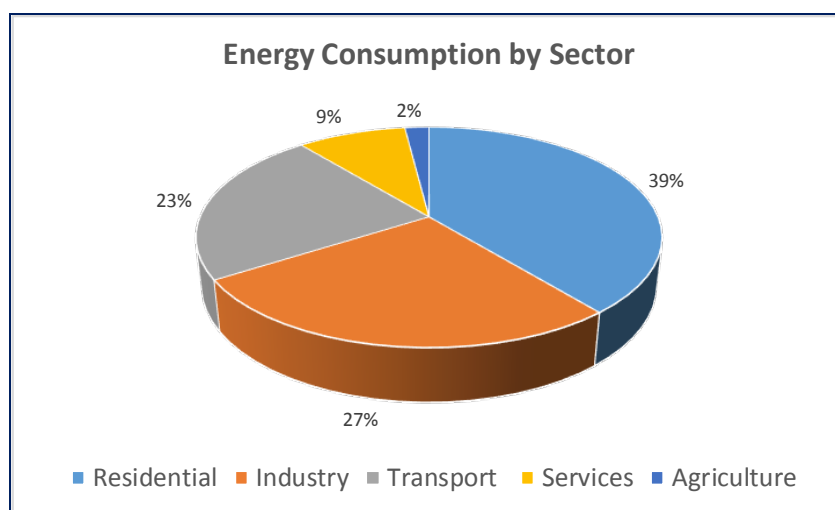
As seen in Figure 1.1, the energy intensity² of Kosovo (0.46 tpe/000 US\$ GDP) is comparable to the other Western Balkan countries, but is substantially higher than the intensity of OECD countries (0.13) and the world average (0.24), and over 4 times higher than many EU countries.³ Given that Kosovo's per capita energy consumption (at 1.29 tpe per capita) is only about 31 percent of the OECD countries (at 4.2 tpe per capita), energy intensity could rise further as incomes increase (IEA 2015).

Most of Kosovo's electricity generation comes from two old and unreliable lignite-fired power plants leading to an increasing supply-demand gap, often met by expensive imports. A World Bank study of energy supply options (World Bank 2011) explored a number of options for bridging this gap and concluded, among other things, that renewable energy and EE should represent major components of the future energy supply options. The high energy intensity of Kosovo relative to EU and OECD countries confirms the potential role of EE in Kosovo's future economy.

Need for Energy Efficiency in Public Buildings and Facilities

In Kosovo, the residential sector represents the largest portion of energy consumption at 39 percent. Industry and transport make up 27 percent and 23 percent respectively, and services (which includes the public sector) consume 9 percent. The remaining 2 percent of consumption comes from the agricultural sector (see Figure 1.2).

Figure 1.2 – Energy Consumption by Sector in Kosovo



Source: World Bank 2014a

Recent studies of the buildings sector in Kosovo (NPEEPB WBI 2013, and World Bank 2015) have estimated the size of the buildings market and the potential for energy efficiency (EE). In general, these studies have estimated significant potential savings. While the residential sector

² Energy intensity is expressed as tons of primary energy supply divided by gross domestic product (GDP) in thousand US dollars (2005).

³ For example, Denmark, Austria, Germany and Sweden have energy intensities lower than 0.10

dominates in the buildings sector, municipal and central government buildings also provide opportunities for EE improvement. The WBI study estimated the savings potential for public buildings as 38 to 47 percent in municipal buildings and up to 49 percent in central government buildings. Such savings offer substantial budgetary savings—estimates indicate that the Government of Kosovo (GOK) spends some €24.3 million per year for energy in its buildings and could save 20-30% annually through cost-effective EE measures (World Bank 2015). The simple payback period for municipal and central government buildings has been estimated to be 4.9 to 5.3 years (World Bank 2013a), indicating that these buildings can provide a potential entry point into the buildings sector and can demonstrate EE viability for commercial financing in other sectors.

A major benefit of EE in the case of public buildings is that the resulting energy cost savings can lead to the improvement of the country's fiscal balance. EE thus represents an opportunity for the government and public sector of Kosovo to reduce their energy budget expenditures. Another very significant benefit of EE in public building is the need for renovation. Many public buildings in Kosovo are aging (more than half of the Kosovo building stock was constructed in the period 1970 to 1985) and require immediate investment in thermal insulation, efficient double- or triple-glazed windows, and efficient space heating and hot-water systems in order to maintain the value of property and to improve the comfort of the buildings' occupants. This presents an ideal opportunity for EE investments.

Implementation of EE in public buildings will contribute towards meeting the *NEEAP energy savings target of 1 percent per annum* for the period up to 2018, and energy-efficient retrofits and renovations will ultimately contribute to the country's sustainable economic development. Finally, government actions to improve EE in public buildings will lead to enhanced reliability and increased security of energy supply, and demonstrate the willingness of the government to lead by example in promoting a national EE agenda.

Objectives

The primary objective of this report is to identify options that can address the barriers to financing and help scale up EE implementation in public buildings. Specifically, the project is designed to:

- Review existing information on the energy consumption in the public sector (defined as municipal and central government buildings and facilities) and assess energy savings opportunities in this sector
- Document the existing legislative and regulatory framework for facilitating EE projects in the public sector
- Identify the major barriers to EE financing in the public sector
- Review international experience with financing options for public sector EE implementation
- Identify attractive options for Kosovo
- Conduct a comparative assessment of the advantages and limitations of the options
- Define the steps for selection and implementation.

This report will be discussed at a Stakeholder Workshop in Pristina in April 2016 in order to solicit feedback on the options and reach consensus on the steps for moving forward with the

detailed design and implementation of the preferred financing option.

Outline of This Report

Section 2 of this report provides a summary of the country context, including the legislative and regulatory framework, energy consumption characteristics of municipal and central government buildings, and potential for energy savings and investments needed.

Section 3 summarizes the barriers to financing EE in the public sector in Kosovo, including legal and regulatory barriers, lack of access to commercial financing, institutional barriers, and limited implementation capacity.

Section 4 provides information on international experience with financing public sector EE projects. It includes a review of a number of financing mechanisms, including budget financing, EE revolving funds, dedicated EE credit lines, risk sharing programs, public or super ESCO, and commercial financing with ESCOs and performance contracting. It also presents a comparative assessment of the key characteristics of these financing options.

Section 5 identifies the 3 options considered appropriate for implementation in Kosovo -- budget financing, Kosovo EE revolving fund (KEERF), and Kosovo super ESCO (KESCO) – and provides detailed information on each. It also presents information on the potential role of international financial institutions in providing complementary financial and technical assistance.

Section 6 summarizes the advantages and limitations of the three financing options and provides guidance on moving forward with the recommended option – the KEERF. A road map for implementing the KEERF is included.

SECTION 2 - COUNTRY CONTEXT

Legislative and Regulatory Framework

Energy Community Treaty

In October 2005, the Republic of Kosovo became a signatory to the Energy Community Treaty.⁴ This treaty brought together the EU and contracting parties in order to create the Energy Community, an integrated energy market (electricity and gas) that aims to extend the EU internal energy market. This is achieved by defining clear objectives and a legally binding framework that all Energy Community members must meet and observe.

Included within this legally binding framework are directives for influencing and regulating energy efficiency. The following are the key energy-related directives within this objective:

- Energy Performance in Buildings
- Directive 2012/27/EU of The European Parliament and of The Council of 25 October 2012 on energy efficiency, amending Directives 2009/125/EC and 2010/30/EU and repealing Directives 2004/8/EC and 2006/32/EC
- Energy labeling of household appliances

Kosovo Legal Framework

Driven by the commitment to and common vision of the Energy Community, Kosovo has developed the legal framework of its energy sector and EE in order to internally regulate the energy sector and ensure Treaty obligations are met and maintained. This framework has fostered many positive developments within Kosovo's energy sector, particularly related to energy efficiency, albeit not without serious challenges related to the actual implementation processes. One of the main obstacles has been the regulated energy prices in Kosovo. They are not yet cost-reflective, thus making EE improvements less attractive.

Primary Legislation

The primary legislation that governs EE in Kosovo is the Law on Energy Efficiency. This Law presented the broad policy framework for EE, led to the creation of the Kosovo Energy Efficiency Agency, and defined the regulatory objectives and obligations. A number of secondary legal acts (i.e. regulations, administrative instructions, etc.) have been passed, specifying the measures and tasks that must be undertaken within the energy sector in order to achieve the expected EE levels.

Several other current laws indirectly regulate or influence EE within Kosovo. These include:

- Law on Energy
- Law on Electricity
- Law on the Energy Regulator
- Law on Spatial Planning

⁴ https://www.energy-community.org/portal/page/portal/ENC_HOME/ENERGY_COMMUNITY/Legal/Treaty

- Law on Construction
- Law of Foreign Investments
- Law on Competition
- Law on District Heating
- Law on Public-Private Partnerships and Concessions
- Law on Oil and Oil Derivatives

Secondary Legislation

The primary EE legislation is supplemented by a number of decisions, regulations, and administrative instructions and rules. These include:

- Decisions:
 - Government decision on Kosovo A decommissioning
 - Government decision on installation of efficient bulbs in public buildings
- Administrative Instructions and Rules:
 - Administrative Instruction on Promotion of EE for Final Consumers and Energy Services
 - Administrative Instruction on Labeling of Energy Using Equipment
 - Administrative Instruction on Energy Audit
 - Administrative Instruction on Rules of Energy Balance
 - Administrative Instruction on the opening of an electricity market for non-household consumers
 - Administrative Instruction on Targets of Renewable Energy Sources
 - Rule on the support of electricity for which the certificate of origin and procedures for admission to the support scheme are issued
 - Rule on creating the system of certificates of origin for electricity produced by BRE20
- Regulations:
 - Regulation on the establishment and functioning of the commission for certification of auditors and energy managers
 - Regulation on internal organization of the Kosovo Agency for Energy Efficiency
 - Technical Regulation for thermal energy savings and thermal protection in buildings

In addition to this legislation, Kosovo institutions have produced and updated a number of strategies and plans on EE, most notably the National Energy Efficiency Action Plan (NEEAP) which calls for a cumulative energy savings target of 9% by 2018. In the 2nd NEEAP (GOK 2013), GOK reported to have met their first period (2010-2012) target of 3%.

Furthermore, the EE Law obligates municipalities to undertake a number of actions in support of the national EE target. The Law requires the municipalities to develop Municipal Energy Efficiency Plans (MEEPs), in line with the instructions of the Kosovo Energy Efficiency Agency

(KEEA). Such plans need to be adopted by the Municipal Assembly and delivered to the KEEA. The municipalities are also obligated to develop the Municipal Energy Efficiency Plan Implementation Progress Report, in line with the instructions of the KEEA. These reports have to be adopted by the Municipal Assembly and delivered to the KEEA. Such MEEPs have now been completed by 15 (out of 37) municipalities.

The key elements of the existing legislative framework and potential changes in the framework are provided in Annex A.

Energy Consumption in Public Buildings and Facilities in Kosovo

The major sources of information on the public buildings stock and energy consumption are the National Building Energy Efficiency Study (World Bank 2013), which reported data from 2010 and the updated Building Stock Study (World Bank 2015) that reported data from 2014.

Municipal Buildings

The Republic of Kosovo has 37 municipalities. The total building space within these municipalities is approximately 1.6 million square meters (m²). Pristina, the capital, has the biggest share of this space at about 200,000 m². Table 2.1 shows the characteristics of municipal buildings.

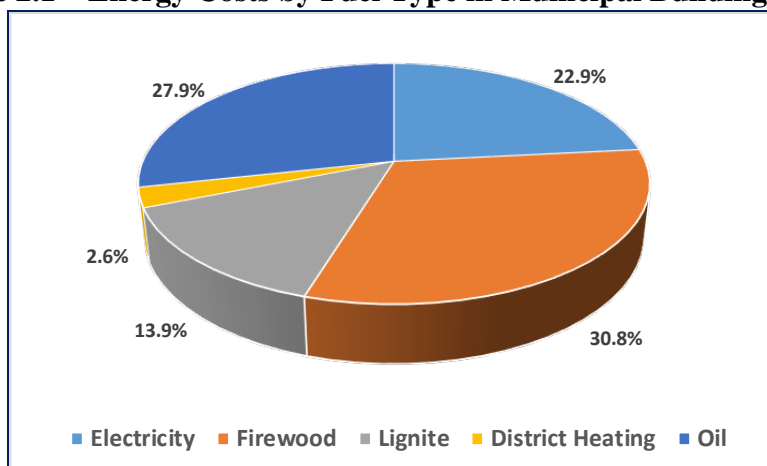
Table 2.1 – Municipal Buildings in Kosovo

Municipality	No. of Buildings	Floor Area	Energy Consumption	Energy Costs
		Thousand m ²	ktoe	Thousand €
Pristina	127	199	6.26	3170
Prizren	112	117	0.91	899
Ferijaz	97	101	0.97	1412
Gjilan	110	101	0.99	486
Podujeva	101	81	0.63	595
Others	1,054	1,026	8.92	9261
Total	1,601	1,625	18.68	15,823

Source: World Bank 2015

With a total annual energy consumption of 217,196 MWh in 2013, the average specific energy consumption in municipal buildings amounted to 134 kWh/m² (total of 18.68 ktoe). The total cost of the energy consumption in 2013 was Euro 15.8 million, and it is broken down as shown in Figure 2.1.

The oil costs in Figure 2.1 were expected to decrease since then with the completion of the cogeneration renovation to the Kosovo B lignite plan to enable it to supply heat through the Pristina district heating network (Termokos) in 2014, which has reduced heating costs substantially compared to previous costs using heavy fuel oil, or mazut.

Figure 2.1 – Energy Costs by Fuel Type in Municipal Buildings - 2013

Source: World Bank 2015

The major types of buildings in municipalities are offices, schools and hospitals. Table 2.2 shows the energy consumption in these building types based on the World Bank Building Stock Study (World Bank 2015).

Table 2.2 – Energy Consumption by Building Type in Municipalities

Building Type	No. of Buildings	Floor Area	Energy Consumption	Electricity Consumption
		Thousand m ²	ktoe	kWh/m ²
Office	170	104	1.41	158
School	965	1,292	14.78	133
Hospital	345	127	2.06	189
Other	86	104	0.43	48
Total	1,566	1,625	18.68	134

Source: World Bank 2015

The results indicate that hospitals and office buildings exhibit the highest specific energy consumption at 189 and 158 kWh/m² respectively, while schools have the overall highest total energy consumption. Specifically, the energy consumption in schools is 133 kWh/m², which appears to be low and may result from the buildings not being operated according to national norms. A significant number of schools and hospitals on the local, municipal level utilize firewood for heating as a means of cutting energy costs, yet maintaining more or less comfortable building temperatures. If these buildings were operated according to Kosovo building standards their specific energy consumption would be approximately 180 kWh/m² for

schools and 255 kwh/m² for hospitals (World Bank 2015).

Central Government Buildings

The Building Stock Study estimated that the Central Government of Kosovo owns and manages 369 buildings, or about 18.7% of the total public building stock. These buildings are comprised of the Ministry of Public Administration (in charge of governmental buildings such as ministries, agencies, etc.), dormitories, universities, court and prosecution buildings, police stations, hospitals, security force facilities, and prisons and detention centers. The total floor surface of these buildings is 745,301 m², the highest percentage of which, approximately 31.4%, is dedicated to hospitals (234,000m²). Governmental administration buildings account for 130,000m² or 17.4% of the total floor surface of central government buildings, followed closely by police stations at 103,000m² or 13.8% and universities with 93,000m² or 12.5% (see Table 2.3).

All of these buildings have high energy use, mainly for the purpose of maintaining a regulated internal temperature to maintain desired comfort levels for employees. With a total annual energy consumption of 91,843 MWh in 2013, the average specific energy consumption in Central Governmental Buildings for that same year amounted to approximately 123 kWh/m² (or total ktoe 7.91).

Table 2.3 – Characteristics of Central Government Buildings

Building Type	No. of Buildings	Floor Area	Energy Consumption	Energy Costs	Electricity Consumption
		Thousand m ²	ktoe	Thousand €	kWh/m ²
Ministry of Public Administration	47	130	1.38	1204	123
Dormitories	12	47	0.24	214	58
Universities	28	93	0.86	653	107
Courts	35	47	0.52	343	127
Police	99	102	0.95	747	108
Hospitals	67	234	2.92	2479	135
Army	31	34	0.09	58	30
Prisons	50	57	0.95	841	194
Total	369	745	7.91	6,539	123

Source: World Bank 2015

Although these buildings have high specific energy consumption (between 123 and 194 kWh/m²), comparison of these figures with the results of energy audits performed in public

buildings in Kosovo suggests that the specific energy consumption can be considered ‘low’. Therefore, can assumed that the buildings are not operated on the comfort level stipulated in the national legislation, which is about 20° C. If these buildings were operated according to Kosovo, and thus European, building standards their specific energy consumption would be between 166 and 262 kWh/m² (World Bank 2015).

Opportunities for Improving Energy Efficiency

Kosovo has high potential for investment in energy efficiency. In addition to the EE buildings study conducted by Eptisa (World Bank 2013a), and the 2015 Building Stock Study (World Bank 2015), the World Bank has conducted a number of energy audits of public buildings. These studies and audits have identified EE measures and estimated energy savings. Table 2.4 summarizes the energy savings measures.

It should be noted that the current standards of heating and lighting services are not being met in many public buildings. Anecdotal evidence provided in interviews conducted by GreenMax (WBI 2013) with several stakeholders, and confirmed by the energy audits in central government buildings by iC clean energy, suggested that the levels of heat and light received by a large number of municipal buildings in Kosovo are far below what is required, especially in municipalities outside of Pristina.

Table 2.4 - Energy Efficiency Measures and Potential Savings

Energy Services	Energy Efficiency Measures	Energy Efficiency Potential	
		Municipal Buildings	Central Govt. Buildings
Space Heating	Thermal Insulation - Outside Walls	41.8	50.4
	Thermal Insulation - Roof		
	Double or Triple Glazing - Windows		
	More Efficient Heating System		
Water Heating	Heating Boiler - Label A	43.8	41.3
	Solar Water Heating		
Cooking	Cooking Stoves - Label A	14.2	26.2
Lighting	Light Bulbs - Label A	73.7	42.1
Electrical Appliances	Washing Machines - Label A	24.00	26.2
	Refrigerators - Label A		
Air Conditioning	Air Conditioners - Label A	21.90	42.00

Source: World Bank 2013a

Table 2.5 shows the results of energy audits conducted in the current World Bank project (World Bank 2016).

Table 2.5 – Results of Energy Audits

Building Type	Number of Buildings	Heated Surface (m ²)	Baseline Energy Consumption (kwh/m ²)	Energy Consumption after EE (kwh/m ²)	Energy Savings (kWh/m ²)	Energy Savings (%)	Investment Cost (EUR/m ²)	Simple Payback (years)
Central Government	81	211,542	243	93	151	62%	57	5.0
Courts	1	1,015	259	135	124	48%	82	4.7
Dormitories	8	39,106	158	64	94	59%	31	5.7
Hospitals	23	64,347	292	98	195	67%	70	5.4
Office buildings	14	24,242	242	131	111	46%	68	4.7
Other	1	770	251	76	175	70%	96	4.0
Police	13	24,622	206	118	89	43%	39	3.9
Universities	21	57,440	262	80	183	70%	62	4.8
Municipal	8	14,943	309	143	166	54%	70	5.2
Office buildings	4	3,974	260	98	163	62%	88	5.7
Schools	2	6,746	188	88	100	53%	56	5.6
Other	2	4,223	548	275	273	50%	75	4.4
Grand Total	89	226,485	248	96	152	61%	58	5.0

Source: Estimated by authors⁵

These audits demonstrate the large savings potential in public buildings (62% in central government buildings and 54% in municipal buildings). They also show that these savings are achievable with paybacks of about 5 years. The investment requirements have been estimated in these audits to be €57 per m² in central government buildings and €70 per m² in municipal buildings. Using these estimates the total investment potential for cost-effective EE is €42.5 million in central government buildings and €113.8 million in municipal buildings. The total investment potential is €156.2 million. Table 2.6 summarizes these estimates.

Table 2.6 – Investment Potential in Municipal and Central Government Buildings

Building Type	Floor Area (000 m ²)	Investment (€/m ²)	Total Investment (€)
Central Government	745	57	42.5
Municipal	1,625	70	113.8
Total	2,370	127	156.2

Source: Estimated by authors based on the KEEREP energy audit database

⁵ Based on an analysis of the audit database from the energy audits of public buildings conducted under the World Bank funded Kosovo Energy Efficiency and Renewable Energy Project (KEEREP).

SECTION 3 - BARRIERS TO FINANCING PUBLIC SECTOR EE

Introduction

Energy efficiency investment programs in public institutions are notoriously difficult to implement. They are impeded by the same barriers that have slowed down EE improvements in other sectors of the economy, such as lack of information on EE potential and benefits, lack of trained personnel, lack of incentives, high transaction costs, and scarcity of financing. In addition, several barriers specific to the public sector further hold back sustained improvements in EE in this sector. Among them are public accounting, budgeting and procurement rules, financing constraints, and very limited staff capacity and motivation for identifying and implementing EE measures. Figure 3.1 lists the barriers to EE in the public sector based on international experience.

Figure 3.1: Barriers to EE in the Public Sector

Policy / Regulatory	Equipment/ Service Provider	End User	Financiers
<ul style="list-style-type: none"> • Energy pricing and collections • Public procurement and budgeting policies • Limitations on public financing, borrowing capacity • Limited and poor data • Import duties on EE equipment • Unclear or under-developed EE institutional framework • Lack of appliance standards and building EE codes, lack of testing, poor enforcement 	<ul style="list-style-type: none"> • High project development costs • Perceived risk of late/non-payment of public sector • Limited demand for EE goods/services • Diffuse/diverse markets • Limited experience with new contract mechanisms (e.g., ESCOs) • Limited technical, business, risk mgmt. skills • Limited access to financing/equity 	<ul style="list-style-type: none"> • Lack of awareness of EE opportunities • High upfront and project development costs • No discretionary budgets for special projects/ upgrades and limited ability to borrow • Low existing comfort levels • Poor structural condition of public buildings • Ability/willingness to pay • Perceived risks of new technologies/ systems • Mixed/lack of incentives • Lack of credible data • Inability to collateralize public assets 	<ul style="list-style-type: none"> • New technologies and contractual mechanisms • Small sizes/widely dispersed → high transaction costs • High perceived risks, incl. public credit risks – not traditional asset-based financing • Other higher return, lower risk projects • Over-collateralization and restrictions on public assets as collaterals • Behavioral biases

Source: Singh et al, 2010.

Barriers to Financing Public Sector EE in Kosovo

The barriers to financing public sector EE projects in Kosovo have been summarized below in the following categories:

- Policy and regulatory barriers
- Barriers related to equipment and service providers
- Barriers related to end users

- Lack of access to commercial financing

In addition, the public sector has very limited capacity to identify, develop and implement energy efficiency projects.

Legal and Regulatory Barriers

- ***Budgetary and borrowing restrictions.*** Both central government agencies and municipalities have limited availability of budget funds for investment in EE improvements. Kosovo's Law on Public Debt imposes some restrictions on the ability of municipalities to borrow money since municipalities may not incur debt unless in the previous two years they have received unqualified audit opinions from the Office of the Auditor General. Existing regulation⁶ limits municipal debt in conformity with rules regulating deficit limits.⁷ The municipalities are required to include a plan for issuance of short-term debt into their annual budget proposals and the Ministry of Finance has the right to approve or deny the issuance of municipal debt. Financing restrictions for central government and municipalities, resulting from austerity measures have led to considerable fiscal pressures on both the central government and the municipalities resulting in limited availability of budget funds for investment in EE improvements and implementation of their EE Action Plans.
- ***Restrictive budgetary procedures.*** Existing budgetary rules may not allow public facilities to benefit from any energy savings they achieve, since each year's budget allocation is based on the previous year's expenditures. Therefore, the reduction of budgetary spending for energy costs can lead to a decrease in allocation in the next budget cycle. Operating cost reductions are also typically unable to cover capital expenditures. While the Law on Energy Efficiency includes procedures for setting up a national fund to promote EE projects, such a fund is not permissible under existing legislation, which only allows for the existence of a single national investment fund.
- ***Public procurement rules.*** Public procurement regulations and procedures require tenders to be evaluated purely on the basis of lowest cost, and the value of the energy-savings from EE is not adequately taken into account. While the new Law on Public Procurement requires government tenders to take account of any EE-related benefits that a particular proposal will deliver, the secondary legislation to support its implementation remains to be developed.
- ***Low energy tariffs and prices.*** The regulatory agency has not developed cost-reflective tariffs for electricity and heat. Also, the market prices of fuels such as firewood and lignite do not reflect their production costs. The low energy costs provide limited incentives for investments in EE.
- ***Building codes.*** There is a lack of building code enforcement and the new energy performance in buildings directive has not yet been implemented.

Barriers related to Equipment and Service Providers

⁶ The Regulation on Procedures for Issuance and Management of State Debts, State Guarantees, and Municipal Debts, Article 9.

⁷ Prescribed under the Law on Management of Public Finances and Accountability.

- **Limited demand and high development cost.** There is limited demand for EE services in the public sector, and equipment and service providers need to devote substantial time and effort to develop EE projects, which leads to high project development costs.
- **Limited experience and capabilities.** There is very limited experience in Kosovo with mechanisms such as energy saving performance contracting (ESPC). Also there are few energy service companies (ESCOs) in the market and none of them have experience working with the public sector. The existing energy service providers have limited technical, business development, and risk management skills and capabilities.
- **Lack of commercial financing.** Equipment suppliers and energy service providers have limited access to commercial financing and cannot invest much of their own equity in EE projects. Also, innovative financing mechanisms such as leasing or vendor financing for EE equipment are not common in Kosovo.

Barriers related to End-Users

- **No internal budgets.** There are generally no discretionary budgets for special projects or efficiency upgrades. Also, public sector decision-makers do not have any incentives to undertake EE projects, because they do not benefit from the resulting cost savings.
- **Limited knowledge of EE options.** Public sector facility and energy managers (both in central government agencies and in municipalities) have limited knowledge and awareness of EE technologies and implementation options.
- **Low existing comfort levels and poor structural condition.** These characteristics of many public buildings limits the cost-effectiveness of EE improvements.

Lack of Access to Commercial Financing

- **Lack of interest and unattractive financing terms.** Commercial banks have limited or no interest in lending to the public sector. Most banks consider loans to municipalities as riskier than loans to private sector organizations such as SMEs. The commercial financing terms (interest rate, loan tenor, collateral requirements, etc.) are not attractive from the perspectives of the public agency decision-makers.
- **Collateral requirements.** Commercial banks require substantial assets to be pledged as collateral. They are unwilling or unable to offer debt financing to public agencies, because it is very difficult or impossible to collateralize public assets for debt financing.
- **High transaction costs.** The small size of EE projects leads to relatively high transaction costs, which makes financing such projects unattractive.

Implementation Capacity

- **Public agency decision-makers.** Both central government agencies and municipalities have limited capacity to identify EE opportunities, prepare “bankable” project proposals, carry out procurement for goods and services, and develop and implement EE projects.
- **Public agency implementers.** No Ministry in Kosovo, including KEEA, has full responsibility for EE and none are assigned to assist public agencies with EE

implementation. Therefore, the institutional capabilities, role and expertise is fragmented. Public agencies that are interested in EE have no one agency that can assist or guide them through the financing and implementation process.

- **Inadequate delivery infrastructure.** There is very limited energy services delivery infrastructure in Kosovo. The fragmented nature of the private sector and the absence of ESCOs in the local market limit the use of performance-based contracting options in the public sector.

Donor-Funded Energy Efficiency Activities

Many donor agencies have been active in Kosovo and have initiated activities to address some of the barriers to EE financing in the public sector. A summary is provided in Table 3.1.

Table 3.1 – Summary of Donor Activities

Donor(s)	Scope	Amount
KfW, EU, WBIF	Termokos Cogeneration Project to improve DH connection (up to substations). Connection via a 10,5 km pipeline and heat exchanger and steam extraction of 140 MWth in the first phase to the thermal power plant (TPP) Kosovo B converting this TPP into a CHP plant	Total: €37 million Total Breakdown: <ul style="list-style-type: none"> • €15 million KfW and German Government (5 million loan, 10 million grant) • €4 million EU grant • €1.8 million SIDA grant • €1.5 million Luxembourg grant • €1.2 million Kosovo Government grant • €3.8 million Pristina Municipality grant
KfW	A new Termokos Project, which focuses on Rehabilitation of District Heating Systems and its expansion in Pristina Substation rehabilitation (50 substations) Technical measures include modernization and/or renewal and/or replacement of pipes, heat sources and substations.	€5 million grant
KfW, WBIF	A WBIF study and resulting implementation of EE measures in public buildings at the municipal level. The project covers approximately 30 buildings in four municipalities. The project contract was signed in January 2016. A ratification act is expected to take place soon which will cover public healthcare and education	Total: €7.8 million total Total Breakdown: <ul style="list-style-type: none"> • €2.8 million WBIF grant • €5 million KfW loan/grant

	buildings.	
European Union	<p>An EC Study and resulting implementation of EE measures at the municipal level in 65 buildings with grant support. This project is expected to close in 2016. This was implemented in order to achieve objectives related to the Energy Treaty.</p> <p>Pristina Network Grid Construction of the CHP plant in Gjakova (8MWthermal and a cogeneration unit of capacity 8.2MW thermal and 1.5MW electrical) based on biomass: corn stalks, wheat/barley, wood chips from forests, and vine pruning;</p>	<p>€15.6 million EU-IPA grant</p> <p>€2 million euro (To be confirmed)</p> <p>€987,350</p>
EBRD	<p>Kosovo Sustainable Energy Projects (KoSEP) - Credit line for RE/EE projects in SMEs and household sectors through participating commercial banks. EBRD intends to continue with the report expected in April.</p> <p>The projects contribute to EE and RE improvements in Kosovo's residential and business sectors. The awarded projects have demonstrated innovative and replicable energy-saving examples, ranging from investments in new welding robots to solar water-heating systems, energy-efficient tractors, thermal windows and wall insulation. Furthermore, such investments help to introduce innovation and improve competitiveness in the private sector.</p>	<p>Total: €15 million Total Breakdown:</p> <ul style="list-style-type: none"> • €3 million EC grant • €12 million EBRD loan <p>Note: €9 million has been disbursed, and €2 million is currently in the market through two microfinance institutions.</p>
World Bank	<p>Kosovo Energy Efficiency and Renewable Energy Project will finance the renovation of about 100 central government buildings with EE/RE measures, implement a pilot municipal EE component and support technical assistance on EE/RE legislation and implementation.</p>	<p>Total: USD 32.5 million</p>
Government of Kosovo	<p>Minor energy auditing projects in over 200 buildings have taken place in both central and local buildings. Primarily, these projects aim to identify buildings that spend the most.</p>	<p>GOK allocates ~€250,000 annually for this purpose) since 2008).</p>
GIZ	<p>GiZ is Planning a project supporting municipalities towards meeting Energy Efficiency targets. The project is under preparation and is expected to start in 2017.</p> <p>Open regional fund, which covers all Energy Treaty countries has also intervened in Kosovo</p>	<p>Total: €2.5 million</p>

	and among others has donated a tool that will automate reporting on KEEAP benchmark achievements.	
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SECTION 4 - INTERNATIONAL EXPERIENCE IN FINANCING PUBLIC SECTOR ENERGY EFFICIENCY PROJECTS

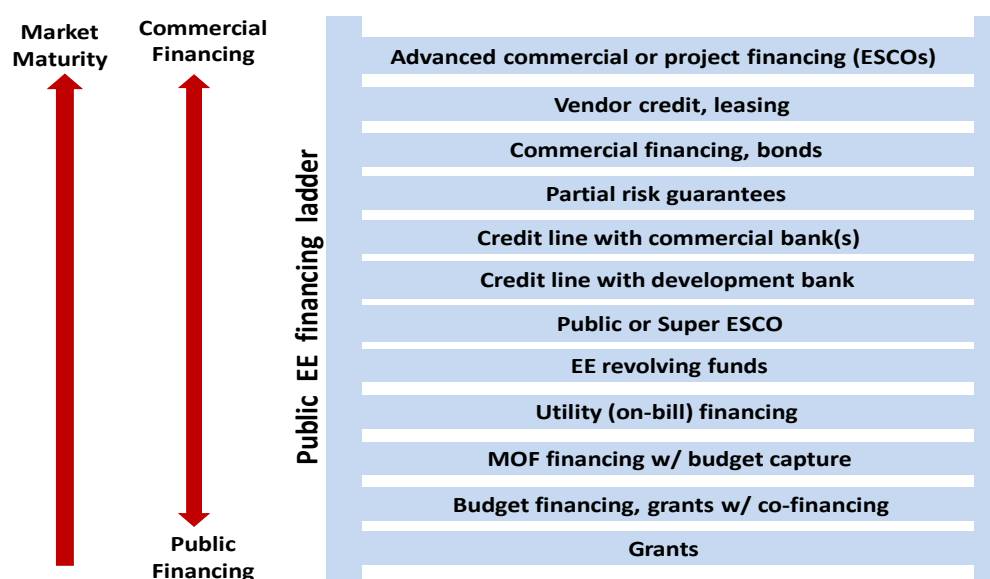
Introduction

Recognizing that grant financing is not sustainable, various countries have implemented a range of financing and implementation mechanisms, either to enhance the financial leverage of public funds or to gain access to commercial funding for public sector EE projects. These include:

- Budget financing with capital recovery, or ‘budget capture’ (financing by the Ministry of Finance or a parent budgeting agency using donor funds, with repayments in the form of reduced future budgetary outlays)
- Utility on-bill financing
- Establishment of an EE revolving fund
- Establishment of a public or super ESCO
- Establishment of an EE credit line through existing financial institutions, such as a development bank or commercial banks
- Creation of a risk-sharing facility, such as a partial credit guarantee program, to cover commercial loans
- Commercial financing, bonds
- Vendor credit and leasing
- Leveraging commercial financing using energy service companies (ESCOs) under the energy saving performance contracting (ESPC) approach.

Figure 4.1 illustrates these options in the form of a “financing ladder” for public sector projects, moving from public (bottom) to commercial (top) financing. A brief description of each of these options follows.

Figure 4.1. Illustrative Financing Ladder for Public Sector EE Projects



Source: Adapted by authors from World Bank 2013b

A brief description of each option in the financing ladder is provided below. Additional information is presented in Annex B.

Budget Financing with Capital Recovery

Under this approach, financing is provided by a government agency, such as the ministry of finance (MOF), using a combination of government budget allocations and IFI or donor funds. This funding covers the investment costs of the EE projects in both central and municipal buildings and facilities. The funding recipient “repays” the funds using the savings generated by the investment project in the form of reduced budgetary outlays for energy bills of the public entity in future years (“budget financing”). The size of the reduced outlay is usually based on the amount of energy cost savings. The flow of funds to pay for EE improvements follows the same flow as the normal appropriations from the MOF. The repayment to MOF could be complete or partial; the partial approach encourages municipal utilities and public agencies to participate in the program because they retain a share of the savings achieved.

Utility On-Bill Financing

Utility on-bill financing is a mechanism under which a utility provides financing for the implementation of EE projects. The funds are provided as a loan to the customer (which could be a public sector entity) for equipment purchase and installation, and loan repayments are recovered by the utility through the energy bill (ECO-Asia 2009). The cost of the EE measures is borne by the individual customers in whose facilities the EE measures have been installed (the direct beneficiaries of the energy savings and related cost reductions).

The utility on-bill financing approach is designed to overcome the first cost barrier (lack of availability of internal funds) for investment in energy efficiency. Under this approach, the utility provides or arranges for the financing needed for the project investment. The customer signs a loan agreement with the utility and the utility collects the loan repayments from the customer through the customer’s utility bill by adding a line item on the bill. In most cases, the loan repayments are arranged such that the amount of the repayment is smaller than the customer’s cost reduction from the energy savings created by the energy-efficient equipment. This allows the customer to be “cash flow positive” throughout the life of the EE project.

Energy Efficiency Revolving Fund

An energy efficiency revolving fund (EERF) has been demonstrated to be a viable option for scaling up EE financing in the public sector. Under a typical EERF, created using public funds and IFI loans, financing is provided to public agencies to cover the initial investment costs of EE projects; some of the resulting savings are then used to repay the EERF until the original investment is recovered, plus interest and service charges. The repayments can then be used to finance additional projects, thereby allowing the capital to revolve and creating a sustainable financing mechanism (World Bank 2014b).

Since both the borrower and lender are publicly owned, such funds may often offer lower-cost financing with longer tenors (repayment periods) and less-stringent security requirements than typical commercial loans. Because EE projects have positive financial rates of return, capturing these cost savings and reusing them for new investments creates a more-efficient use of public

funds than typical budget- or grant-funded approaches. This can help demonstrate the commercial viability of EE investments and provide credit histories for public agencies, paving the way for future commercial financing.

Public or Super ESCO

Several countries have taken a more active role in promoting EE projects using the performance contracting approach by creating either public or “super” ESCOs that are wholly or partly owned by the state. Often this was done to promote ESCOs in general, examples being China (pilot EMCs created by the World Bank in Beijing, Shandong, and Liaoning), Poland (MPEC) and Croatia (HEP ESCO). Another example is the establishment of UkrESCO in Ukraine. Such public ESCOs were typically formed when the local ESCO markets were nascent and some public effort was deemed necessary to catalyze them. The advantage of a public ESCO is that there is often no competitive process required for project development since a public agency is simply contracting with another public entity.

The super ESCO is a special type of public ESCO. Established by the government, it functions as an ESCO for the public sector market (hospitals, schools, municipal utilities, government buildings, and other public facilities) while also supporting the capacity development and project development activities of existing private sector ESCOs. The government (possibly with help from IFIs) capitalizes the super ESCO with sufficient funds to undertake public sector ESPC projects and to leverage commercial financing.

A primary function of the super ESCO is to facilitate access to project financing by developing relationships with local or international financial institutions. The super ESCO may also provide credit or risk guarantees for ESCO projects, or act as a leasing or financing company to provide ESCOs and/or customers with EE equipment on lease or on benefit-sharing terms (Limaye and Limaye 2011).

Public Sector Energy Efficiency Credit Line

A public sector EE credit line is a financing mechanism that makes funds available to local banks and financial institutions (FIs) to provide debt financing of EE projects in utilities and public buildings and facilities. The major purpose of such a credit line is to increase the funding available from these lenders for debt financing of municipal EE project investments. These can be managed by a development bank, municipal bank, commercial bank(s), or other financial institutions.

Dedicated EE credit lines may be established by governments, multilateral or bilateral financial institutions, or governments in cooperation with international donor agencies. The funds provided by the donors or governments to lenders are often leveraged by additional funds provided by the participating banks and/or financial institutions to increase the total amounts available for debt financing.

Risk-Sharing Facility

A major barrier to commercial financing of public EE projects is commercial lenders’ perception that EE projects are inherently riskier than their traditional investments. A risk-sharing facility is designed to address this by providing partial coverage of the risk involved in extending loans for EE projects. The facility—essentially a bilateral loss-sharing agreement—generally includes a

subordinated recovery guarantee and might also have a “first loss reserve” to be used to absorb up to a specified amount of losses before the risk sharing occurs.

A partial risk-guarantee facility, provided by a government, donor agency, or other public agency, can assist municipal utilities and public agencies by: (a) providing them access to finance, (b) reducing the cost of capital, and (c) expanding the loan tenor or grace periods to match project cash flows (Mostert 2010).

Such a facility would also build commercial lenders’ capacity to finance EE projects on a commercially sustainable basis.

Commercial Financing, Bonds

Under this option, municipalities take commercial bank loans (if they are creditworthy and have borrowing capacity) or issue bonds to finance EE investments. This option can mobilize commercial financing which can deliver scale and be sustainable. The elements of competition can help lower financing costs, address overcollateralization/short tenor issues, and allow public agencies to undertake own procurement/ implementation.

This option can work if there are well-developed municipal credit and rating systems, financial institutions who are willing and able to lend to public sector for EE projects, and large municipalities with strong technical capacity willing and able to bundle many EE projects together.

Vendor Credit and Leasing

A lease is a contractual arrangement in which a leasing company (lessor) gives a customer (lessee) the right to use its equipment for a specified length of time (lease term) and specified payment (usually monthly). Depending on the lease structure, at the end of the lease term the customer can purchase, return, or continue to lease the equipment. Many different types of organizations, including proprietorships, partnerships, corporations, government agencies, religious and non-profit organizations, use leasing throughout the world. Suppliers of energy efficient equipment can provide such equipment under a leasing arrangement, usually with lease payments based on estimated energy savings

Equipment leases are broadly classified into two types: operating lease and finance or capital lease (Lee 2003). In an operating lease, the lessor (or owner) transfers only the right to use the property to the lessee. At the end of the lease period, the lessee returns the property to the lessor. Since the lessee does not assume the risk of ownership, the lease expense is treated as an operating expense in the income statement and the lease does not affect the balance sheet.

Leveraging Commercial Financing with Private ESCOs

At the top of the “financing ladder” for public sector projects described earlier is the development of private sector energy service providers, such as ESCOs that specialize in EE project development and implementation. Private ESCOs can help overcome important barriers to scaling up implementation of public sector EE projects. They can (a) offer a range of services spanning the energy services value chain and (b) provide the technical skills and resources needed to identify and implement EE opportunities, perform services using performance based contracts (thereby reducing the risks to the municipal utilities and public agencies), facilitate

access to financing from commercial lenders, and enable energy users to pay for services out of the cost savings achieved.

Performance contracting refers to EE implementation services offered by private ESCOs under ESPCs. These have the following key attributes (SRC Global 2005):

- ESCOs offer a complete range of implementation services, including design, engineering, construction, commissioning, and maintenance of EE measures, and monitoring and verification of the resulting energy and cost savings.
- ESCOs provide or arrange financing (often 100%) and undertake “shared savings” or “guaranteed savings” contracts, such that the payments to the ESCO are less than the cost savings resulting from the project implementation.
- Under the performance contract, ESCOs offer specific performance guarantees for the entire project (as opposed to individual equipment guarantees offered by equipment manufacturers or suppliers) and generally guarantee a level of energy and/or cost savings.
- Payments to the ESCO are contingent upon demonstrated satisfaction of the performance guarantees.
- Most of the technical, financial, and maintenance risk is assumed by the ESCO, thereby substantially reducing the risks to the energy user.

Comparison of the Financing Options

Table 4.1 provides a comparative assessment of the key characteristics of the finance and delivery models discussed above.

Table 4.1 - Summary of Characteristics of Financing Options for Public Sector Energy Efficiency Projects

Financing Option	Conditions	Pros	Cons	Issues to be addressed in Kosovo	Examples
1. Budget financing with capital recovery	<ul style="list-style-type: none"> • Credit barrier is too high, underdeveloped banking sector, collateralization is difficult • Financing should target new and under-developed markets, programs must be efficiently administered, initial subproject results should be intensely disseminated, need viable co-financing • Availability of funding for EE projects 	<ul style="list-style-type: none"> • Easy to implement • Can directly finance municipal entities and central government agencies 	<ul style="list-style-type: none"> • Sustainability may be questionable, even if repayment is obtained through budget financing 	<ul style="list-style-type: none"> • Who will manage and administer the funds? • Is there sufficient implementation capacity? 	<ul style="list-style-type: none"> • Hungary • Lithuania • Armenia, Belarus • FYR Macedonia • Montenegro • Serbia
2. Utility on-bill financing	<ul style="list-style-type: none"> • Requires regulations for utility participation • Strong financial position and financial management of utilities • Payment discipline among public clients, adequate energy pricing and billing practices 	<ul style="list-style-type: none"> • Streamlined repayments, lower repayment risk if risk of utility disconnection, • Builds off of utility relationships and services • Can be done on a sustainable and scalable basis 	<ul style="list-style-type: none"> • Requires changes in utility regulations and billing systems • Creates potential for monopolistic behaviors • Financing may compete with local banks, • Limited experience with heat utilities 	<ul style="list-style-type: none"> • Are Kosovo utilities interested and willing? • Do they have capacity and billing systems for on-bill financing? • What regulatory changes may be needed? 	<ul style="list-style-type: none"> • Brazil • China • India • Mexico • Sri Lanka • Tunisia • U.S. • Vietnam
3. Energy efficiency revolving fund	<ul style="list-style-type: none"> • Insufficient liquidity in banking sector, major aversion to risk among lenders • Use of grant funds as subordinated debt can help mobilize commercial co-financing • TA to disseminate information on EE subproject performance/financial data critical to sustainability • Need for professional, well-incentivized Fund Management Team 	<ul style="list-style-type: none"> • Can be structured to address financing needs and evolving capacity of all public buildings (central and municipal) • ESA option can be very useful for municipalities with poor credit and lack of capacity 	<ul style="list-style-type: none"> • May require new legislation • May be difficult to cover administrative costs of the Fund from its revenues 	<ul style="list-style-type: none"> • Needs a strong and capable fund manager or management team • Needs supporting legislative framework for establishment 	<ul style="list-style-type: none"> • Bulgaria • Romania • Armenia

Options for Financing Energy Efficiency in Public Buildings in Kosovo

4. Public ESCO or super ESCO	<ul style="list-style-type: none"> • Immature private sector ESCO industry, but interest/demand to develop ESCO industry • Contracting between public ESCO and public sector entities may be easier than with private sector service providers 	<ul style="list-style-type: none"> • Can address financing issues and build ESCO capacity 	<ul style="list-style-type: none"> • Need to create a new organization • Need to provide funding • Needs to operate efficiently and avoid acting as monopoly 	<ul style="list-style-type: none"> • Where will such a public ESCO be located? • Will donors be interested in funding such an entity? 	<ul style="list-style-type: none"> • Ukraine Public ESCO (EBRD) • Croatia HEP ESCO (WB/GEF), • Armenia, Uruguay, EESL (India)
5. Dedicated credit line with development bank	<ul style="list-style-type: none"> • Underdeveloped public/ municipal credit market • High commercial bank lending rates and low tenors • Existence of credible development bank willing to lend for EE and assume repayment risks • Municipalities must have ability and willingness to borrow • Public agencies able to retain energy cost savings 	<ul style="list-style-type: none"> • Builds commercial lending market by demonstrating public agencies can repay • Allows public agencies to undertake own procurement and implementation • Allows for lower interest rates • Funds can revolve making it more sustainable 	<ul style="list-style-type: none"> • Relies on strong banking partner with incentive and ability to proactively develop pipeline and offer good financial products • Serves only creditworthy municipalities • Some development banks do not conduct proper risk assessments and appraisals 	<ul style="list-style-type: none"> • Is there a suitable development bank? • How many public agencies can borrow and are creditworthy 	<ul style="list-style-type: none"> • Brazil • India (municipal infrastructure fund) • Mexico • Turkey (proposed)
6. Dedicated EE credit line with commercial financial institution(s)	<ul style="list-style-type: none"> • Well-developed banking sector, willingness of banks to accept risks and EE as line of business • Sufficient market activity to develop project pipeline • Need for parallel TA to develop strong demand, create sustained quality pipeline 	<ul style="list-style-type: none"> • Leveraging of private funds • Utilization of existing banking infrastructure for financing public sector 	<ul style="list-style-type: none"> • Needs municipalities or ESCOs that have borrowing capacity (credit and collateral) • Banks/FIs need to be willing to lend to public sector 	<ul style="list-style-type: none"> • Will the participating financial institutions provide loans to municipal utilities & public agencies? • How many public agencies are creditworthy and have borrowing capacity? 	<ul style="list-style-type: none"> • KfW credit line in Serbia • Hungary • China • Turkey • Ukraine • Uzbekistan

Options for Financing Energy Efficiency in Public Buildings in Kosovo

<p>7. Risk-sharing program (such as partial credit guarantee)</p>	<ul style="list-style-type: none"> Well-developed banking sector, banks are liquid and willing to accept some risks but have a perception of high risk with respect to EE projects Sufficient market activity to develop project pipeline 	<ul style="list-style-type: none"> Has worked well in some Central and Eastern European countries May scale up commercial financing 	<ul style="list-style-type: none"> Needs a relatively mature banking sector and eligible borrowers Poor experience of WB and USAID in some countries with respect to public agencies 	<ul style="list-style-type: none"> Is the banking sector mature enough? How many municipalities are creditworthy? 	<ul style="list-style-type: none"> USAID DCA in FYR Macedonia, Bulgaria and other countries Bulgaria, CEEF (Central/Eastern Europe), China, Croatia, Hungary, Poland
<p>8. Commercial financing, bonds</p>	<ul style="list-style-type: none"> Requires well-developed public sector credit and rating systems Financiers willing and able to lend to public sector for EE projects Large municipalities with strong technical capacity willing to bundle many EE projects together 	<ul style="list-style-type: none"> Mobilizes commercial financing which can deliver scale and be sustainable, Elements of competition can help lower financing costs, Can help address overcollateralization/short tenor issues 	<ul style="list-style-type: none"> Only makes sense for very large bundles of projects Only highly creditworthy agencies can use these schemes Relatively high transactions costs 	<ul style="list-style-type: none"> Are financiers willing and able to lend to public sector? How many public agencies are creditworthy and have borrowing capacity? 	<ul style="list-style-type: none"> Bulgaria Denmark India U.S.
<p>9. Vendor credit, leasing</p>	<ul style="list-style-type: none"> Large, credible local and/or international vendors able and willing to finance public EE projects Local bank financing available for vendor leasing Creditworthy public agencies able to sign long-term vendor contracts Public agencies able to retain energy cost savings, pay based on consumption 	<ul style="list-style-type: none"> Mobilizes commercial financing which can deliver scale and be sustainable Can help address overcollateralization/short tenor issues Financing and procurement in one contract Lease may not count against public debt 	<ul style="list-style-type: none"> Relies on local banks and leasing companies Serves only very creditworthy public agencies, Vendors must be assume substantial debt and offer long-term financing Only some building equipment suited for leasing (lighting, SWH, boilers) 	<ul style="list-style-type: none"> How many public agencies are creditworthy and have borrowing capacity? 	<ul style="list-style-type: none"> China EU U.S.

<p>10. Leveraging commercial financing using private ESCOs/performance contracts</p>	<ul style="list-style-type: none"> • Supportive policies and enabling environment • Introduction of simpler business models first • Appropriate financing schemes • Early market development through public sector projects • Development of PPP models to kick-start market 	<ul style="list-style-type: none"> • Mobilizes commercial financing which can deliver scale and be sustainable, • Helps address overcollateralization/short tenor issues • ESPC may not count against public debt, public agency shifts technical risks to third party 	<ul style="list-style-type: none"> • Needs local banks and ESCOs to provide reasonable cost financing and assume credit risk • Serves only very creditworthy public agencies, • ESCO industry is difficult to develop • Public procurement issues difficult to address 	<ul style="list-style-type: none"> • Are there any private ESCOs in the market? • Are private ESCOs and/or municipalities creditworthy for commercial project financing? 	<ul style="list-style-type: none"> • WB China ESCO program • Czech Republic • Germany • Hungary • India • Japan • South Korea • U.S. • Canada
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Source: Adapted by authors from World Bank 2013b

SECTION 5 - ASSESSMENT OF FINANCING AND IMPLEMENTATION OPTIONS FOR KOSOVO

Characteristics of Financing Options in the Kosovo Context

This Section reviews the potential applicability of the public sector financing options identified in Section 4 to the public sector in Kosovo. For assessing the suitability and benefits of the financing options, three distinct types of public sector entities are considered:

- I. Creditworthy municipalities, or municipal entities with own budgets
- II. Municipal entities without their own budgets and/or with little or no capacity to implement projects
- III. Central government entities

The financing options may have different applicability, advantages and limitations for each type. Of the ten options summarized in Section 4 (based on international experience), four were not considered further:

- Utility on-bill financing – because it does not appear that the utilities in Kosovo have the regulatory authority, capacity and interest in offering such services.
- Credit line with development bank – because there is no development bank in Kosovo.
- Commercial financing and bonds - because of the limited capacity to issue bonds and lack of a market for such bonds.
- Vendor credit and leasing – because of the immaturity of the existing market for leasing.

The key characteristics of the other 6 options in the Kosovo context are summarized in Table 5.1.

Narrowing the Financing Options: Rationale and Results

As shown in Table 5.1 six EE financing options can all be applicable to Kosovo, but they are not equally viable in terms of serving the needs of the municipal utilities and public entities. Four of the options do not appear to be suitable for the needs of all public sector entities (municipal and central government) in the short-to-medium term (approximately the next five years). A review of Table 5.1 indicates that:

- While dedicated public sector EE credit lines may be attractive and useful for financing projects using commercial lending, they are limited to serving only a few creditworthy municipal entities that have sufficient borrowing capacity. These financing options will therefore serve the needs of only a small segment of the public sector.
- Similarly, risk sharing or guarantee programs would be limited to creditworthy municipal entities and would not meet the needs of the other municipalities or central government agencies.
- While commercial financing can be leveraged using performance contracting and private ESCOs, such financing options are likely to be available only to creditworthy municipalities or ESCOs with strong balance sheets and borrowing capacity. Such ESCOs do not currently exist in Kosovo -- the private ESCO market today is nascent and will take many years' focused efforts to mature.

Table 5.1 – Key Characteristics of the Public Sector Energy Efficiency Financing Options in Kosovo Context

Characteristics	Budget Financing with Capital Recovery	EE Revolving Fund	Dedicated Public Sector Credit Line	Risk Sharing Program	Public or Super ESCO	Private ESCOs & Performance Contracting
Type of Financing	Loans and TA; may include some grants	Loans, TA, energy service agreements	Loans, TA	Guarantees, TA	Loans	Loans
Public Entities Served*	I, II and III	I, II and III	I only	I and III	I, II and III	I and III
Management and Governance	PIU within MOF	Board of directors Fund management team	IFI, participating financial institutions	IFI, participating financial institutions	Board of directors	IFI, participating financial institutions
Project Development	By PIU	Fund management team	Participating financial institutions	Participating financial institutions	Management team of public or super ESCO	Private ESCOs
Project Implementation	By Type I municipalities and Type III central entities PIU may implement for Type II & some Type III	Type I municipalities; Type III central entities Fund Mgmt. Team via ESA for Type II and some Type III	Type I municipalities	Type I municipalities and Type III central entities	Management team of public or super ESCO	Private ESCOs
Advantages	<ul style="list-style-type: none"> • Easy to implement • Analogous to some existing models • Can address all three types 	<ul style="list-style-type: none"> • Addresses needs of all three types • Multiple windows (including ESA) to address financing needs and evolving capacity of municipalities 	<ul style="list-style-type: none"> • Can leverage commercial financing • Existing credit lines provide experience 	<ul style="list-style-type: none"> • Can leverages commercial financing • Existing guarantee programs provide some relevant experience 	<ul style="list-style-type: none"> • Can address needs of all three types • Multiple windows to address financing needs and evolving capacity of municipalities 	<ul style="list-style-type: none"> • Can address needs of all three types • Can leverage commercial financing
Limitations	<ul style="list-style-type: none"> • Requires capable PIU • Sustainability not assured • Needs of Type municipalities & some Type III may not be easily met 	<ul style="list-style-type: none"> • Needs new legislation for implementation • Need a strong and capable Fund Management Team 	<ul style="list-style-type: none"> • Cannot address needs of Type II municipalities • Only serves municipalities or ESCOs that have borrowing capacity 	<ul style="list-style-type: none"> • Cannot address needs of Type II municipalities • Only serves municipalities or ESCOs that have borrowing capacity 	<ul style="list-style-type: none"> • Need the creation of new organizations • Needs capable management team 	<ul style="list-style-type: none"> • Need a mature ESCO industry • ESCOs need to have borrowing capacity
Can be Implemented under Current Regulations?	Yes	No	Yes	Yes	Yes, but requires creation of a new company	Yes

Source: Authors

* Types of public entities: I – Creditworthy public agencies with their own budgets; II – Public agencies without their own budgets, having poor credit, and/or little or no capacity to implement projects; III – Central government Entities.

The three most applicable options -- all of which can meet the needs of a broad segment of the municipal entities and central government agencies -- are:

- Budget financing with capital recovery
- Energy efficiency revolving fund
- Super ESCO

These three options should be considered further for financing of public sector EE projects in Kosovo. A description of each is provided below.

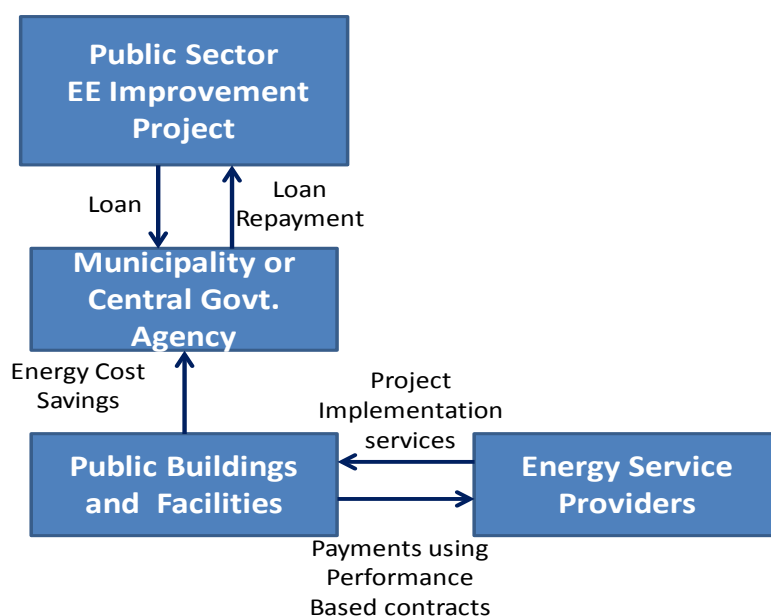
Budget Financing with Capital Recovery

Overview

This option involves actions by MOF, with funding provided by a donor agency, to establish a Public Sector EE Financing Facility to finance EE project investments in municipalities and central government agencies that are funded from the national budget. The funds provided are used by these entities to make capital investments in EE projects that will result in energy cost savings.

The recipient public entity is then required to “repay” the investment over a specified period of time from the cost savings generated by the investment project in the form. This will be accomplished by MOF in the form of reduced budgets for energy bills of the budget agencies in future years (hence the term “budget financing”). The size of the reduced outlay is usually structured to be lower than the energy cost savings. Figure 5.1 shows a typical structure of such a project.

Figure 5.1 – Budget Financing - Public Sector EE Improvement Project

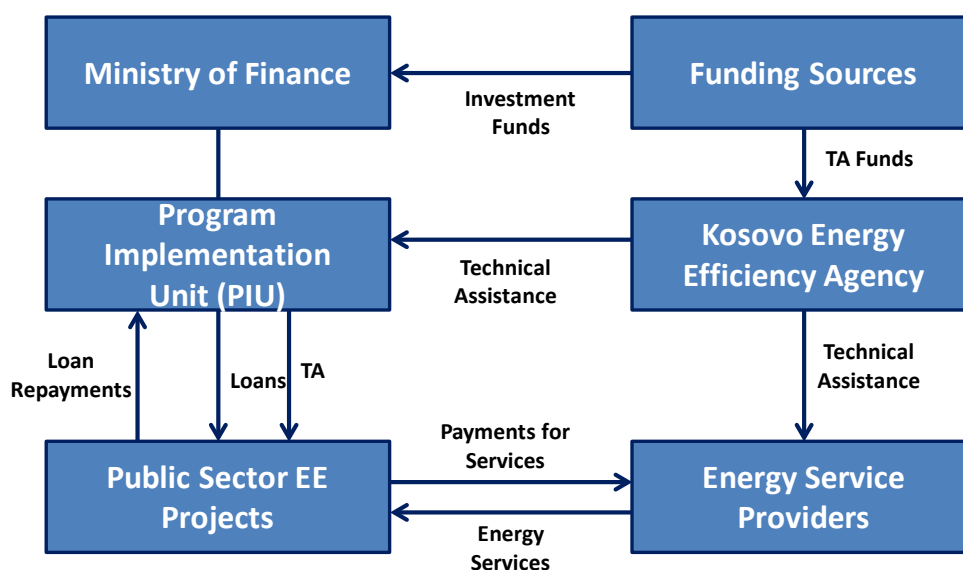


Funds flow

The flow of funds to pay for EE improvements follows the same flow as the normal appropriations from the MOF. The repayment to MOF could be complete or partial and may allow public agencies to retain a share of the savings achieved. It would be desirable for MOF to allow the public entities to keep a portion of the savings as an incentive for their active participation and support in identifying and implementing the EE projects. This could

require some changes in public budgeting procedures. The development of such procedures could be supported by TA. Figure 5.2 illustrates the funds flow.

Figure 5.2 – Funds Flow – Public Sector EE Improvement Project



Implementation

The program would be implemented by a Program Implementation Unit (PIU) within MOF.⁸ The PIU could de facto carry out tasks such as project identification, review of applications, and monitoring and reporting as well as assisting public entities with project preparation activities, such as review of feasibility studies, preparation of detailed design and bidding documents as well as supervision of construction activities.

This option requires the establishment of a PIU within MOF and training and capacity building of the PIU staff to undertake the activities envisioned. Some technical assistance could be provided by KEEA, but MOF would have to assume major responsibilities for project implementation.

The funds will be lent by MOF to public agencies by entering into Loan Agreements. The funds will be provided to municipalities and central government agencies that have capabilities to manage implementation of EE projects, and demonstrated willingness to commit to repay the loans from energy savings.

MOF will provide loans for projects undertaken by these borrowers that will be treated as debt, with fixed repayment obligations to be made within their budget provisions in future years. The PIU will negotiate Loan Agreements with the borrowers that will define the terms of the loans, determined by MOF or in negotiations between MOF and donors.

For public agencies that are depending entirely on the central budget, financing conditions and mechanisms that would enable them to participate would have to be developed during the detailed design of the financing mechanism. For example, some funds might be provided as grant funding to central government agencies.

Technical Assistance

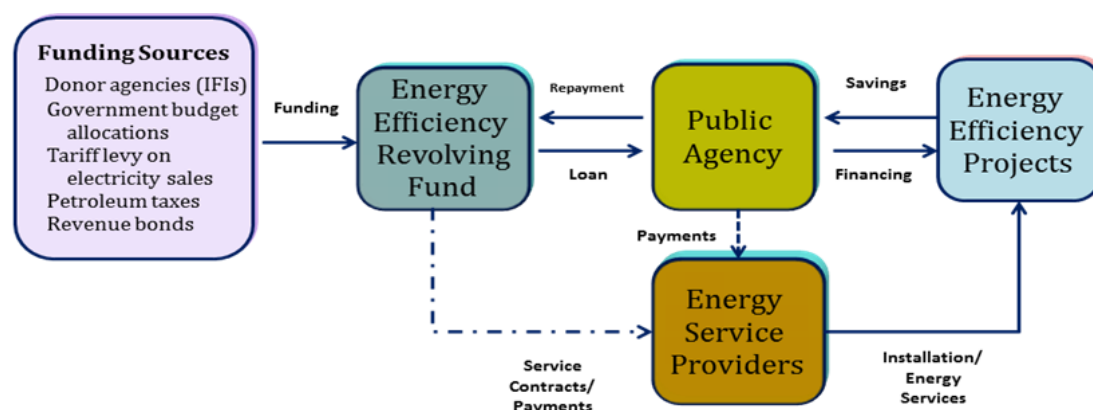
⁸ It may be possible to locate the PIU in an organization other than MOF, provided there is close coordination with MOF.

Certain additional services may be provided to the borrowers by the PIU as technical assistance (TA). Such services may include: conducting a preliminary screening to identify and define the general scope of the EE projects; providing standard bidding documents for services related to project implementation; and providing measurement and verification (M&V) protocols. The borrowers will be responsible for engaging energy service providers (as needed), implementing the project, properly maintaining the systems, and repaying the loan in accordance with the terms of the Loan Agreement. The repayment installments will be designed to allow borrowers to repay the investment costs and, if applicable, service fee from the accrued energy cost savings. TA may be provided by KEEA with respect to energy audits, project implementation support, M&V protocols, etc.

Energy Efficiency Revolving Fund

The basic structure of an EE Revolving Fund (EERF) is illustrated in Figure 5.3. Key design elements that need to be considered to implement such a fund in Kosovo discussed below. Annex B provides additional information on EERFs and the various financing windows that have been created under EERFs. For the Kosovo EERF (KEERF), two major windows will be included – debt financing and energy service agreements (ESAs). These are further discussed below.

Figure 5.3 – General Structure of an Energy Efficiency Revolving Fund



Source: World Bank 2014b

Existing Funds

It was pointed out during the EE Roundtable in Pristina in April that there are a number of existing funds in the Western Balkans and that perhaps one of these may provide the foundation for an EERF. The authors reviewed the existing funds to assess such an option. The existing funds are summarized below and in Table 5.2.

Table 5.2 – Existing Funds

Fund	Target Sectors	Suitability for Public Sector EERF
European Fund for Southeast Europe	SMEs, households	Not suitable because the primary focus is on SMEs and households and not on public buildings
Enterprise Innovation Fund		Not suitable because their primary focus
Enterprise Expansion Fund	SMEs	

WB EDIF Guarantee Facility	SMEs	is on SMEs and not on public buildings
Green for Growth Fund	Households, businesses and municipalities	Not suitable because they can serve only creditworthy municipalities with borrowing capacity through commercial banks and may not be able to meet the financing needs of other municipalities and central government facilities
Municipal Infrastructure Development Fund	Municipalities	

EFSE: European Fund for Southeast Europe: Operational since 2005, EFSE specializes in refinancing micro and small enterprise as well as housing loans of financial institutions in Southeast Europe. The fund provides investment capital, general funds and TA.

WB EDIF Funds: The Western Balkans Enterprise Development & Innovation Facility (WB EDIF), funded by the EU, aims at improving access to finance for small and medium-sized enterprises (SMEs) in the Western Balkans. It has three financing facilities:

ENIF: Enterprise Innovation Fund is a venture capital fund that aims at reinforcing the financial structure of SMEs resulting in a strong and bankable balance sheet. ENIF has an investment portfolio consisting of innovative SMEs at various stages of development.

ENEF: Enterprise Expansion Fund supports established SMEs with a high-growth potential by providing equity finance to support their development and expansion. ENEF provides primarily equity and quasi-equity as well as convertible loans to support their growth by providing liquidity.

WB EDIF Guarantee Facility provides guarantees to financial intermediaries to incentivize them to build up new SME loan portfolios and thereby improve SMEs' access to bank lending.

GGF: Green for Growth Fund, Southeast Europe: Initiated in 2009, GGF is a public-private partnership to promote EE and RE in its target region and to reduce CO2 emissions. It provides refinancing to financial institutions (FIs) providing loans to households, businesses, and municipalities for energy efficiency measures or renewable energy projects and makes direct investments in non-FIs with EE and RE projects. It primarily works with institutions that provide debt financing to creditworthy borrowers.

MIDF: The Municipal Infrastructure Development Fund: MIDF's is a financing vehicle dedicated to provide debt financing for municipal infrastructure projects in the Western Balkans. MIDF is funded by contributions from the Austrian Ministry of Finance, the German Federal Ministry of Cooperation and Development, EBRD, KfW, the Swiss Secretariat for Economic Affairs (SECO), and Frankfurt School of Finance and Management.

The EFSE and the three WB EDIF funds are targeted at SMEs and would therefore not be suitable for public buildings. The GGF and MIDF do consider municipalities as potential borrowers, but are essentially credit lines that provide financing through intermediary banks. These banks will finance only creditworthy municipalities with borrowing capacity. Therefore, these funds will not be suitable for central government buildings or municipalities that are not creditworthy or have no borrowing capacity. Also, these two funds have not financed any municipal projects in Kosovo.

There is therefore a need for an EERF that can serve the needs of all municipalities and central government buildings. The discussion below highlights the characteristics of the

EERF.

Legal Framework

The establishment of an EERF is likely to require legislative action. The Government of Kosovo is currently considering the enactment of new legislation to specifically authorize the establishment of such a fund.

However, it is important that the KEERF focusing on financing public sector EE projects should be established as a new, independent organization that would serve as the Fund administrator. Consequently, if the GOK decides to establish an EERF, the relevant legislation should specify its legal organization and ownership. Options include creating the fund under an existing ministry, KEEA, or existing state-owned company; creating a new legal entity (independent corporation or new statutory agency); not-for-profit entity; or establishing a public-private partnership (PPP). The preferred option would be to create a new independent corporation or a new statutory agency.

Fund Management and Governance

The key elements of management and governance of the KEERF include the following:

- Oversight arrangements
- Choosing the fund manager
- Monitoring and evaluation
- Reporting

Oversight Arrangements

Although oversight arrangements vary, they typically include all relevant ministries that have some authority over EE, such as those responsible for finance, construction, economy/energy, environment, or urban/regional development. Options for oversight arrangements are listed below:

- For the Bulgarian Energy Efficiency Fund, or BEEF, oversight is by a management board (MB) appointed by the national government,
- The R2E2 Fund in Armenia is governed by a government-appointed board of trustees and comprises representatives from the government, private sector, NGOs and academia;
- The Romanian Energy Efficiency Fund (FREE) was governed by a government-appointed board of administration consisting of seven members, of whom five are private sector representatives; and
- Salix Finance in the U.K. has a three-person board, of whose members two are from the private sector.

If and when Kosovo establishes the KEERF, it should follow the model of having representation from both the public and private sectors.

The main functions of the oversight body will be setting the investment strategy and policy of the fund, hiring the fund management team, establishing the overall criteria for selecting projects, approving the annual business plans and budgets formulated by the management team, preparing and submitting an annual financial report to the government, and assuring that the fund is operating in compliance with national EE strategy and plans.

Choosing the Fund Manager

Reviews of international experience with EE funds (World Bank 2014b) have identified a

number of options for the choice of a fund manager, including an existing government agency or development bank, a utility, or a special directorate related to municipal services or building management. Alternatively, a new organization may be created to manage the fund—an independent agency, a new statutory authority, a public corporation, or a PPP. Any of these types of organizations could also hire a fund manager or management team under a contract.

In Bulgaria, an independent fund management team was appointed (World Bank 2010). This team was competitively selected and included a consortium of three firms (Econoler International, EnEffect Consult, and Elena Holding).⁹ In the case of the Armenia R2E2 Fund (World Bank 2012a), the government appointed an executive director (ED) and supporting financial and technical staff to manage the fund.

Whatever form the fund manager takes, the fund management team must have expertise in a number of areas, including knowledge and understanding of EE technologies and options; skills in market assessment and pipeline development; capabilities in credit analysis, financial analysis, and project appraisal; and understanding of EE and energy services markets.

Debt Financing Window

For creditworthy municipalities that can borrow and are able to identify, design, and implement projects, the KEERF can offer debt financing. One of the advantages of an EERF is that—unlike commercial financing, which may require an equity contribution from the borrower—the Fund may provide up to 100% debt financing. Also, the fund may not require the type of collateral typically requested by commercial borrowers because the public agencies may not be legally able to pledge public assets.

The tenor (repayment period) of the loan will be based on (i) the type of project and (ii) the anticipated cash flows resulting from the energy cost savings; usually the repayment period will be structured in such a way that the loan repayments are less than the energy cost savings. It is anticipated that KEERF will offer tenors can be longer than typical commercial bank loans.

Energy Services Window

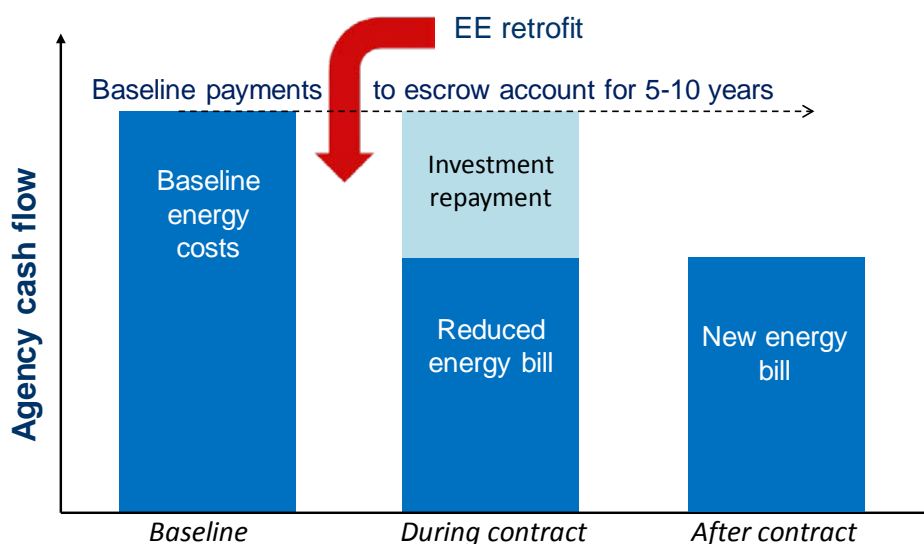
This is an innovative feature of EERFs that can be very effective for public agencies that lack the capacity to borrow funds or to effectively implement EE projects. An ESA can offer a full package of services to identify, finance, implement, and monitor EE projects. The public agency is usually required to pay some or all of its baseline energy bill into an EERF-established escrow account to cover the investment cost and associated fees during the contract period. Figure 5.4 illustrates the basic concept of a public agency's cash flows under the ESA, with payments equal to its baseline energy bill during the contract period.

For example, let us assume that the monthly energy bill for the public agency prior to the EE project implementation is €10,000. The ESA will specify this as the baseline amount, and the public agency will agree to pay this amount each month into an escrow account for the duration of the ESA, which is assumed to be five years. The EERF will then make the EE project investment (assumed in this example to be €150,000). This investment will reduce the energy costs by 30 percent, to €7,000 per month. During the five-year ESA period, the agency will pay into the escrow account (i) its monthly energy bill of €7,000 and (ii) the

⁹ The Consortium includes an EE consultancy (Econoler International), a Foundation (Center for Energy Efficiency EnEffect), and a non-banking financial institution (Elana Holding PLC).

remaining €3,000 per month, thus allowing the fund to recover its investment (plus interest and fees). Following the five-year period, the agency will be able to retain its energy cost savings and its overall energy bill will fall to the assumed €7,000.

Figure 5.4 - The Energy Services Agreement Model



Source: World Bank 2013b.

In some cases, the contract duration is fixed; in other cases, the contract can be terminated after an agreed number of payments have been made to the EERF—thereby offering a greater incentive for the agency to save more energy. Either way, one of the main advantages of the ESA model is that repayments generally do not count as public debt, allowing public entities that are not allowed to borrow, or municipalities that do not have sufficient debt capacity, to implement EE measures. In this way, the model also helps public agencies to use their limited budget/debt space for higher-priority investments while still being able to implement EE. In addition, the repayments to the KEERF and energy payments can be bundled together, providing some added leverage to the Fund to cut off the energy supply should the public agency default on its ESA repayment obligations.

Technical Assistance

An important feature for the success of KEERF is the TA provided. The types of TA that KEERF may provide could include the following:

- Program marketing to and capacity building of the target public agencies to address the information and knowledge gaps related to EE, build demand for financing, and improve the sustainability of energy savings.
- Developing procedures that help public agencies engage ESCOs under public-private partnerships such as performance-based contracts; preparing performance-based bidding documents for procurement of various elements of project implementation services; and refining these bidding documents based on the implementation experience.
- Identifying way to bundle procurements by multiple public entities implementing similar projects, thus reducing transaction costs and equipment costs through bulk purchases. Under some financing arrangements, KEERF can even conduct the preliminary audit, procure the service provider, and monitor the project on behalf of the clients.

- Identification, assessment, and recommendation of changes, if needed, in rules for public accounting, budgeting, and procurement to facilitate the financing of EE projects and procurement of EE services.
- Carrying out capacity building for ESCOs and other market actors to enhance their ability (i) to conduct energy audits and (ii) to screen, design, evaluate, appraise, finance, implement, and measure EE investments in the public sector.
- Developing or adapting appropriate methodologies for M&V and providing M&V training to public agency staffs and service providers.
- Developing the terms and conditions of the ESAs with public agencies for the ESA option, including establishment of the baseline conditions and identification of the baseline changes that would require an adjustment of the fixed annual payments.

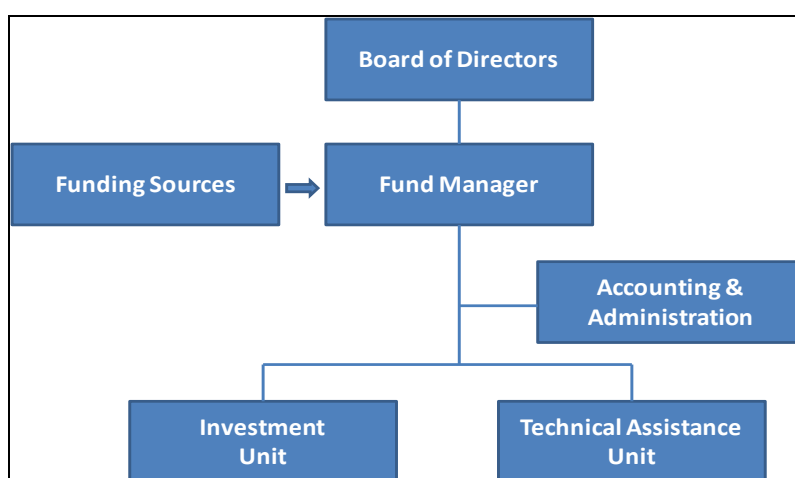
Procurement of Implementation Services

Under the ESA option, KEERF can engage private service providers to provide some implementation services using simple performance-based contracts. This approach can help transfer some of the project implementation risk to the private sector. It can also help build the capacity of the ESPs and facilitate the development of an energy services market (World Bank 2010b).

Organization Structure

The organizational structure of a typical EERF is illustrated in Figure 5.5.

Figure 5.5 - Organization Structure - KEERF



Investment Models

The step by step implementation process for the two basic fund models – debt financing and ESAs – is shown in Table 5.3.

Table 5.3 - Implementation Steps for Fund Investment Models

	Model 1: Loans	Model 2: Energy Services Agreements
Step 1	Fund manager prepares and announces the availability of loan funds for EE projects in municipalities and other public entities and invites Expressions of Interest (EOIs) from municipalities and public facilities to	Fund manager prepares and announces the availability of the ESAs for public sector EE projects and invites EOIs from municipalities and public facilities to participate in such

	borrow funds for projects.	Agreements.
Step 2	Fund Manager receives applications from municipalities and public entities.	
Step 3	Fund Manager conducts preliminary screening of EOIs and selects promising candidates.	
Step 4	Fund Manager conducts preliminary assessment of energy savings opportunities including a walk-through audit.	
Step 5	<p>If walk-through audit shows promising opportunities for energy savings, a project design is prepared by the borrower; the PIU may provide assistance in the preparation of the project design. The borrower needs to obtain approval from MOF for the loan. A Loan Agreement is then negotiated between the Fund and the borrower. The Loan Agreement specifies the responsibilities of the Fund and the borrower, the EE measures to be implemented, the total project costs and the amount to be loaned by the Fund, assignment of collateral, the length of the agreement, the terms of the loan repayment, the selection of the M&V methodology and M&V agent, etc. The Loan Agreement also specifies the responsibilities of the borrower for conducting the project implementation activities, the services that are to be provided by the Fund to assist the borrower with implementation, and the terms for payment for such services, if any.</p>	<p>If walk-through audit shows promising opportunities for energy savings, an ESA is negotiated between the Fund and the facility. The ESA specifies that the facility will pay the Fund a fixed amount equal to the 95-100% of the baseline energy costs for a fixed period of time as determined and agreed to after a detailed assessment is conducted of the facility's baseline energy use and costs and operating characteristics. The ESA also specifies the adjustments to be made to the fixed payments in case of any changes to the facility characteristics, operating conditions, or other baseline parameters.</p> <p>An ESA would most likely not be considered as a liability on the balance sheet and therefore may not be part of the entity's debt ceiling.</p>
Step 6	A detailed audit is commissioned to identify the investment cost, energy savings, and implementation requirements.	A detailed audit is conducted by the Fund to identify the baseline conditions.
Step 7	The Fund prepares performance-based bidding documents for project implementation services and provides these to the borrower.	The Fund prepares and issues performance-based bidding documents for project implementation services.
Step 8	The borrower approves the bidding documents and the procurement of the service providers is conducted either by the borrower or by the Fund as specified in the Loan Agreement. The contracts for the project implementation services are partly performance-based as specified in the bidding documents.	The Fund conducts the procurement of the service providers. The contracts for the project implementation services are partly performance-based as specified in the bidding documents.
Step 9	The energy service providers implement and commission the project under the supervision of the borrower or the Fund staff.	The energy service providers implement and commission the project under the supervision of the Fund staff.
Step 10	Upon completion of the implementation and commissioning, the M&V agent conducts the measurement and verification of project results. Payments are made to the service providers by the borrower or the Fund based on the performance criteria.	Upon completion of the implementation and commissioning, the Fund conducts the M&V (using its own staff or an M&V agent). Payments are made to the service providers by the Fund based on the performance criteria.
Step 11	The borrower repays the loan over the term of the agreement from the savings achieved.	The Fund receives the fixed payments from the facility as specified in the ESA (adjusted, if appropriate) for the specified time period. The Fund pays the facility's energy bills and retains the remaining amount to cover its investment and service costs.

The investment models for the debt financing option and the ESA option are shown in Figures 5.6 and 5.7.

Figure 5.6 – Investment Model – Debt

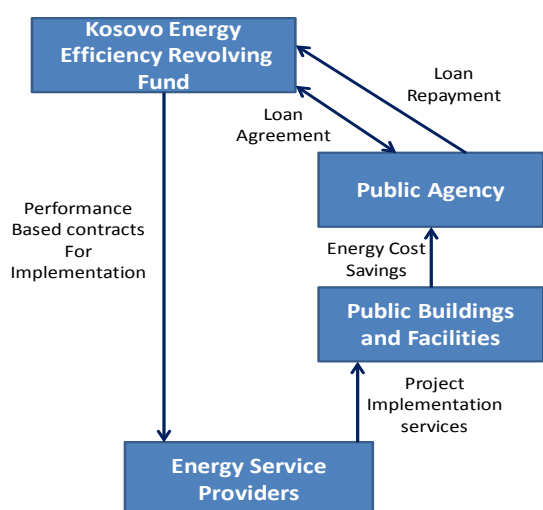
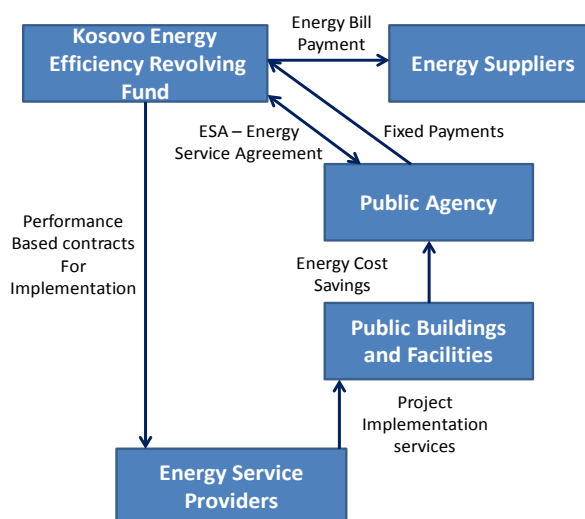


Figure 5.7 – Investment Model – ESA



How KEERF Can Address the Barriers to EE Implementation

Table 5.4 shows how an EERF can address the barriers to EE implementation.

Table 5.4 – How KEERF Can Addresses EE Implementation Barriers

Barrier	How Addressed
Limited number of creditworthy municipalities and borrowing capacity	Finance projects directly with creditworthy municipalities with borrowing capacity and engage in ESAs with others
Restrictive budgeting and procurement regulations and procedures	Since the fund will most likely be considered a public entity, it can enter into loan agreements or ESAs with public agencies without facing the restrictive regulations/procedures
Low energy tariffs	Provide longer tenor on loans and longer terms for the ESAs to allow public agencies to repay the loans from cost savings
Norm-based billing systems for heating	Install heat meters in the selected buildings and measure consumption before and after implementation of the EE project
Relatively high interest rates charged by commercial banks	Provide lower interest rates than commercial banks and engage in ESAs
Small project sizes, leading to high project development and transaction costs)	Standardize agreements and procedures; aggregate similar projects across public agencies
Lack of development of energy service providers and performance-based contracting	Engage energy service providers in project implementation and develop their capacity for performance-based contracting
Low existing comfort levels	Work only with agencies that meet minimum comfort level standards; provide longer tenor loans and longer term ESAs to assure desired comfort levels and yet allow the public agencies to repay the loans or pay the ESA payments

Source: World Bank 2014b

Super ESCO

There has been much discussion of the benefits of the ESCO model using performance contracting to help implement EE projects (Singh et al. 2010). Unfortunately, implementing the ESCO model in developing countries has been challenging for many countries (Limaye et al 2016).

Limitations on Growth of ESCOs in Developing Countries

The growth and development of the ESCO industry has often been constrained by a number of barriers, many of which are also present in Kosovo:

- There are no ESCOs in Kosovo. New ESCOs would have a small capital base and have difficulties accessing project funding from commercial financial institutions (FIs) because they can only provide limited equity financing.
- Due to the immaturity of the EE market in Kosovo, the costs of project development are relatively high, and most small ESCOs are likely to find it difficult to finance project development costs.
- The ESCO model is relatively new in Kosovo, and ESCOs have not yet developed good credibility with public sector energy users.
- The concept of project financing for ESCO projects is not commonly accepted by financial institutions (FIs) in Kosovo. A major reason for this is that FIs require collateral and are generally unwilling to accept the savings stream generated by the project as appropriate collateral.
- The FI's in Kosovo have limited knowledge and understanding of EE projects and the ESPC concept.
- FIs also perceive EE projects as inherently more risky than other investments, and generally require a large proportion of equity funding from the ESCO for a project.

Also, large-scale implementation of EE projects in the public sector in Kosovo is constrained by a number of barriers:

- Facility managers in public buildings generally do not have a good understanding of the opportunities, costs and benefits of EE options.
- There is very limited technical capacity in public agencies for conducting energy audits, designing and engineering projects, and/or contracting with and managing ESCOs or other energy service providers to implement projects
- There is generally little or no incentive to staffs of public facilities to save energy as the resulting cost savings may simply lead to reduced operational budgets in future years (which may actually represent a disincentive to save energy).
- Public sector contracting and procurement rules are often rather restrictive; for example, they require the selection of the low bidder which may make it difficult to adopt the performance contracting approach.
- Responsibilities for capital and operating budgets in public agencies are often dispersed, making it difficult to deploy funds from capital budget to reduce operating costs.
- Commercial banks in Kosovo are likely to be unwilling to provide project

financing for ESCO projects with public agencies.

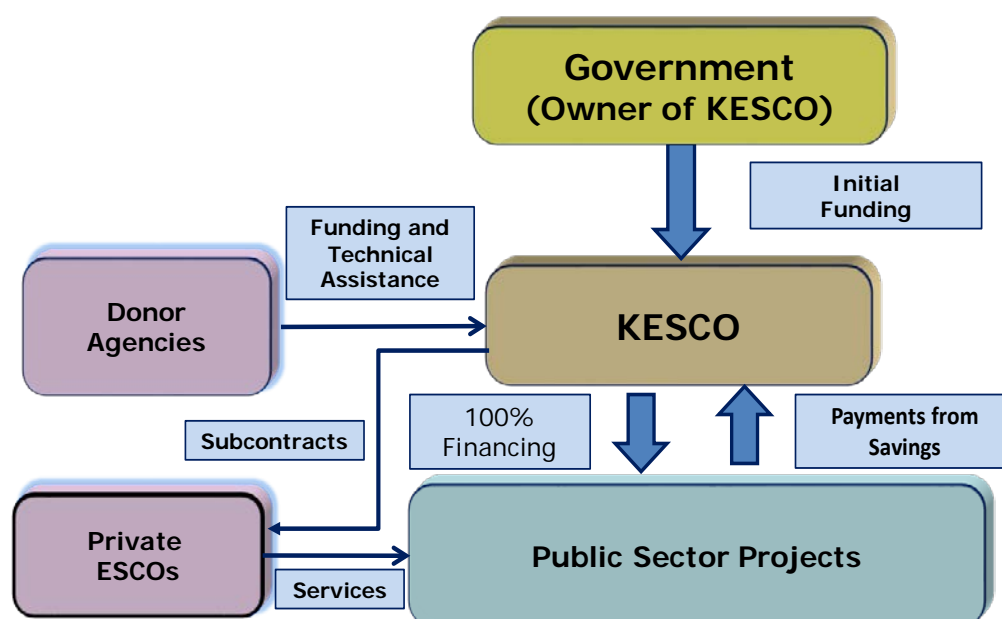
Kosovo Super ESCO

The concept of a Super ESCO has evolved as one of the mechanisms for overcoming some of the limitations and barriers hindering the large-scale implementation of EE projects. The Super ESCO is a special case of a public ESCO. It is established by the Government¹⁰ and functions as an ESCO for the public sector market (hospitals, schools, municipalities, government buildings, and other public facilities); and also supports capacity development and project development activities of existing private sector ESCOs including helping create new ESCOs (Limaye and Limaye 2011),

In Kosovo, the GOK, with the assistance of the World Bank and/or other donors, can capitalize the Kosovo Super ESCO (“KESCO”) with sufficient funds to undertake public sector ESPC projects and to leverage commercial financing. A primary function of KESCO will then be to facilitate access to project financing by developing relationships with local or international financial institutions. KESCO may also provide credit or risk guarantees for ESCO projects, or act as a leasing or financing company to provide ESCOs and/or customers EE equipment on lease or on benefit-sharing terms.¹¹

Figure 5.8 illustrates the possible structure of KESCO.

Figure 5.8 – Possible Structure of KESCO



Source: Limaye 2013b

The World Bank study of the international experience in public procurement of EE services (Singh et al 2010) identified the Super ESCO as a potentially viable model for developing countries. KESCO may be uniquely positioned to overcome a number of the barriers faced by smaller ESCO companies. With its size and credibility as a public institution, KESCO can have the capability to support the growth of a nation’s private domestic ESCO business

¹⁰ A Super ESCO may also be established by a private sector organization, an NGO, or by a PPP.

¹¹ The discussion in this section is extracted from Limaye and Limaye 2011.

and can have the capacity to provide financing for EE projects.

A Super ESCO can have a unique ability to target the largely untapped EE market in the public sector. The EE potential in the public sector is generally substantial, but the implementation of energy savings programs is complicated by numerous factors, including a lack of commercial orientation of public agencies, limited incentives to lower energy costs, complex and strict budgeting and procurement procedures, and limited access to budgetary or commercial project financing. Many public agencies face budget constraints and often focus on the upfront cost as a matter of necessity.

KESCO will also be assigned a major responsibility to help build the capacity of the local private sector ESCOs, and create a competitive private market for ESCO services. An appropriate role for KESCO will be to engage private ESCOs as subcontractors for parts of the implementation (such as installation, commissioning and performance monitoring), thereby helping to build their capacity. KESCO may also be in a position to arrange financing for small private ESCOs to help them implement projects and build their capacity and credentials.

The payments from the municipalities and other public clients for the services provided by KESCO may need to be secured through a payment security mechanism such as an escrow account. For central government agencies, KESCO may sign a framework agreement with MOF (or the Ministry responsible for payment of the energy bills) to secure payments from the energy savings generated by the EE projects.

Information on a number of Super ESCOs are provided in Annex C.

How KESCO Can Address EE Financing Barriers?

The key contributions that KESCO can make to the scaling up of EE project implementation are summarized in Table 5.5.

Table 5.5 - How KESCO Can Address Barriers to Implementation in the Public Sector

BARRIERS TO EE PROJECT IMPLEMENTATION IN THE PUBLIC SECTOR	HOW KESCO CAN ADDRESS THESE BARRIERS
Low awareness and interest on the part of public agencies in energy efficiency (EE) projects	KESCO can conduct "marketing campaign" to increase awareness and interest
Zero budgeting policy of many governments provides little incentive for saving energy costs	KESCO can develop incentive mechanisms for public agencies
Budgeting Issues for public agencies - Capital Expenditure vs. Operating Expenditure	Agency can avoid issue by having project financed by a KESCO
Lack of procurement regulations that would allow ESCOs and Performance Contracting	Contracting with a KESCO can overcome this problem
Limited capacity in public agencies for performance contracting using ESCOs	KESCO can develop standard contracts customized for public agencies
Lack of interest on the part of local financial institutions to fund public sector projects	Financing can be provided by KESCO
Local financial institutions generally unwilling to provide "project financing" for EE projects	KESCO can provide "project financing" for public agency EE projects
Private ESCOs unwilling to invest in public sector projects	KESCO can invest in public agency EE projects
Public agencies not used to contracting with private sector for energy services	Public agencies may find it easier to contract with a KESCO

Source: Adapted by authors from Limaye and Limaye, 2011

The Potential Role of IFIs and Donors

For all three shortlisted financing options, IFIs and donors can play a major role in their establishment and operation in three ways: (a) financial assistance, (b) capacity building, and (c) other technical assistance.

Financial Assistance

Financial assistance may be provided in the form of loans, grants and guarantees. The loans would have the structures and characteristics of typical IFI loans, with sovereign guarantees. IFIs may also provide or arrange for grant funds (from the Global Environment Facility, for example). Another financing option would be risk-sharing facilities (such as partial credit or risk guarantees) to the EERF or to the public or super ESCO.

Capacity Building

One of the most important ways in which IFI can assist is through technical assistance for capacity building. Technical assistance may be provided to:

- *PIU* – the TA would address training of PIU staff to build their capacity to manage the financing and implementation of the EE projects. The TA would include training related to EE technologies and relevant implementation strategies; basic concepts and tools for ESPCs; guidelines and procedures for M&V of energy savings; and monitoring and reporting of the overall program results to the financing sources. In addition, in the case of the Budget Financing and EERF, the capacity building TA may also include funding for the initial set-up, administration and operation of the PMU, and for purchase of equipment for auditing, data collection, and measurement and verification.
- *Municipalities* – to help mayors, city councils, utility executives, facility managers, and facility engineers understand the need for and the importance of EE implementation, and to obtain information on the technical options for EE in municipal utilities and public buildings and facilities; also to conduct energy audits and develop EE Action Plans.
- *Central government agencies* – to help facility managers and engineers identify the opportunities for EE implementation in their buildings, conduct energy audits, and develop EE Action Plans.
- *Banks and financial institutions* – to provide information on the characteristics of EE projects, implementation business models, financial and technical appraisal, M&V, and business opportunities in financing EE projects.
- *Energy service providers* – to build their capacity to develop projects; conduct energy audits; screen, design, evaluate, appraise/finance, implement, measure and verify EE investments in the public sector; understand the perspectives of banks and financial institutions, M&V protocols, and preparation of “bankable” project proposals.
- *M&V agencies* – to create the M&V infrastructure and provide international protocols and supporting tools for conducting M&V of EE projects.

Other Technical Assistance

IFIs may also provide other types of technical assistance to facilitate the scaling-up of financing of EE projects. This may include (a) providing templates for conducting energy audits and (b) developing standard contract terms and conditions for ESPCs, customized Kosovo-specific M&V protocols, and a M&V User Guide.

SECTION 6 - MOVING FORWARD

Advantages and Limitations of the Three Options

A summary of the advantages and limitations of Budget Financing, KEERF and KESCO is provided in table 6.1.

Table 6.1 – Comparison of Public Sector Financing Options

Characteristics	Budget Financing	KEERF	KESCO
Types of Financing	Loans and TA; may include some grants	Loans, TA, energy service agreements	Loans, energy service agreements
Public Agencies Served	All types	All types	All types
Governance and Management	PIU within MOF	Board of Directors Fund management team	Board of Directors Management team of KESCO
Project Development	By PIU	Fund management team	Management team of KESCO
Project Implementation	Public Agencies	Public Agencies (for debt financing) Fund Mgmt. Team (for ESAs)	Management team of KESCO
Advantages	<ul style="list-style-type: none"> • Easy to implement • Analogous to some existing models • Can address all public agencies • Does not require any investments from the public entities 	<ul style="list-style-type: none"> • Addresses needs of all agencies • Multiple windows to address financing needs and evolving capacity of public agencies • ESA model useful for smaller and weaker public agencies • Helps build local ESCO industry and introduce performance based contracts 	<ul style="list-style-type: none"> • Can address needs of all agencies • Multiple windows to address financing needs and evolving capacity of municipalities • Can provide ESA option • Uses performance based contracts • Can help build capacity of private sector ESCOs
Limitations	<ul style="list-style-type: none"> • Requires active participation of MOF • May need changes in budgeting procedures • Requires capable PIU • Sustainability not assured 	<ul style="list-style-type: none"> • May need new legislation for implementation • Need a strong and capable Fund Management Team • Need to develop payment security mechanism to assure payments for services 	<ul style="list-style-type: none"> • Need the creation of new organization • Needs capable management team • Need to develop payment security mechanism to assure payments for services
Can be Implemented under Current Legislation and Regulations?	Yes	No, requires new legislation	No, requires new legislation and creation of new entity

Source: Prepared by authors

Moving Forward on the Public Sector EE Financing Agenda

Pursuing any one of the three potential options will require deliberate efforts by the Kosovo government to:

- Identify the sources of the needed investment capital
- Secure the commitments from IFIs as appropriate
- Implement the needed legislative and regulatory initiatives
- Design the delivery system
- Build implementation capacity
- Leverage private sector participation.

GOK should select one of the options for implementation only after a review and consultation with all relevant stakeholders -- including government officials, mayors and city councils, private sector representatives, banks and financial institutions, consumer groups, and the IFI community. The next step would then be the detailed design and implementation planning for the selected option.

In view of the analysis and state of the Kosovo market, the World Bank recommends creating a dedicated KEERF for the public sector, and focusing its initial efforts on financing EE renovation of municipal and central government buildings. This would fill a critical gap in public sector EE financing in Kosovo and help address perhaps some of the most pressing public sector needs.

Possible Funding Structure

A preliminary concept for the proposed funding structure of KEERF is shown in Figure 6.1 and summarized below.

Figure 6.1 – Possible Funding Structure of KEERF



- KEERF could be capitalized with equity of €5 million. The equity sources could be the EU or funds such as the Green Climate Fund (GCF), Global Environment Facility (GEF), GOT contributions, or possibly other donors.
- KEERF could also be eligible for concessional debt financing of €5 from IFIs such as the World Bank, KfW or other IFIs.
- KEERF can be staffed with a small permanent Fund staff with use of consultants.
- The fee structure to cover admin and overhead costs (prelim audit, procurement,

financial structuring, oversight, etc.) will be established. It is expected that the initial annual costs would be about €300,000.

KEERF would make investments in EE projects amounting to about €2 to 3 million per year. The typical simple paybacks would be in the range of about 5 to 7 years and the KEERF would be likely to achieve breakeven in terms of covering its administrative and overhead costs and fees from its revenues in 6 to 8 years.

Roadmap for Establishing the KEERF

The major steps in establishing the KEERF are shown in Figure 6.1.

Figure 6.1 – Road Map for Establishing the KEERF



Source: Adapted by authors from World Bank 2014b

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ANNEX A – KEY ELEMENTS AND POTENTIAL CHANGES IN THE KOSOVO LEGISLATIVE FRAMEWORK

Key Elements of the Existing Legislative Framework

The major elements of the existing primary and secondary legislation relevant to EE implementation are summarized below:

Law on Energy Efficiency

Obligates MoED and municipalities to prepare EE action plans and set up the EE Agency and fund EE initiatives.

As far as public building stock is concerned, the Law sets new responsibilities for municipalities regarding energy efficiency, water management, and other related issues. In addition, the law states that the energy and water responsibilities associated with educational institutions, public health organizations, and social services, along with environmental protection, should be shared between municipal and central authorities. The municipality is also responsible for the design and implementation of regional policies related to energy, water, and other issues, as they are an important attribute to national energy policies.

A notable deficiency within the Law is that it does not provide incentive measures for efficient energy consumers nor does it enforce penalty provisions for failing to comply with the Law or for disregarding EE objectives. Furthermore, the Law foresees an Energy audit as a systematic procedure to obtain: (i) adequate knowledge of the existing energy consumption profile of a building or group of buildings, of an industrial operation, or of a private or public service; (ii) identification of opportunities for cost-effective energy savings; and (iii) reports on the findings.

Kosovo Energy Efficiency Agency

Established in 2011 to implement the Law on Energy Efficiency. Headed up by a Chief Executive Officer and consists of 3 divisions: the Planning Division, the Promotion and Project Development Division, and the Monitoring and Reporting Division

NEEAP 2010-2018 As committed under the Energy Community Treaty, indicative targets for EE savings set at 9% by 2018; updated every 3 years.

Law on Energy

Approved in October 2010: Determines EE targets, encourages advanced metering systems, provides EE policy framework and subsequent implementation.

Regarding buildings, this law states that the Ministry should, among other things, foster improvements in the energy efficiency level of buildings, and establish requirements for energy efficiency certification of buildings.

Law on Construction	Contains important features related to energy performance of buildings including building code norms for new and renovation projects, implementation of EE measures, and certificate of compliance with EE measures.
Law on PPP and Concessions	<p>States that the duration of a Public-Private Partnership shall be set forth in the corresponding Agreement, and that duration of a Public-Private Partnership shall be reasonably related to and reflect: (i) the life-cycle of the public infrastructure; (ii) rate of return and (iii) value-for-money of each individual Public-Private Partnership Project.</p> <p>Regarding financial rights, the law stipulates that a Private Partner shall have the right to charge, receive or collect tariffs, fees and any other charges for the use of the Public Infrastructure or the provision of public services in accordance with the terms and conditions set forth in the respective Agreement.</p>
Municipal Energy Efficiency Plans (MEEP)	<p>Under the Law on EE, Municipal Energy Offices are required to develop Municipal EE Plans and Implementation Progress Reports.</p> <p>The overall objective of municipal EE plans is to reduce energy consumption in the building stock, transport and public lighting, and in the operation of municipal services by reducing the burden of energy costs on municipal budgets. Hence, the MEEP is expected to impact the municipality through:</p> <ul style="list-style-type: none">• improvement of municipal services;• reducing energy costs in the municipal budget;• renovation of energy systems and buildings;• improving the sanitary conditions and increased productivity;• raising awareness of the energy saving policy-makers, operators, and end-users. <p>Nevertheless, municipalities are currently not allowed to take loans as they do not meet the criteria stipulated in the Law on Loans. The central government, however, has allowed municipalities to obtain loans for implementing EE measures, in order to meet the KEEAP requirements.</p>
Secondary Legislation	Series of secondary legislation adopted (e.g., appliance labeling, energy auditing, etc.). ¹²

¹² The EPDB law is currently in the draft version, whereas the parliamentary commissions are still reviewing it before it is soon adopted. See the draft-law at: <http://mmph-rks.org/sq/Projekt-aktet-normative-per-konsultime-publike/PROJEKTLIGJI-PER-PERFORMANCEN-E-ENERGJISE-NE-NDERTESAVE-1296>.

These laws and subsequent legal acts are being implemented by a number of actors, which in many cases are supported by donors. However, all actions related to the Law on EE and the related secondary legislation are overseen and regulated by government authorities. These authorities and their respective roles are summarized below:

- *Kosovo Energy Efficiency Agency (KEEA) (under the Ministry of Economic Development)*: responsible for the implementation of Kosovo's plan on energy efficiency, as well as for reporting on the implementation of the agreed targets.
- *Energy Regulatory Office (ERO)*: independent body reporting to the Kosovo Assembly; responsible for monitoring the energy market development; encouraging energy efficiency among market players; ensuring protection of customers including vulnerable customers.
- *Ministry of Economic Development (MED)*: responsible for preparing the Kosovo energy strategy and policies for energy efficiency and renewable energy.
- *Ministry of Environment and Spatial Planning (MESP)*: responsible for implementing the directive on energy performance in buildings.
- *Ministry of Local Government Administration (MLGA) and Association of Kosovo Municipalities*: responsible for improving energy data quality and for ensuring energy efficiency planning and implementation at local levels, as well as promoting renewable energy projects in their respective municipalities.
- *Ministry of Trade and Industry (MTI)*: responsible for ensuring the implementation of the legislation on biofuels in accordance with the Energy Community requirements.

Potential Changes in the Legislative Framework

The existing laws and institutional mechanisms exemplify the efforts of Kosovar authorities towards implementing energy efficiency. The Government of Kosovo (GOK) has developed institutional and regulatory frameworks for EE and renewable energy. Additionally, GOK has worked to streamline and better regulate implementation effort by declaring secondary legislation and developing rulebooks, financing mechanisms, and other implementation elements, all of which were absent until recent years.

The current status of EE in Kosovo has been shaped primarily by the provisions of Kosovo's current Law on Energy Efficiency. This Law, however, is presently under review and is expected to change substantially during the course of 2016. As a result, Kosovo's EE situation and circumstances are expected to modify accordingly. The new law is expected make way for the launch of an Energy Efficiency Fund, which will be initiated with a governmental grant, and then seek loans from international financial institutions (IFIs) and other sources. The legal precedence and justification for this fund derives from Article 52 of Directive 2012/27/EU, which specifies that "the financing facilities could in particular use those contributions, resources and revenues to enable and encourage private capital investment, in particular drawing on institutional investors."

Additionally, Chapter 8, Article 16 of Kosovo's Draft Law on Energy Performance of Buildings legally supports and foresees the presence of an EE fund by stating that "all funds collected from fines imposed based on this Law shall be transferred to the Fund on Energy Efficiency or, in the absence of such a Fund, to the Budget of the Republic of Kosovo." Three pre-feasibility studies, aimed at analyzing respectively the legal, technical, and financial terms for starting the fund were recently conducted by the MED and KEEA.

However, these studies have not yet been published.

Despite the comprehensive legal framework, many challenges remain within the implementation and regulatory processes as well as for the implementing actors and governing entities. For example, in recent years KEEA has undertaken many tasks and activities related to its main task of implementing the Law on Energy Efficiency and preparing the 1st and 2nd NEEAPs; however, it has limited technical and almost no implementation capacities. This shortfall can be largely attributed to the inadequate budget/staffing the agency is coping with while adhering to its responsibilities. At the municipal level, EE improvements through MEEAPs are also encountering implementation difficulties due to insufficient access to financing. The public sector suffers from a range of procedural barriers, from budgeting to procurement, which tend to be rigid in nature and prevent many EE improvements from being realized.

The Energy Regulatory Office of Kosovo has increased energy prices, roughly 3.1% annually, from 2007 through 2015 for an approximate total increase of 27.9%. However, there have been few indications that such increases in energy costs have yielded positive impacts on EE levels. Kosovo has not developed a comprehensive communication strategy for promoting the benefits of EE throughout the country, nor has it established incentives in the promotion and compliance processes. There are, nevertheless, several positive incentive measures currently in the implementation phase. For example, loans with low interest rates have been introduced for individuals and companies that have EE projects.¹³

¹³ For example so-called “eko-loans” are being offered by several banks such as :

Procredit Bank, see at: <https://www.procreditbank-kos.com/en-us/Eco>;

TEB Bank, see at: <http://www.teb-kos.com/news-teb-bank-presents-green-loan-product-and-green-starcad>;

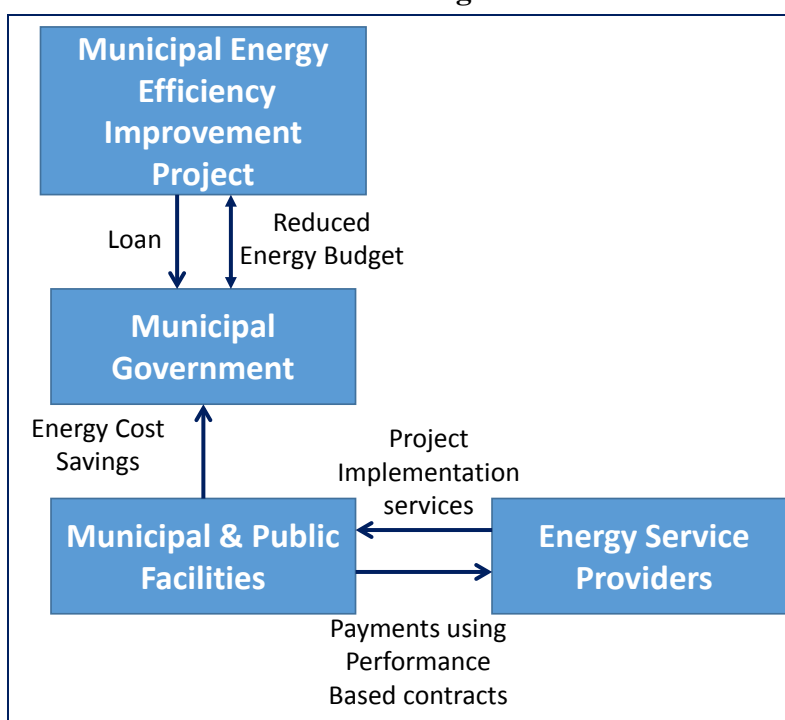
and EBRD, see at: <http://www.ebrd.com/news/2015/supporting-energy-efficiency-in-kosovo.html>.

ANNEX B – ADDITIONAL INFORMATION ON SELECTED FINANCING MECHANISMS

Budget Financing with Capital Recovery

Figure B.1 shows a typical structure of a public EE improvement project using budget financing. An illustrative example of this approach is a project financed by the World Bank in the Former Yugoslav Republic of Macedonia (see Box B.1).

Figure B.1 - Structure of a Municipal EE Improvement Project Using Budget Financing



Source: Authors.

Box B.1 - Example of Budget Financing with Capital Recovery: Macedonia

The World Bank provided a loan of \$25 million (later expanded to \$75 million) to Macedonia to fund the Municipal Services Improvement Project (approved in 2009), which sought to improve the transparency, financial sustainability and delivery of municipal services in the participating municipalities through a focus on revenue-generating public services and investment projects with cost-saving potential. The loan funds were managed by the Ministry of Finance and were on-lent to participating eligible municipalities through sub-loan and grant agreements on the same terms as the World Bank loan. The loan repayments were in the form of reduced budget outlays to the municipalities for energy.

Eligible borrowers were creditworthy municipalities that had received MOF approval to borrow, with publicized budgets and audit reports. The loan program was supplemented by technical assistance funds for capacity building and institutional reform, and also by a performance-based investment grant fund that provided incentives and rewards to municipalities for implementing reform initiatives to improve service delivery performance.

Source: World Bank 2009 and 2012b.

Utility On-Bill Financing

A summary of this mechanism was provided in Section 5. Some of the advantages of this mechanism, based on experience in 20 U.S States, are (ACEEE 2011):

- It provides consumers access to financing using the utility's relationship with its customers.
- It generally provides the customer the advantage of paying for the EE investment from the savings in the utility bills resulting from that investment.
- Such a program may be able to extend financing to otherwise underserved markets, such as consumers renting their facilities and residents of multi-family dwelling units.
- There is also the possibility of providing financing to consumers whose weak credit limits their ability to obtain conventional financing.
- The costs and risks related to the collection of loan repayments from consumers are reduced because very few consumers are delinquent on their utility bill payments.

Key Characteristics

- The financing structure is generally on favorable loan terms. The interest rate is based on the utility's cost of capital and is therefore usually below the commercial market rate. Some utility financing programs charge a zero interest rate.
- The length of the loan is determined based on the type of EE equipment being financed and is designed in such a way that the consumer's monthly loan repayment is less than the bill savings generated by the equipment. For example. Financing of CFLs may be for a 9 to 18 month period which is commonly the payback period for such efficient lamps.
- The equipment is generally owned by the consumer and the utility has a lien on the equipment under the loan agreement.
- The utility's financing and administrative costs can be rolled into the equipment price and paid by the consumer as a part of the loan repayment.
- The risk of default is low as most consumers usually are diligent about paying their utility bills. In some cases, the utility may threaten to cut off the electricity service for non-payment of the equipment loan, providing a major incentive to the consumer to not be in default.
- Some utilities have found it difficult and cumbersome to modify their billing systems to add loan repayments for EE equipment to the electricity bills.

Illustrative Examples

Recent examples of utility financing of EE projects through the billing mechanism include the Bangalore Efficient Lighting Program (BELP) launched by the Bangalore Electricity Supply Company (BESCOM) in India and the PROSOL program in Tunisia for installation of solar water heaters.

In the BELP program, the electric utility competitively selected manufacturers of energy-efficient Compact Fluorescent Lamps (CFL) based on price, quality and warranties offered. Residential customers of BESCOM were able to obtain the CFLs from the manufacturers' retail outlets. The customer signed an agreement with BESCOM to pay for the CFLs over a

9-month period through their electric bills (IIEC 2006).

The Tunisian program (called Programme Solaire or PROSOL) was a joint effort involving the Tunisian Ministry of Industry, Energy, and Small and Medium Enterprises, and the National Agency for Energy Conservation (ANME). The solar water heating manufacturers and suppliers worked with commercial banks to arrange financing for customers interested in purchasing solar water heating systems. The customers agreed to repay the loan through their electricity bill. The electric utility collected the customer payments and repaid the banks. A summary is provided in Box B.2.

Box B.2 – Tunisia PROSOL Program

The PROSOL project was initiated in 2005 by the Tunisian Ministry for Industry, Energy and Small and Medium Enterprises and the National Agency for Energy Conservation (ANME), with the support of the UNEP-MEDREP Finance Initiative. The objective of PROSOL was to revitalize the declining Tunisian solar water heater market. The innovative component of PROSOL was in its ability to actively involve the finance sector, and turn it into a key player for the promotion of clean energy and sustainable development. By identifying new lending opportunities, banks were able to build dedicated loan portfolios, thus helping to shift from a cash-based to a credit-based market.

The main features of the PROSOL financing scheme were:

- Loan mechanism for domestic customers to purchase solar water heaters
- Cost subsidy provided by the Tunisian government, up to 100 dinars (57 Euros) per m²
- Discounted interest rates on the loans, progressively phased out.
- A series of accompanying measures including an awareness raising campaign, a capacity building program and carbon finance.
- Key partners included:
 - Société Tunisienne de Banque (STB)
 - Two commercial banks (UBCI and Amen bank)
 - The State electricity utility STEG (Société Tunisienne d'Electricité et du Gaz)
 - Manufacturers, importers and installers of solar water heaters
 - Local consultants

Launched in April 2005, the PROSOL project achieved immediate success. In less than one year (April-December 2005), sales reached the record figure of 7,400 solar water heating systems, for a total surface installed of 23,000 m². By the end of 2006, an additional 11,000 units were sold, corresponding to approximately 34,000 m².

The main advantages of utility on-bill financing are:

- Allows the customer to purchase EE equipment and pay for it from savings generated by the equipment
- Facilitates the customer's repayment of the equipment purchase by collecting the payments through the electric bill
- Reduces the transaction cost of recovering the loan repayments from customers
- Reduces the risk of default
- Improves the relationship between the utility and the customer.

There are also some limitations and challenges related to the utility consumer financing approach:

- Many utilities are unwilling to enter into such arrangements to finance equipment purchase through the electricity bill
- The utility billing system may not be structured to handle the collection of loan repayments and the cost of modifying the system may be high.

- The regulatory system may not allow the utility to collect payments for equipment loans.
- While default risks are low in such programs, there are issues with respect to what actions the utility can take in case the customer does not pay the finance charge or only pays a part of the utility bill. While some utilities have included provisions to cut of service for non-payment of the EE finance component, consumer advocates have questioned the legal basis to do so.
- Some of the other challenges include accurately estimating the utility financing and administration costs, assuring that the monthly payment is less than the bill savings, addressing the payments when the ownership of the property changes, addressing energy savings that are non-electric, etc.

Energy Efficiency Revolving Fund

EERFs have been successfully deployed in Bulgaria, Romania and (more recently) in Armenia. The typical structure of an EERF was presented in Section 5. Box B.2 provides an illustration of the Armenian R2E2 fund.

Box B.2 - Armenia Renewable Resources and Energy Efficiency Fund (R2E2 Fund)

The Fund was established in 2005 and capitalized with an US\$8 million IDA credit and US\$0.7 million GEF grant. The Fund is overseen by a Board of Directors, which includes government, private sector and academia and operates on a fully commercial basis.

The Fund currently implements a World Bank/GEF project that provides EE services in public sector facilities—such as municipal street lighting, schools, hospitals, and administration buildings (average size about US\$100,000). It has already financed projects worth US\$8.6 million between 2012 and 2015 and provide technical assistance for project preparation and capacity building.

The Fund provides loans to municipalities and public entities with revenue streams independent of the state budget, and energy service agreements (ESAs) to schools and other public facilities, which are not legally independent:

- Loans will be provided under an ESA, whereby the Fund will also provide additional services against a service fee (conduct a preliminary screening; carry out the procurement of design and works; oversee construction and commissioning; pay the contractors for services provided; and monitor the sub-projects). The loans will be treated as municipal debt, with fixed repayment obligations to be made within their budget provisions in future years. The amount of the repayments will be designed to allow fund clients to repay the investment costs and service fee from the accrued energy cost savings.
- Energy Service Agreements: The Fund will first determine the average baseline energy use, identify the general scope of a sub-project, develop bidding documents, conduct the procurement, finance the project, oversee construction and commissioning, and monitor the sub-project. The ESA will obligate the facility to pay the baseline energy costs (with adjustments for energy prices, usage, etc.) over the life of the agreement. In such cases, there is no loan or debt incurred by the client entity. With these payments, the Fund will pay the energy bills on the facility's behalf and retain the balance to cover its investment cost and service fee of up to 10 years. The agreement will also be designed so that the duration can be adjusted if the Fund recovers its full investment earlier or later.

To support the build-up of an ESCO industry in Armenia, the Fund uses simplified ESCO contracts to shift some performance risks to private construction firms/contractors.

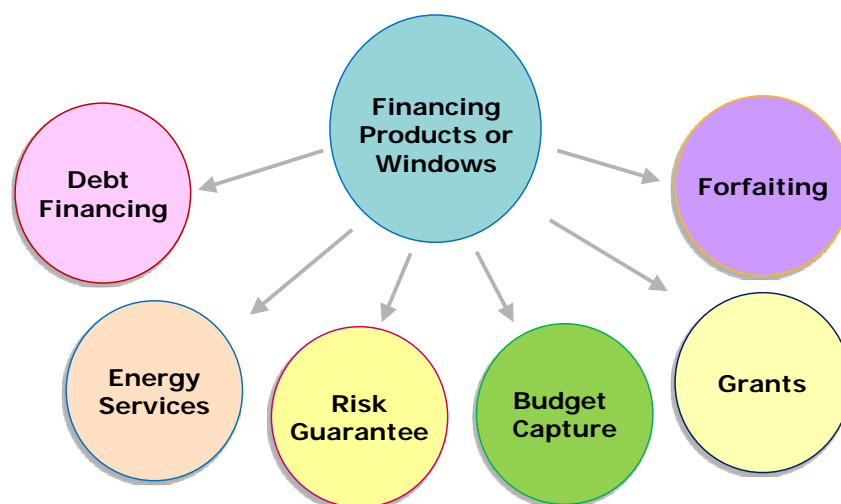
Source: World Bank 2012a, World Bank progress reports.

Financing Windows or Products

An EERF would need to be designed to serve the needs of all municipalities and central government agencies. Some of these agencies may not be creditworthy, or have no

borrowing history; others may not have available borrowing capacity; and others may not have the internal capacity to identify, design, and manage the implementation of EE projects. To address some of these issues, an EERF may offer several financing products and “windows,” as shown in Figure B.2 and listed below:

Figure B.2 – Financing Windows of an Energy Efficiency Revolving Fund



The Debt Financing Window and Energy Service Agreements were discussed in detail in Section 5. The other windows are summarized below.

Risk Guarantee Window

An EERF may offer a risk-sharing mechanism by providing credit or risk guarantees to commercial banks and other financial institutions (FIs) in order to leverage commercial financing for public sector EE projects. Risk-sharing programs are designed primarily to address the common perception of lenders that EE projects are inherently more risky than traditional investments (a major financing barrier), or to allow them to lend to marginally creditworthy clients with very attractive EE investment opportunities. They provide commercial banks/FIs with a partial coverage of the risk involved in extending loans for EE projects. The risk-sharing facility generally includes a subordinated recovery guarantee¹⁴ and may also have a “first-loss reserve”¹⁵ that may be used to absorb up to a specified amount of losses before the risk sharing occurs.

For example, the Bulgaria EE Fund provides three types of guarantees: (i) a credit guarantee covering up to 80 percent of the credit value to secure loans for EE projects, with individual guarantee commitments not to exceed Lev 800,000 (about \$500,000); (ii) an uncollateralized guarantee to a portfolio of receivables of energy service companies (ESCOs) for their energy

¹⁴ In a *subordinated recovery guarantee*, the guarantor ranks behind other lenders in the recovery of the guarantee funds it pays out in case the borrower defaults on the loan. This allows lenders to offer better loan terms, such as lower interest rates or longer tenors. A subordination provision may be useful, for example, when interest rates are high due to higher perceived risk, or if a new technology with limited operational experience is being deployed.

¹⁵ In the event of a loan default, a *first-loss reserve* pays for all losses incurred until the maximum first-loss reserve amount is exhausted. The lender incurs losses only if the total loan loss exceeds the first-loss amount. By covering all or a large share of first losses and sizing the definition of first losses to be a reasonable proportion of the loan portfolio (usually higher than the estimated default or loss rate), a first-loss reserve can provide meaningful risk coverage to the lender, but with a low level of total guarantee liability relative to the total size of the portfolio.

performance contracts (EPCs), covering the first 5 percent of the delayed payments of the portfolio covered; and (iii) a residential portfolio guarantee covering the first 5 percent of defaults within the portfolio of projects.¹⁶

Budget Capture

The budget capture option may be used by an EERF when the public agency receives dedicated funds from the MOF or another government agency to pay its energy bills. In such cases, after the EERF invests in EE projects implemented by the public agency, the government (i) reduces its budgetary outlays to that public agency by an amount equivalent to the amount of energy cost savings (thereby “capturing” the savings) and (ii) redirects these funds to the EERF. This would require that the government agrees to provide the same amount to the public agency for energy bill payments in subsequent years.

Grants Window

If an independent, sustainable financing source is available, EERF may also offer a grant window. For example, if a government (through special taxes, levies, or surcharges, for example) or a donor agency commits to funding EERF for a given number of years, a portion of the funding may be used for grants to public agencies to improve the economic attractiveness of the EE project from the public agency perspective.

However, if the EERF is established to operate on a fully commercial basis, it is unlikely that it will provide grant financing—except when such grant financing is available from another source and can be combined with the loan financing provided by the revolving fund. If such funds are made available, it should be made clear that these are limited; failing to do so may create false expectations for more grants, which may undermine the fund’s long-term sustainability.

Forfeiting

A possible service that an EERF can provide or arrange is forfeiting, or the sale of receivables from an EE project. Forfeiting is useful in situations where an energy service provider (ESP) is providing its own equity for project financing. It is a form of transfer of future receivables from one party (the seller – an ESP) to another (the buyer – a financial institution).¹⁷ An example of forfeiting is the Bulgarian ESCO Fund (BEF) established under the Law for Special Investment Companies by the Bulgarian company Enemona. This fund received a loan of €7 million from the European Bank for Reconstruction and Development (EBRD) to buy receivables under the energy saving contracts signed by Enemona. The fund allows Enemona to use its capital for further development of projects in both the industrial and public sectors including kindergartens, schools, hospitals, and other municipal buildings.

Dedicated EE Credit Lines

Dedicated EE credit lines for public sector projects address many of the issues related to insufficient lending by banks and financial institutions. By establishing a credit line and providing funding, governments or donor agencies can help overcome some of the barriers

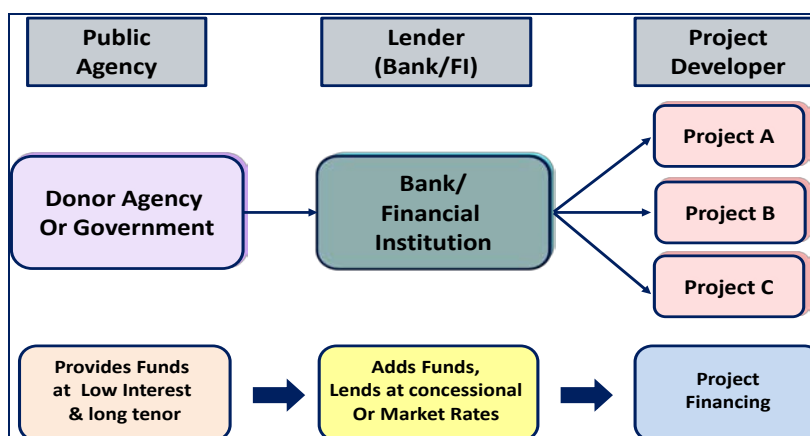
¹⁶ The residential portfolio guarantee was not used. The available funds were committed to the ESCO portfolio guarantees.

¹⁷ The original creditor (the ESP) cedes his claims to future revenues from the project and the new creditor (the FI) gains the right to claim these future receivables from the debtor (the client). The ESP receives a discounted one-time payment from the FI that then allows it to invest in new energy savings performance contract (ESPC) projects.

to commercial financing. Most EE credit lines also have a technical assistance component to build lender capacity relative to EE project financing. However, issues related to creditworthiness and adequate collateral limit their use in municipalities.

The typical structure of an EE credit line is shown in Figure B.3. Box B.3 provides an illustration of a municipal EE credit line in Serbia.

Figure B.3 - Illustrative Structure of EE Credit Line



Source: Limaye 2013a

Box B.3 - Example of Municipal Credit Line in Serbia

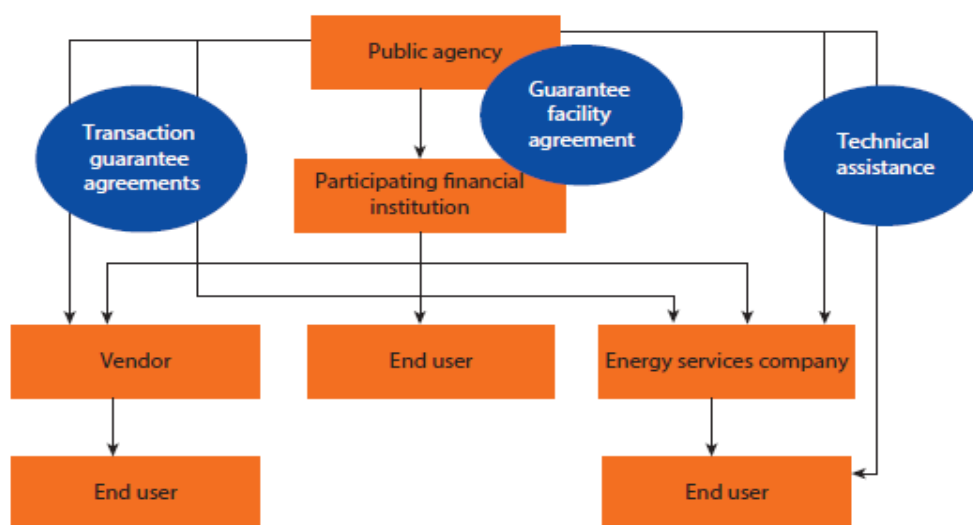
The German development bank, KfW, has launched a dedicated credit line for municipal environmental infrastructure and EE investments in Serbia. A total of €100 million will be made available and disbursed to eligible municipalities and public sector utility companies via Serbian on-lending banks, following the standard procedures for municipal borrowing. This is a continuation of the current KfW project on "Municipal Infrastructure via the Financial Sector". To provide more incentives for Serbian municipalities to invest in EE and environmental projects, KfW and the European Commission signed an agreement at the end of 2011. A grant scheme will be implemented to award grants of 15–20% of the loan amount financed from the KfW credit line after their successful completion.

Source: http://www.meglip.org/wp/?page_id=4.

Risk-Sharing Facility

A typical structure of a risk-sharing facility is shown in Figure B.4. Box B.4 provides the example of the IFC/GEF risk sharing program for Commercializing Energy Efficiency Finance in Central and Eastern Europe.

Figure B.4 - Typical Structure of Risk-Sharing Facility



Source: Taylor and others 2008.
Source: Mostert 2010

Box B.4 - Risk Sharing Facility Example – Commercializing EE Finance (CEEF)

The Commercializing Energy Efficiency Finance (CEEF) Program was launched in April 2003 as a joint program of the IFC and the GEF. The countries included in CEEF were the Czech Republic, Hungary, Estonia, Latvia, Lithuania, and the Slovak Republic. CEEF was designed to work in partnership with local lenders by providing partial guarantees to share in the credit risk of EE loan transactions that the partner lenders would fund with their own resources. The transactions eligible for the program included capital investments aimed at improving the efficiency of energy use in buildings, industrial processes, and other energy end-use applications.

Risk sharing was achieved through a partial guarantee structure under which the IFC guaranteed 50 percent of the project risk on an equal basis with the participating lenders.

Technical assistance was an important component of the program to (a) help prepare projects for investment and (b) build capacity in the EE and lender industries in each country.

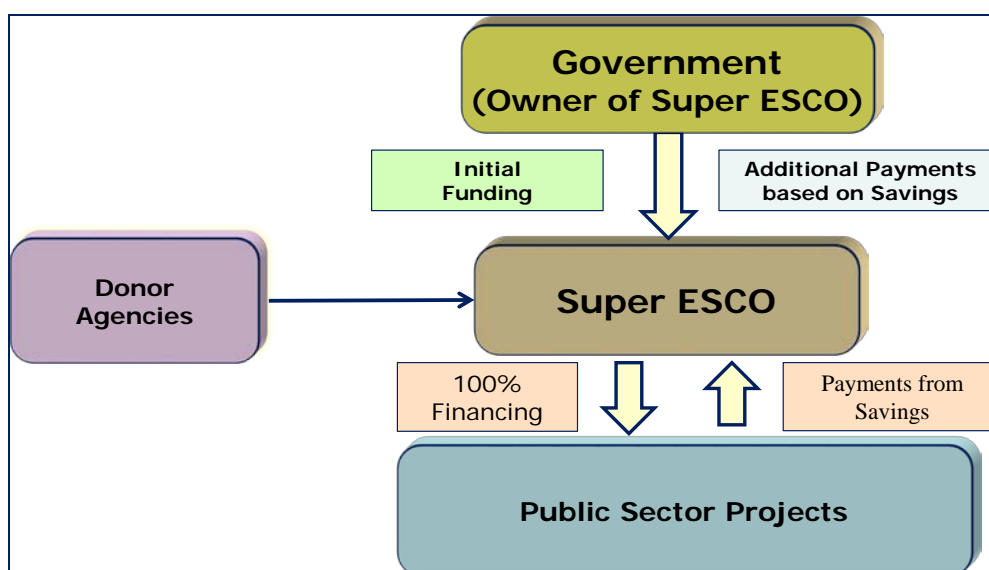
CEEF resulted in substantial increased investments by commercial lenders for EE projects. Although few of these projects were for municipalities, CEEF did lead to a major lending program for financing EE in schools in Hungary.

Source: IFC 2004

Super ESCO

A super ESCO can be uniquely positioned to overcome a number of the barriers faced by smaller ESCO companies. With its size and credibility as a public institution, a super ESCO has the capacity both to support the growth of a nation's private domestic ESCO business and to finance EE projects, since it typically subcontracts all project implementation to local ESCOs. Figure B.5 illustrates the structure of a super ESCO.

Figure B.5 - Typical Structure of a Super ESCO



Source: Limaye 2013b

Examples of super ESCOs include the New York Power Authority (NYPA) in the United States, Fedesco in Belgium, Fakai Super ESCO in China, and Energy Efficiency Services

Box B.5 - Energy Efficiency Services Limited: India's Super ESCO

The government of India established Energy Efficiency Services Limited (EESL) as a super ESCO to carry out public sector undertakings under the Ministry of Power. EESL functions as the implementation arm of the National Mission for Enhanced Energy Efficiency (NMEEE). The purpose of setting up a separate corporate entity was to develop an EE market that was virtually nonexistent in the country. It has the mandate to implement EE projects in the public sector and facilitate and promote the development and growth of the private ESCO industry through partnerships and subcontract arrangements. The initial capital of EESL is about US\$50 million.

Some of the major functions of EESL are EE planning and implementation in the residential sector, commercial buildings, industrial sites, municipal street lighting and water pumping, and agricultural pumping. EESL also does capacity building of utilities and state designated agencies (SDAs) responsible for EE implementation under India's Energy Conservation Act.

EESL has successfully collaborated with state and local government agencies to implement a wide range of projects including LED lighting in homes, efficient agricultural pumps, efficient street lighting, and efficient chillers in commercial buildings. EESL has engaged in a number of partnerships with private sector organizations to implement these projects.

Source: EESL 2015

Limited (EESL) in India (see Box B.5).

Commercial Financing with ESCOs

The business models typically utilized by ESPs are illustrated in Figure B.6.

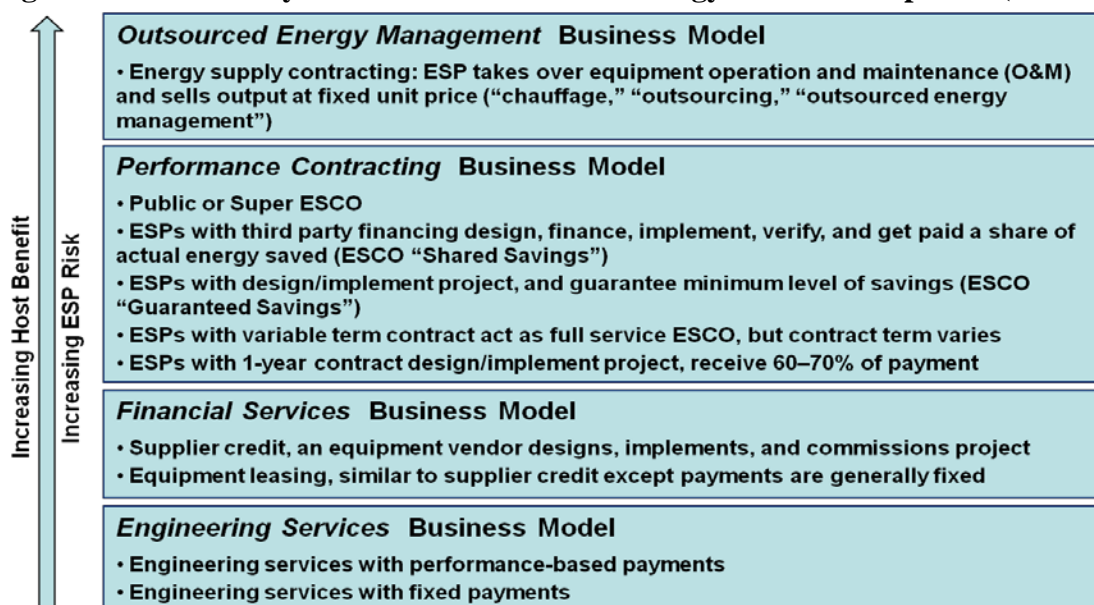
Before an energy service market for the public sector can be developed, the government must first undertake a set of legislative, regulatory, and policy initiatives targeted at:

- Creating a large and stable demand for energy services projects in the public sector;

- Removing barriers to public procurement of EE services and establishing clear regulations, rules and procedures for public agencies to work with private ESCOs; and
- Facilitating adequate and affordable financing of private ESCO projects.

Table B.1 provides more detail on these initiatives.

Figure B.6 - Summary of Business Models for Energy Service Companies (ESCOs)



Source: World Bank 2014c

Table B.1 - Government Actions to Foster Private ESCOs

Create Demand for EE Services	Remove Barriers to Public Procurement of EE Services	Facilitate Financing of ESP Projects
<ul style="list-style-type: none"> • Increase PA knowledge and awareness of ESPs • Increase PA capacity to identify ESP opportunities • Require EE targets and action plans • Develop standard, templates, benchmarks, and M&V schemes • Organize workshops with PAs and ESPs • Aggregate similar projects across PAs • Accredite or certify ESCOs 	<ul style="list-style-type: none"> • Allow PAs to sign multiple-year contracts • Allow retention of energy cost savings to pay ESPCs • Change procurement rules to select most value, not least cost • Exclude ESP payments from PA debt • Require consumption-based billing for district heating • Allow PAs to engage in PPPs and EE equipment leasing • Encourage PAs to use simple ESCO business models 	<ul style="list-style-type: none"> • Establish EE revolving fund with loan facility • Establish EE revolving fund with ESAs • Provide budgetary grants • Provide risk-sharing facility • Facilitate forfeiting of ESPCs • Establish public or super ESCO

Note: ESA = energy service agreements; ESPC = energy savings performance contract; M&V = measurement and verification; PA = public agency; PPP = public-private partnership.

Source: World Bank 2014b

ANNEX C - EXAMPLES OF SUPER ESCOS

While the concept of the Super ESCO is still in its infancy, several countries have already adopted the idea of a Super ESCO and have created a Super ESCO to help encourage their domestic energy services market. Other nations are now considering the establishment of Super ESCOs. Some examples are provided below.

Belgium - FEDESCO

In 2005, the Belgian federal government created FEDESCO, a public but independent energy services company to encourage the development of a domestic energy services industry (FEDESCO 2010). The primary mission of FEDESCO is to study, facilitate and coordinate energy savings projects in public buildings through the use of third party financing (JRC, 2010). Phase 1 of FEDESCO's objectives focuses on 1800 buildings occupied by ministries, federal public services (administrations) and other governmental organizations with a floor area of over 8 million m² and an annual energy bill of over 100 million Euros. These buildings are owned and managed by the Federal Building Agency. In subsequent phases, other public buildings (from regional governments, provinces, municipalities, public companies, etc.) and even private buildings will be included.

FEDESCO provides both professional energy services and innovative financial services (pre-financing, third party financing, and energy savings performance contracting) to private ESCO companies in Belgium. This Super ESCO also seeks to facilitate an annual investment program of up to 7.5 million Euros to encourage private sector investment in energy efficiency. FEDESCO was created in the framework of the 2nd Belgian Federal plan for sustainable development (2004-2008) and the National Climate Plan (2002-2010). FEDESCO has been successful in achieving a 10% reduction in both total energy consumption and greenhouse gas emissions in federal public buildings in Belgium.

Croatia - HEP ESCO

In 2003, the World Bank and the Global Environment Facility (GEF) helped create an ESCO subsidiary within the national power utility, Hravatska Elektroprivreda (HEP). This national HEP ESCO was capitalized by a World Bank loan (World Bank, 2003), HEP equity, local banks, and other sources, to offer energy efficiency services to public and private clients. GEF funds were also mobilized to provide additional credit enhancement for HEP ESCO projects and provide some technical assistance to the ESCO and local banks. Since the Croatian market was small and no private ESCOs were operating in the market, the government did not foresee inherent risks related to crowding out the private sector. The HEP ESCO used the "open book" model to keep its pricing fair and transparent. Government entities can directly contract with government companies and their subsidiaries, so public agencies are not required to conduct any competitive procurement to contract with HEP ESCO.

The HEP ESCO received a \$7 million GEF grant and a \$5 million World Bank loan, and equity investment from the parent utility. The ESCO also negotiated financing arrangements with local commercial bank debt facilities. By the end of 2008, about 186 million Kuna (US\$35.4 million) in energy savings contracts have been signed. HEP ESCO has received a credit line from KfW to increase its financing capacity.

Province of Hebei, China - The Fakai Scientific Services Corporation

Recognizing that implementation of energy efficiency projects needed to be substantially increased in Hebei to meet the goals established by the Chinese national government, the Hebei DSM Center established the Fakai Scientific Electricity Services Limited Corporation as a wholly-owned subsidiary to encourage, promote and implement energy efficiency and DSM projects (Hebei DRC, 2009). This company has been established as a Super ESCO. It is developing and implementing energy efficiency projects using the ESPC model, as well as assist other ESCOs operations in Hebei to grow their businesses and undertake more ESPC projects (USAID, 2010).

Fakai was capitalized by the Hebei Development and Reform Commission (DRC) and will strive to work with local, national and international financial institutions as well as donor agencies (such as the Asian Development bank) to mobilize resources in an effort to achieve the EPP goal of 600 MW. Fakai is also exploring the establishment of a public-private partnership to scale up its Super ESCO activities.

India - Energy Efficiency Services Limited

The Bureau of Energy Efficiency (BEE), created by the Energy Conservation Act, 2001, has undertaken a number of initiatives to encourage and promote ESCOs and to create a market for ESCO services. BEE working with other agencies of the Government of India, established a national organization called Energy Efficiency Services Limited (EESL). EESL was capitalized by four existing national public sector undertakings (PSUs) namely National Thermal Power Corporation, Power Grid Corporation, Power Finance Corporation, and Rural Electrification Corporation (Business Standard, 2009). The initial capital of EESL was about US\$50 million.

The company functions as the implementation arm of the National Mission for Enhanced Energy Efficiency (NMEEE). The purpose of setting up a separate corporate entity was to develop an energy efficiency market that was virtually nonexistent in India. Some of the major functions of EESL include EE planning and implementation in buildings and industrial sites, implementing the “Bachat Lamp Yojana” (a scheme for promotion of CFL lamps nationally using the PoA concept for CDM), and demand-side management in the municipal and agricultural sectors. EESL is also assisting the growth and development of the existing ESCOs by engaging them in project implementation.

ANNEX D – KOSOVO EE ROUNDTABLE SUMMARY

Republic of Kosovo

Energy Efficiency & Renewable Energy Project

Options for Financing Energy Efficiency in Public Buildings in Kosovo

Summary of Roundtable on April 4, 2016, 9-10:30am

In the context of the *Kosovo Energy Efficiency & Renewable Energy Project (KEERP)*, the World Bank (WB) prepared a draft report on *Options for Financing Energy Efficiency in Public Buildings in Kosovo*. A roundtable meeting was co-hosted by the WB and the Ministry of Economic Development (MED) on April 4, 2016 at the MED's premises to present and discuss the findings of the report. Participants included 22 representatives from the Ministry of Finance (MOF), MED and its Kosovo Energy Efficiency Agency (KEEA), European Union (EU) Delegation in Kosovo, European Bank for Reconstruction and Development (EBRD), Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), KfW Development Bank, and Konrad-Adenauer-Stiftung (KAS). Please refer to Annex I for the participant list.

The WB team presented the report, including the potential for energy efficiency (EE) improvements and related investments needed for public buildings, opportunities for and barriers to financing public building EE retrofits in Kosovo, identification and assessment of alternate financing options based on experience in the region and elsewhere, and recommendation to establish an independent Kosovo Energy Efficiency Revolving Fund (KEERF) for public buildings. KEERF would be a sustainable institutional solution to contribute towards Kosovo meeting its national EE targets.

The subsequent discussion identified a number of questions and issues that need to be considered in the detailed design of KEERF. While there was general consensus that a revolving fund is a viable option to finance EE in public buildings, some key issues were raised and responded to by the WB:

- There is agreement that public buildings should be the focus of the KEERF in the initial phase of the Fund. However, several participants highlighted that there is a need to also cover the residential and private sectors – perhaps in subsequent phases.
- There was a suggestion to combine the KEERF with an ECO fund. It was suggested that more in-depth analysis regarding the investment requirements to meet Kosovo's national EE targets would be appreciated. The WB's view is, however, that the current targets of the National Energy Efficiency Action Plan (NEEAP) are for 2018, and KEERF may not be fully operational until 2017. Therefore, KEERF would not significantly contribute to the NEEAP targets. The KEEA agreed that the focus of KEERF should be on achieving savings by 2025 rather than 2018.
- The Minister of Economic Development noted that the WB report is generally consistent with MED's own studies on legislative, financial and institutional models to support the establishment and operation of an EE fund. While MED's concept

combines a revolving EE fund for the public sector with guarantees for the residential sector and SMEs, the Minister agreed that the initial focus of the Fund should be on the public sector as recommended by WB, and that other financing windows and other sectors could be added later.

- One of the key requirements is the appropriate legal framework for the establishment and operation of the Fund. According to the Minister, the legal framework could be ready by next year. The WB emphasized that we need to rely on legal teams to ensure consistency with Kosovo law. It is important to note that the suggested KEERF would not require any recurring operating costs from the Government, nor any requirement to separate out a portion of the central budget (which is against the law today).
- It was suggested that energy generation can also contribute to EE. However, the WB pointed out that efficiency improvement in distribution systems and district heating require large investments which may be better provided through direct financing mechanisms rather than a fund.
- It was pointed out that there are already six funds that have some provisions for public sector infrastructure financing in Kosovo; it may therefore be appropriate to consider using one of these existing structures instead of creating a new one.
- Regarding the mentioned existing funds, the WB team pointed out that they are not aware of existing structures that are able to serve the needs of all municipalities or the central government. WB also pointed out that, while the Western Balkans Investment Framework (WBIF) has identified many sources of financing and technical assistance for EE, a very large share of available funds from existing financing sources in the region has not been deployed. Additionally, there are large investment needs for building EE in non-creditworthy municipalities, municipalities which have hit their debt limits, and central government agencies, which traditional financiers are generally unwilling to serve.
- In response to the question about the WB's readiness to finance an EE fund, the WB team informed the roundtable that it would be prepared to deploy €5 million from the current KEERP into KEERF.
- There was a comment that grant financing may possibly be available for some EE projects and that this should be considered in the fund design. The WB responded that, to the extent grant financing was available, KEERF can certainly utilize such grants to improve the economics of EE projects, but that the basic business model of KEERF should not rely on grant financing because such financing may not be sustainable.
- The Deputy Minister (MED) appreciated the approach, assessments and recommendation of the WB report and noted the need to discuss the KEERF with the MOF. She mentioned that, while a revolving fund seems to be the best option for public buildings, we may need additional windows to promote EE in the residential and private sector.
- Given participants' comments that the KEERF should also cover the residential and private sectors, the WB highlighted its recommendation to start with the public sector first, so that demonstrable results can be achieved quickly. Moreover, the WB pointed out that starting with the public sector can have positive effects on the market (e.g. reduced prices for EE products and equipment, such as insulation or lighting, as the market grows; standardization of contracts, agreements and implementation procedures; and development of an energy services industry). Once KEERF is demonstrated to be successful and sustainable, additional financing

windows covering other sectors can be added. This would also allow KEERF to start with a modest capitalization in the range of about €10 million. Based on discussions with the MOF, this seems to be a more realistic option than starting with a larger fund with multiple financing windows.