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Development of **Energy Service Companies** Market and Policies



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FINANCING ENERGY EFFICIENCY
AND RENEWABLE ENERGY
INVESTMENTS FOR CLIMATE
CHANGE MITIGATION PROJECT

**DEVELOPMENT OF
ENERGY SERVICE COMPANIES MARKET
AND POLICIES**

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Foreword

The United Nations General Assembly has declared 2014-2024 as the International Decade of Sustainable Energy for All, underscoring the importance of energy issues for sustainable development and for the elaboration of the post-2015 development agenda. One of the three objectives of the Sustainable Energy for All initiative of the UN Secretary-General is doubling the global rate of improvement in energy efficiency by 2030. Investing in energy efficiency creates jobs, fosters economic growth and improves energy security for countries that lack domestic fossil fuel resources. Improving energy efficiency is the famous low-hanging fruit that is easy to do and pays for itself. Of the three objectives of Sustainable Energy for All, improving energy efficiency has the clearest impact on saving money, improving business results, and delivering more services for consumers. However it is not happening to the desired extent because of the way markets are designed and structured, low-tariff policies, subsidies, lack of information, and lack of investment capital by end-users.

There are ways for Governments to address these issues. They should put in place sensible, consistent, and coherent economic, energy, and environmental policies and address market failures that are obstacles to cost-effective improvement of energy and carbon intensities. These market failures include subsidies for fossil fuels and for consumer tariffs and market structures that hinder innovations. The issue of financing and access to investments for energy efficiency improvements remain the most important.

This publication is looking at one possible instrument in overcoming barriers to promoting energy efficiency in countries with economies in transition. Energy service companies (ESCOs) can be important vehicles in achieving energy efficiency potential. One of the main ESCO business models – energy performance contracting (EPC) – ensures that remuneration is directly tied to the savings achieved by the reduced energy consumption. ESCOs are widely used in developed countries and can play a significant role in countries with economies in transition, particularly in buildings and industry – sectors with enormous energy efficiency potential.

The focus of this publication is on 12 countries participating in the UNECE Financing Energy Efficiency and Renewable Energy Investments for Climate Change Mitigation project. I trust that this publication will be valuable for Governments, business community, experts and other stakeholders working in the area of energy efficiency both in the participating countries and in other countries of the UNECE region.



Sven Alkalaj
Executive Secretary
United Nations Economic Commission for Europe

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ACRONYMS AND ABBREVIATIONS

BEEF	Bulgarian Energy Efficiency Fund
BOOT	Build–own–operate–transfer
EBRD	European Bank for Reconstruction and Development
EE	Energy Efficiency
EEFF	Energy Efficiency Financing Facility
EPC	Energy Performance Contract
ESCO	Energy Service Company
EU	European Union
FEEI	Financing Energy Efficiency Investments
GDP	Gross Domestic Product
GEF	Global Environment Facility
HPP	Hydro Power Plant
IPMVP	International Performance Measurement and Verification Protocol
M&V	Measurement and Verification
NC	National Coordinators
NEEAP	National Energy Efficiency Action Plan
NPI	National Participation Institutions
RE	Renewable Energy
UNDP	United Nations Development Program
UNECE	United Nations Economic Commission for Europe
UNFCCC	United Nations Framework Convention on Climate Change
VAT	Value Added Tax

SIGNS AND MEASURES

GWh	Gigawatt-hour
ktoe	Kiloton of oil equivalent

INTRODUCTION

Background

South-Eastern European, Eastern European and Central Asian countries are confronted with a wide range of economic and environmental problems caused by their inefficient and polluting energy systems. At the same time, their energy economies provide some of the most promising opportunities for reducing global greenhouse gas emissions. Achieving the potential will require cost-effective energy efficiency (EE) improvements and deployment of renewable energy (RE) technologies. The investment potential for energy efficiency is so large in these countries that only the private sector can provide the capital needed to achieve meaningful results. Mobilizing private capital requires a market for energy efficiency in which large investments can be made with low transaction costs at an acceptable ratio of risk to return within a reasonable period of time. At present, private investors do not often finance energy efficiency projects in these countries because dedicated sources of financing are lacking and local banks are generally unfamiliar with such investments. Another obstacle in financing energy efficiency projects is the absence of policy and institutional support for their implementation. The lack of knowledge and experience of how to select and formulate energy efficiency investment projects is often a challenge for local experts.

In order to address these obstacles, in January 2008 the United Nations Economic Commission for Europe (UNECE) began implementing the Financing Energy Efficiency and Renewable Energy Investments for Climate Change Mitigation (FEEI) Project. Financial support for the project has been provided by United Nations Foundation (UNF) and United Nations Fund for International Partnerships (UNFIP); Fonds Français pour l'Environnement Mondial (FFEM); United Nations Environment Programme/ Global Environment Facility (UNEP/GEF); and European Business Congress (EBC). The Project is to assist participating countries¹ to enhance their energy efficiency and reduce air pollution and greenhouse gas emissions in order to meet international obligations under the United Nations Framework Convention on Climate Change (UNFCCC) and UNECE environmental conventions. The Project is designed to establish a public-private partnership investment fund with a target capital of € 250 million and develop a pipeline of new and existing projects to be financed by it. It has established a network of National Participating Institutions and local experts who implement the project nationally and interact by means of advanced Internet communications. The Project has conducted national case studies and a comprehensive regional analysis of policy reforms to promote energy efficiency and renewable energy investments.

Goals

This publication is prepared in the framework of the FEEI project and outlines the development of energy service companies (ESCO) market in the countries participating in the FEEI project.

The experience proved that setting up ESCOs is one of the best ways to address the issue of EE and RE financing. ESCOs have both technical expertise and financial capabilities to invest in EE measures and RE projects. ESCOs can serve as an integrator of EE projects and for bundling the procurement of goods across several projects into one request for external financing. This publication examines the current status and developments in the ESCO market formation in the FEEI participating countries.

¹ Albania, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Kazakhstan, Republic of Moldova, Romania, Russian Federation, Serbia, the former Yugoslav Republic of Macedonia, and Ukraine.

Methodology

This report examines the current status of ESCO development in twelve countries participating in the project. For the purposes of the report all participating countries are divided into three groups: member states of the European Union (EU), South-Eastern European countries and countries of Eastern Europe and Central Asia (the latter represented by Kazakhstan).

The development of the ESCO market in these countries is not at the same level. The proposed grouping helps examine the current situation with ESCOs in the countries based on their geographical situation and neighborhood as well as the membership in and/or relationship with the EU.

Information presented in this report is based on the results of desk research, findings of the Regional Analysis of Policy Reforms to Promote EE and RE Investments (undertaken earlier in the framework of the FEEI project), information provided by the National Coordinators (NCs) and National Participation Institutions (NPIs) in the framework of the project, consultations with experts in the ESCO market area and other available information.

Structure

The publication is structured in the following way:

- **ESCO potential and role:** defines ESCOs and energy performance contracting (EPC) and examines existing ESCO financing and remuneration models.
- **Overview of current ESCO market development:** comparative overview of the situation in ESCO development by groups of countries and synthesizes major findings in the scope of this report.
- **Existing legislative and regulatory framework to support ESCO activities:** examination of legislation regulating and promoting energy efficiency measures in the countries and explores existence of incentives for ESCO market development.
- **Current ESCO activities:** overview of existing initiatives towards ESCOs development in the countries, their success or reasons for failure.
- **Existing barriers and challenges to ESCO success:** review of barriers by sector, including the challenges of the EPC model, summary of existing legislative barriers and barriers for financing of projects, and examples of such barriers in the countries in question.
- **Success factors for further ESCO market development:** potential for further ESCO development and, specifically, the factors that can provide incentives for the implementation of ESCO projects.

The report sets out the conclusions and major findings of this exercise. The information cut-off date for this publication is 31 July 2013.

ESCO POTENTIAL AND ROLE

Definition of ESCO and EPC

Energy Service company (ESCO) is a consultancy group that engages in a performance-based contract, referred to as energy performance contract (EPC), with a client firm to implement measures, which reduce energy consumption and costs in a technically and financially viable manner. In North America and Europe “ESCOs offer both technical and financial services to implement energy-efficiency projects, and guarantee that the energy savings associated with the project will be sufficient to cover the costs of the project over a certain period of time”². This feature distinguishes ESCOs and differentiates them from other energy efficiency consulting companies selling the equipment.

While ESCOs are not a policy instrument *per se*, they are often discussed among policy instruments because they are important vehicles to capture energy efficiency potential and the business model they use (usually energy performance contracting) helps overcome a number of market barriers.

The energy performance contracting is determined by ESCOs remuneration which is directly linked to the amount of energy saved by the project. EPC is a type of long-term contractual agreement where the customer benefits from new or upgraded energy equipment and the ESCO’s remuneration is directly tied to the savings achieved by the reduced energy consumption. The costs of investment are paid back from the savings. If energy savings are not achieved, ESCO does not get paid.

“The performance period is the time from project acceptance to project close out. During this time period the ESCO must ensure the project’s performance, including proper operations and maintenance. Additionally, the ESCO will determine actual savings achieved through execution of the verification activities. The typical duration of performance contracts is ten years, but shorter contracts in the five year range are becoming more frequent.”³

EPC has played an important role in promoting EE in many developed countries. Such contracts can reduce many of the difficulties that companies often experience in implementing EE projects because they provide for a comprehensive package of services. ESCO’s services usually include the identification and development of an energy efficiency project, financing or acquiring the financing of the EE project, installation of EE technology or equipment and subsequent measurement, and monitoring and verification of the project’s energy savings. The services are bundled together and repaid through energy savings. ESCOs also guarantee the savings, so customers assume little technical risk. Overall, ESCOs provide an efficient, flexible and bankable way to leverage the technical and performance management skills of energy specialists in order to enhance customer’s energy efficiency.

However, developing countries and countries with economies in transition use the term ESCO in a broader sense. They also consider as ESCOs those companies which undertake fixed-fee energy efficiency contracts without performance-based remuneration. They, however, do not take performance risks and do not ensure monitoring and verification of the project. Thus, for the purposes of this publication such companies will not be considered as ESCOs in its strict term.

² Jennifer Ellis, 2010, ESCOs in Developing Countries, International Institute for Sustainable Development, p. 21;

³ Michael Baechler, Lia Webster, 2011, A Guide to Performance Contracting, U.S. Department of Energy, p.6.

The potential energy efficiency gain from EPC is also important to countries in transition which are typically significantly more energy intensive than Western European countries and the United States.

ESCO financing models

Financing for an investment can be provided by an ESCO from its internal funds or by the customer, or by a third party funding, in which a financial institution provides a loan either to the ESCO or directly to its client. The loan is then backed by a guarantee for the projected energy or cost savings given by the ESCO.

In the case when a customer pays, an ESCO conducts a study and makes a proposal guaranteeing certain energy savings over the contract term. Here the customer pays for equipment and remunerates the ESCO for project implementation based on the achieved energy savings.

ESCO can also provide direct funding to implement all necessary energy upgrades based on their study and proposal. The customer in this case provides a bank guarantee for the cost of investment. ESCO guarantees energy reductions, pays operating and maintenance costs and receives a major share of the savings to recover its own investment.

Sometimes a financial institution can sign a three-party agreement with a customer and an ESCO, providing a loan either to the ESCO or to the customer. In this case ESCO conducts the study and guarantees certain energy reductions and then is remunerated for project implementation, based on the achieved savings.

ESCO remuneration models

There are two main models for remuneration of the energy performance contracting.

Guaranteed savings contract is a model where ESCO gives a guarantee to its customer that an agreed target level of energy savings is to be made, with any savings above this level being split on the agreed basis. ESCO assumes performance risk on the project. This model is more often used when a client is making an upfront investment. Here ESCO provides design, procurement and construction services and receives a service fee in exchange. If the savings fall short of the ESCO forecast it is obligated under the contract to compensate for this. The guaranteed savings model is considered to be the lower interest rate option.

Shared savings contract is a model where a client and ESCO share the cost savings based on some predetermined percentage for a certain number of years. Costs savings that are made from the project are split in accordance with an agreed percentage between the customer and ESCO. ESCO generally assumes both the credit and the technological risk, and therefore often receives a higher share of the project savings. A challenge of implementing this model is that here ESCO is motivated to verify to the customer that savings have been achieved in order to get paid, while the customer is motivated to argue that actual savings are less than the ones contracted. However, the advantage of this model is that it allows finance to be raised in situations where the customer would be unable to finance the project itself.

OVERVIEW OF CURRENT ESCO MARKET DEVELOPMENT

Country	Bulgaria	Croatia	Romania
Existence of ESCO	Enemona SA, Energy Efficiency Systems Ltd +150 companies carrying out energy audits	HEP ESCO, EETEK Holding Plc and several other companies for providing of energy services	Energy Serv S.A, SE-GES, EnergobitESCO, SERVELECT, Krobath Romania SRL, Cothec Energetikai Uzemelteto SRL, Energy Services Group, Luxten Lighting, ENEAS S.R.L
Types of contract	EPC	EPC	oriented to EPC
Types of projects	EE projects in industrial sector, public buildings (municipal and state), RE projects (small HPP, solar and biomass power stations)	Electricity and heat energy services in private and public sectors, lighting, modernization/reconstruction of existing plants or buildings	Variable speed flow control, lighting revamp, daylight sensors, compressed air efficient use, power grids optimal reconfiguration, heat recovery, heat pumps for heat recovery, on-site cogeneration systems in the industry
Regulatory framework	National Energy Strategy (2002), National Long-term EE Programme 2005-2015, First National EE Action Plan for 2008-2010, Second EE National Plan for 2011-2016, National Programme for Renovation of Panel Residential Buildings from 2005-2020, Condominium-Project Building Act (2009), National Strategy for Financing of Buildings Insulation for EE Improvement for 2005-2020	Act on Efficient Utilization of Energy in Final Consumption (OG 152/08, 55/12) and Ordinance on Contracting and Implementation of Energy Services in Public Sector (OG 69/12), Energy Efficiency Master Plan for Croatia (for 2008-2016 period), Retrofitting programme for public sector buildings (04/2012-12/2013)	National Strategy for Energy Efficiency (2004), Law 372/2005 on energy performance of buildings, Romanian Electricity Law (2007), Energy Strategy for 2007-2020 (2007), National Action Plan for Energy Efficiency (2008), National Programme for Increasing EE and RE Utilization in Public Sector for the period 2009-2010 (2008), Second EE National Action Plan (2011)
Compliance with the EU	EU member state, introduction of the National Energy Efficiency Action Plans required by the EU Directive on EE and Energy Services; Participant of the Energy Community Treaty (2007)	EU member state, compliance with the EU Directives (2010/31/EU) on the energy performance of buildings and (2006/32/EC) on energy end use efficiency and energy services; Participant of Energy Community Treaty (2007)	EU member state, introduction of EU Directives 2005/32/EC, 2006/32/EC, 2009/28/EC, etc. into internal legislation; Participant of the Energy Community Treaty (2007)
Barriers	Frequent amendments to existing legislation, corruption, lack of awareness and lack of capacities at the municipal level, lack of financing of EE projects by commercial banks	Unsolved ownership relations, relatively long duration of procedures, lack of ESCO companies and lack of enough good prepared projects	Lack of internal expertise of local banks to evaluate EE projects, restricted capacity to develop fully bankable project proposals
Success Factors	Operation of BEEF (providing financing for ESCOs), ministries/ departments and municipalities can plan funding for performance of ESCO services within their annual budgets, contracts with guaranteed results in Bulgaria are legally regulated in the Energy Efficiency Act (EEA) and the special Ordinances	1 st and 2 nd National Energy Efficiency Action Plans (NEEAP), Physical Planning and Building Act as a basis for adoption of regulations on energy performance of buildings, mandatory energy certification of buildings (from 2010), Retrofitting programme for public sector buildings (04/2012-12/2013)	NEEAP established a specific measure for promotion of EPC (chapter: "Promotion of development for ESCO"), local commercial banks started move into EE market, financing mechanism of the National Programme for Increasing EE and RE Utilization in Public Sector for the period 2009-2010 can be used to support contribution to ESCO development

Country	Albania	Bosnia and Herzegovina	Serbia	FYR of Macedonia
Existence of ESCO	No ESCO	Few ESCO-type companies	New ESCO oriented activities	No ESCO
Types of contract	N/A	Guarantees on energy savings and simple payback time	N/A	N/A
Types of projects	N/A	Installation of mini-heating systems, boiler exchanges, establishment of tri-generation plants	N/A	N/A
Regulatory framework	National Energy Strategy (2003), Energy Action Plan (2007), Energy Efficiency Law (2005), First National EE Action Plan (2011)	No energy efficiency law, no specialized agency for EE and RE	Energy Law (2004), Energy Sector Development Strategy by 2015, Implementation Programme of the Energy Sector Development Strategy by 2015 for the period 2007-2012	Energy Law (2006), Strategy for Energy Development until 2030, National Action Plan (2009), Energy Law (2011) Energy Efficiency Strategy until 2020, National Energy Efficiency Action Plan 2010-2018
Compliance with the EU	Ratification of Energy Community Treaty (2006)	Contracting Party to Energy Community Treaty	Contracting Party to Energy Community Treaty, assistance of the EU in establishment of Serbian Energy Efficiency Agency (SEEA) via the European Agency for Reconstruction (EAR)	Stabilization and Association Agreement between the EU and FYR of Macedonia, ratification of Energy Community Treaty (2006)
Barriers	Complex non-transparent regulations, legislation is more declaratory than operational, low tariffs, lack of experience of financing EE and RES projects (by commercial banks), lack of appropriate and accessible financial resources, low awareness	Absence of decisional competences in energy matters, lack of coordination between the entities, no EE legislation in place, lack of awareness and capacities to develop EE projects	No dedicated energy efficiency law, no support mechanism in place for ESCO activity, absence of public funding dedicated to EE projects, low electricity and heat prices, no financial incentive for EE, lack of awareness on EE and ESCO potential, lack of financing by local banks	No specific EE law, lack of experience in ESCO projects by local banks, low tariffs for energy, lack of clarity of legal procedures regarding ESCO projects, lack of contract and tender templates, lack of M & V practices, lack of expertise for preparing ESCO projects
Success Factors	Adoption of the NEEAP, introduction of obligation for energy audits, establishment of EE Fund. Albanian-EU Energy Efficiency Centre may have potential to serve as ESCO.	Compliance with EU regulation as a driver for development of energy regulatory framework, Law on EE has been proposed on entity level	Energy Law foresees new responsibilities for municipalities: energy balancing, energy strategic planning and establishment of local energy markets, energy price liberalization has started, adoption of the EE Law, establishment of the Serbian Energy Efficiency Fund.	Elaboration of municipal Local EE Programmes and Action Plans, consideration for creation of the EE Credit Line by the local banks, by- laws on energy audit and energy performance of the buildings have to be adopted.

Country	Belarus	Kazakhstan	Moldova	Russian Federation	Ukraine
Existence of ESCO	“BelinvestESCO”, “Vneshenergосervice”, Center of New Technologies “Connectikum”	No ESCO	ESCO-Voltaj, number of ESCO-type companies	ENEFCO, H2O-Technology, GPB-EnergyEffect, Energoprofit, FNESCO, FRESKO, CESKO, NESCO, Invest ESCO ENEFCOM, FESCO, SBERENERGOESURS	UkrESCO, ESCO-Rivne, Energy Alliance, Aitikon, KyivESCO, OdesaESCO, around 130 ESCO-type companies
Types of contract	BOOT	N/A	Fee-for-service	Shared saving	BOOT, “turn-key” concept
Types of projects	Co-generation plants in large industry	N/A	Installation of heat-meters and modern high efficiency boilers in industrial sites, thermal insulation of buildings, application of new industrial high-efficiency technologies	Street lighting, heating, controlled systems, compressed air systems, district heating, projects in municipalities	Co-generation stations, compressed air systems, heat supply systems, cooling, and equipment modernization in small and medium enterprises, projects in municipalities
Regulatory framework	Law on Energy Saving (1998), Concept of Energy Security (2007), Strategy for Development of Energy Potential (2010), National Programme on Energy Saving for the period of 2011-2015, National Programme on Development of Local, Renewable and Unconventional Energy Sources in 2011-2015	Law on Supporting the Use of Renewable Sources of Energy, Energy Sector Development Programme until 2030, Programme for the Development of the Electricity Sector up to 2030, State Programme for industrial-innovative development of Kazakhstan for 2010-2014, new Law on Energy Saving and EE (2011)	Energy Law (1998), Law on Conservation (2000), Law on Renewable Energy Sources (2007), Law on Energy Efficiency (2010) National Programme of Energy Conservation for 2003-2010, Energy Strategy until 2030.	Energy Strategy for period up to 2030 (2009), Law on Energy Saving, Increasing of EE and Introduction of Changes in Selected Legislative Acts of the Russian Federation (2009), decree of the President on measures to increase the energy and environmental efficiency of the Russian economy (2008), Federal Programme on Energy Efficiency and Development of the Energy Sector (2013-2020)	Energy Strategy until 2030 (2005), Law on Energy Saving (1994), Comprehensive State Programme of Energy Saving (1997), State Programme of Reform and Development of the Housing and Communal Sector for 2004–2010 (2004), State Targeted Economic Programme on Energy Saving for 2010-2015
Compliance with the EU	Not a member of Energy Community , ENP Annual Action Programme (2007) aimed at providing support to implementation of a comprehensive energy policy	Signed MOU (road map cooperation on enhancing energy security and industrial cooperation) between EU and Kazakhstan	EU Moldova Action Plan (2004) under the Partnership and Cooperation Agreement, Contracting Party to Energy Community Treaty (2010)	Russia-EU Energy Dialogue (overall cooperation on energy saving, rationalization of production and transport infrastructures, investment possibilities and relations between producer and consumer countries)	Ukraine-EU Action Plan set up a Technical Assistance and Information Exchange Instrument (TAIEX) programme, development of joint instrument (Road Map), Contracting Party to Energy Community Treaty (2011)

Barriers	Lack of legislation on energy services, state monopoly on production and transport of energy, absence of budget planning for more than one calendar year, differentiation of tariffs for private and state owned companies, subsidized energy tariffs for building sector, lack of awareness about ESCO potential	Absence of energy efficiency agency and action plan for EE in place, availability of natural resources precluded development of awareness on relevance of EE projects, limited experience and lack of institutional and financing mechanisms for implementation of EE investment projects	Absence of secondary legislation to guarantee implementation of regulatory framework (e.g. support to development of ESCOs), low level of awareness among population and policy makers	No action or implementation plans have been developed, absence of operational dedicated credit lines by national funds, not completed process of privatization and liberalization in the energy sector, availability of resources provides no incentives to increase of EE lack of interpretation and guidelines from the Ministry of Finance of Russia to customers, providers of energy services and the Federal Treasury on the issue of planning expenditures budget on energy service contracts and payment, accounting, budget and tax accounting operations carried out within the framework of energy service contracts	ESCO market is hindered financially, high interest rates on loan, absence of legislative incentives, lack of a liberalized energy market, information on ESCOs is very scarce, absence of budget planning for more than one calendar year, lack of possibility to receive local guarantees, insufficient support for servicing energy saving measures
Success Factors	Draft Law on Electricity where activities of ESCO are to be regulated, establishment of International Energy Center (UNDP supported project), awareness raising and dedicated trainings	Plans to develop a new state program “Energy efficiency 2020”, state support for enterprises in the purchase of energy-saving technologies and equipment.	Draft of a national energy efficiency action plan 2012-2014 and a national renewable action plan 2012-2020. In 2013, the Energy Efficiency Fund was established. A Revolving Fund has been created, which partially serves to help the ESCOs’ operation	Introduction of EPC in the law which is linked to the budgetary legislation, EE regulation in construction industry and housing sector, introduction of energy audit (on voluntary basis) and “energy passport”, support for energy-saving technologies, introduction of tax incentives	Existence of the State Agency on Energy Efficiency and Energy Saving

EXISTING LEGISLATIVE AND REGULATORY FRAMEWORK TO SUPPORT ESCO ACTIVITIES

Energy efficiency measures are often considered as the most cost efficient means to reduce greenhouse gas emissions. In many countries the projects aimed at achieving energy savings are, overall, supported by the governments. However, successful implementation of those projects requires a suitable and supportive legal framework to be in place. In some countries the legislative and regulatory framework needs adjustment in order to promote the ESCO market development. This part of the publication will examine countries' policies that promote energy efficiency at the federal, state and local government levels.

European Union members

The European Union (EU) has considerably developed energy efficiency policies. Reducing energy consumption and eliminating energy waste are among the main goals of the EU. Its support for improving energy efficiency aims to prove decisive for competitiveness, security of supply and meeting the commitments on climate change made under the Kyoto Protocol. There is a significant potential for reducing consumption, especially in energy-intensive sectors such as buildings, manufacturing, energy conversion and transport. At the end of 2006, the EU pledged to cut its annual consumption of primary energy by 20 per cent by 2020. To achieve this goal, it is working to mobilise public opinion, decision-makers and market operators and to set minimum energy efficiency standards and rules on labelling for products, services and infrastructure.

Here the publication intends to look at the legislative and regulatory framework introduced in the countries participating in the FEEI project that became members of the EU, namely Bulgaria, Croatia and Romania.

Bulgaria

The National Energy Strategy, adopted by the Parliament in 2002, lays down the basis for the introduction of market mechanisms and for transforming the energy sector, including improving the efficiency of energy use in Bulgaria. The Energy Strategy has been revised. Based on this Strategy, Bulgaria aims to reduce energy intensity of the GDP by 50 per cent by 2020. The National Energy Strategy till 2020 reflects the political vision of the Government of European Development of Bulgaria pursuant to the up-to-date European energy policy framework and the global trends in the development of energy technologies.

Among main policies and regulations on energy efficiency there are the National Long-term Energy Efficiency Programme 2005-2015 and the National Short-term Energy Efficiency Programme 2005-2007, instituted by the Energy Efficiency Act.

The National Energy Efficiency Strategy is prepared in accordance with the requirements of the Energy Efficiency Law. It is prepared as a draft document which formulates the purposes, basic principles, relevant instruments, sector policies, the expected results and the necessary funding for their achievement. It is aimed at the development and implementation of a comprehensive national policy for energy efficiency. This strategy is based on the EU Green Paper on Energy Efficiency and Action on Energy Efficiency, published in 2006-2007, the Strategy for Economic Development of Bulgaria, the National Strategic Reference Framework and Energy Strategy.

Additionally, there is the National Energy Efficiency Action Plan for 2008-2016, adopted by the Government in 2007. The Energy Efficiency Act and its secondary legislation were adopted in 2008. For the period of 2008 to 2016, Bulgaria is expected to save up to 627 ktoe, as stipulated by the second National Energy Efficiency Action Plan that Bulgaria is developed in line with EU regulations.

The First National Action Plan for Energy Efficiency covered the period 2008-2010. The transitional objective, formulated in it, amounts to 209 ktoe saved energy by the end of 2010, representing one third of the general purpose. The summary report of implementation of this NEEAP was prepared and adopted by the Council of Ministers. The report includes an analysis of the energy efficiency in the period 2000-2009 and assessment for the results attained.

The Second National Action Plan for Energy Efficiency was adopted by the Council of Ministers in 2011 and covered the period from 2011 to 2016. Currently the plan is the only strategy in energy efficiency in the country. The plan determines an interim target for the period 2011-2013 equal of two thirds of the national target by 2016, which is 418 ktoe per year or 4,860 GWh. This NEEAP has a list of responsible institutions, funding sources as well as expected savings from its implementation. The plan contains an analysis of the public sector and the market for energy services and preparation of plan for buildings with near zero energy consumption.

The main general programme for energy efficiency in the residential and tertiary sector buildings remains the National Programme for Renovation of Panel Residential Buildings from 2005-2020 (Decision of the Council of Ministers from January 2005). A subsidy of up to 20 per cent from the state budget is envisaged for expenditure related to the implementation of energy efficiency measures in block of flats. Today the Programme has not started yet. Its implementation is expected to start after the enforcement of the Condominium-Project Building Act (2009) and the founding of associations of building owners under the provisions of that law. Furthermore the National Strategy for Financing of Buildings Insulation for Energy Efficiency Improvement for the period of 2005-2020 (adopted by the government in May 2004) is important regarding energy efficiency in residential and tertiary sector buildings. In addition, Bulgaria has introduced a number of important energy efficiency measures in buildings, such as measures linked to EU accession, measures in support of thermal performances of homes, subsidies, and fiscal measures.

Croatia

Energy policy and regulatory framework of Croatia includes the Energy Law approved in 2001, which defines measures to ensure a secure and reliable energy supply, efficient power generation, and its use. It addressed equally the enforcement of regulations in the energy sector, regulates carrying out energy activities based on market principles or pursuant to public service obligation, and other key issues relevant for the energy sector. In 2008 The Act on Efficient Utilization of Energy in Final Consumption defined responsibilities and legal framework for energy efficiency projects.

The Croatian energy efficiency legislation was based on the Energy Act (Official Gazette 68/01, 177/04, 76/07, 152/08, 127/10 and 120/12), which was the key legal act regarding energy efficiency, since it treats energy efficiency as a national interest and sets the basis for the establishment of the Environmental Protection and Energy Efficiency Fund (established

in 2003). It was later followed by the Act on Efficient Utilization of Energy in Final Consumption (Official Gazette 152/08 and 55/12). Act on Efficient Utilization of Energy in Final Consumption defined what strategic documents were needed to achieve energy efficiency goals, what are the responsibilities of public sector and energy companies and introduces energy service.

The Physical Planning and Building Act (Official Gazette No. 76/2007, 38/09, 55/11, 90/11 and 50/12) laid the legal bases for the adoption of the regulations of the EU Directive 2010/31/EU on energy performance of buildings.

National Energy Strategy adopted in 2009 stipulates an energy efficiency improvement of nine per cent of the annual final inland energy consumption (based on the average of the five years prior to 2008) in the period of 2008 to 2016.

The Energy Efficiency Master Plan for Croatia (for 2008-2016 period) and the three other strategic documents, which are based on the former one, i.e. the Energy Efficiency Programme for Croatia (2008–2016) and the First National Action Plan for Energy Efficiency (2008–2010) were adopted by Government in 2010, as well as the Second National Action Plan for Energy Efficiency (2011-2013) adopted by Government in March 2013.

The Environmental Protection and Energy Efficiency Fund is the first and only extra-budgetary fund dedicated to financing environmental protection, energy efficiency and RES programmes. The financial resources are secured from charges levied in accordance with the Act on the Fund, bilateral and multilateral cooperation, grants, charges on polluters of the environment (charges for emissions of CO₂, SO₂ and NO₂), charges for burdening the environment with waste, and a special environmental charge on motor vehicles. Resources can be allocated as “soft” loans, interest rate subsidies, grants and financial aid.

The Physical Planning and Building Act acknowledges the significance of energy efficiency and introduces mandatory energy certification of buildings (from April 2010). The energy certificate will be issued on the basis of calculation data for space heating (EN 13790) and on the basis of energy audits. The certificates will be made available to a buyer or a leaseholder and will be issued by persons authorized for this purpose by the responsible ministry. Energy certification of buildings, i.e. their classification by energy consumption, is a huge novelty, which will very likely facilitate the improvement of quality of construction and upgrading of the existing buildings.

Retrofitting programme for public sector buildings (04/2012–12/2013) was elaborated in Croatia. The model to be applied in the Programme implementation is the ESCO model, implying type of business operation where energy service provider (ESCO) offers measures for the improvement of energy efficiency according to its own solutions, which then result in provable savings in energy consumption. Since the implementation of such a model in Croatia is limited, this Programme sets preconditions for development of an ESCO market. Main beneficiaries are the owners, users and managers of public buildings, service providers (consultants, engineering companies), financial institutions, architects and constructors.

Romania

The main governmental institutions that are responsible for energy efficiency policy in Romania are the Ministry of Economy, Commerce and Business Environment, the Ministry

of Environment and Forests, the Ministry of Regional Development and Tourism, the Ministry of Administration and Internal Affairs and the Romanian Energy Regulatory Authority.

The energy policy framework includes the Romanian Electricity Law (2007) which created the legal framework for performance of activities in the electricity sector under conditions of safety and high standards of quality with the goal to optimize the use of primary energy resources and to protect the environment.

In September 2007, the Romanian Government approved a long-term Energy Strategy for 2007-2020. It aims to increase energy efficiency, boost renewable energy, diversify import sources and transport routes as well as protect critical infrastructure. Furthermore, the Energy Strategy underlines Romania's ambitions to become a major electricity exporter by 2020.

Further important legislation issued by the Government concerning the energy sector are the Government Decision No. 540/2004 on approving of the Regulation for granting authorizations and licences in the energy sector, as further amended and supplemented as well as the Government Decision No. 1661/2008 on approving the National Programme for increasing energy efficiency and using renewable energy resources in the public sector for the years 2009–2010.

Policies and regulations on energy efficiency include National Strategy for Energy Efficiency approved through Government Decision 163/2004, which is the most important document concerning the energy efficiency policy in Romania. The National Strategy on Energy Efficiency sets forth the objectives concerning energy efficiency for the period up to the year 2015. The main purpose of the strategy is to identify possibilities and means to increase energy efficiency at all levels of the energy chain, by implementing specific programmes in order to reach its ultimate goal: the increase of primary energy efficiency by 40 per cent by the year 2015. The strategy sets a priority in the residential sector, followed by the industrial and the transport sectors.

The Law 372/2005 transposes the EU Directive 2002/91/EC on energy performance of buildings into the Romanian legislation; it is in force since 1 January 2007 and states that starting with this date, all new buildings and public buildings need to be evaluated and to have an energy performance certificate. As of 1 January 2010 all existing buildings will be subject to this requirement, too.

The National Strategy on the heat supply of localities by means of district heating systems approved through Government Decision 882/2004 is based on the analysis of the existing situation and establishes the main domains of intervention: the thermal insulation of the blocks of flats and rehabilitation of the heat transport and distribution networks.

The Energy Strategy of Romania in the period 2007- 2020 has a general objective of the to cover the present and future energy demand at the least price, in the conditions of a modern market economy, ensuring quality and security of supply and observing the principles of sustainable development.

The National Strategy for Romania's Sustainable Development 2013-2020-2030 approved in 2008 establishes that the efficient use of energy and promotion of RES are essential for ensuring the sustainable development on the long term.

As a Member State of the European Union, Romania has to transpose the EU directives into its internal legislation and observe the energy policy measures established by the European Commission. Romania transposed the EU Directive 2005/32/EC that sets a framework establishing the eco-design requirements that apply to the energy-using products. It introduced the Ordinance 22/2008 on energy end-use efficiency and promotion of renewable energy source utilization by the end-consumers based on EU Directive 2006/32/EC on the energy end-use efficiency and energy services, envisaging the establishment of a legal framework for the development and application of the national energy efficiency policy.

Romania adopted the Law 220/2008 on the establishment of the system for the promotion of energy production from RES with its subsequent modifications and completions. In its present form the law translates the provisions of the Directive 2009/28/EC into internal legislation.

The National Programme for increasing energy efficiency and using renewable energy sources in the public sector over the 2009-2010 period was approved by the Government Decision 1661/2008. It ensures co-financing of the projects whose direct beneficiaries are the local public administration authorities relating to the following types of investment objectives: rehabilitation and modernization of the district heating systems, thermal rehabilitation of certain public buildings and modernization of interior and exterior public lighting.

According to the provisions of the Directive 2006/32/EC in 2007 Romania adopted the First National Energy Efficiency Action Plan. Romania aimed to reduce final energy consumption in the period 2008-2016 to an average annual rate of 1.5% against the average in the period 2001-2005.

In 2011 Romania developed the Second National Energy Efficiency Action Plan. The calculations made by means of top-down indicators projected that in 2010 Romania's final energy consumption savings would amount 2,223 ktoe, of which 1,060 ktoe are in industry, 782 ktoe in the services sector and 281 ktoe in the household sector.

South-East European countries

Energy consumption in the South-East European countries is extremely high in both the residential and the industrial sectors. In order for the countries of South-East Europe to remain economically competitive while providing an affordable and sustainable energy supply for citizens and meeting the requirements of the European Union, they must introduce more energy-efficient technologies and give greater priority to renewable energies.

In these countries the introduction of innovative processes is characterized by the transfer, experimentation and consolidation of know-how related to the use and production of energy following a good planning and employing the appropriate management methods.

This part of publication will look into the legislative and regulatory framework introduced in Albania, Bosnia and Herzegovina, Serbia and the former Yugoslav Republic of Macedonia.

Albania

Policies and regulations on energy efficiency in Albania are based on provisions of the National Energy Strategy which was approved by the Government in June 2003. The Energy Action Plan for its implementation was updated in June 2007. The primary objective of the Strategy is restructuring of energy sector based on market economy principles and developing a modern energy policy.

In 2005 the Albanian Parliament approved Energy Efficiency Law, which set out plans to improve energy efficiency. The main goals of the Law are the reduction of transmission and distribution losses, enhanced enforcement of the energy provisions of the Building Code (2002), greater use of solar power for water heating, improved use of decentralized heating and hot water systems, and the promotion of public transport.

The law of 2002 on “Conservation of thermal heat in buildings” established the necessary legal basis for setting up the rules and making mandatory actions for conservation of thermal heating in buildings. This law stipulates that the designing and construction of buildings should meet necessary technical parameters for conservation, saving and efficient use of energy. Based on this law, the Council of Ministers set up norms, rules and designing and construction conditions, heat generation and conservation in buildings included in the energy building code.

Furthermore, the technical norms, rules and conditions of designing, construction, production and conservation of thermal energy in buildings are set up by the Governmental Decree of 2004 on “Technical Norms of Heat Saving in Buildings”. According to the Decree, the physical or legal persons dealing with design of buildings, either private or public, shall observe these norms, rules and conditions. The Councils of Regulatory Adjustment in municipalities or counties approve construction permission only when the designs meet the contained requirements. This regulation is in compliance with the EU Directive 2002/91/EC on the energy performance of buildings.

In 2008 the new Law on “Production, transportation and trade of biofuels and other renewable fuels, for transport” was also adopted.

The 2009 law on “Indication by labelling and standard product information of the consumption of energy and other resources by household appliances” is fully in line with EU Directive 92/75/EEC and stipulates the obligations of supplier regarding the information of consumers concerning to consumption of electric energy, other forms of energy and other essential resources through a fiche and a label related to household appliances offered for sale, hire, hire-purchase or displayed to end-users. Based on this law, the Council of Ministers issued decisions which transpose the relevant EU directives, so called “implementing measures”.

Furthermore, the provisions of the Energy Community Treaty (which Albania ratified in 2006) foresee that all member countries must approve a national action plan on energy efficiency, introducing obligatory measures to be implemented by regulatory institutions.

The National Energy Efficiency Action Plan of Albania was adopted in 2011 and tries to be in compliance with the EU directive 2006/32/EC on “energy efficiency end use and energy services” and the EU directive 2002/91/EC “on energy performance of buildings”. It contains

a description of measures to improve the energy efficiency in Albania that are planned in order to achieve indicative targets for 2010-2018. National energy savings target for 2018 is 9 per cent.

Improved energy efficiency in all sectors is one of the main goals defined in the Albanian National Strategy on Energy. The Action Plan to implement Strategy will enable a more focused implementation of energy efficiency policy and better monitoring of its success in a short term – the next three years – by 2012 and in a long term by 2018.

The first National Energy Efficiency Action Plan (NEEAP) is the initial phase of the implementation of national EE policy. NEEAP gives a strong emphasis on EE improvements in public sector. Comprehensive package of EE measures for public sector include measures dealing with stricter standards for new public buildings, certification of buildings, refurbishment programmes, promotion of energy performance contracting, promotion of public street lighting, information and awareness raising campaign, energy management, energy labelling and minimum standards for electric appliances.

Bosnia and Herzegovina

There is no energy efficiency law in place at the state level in Bosnia and Herzegovina. However, a Law on Energy Efficiency have been developed in both entities. In the Republika Srpska this law has been adopted by the National Assembly of the Republika Srpska on 27 June 2013, while the Law on Energy Efficiency in the Federation of Bosnia and Herzegovina is in the process of adoption, and it is expected to be adopted by the end of 2013. As a step forward the by-laws in the area of energy efficiency are also prepared in both entities.

The National Energy Efficiency Action Plan is prepared but its adoption is much delayed while there have been many attempts for its finalisation and implementation. The resource constraints and other political barriers are the reasons for this delay.

While energy policy is mainly within the competence of the two entities of Bosnia and Herzegovina there is no fully prepared set of entity policies as well as detailed energy framework at state level.

Bosnia and Herzegovina established necessary institutions at the state and entity levels to oversee the energy market reforms in accordance with the *aquis communautaire* of the EU. Therefore, the proposed energy efficiency laws and by-laws are fully in accordance with the EU requirements, due to the fact that development of the energy efficiency sector is mainly driven by fulfilment of the obligation that Bosnia and Herzegovina undertakes by ratification and signing of various international treaties such as Energy Community Treaty and Energy Charter Treaty.

In the recent period Bosnia and Herzegovina made significant step forward when it comes to the energy efficiency development. Both on the state and entity levels a lot of activities were done in order to develop energy efficiency framework that will promote EE, raise awareness in this area and attract foreign and domestic investors to invest in EE projects. The capacity building activities to promote ESCO and awareness campaigns have been organized in the framework of various energy efficiency promoting projects that are implemented and/or in process of implementation in Bosnia and Herzegovina. Due to that fact, both public and private sector become familiar with principles and benefits of ESCO concept. Mentioned

activities are a necessary precondition for the establishment of ESCO in Bosnia and Herzegovina.

Serbia

Energy policy framework includes the Energy Law, which was adopted in 2004. This Law regulates generation, transmission, distribution and supply of electricity, organization and functioning of the electricity market, transmission, distribution, storage, trade and supply of petroleum products and gas, and the production and distribution of heat. The main objectives of the Energy Law are, *inter alia*, provision of a safe, quality and reliable supply of energy and energy sources, stimulation of market competition, provision of conditions for promoting energy efficiency in carrying out energy activities and energy consumption, as well as stimulating the use of renewable energy sources and combined heat and power generation.

In addition to this legal basis, Serbia has developed the Energy Sector Development Strategy by 2015, which objectives are technological modernization of the existing energy facilities, increase of energy efficiency in the production and use of energy, as well as use of new and renewable energy sources and construction of new energy infrastructure facilities.

In 2007 the Government of the Republic of Serbia adopted the Implementation Programme of the Energy Sector Development Strategy of the Republic of Serbia by 2015 for the period 2007-2012. The Programme identifies barriers to increasing efficiency in energy consumption and to widely using renewable energy, recommending regulatory, policy, institutional, organizational and technical measures to overcome these barriers. It foresees the development of national regulations to establish favourable conditions for ESCOs' operation and introduction of an energy passport system in buildings. The Programme is now under implementation.

In accordance with the EU Directive 2006/32/EC on energy end-use efficiency and energy services Serbia has adopted the National EE Action Plan. The first NEEAP was adopted in June 2010 and covers the period of 2010-2012. The second NEEAP is in preparation and will cover the period from 2013 to 2015.

Serbia is now in the process of adoption of the Law on Efficient Use of Energy. This law will contain basic principles on implementation of EE measures in production, transmission, distribution and energy consumption, reducing the cost of production and service, reducing of energy consumption, higher efficiency, eco-design requirements, use of EE technologies, sustainability in terms of environmental impact as well as integrated approach to reduce primary energy consumption and environmental impact. The establishment of the Energy Efficiency Fund is seen as a necessary tool to increasing energy efficiency and stimulating rational energy use.

The former Yugoslav Republic of Macedonia

The Energy Law of 2006 was the framework for energy regulation in the former Yugoslav Republic of Macedonia. It defined following priorities: harmonization with EU legislation, establishment of market conditions, further development of the energy systems by construction of new energy generating facilities and multiple connections to the energy systems of the neighbouring countries, increase of energy efficiency, development of renewable energy resources in the country and introduction of adequate environmental

standards and measures. The new Energy Law was adopted in 2011 and amended in 2011 and 2013.

There is the Strategy for Energy Development in the Republic of Macedonia for the Period 2008-2020. The timeframe of the strategy is until 2030. The main pillars of it are construction of new thermal and hydro power plants, analysis of nuclear power plants and of natural gas supply and improvement of energy efficiency by 30 per cent by 2020 compared to the base year 2006. According to the strategy, the main energy efficiency measures on the production side will be the construction of cogeneration power plants. The main goal of the Strategy is to develop a framework for accelerated adoption of EE practices in a sustainable way and to implement series of programs and initiatives that are related to reducing dependence on imports, energy intensity and non-productive use of energy. On the demand side, new energy efficiency measures in the industrial sector are envisaged. Up to 2020 the production of electricity should be in line with the demand for electricity. After 2020 the former Yugoslav Republic of Macedonia could become an exporter of electricity.

The former Yugoslav Republic of Macedonia has no specific Energy Efficiency Law, but provisions for energy efficiency have been included in the Energy Law. The Energy Law of 2011 clearly targets energy efficiency by including a special chapter, where the current national policy and activities for improvement of energy efficiency are elaborated. The law contains provisions about the development of a strategy (which has been further adopted) for improvement of energy efficiency for a period of ten years and a three-year programme for the implementation of the strategy. The Energy Law obliges municipalities to elaborate and implement five-year Local Energy Efficiency Programmes and Action Plans for their implementation. The council of municipalities will receive these action plans, while the government will control these action plans based on legal documents. The law includes provisions for energy efficiency in the construction of new and reconstruction of existing facilities, including energy audits and buildings certificates.

Additionally, the former Yugoslav Republic of Macedonia as a Contracting Party of the Energy Community Treaty is required to prepare three National Energy Efficiency Action Plans for the period 2010-2018, following the EU Directive 2006/32/EC on energy end-use efficiency and energy services. The first NEEAP was prepared and submitted to the Energy Community Secretariat in June 2010. The NEEAP presented the recommended programs that will achieve the 9 per cent energy savings target specified in the EE Strategy, as well as the implementation timeframe, financial means, and the expected energy savings. As in the Strategy, the public buildings sector is not a separate sector, but falls under the commercial and services sector. NEEAP puts priority on the public sector in the short-term as the sector that is easier to address, and for the expected leading-by-example impact on commercial sector actors. It also emphasizes that capacity for EE needs to be built in both the Ministry of Energy and the Energy Agency and that an EE Fund should be established. So far, no evaluation on the level of implementation of the first NEEAP has been prepared by the Energy Agency, mandated by the Energy Law. The second NEEAP has to be adopted by the end of December 2013.

Countries of Eastern Europe and Central Asia

This part of the publication examines the legislative and regulatory framework in four Eastern European countries participating in the FEEI project, namely Belarus, Republic of Moldova, Russian Federation, and Ukraine. The Central Asian countries are represented only

by Kazakhstan whose legal and institutional capacity for energy efficiency promotion is also reviewed.

Belarus

At present, there is no specific legislation regulating energy services in the Republic of Belarus and the acting ESCO-type companies are operating on the basis of the currently existing legislation.

Policies and regulations on energy efficiency include the Law on Energy Saving adopted in 1998, the National Programme on energy saving for the period of 2006-2010 (adopted in 2006) and the specific ministerial plans in their respective industries. It also includes the establishment of a Concept of Energy Security (2007), Strategy for Development of Energy Potential (2010), National Programme on Energy Saving for the period of 2011-2015, National Programme on Development of Local, Renewable and Unconventional Energy Sources in 2011-2015, National Programme on Development of local, renewable and unconventional energy sources in 2011-2015, Decree of the President of the Republic of Belarus on Development of Entrepreneurship and Business Activity Stimulation in the Republic of Belarus (2010). The state policy on energy efficiency and renewable energy sources is under implementation.

The Department for Energy Efficiency of the State Committee for Standardization is responsible for the policy regarding energy efficiency.

Kazakhstan

The governmental policy in Kazakhstan regarding heat supply is directed to privatization. As stated in the Energy Sector Development Programme until 2030, the development of centralized heating systems on the basis of cogeneration plants where it is economically feasible is one of the main directions of heating systems development. According to the Energy Sector Development Programme until 2030 it is envisaged to reduce the electricity production from coal to 60 per cent, compared to 70 per cent in 2006.

The goal and the basic priorities of the development of the electricity sector are presented in the Programme for the Development of the Electricity Sector up to 2030 (adopted in April 1999). The principal strategic directions in development of the sector are the creation of an integral power system of Kazakhstan, simultaneous operation with the integral power system of the Russian Federation and the power systems of the Central Asian republics, further development of an open competitive power market, improvement of the power generation structure by developing technologies using renewable energy resources, reconstruction and modernization of the existing heating systems with combined generation of heat and electricity as well as the implementation of modern autonomous high-quality sources of heat. Furthermore, the Law on Electricity was adopted in July 2004. Another basic act regulating electricity market is the Law on Natural Monopolies, which was last amended in December 2004.

An important legal act on energy efficiency is the Law on Energy Saving and Energy Efficiency Raise (adopted 13 January 2012). The State Energy Supervision Agency within the Ministry of Energy and Mineral Resources has been asked to evaluate and propose establishment of an Energy (Efficiency) Agency, within or outside the Ministry.

Currently, Kazakhstan aims to develop a new state programme to reduce energy consumption and promote energy efficiency. The programme is called “Energy efficiency 2020”. It aims to achieve a reduction of energy intensity by 10 per cent by 2015 and by 25 per cent in 2020. The programme will incorporate nine areas, among which are energy-efficient enterprises, energy-efficient construction and transport, energy-efficient society as well as the innovative energy sector. A legislative norm for the mandatory reduction of energy consumption in industrial facilities is planned to be introduced. Additionally, the state will provide support for enterprises in the purchase of energy-saving technologies and equipment. The "Energy efficiency 2020" programme is being developed at the initiative of the President of Kazakhstan.

Republic of Moldova

Among policies and regulation in the energy sector include Energy Law (1998), Law on Conservation (2000), Law on Renewable Energy Sources (2007), Law on Energy Efficiency (2010), and the National Programme of Energy Conservation for 2003-2010. One of the most important policy documents is the Energy Strategy of the Republic of Moldova until 2020, which has been published in 2007 and has three strategic objectives: security of energy supply, promoting energy and economic efficiency, and liberalization of the energy market and restructuring of power industry. The Ministry of Economy monitors the progress of strategy implementation on a quarterly basis. Based on the mentioned three strategic objectives the following priorities have been defined:

- Establishment of an acceptable level of energy security by both construction of own power plants and enlargement of the capacity of Moldova-Ukraine and Moldova-Romania high voltage interconnections lines;
- Adherence to the regional electricity market in South-East Europe with the aim to join the Union for the Co-ordination of Transmission of Electricity system;
- Creation of conditions to ensure real market competition leading to cheaper electricity prices;
- Full liberalization of the power market;
- Strengthening of the gas transport network and improvement of energy efficiency.

Republic of Moldova is a contracting party of the Energy Community Treaty (acceded in May 2010). Energy efficiency is a priority in the Republic of Moldova and strategic policy objectives for energy conservation have been defined in the National Programme of Energy Conservation (2003). It is the policy document guiding government actions in pursuing increased energy efficiency of the economy. It set out quantitative targets for efficiency improvements, priority areas for energy conservation and efficiency interventions. It also indicated activities to carry out in order to achieve stated objectives.

Recently, Republic of Moldova made a significant progress in introducing measures supporting energy efficiency. In particular, in January 2013, the government adopted the energy strategy until 2030. The draft laws on natural gas, heat and renewable energy law are currently in preparation. Republic of Moldova prepared drafts of a National Energy Efficiency Action Plan 2012-2014 and a National Renewable Energy Action Plan 2012-2020. It also drafted an incentives package, including on feed-in tariffs, for increased use of renewable energy sources.

Russian Federation

Energy efficiency is one of the priorities on the political agenda in the Russian Federation. Modernizing energy infrastructure and promoting energy efficiency is the number one of the five priority areas for modernization and overseen by the Presidential Commission for Modernisation and Technological Development of Russia's Economy. Russian energy efficiency goals include reducing energy intensity of GDP of the Russian economy by 40 per cent to 2020 compared to the 2007 levels.

In 2009 the Energy Strategy of Russia until 2030 was adopted. Main priorities of Energy Strategy of Russia include completion of structural reforms of natural monopolies in fuel and energy complex and re-structuring of the coal industry, prolongation of structural modification of branches in fuel and energy complex and improvement of the structure of fuel and energy balance, decreasing production costs in energy sector, optimization of the use of available industrial potential, liquidation of the unprofitable plants, forming the internal prices for energy resources at a level providing energy sector and fuel producers self-financing, raising the level of management in joint-stock companies operated in fuel and energy complex.

The legal framework for energy efficiency is based on the Law on Energy Saving and on Increasing Energy Efficiency and on Introduction of Changes in Selected Legislative Acts of the Russian Federation (2009) and on various Codes and Federal Laws, such as the Civil Code, the Tax Code, the Forestry Code, the Customs Code, the Urban Development Code, the Housing Code and the Laws on Electricity and Heat Sectors.

The 2009 law replaces the previous Law on Energy Efficiency, which was in force since 1996 and which was distinguished by its declarative nature and absence of real measures allowing real development of energy saving technologies in the Russian Federation. Furthermore, it provides the regulatory framework for implementation of the decree of the President of the Russian Federation "On measures to increase the energy and environmental efficiency of the Russian economy" (2008), thus marking the first step in a comprehensive revision of regulations on energy efficiency in the Russian Federation. The presidential decree envisages energy intensity target reduction of 40 per cent by 2020. The new Law on Energy Saving and on Increasing Energy Efficiency is a major act embracing general principles of the policy of the Russian Federation in the area of energy efficiency and energy savings. The approval of the Law is accompanied by various legislative changes (including the Tax Code and the Federal Law on Public Procurement).

The new energy efficiency legislation establishes standards for regulating energy consumption to encourage energy savings and amends existing legislation on enforcing energy saving rules. The law also makes energy audit mandatory for all public agencies, utility companies, large energy consumers, metering for all buildings and establishes that public agencies must reduce their energy and water consumption by 15 per cent by 2015.

Furthermore, the adoption of the Law, as a framework act, required the development of numerous by-laws by the Government and relevant federal ministries.

One of the most important legal acts in the area of energy services is the decision of the Government of the Russian Federation of 18 August 2010 No. 636 "On the requirements for the contract for energy services and features of determining the initial (maximum) contract

price (lot price) for energy services.” This ruling applies to government (municipal) contracts and defines its essential terms.

The Federal Programme on “Energy Savings and Improving Energy Efficiency up to 2020” was adopted by the Russian Parliament in 2010. Overall, the program recognizes that energy intensity is 2.5 times higher than the world’s average and up to 3.5 times higher than that of developed countries. The Federal Programme on “Energy Savings and Improving Energy Efficiency up to 2020” was replaced by the new Federal Programme “Energy Efficiency and Development of the Energy Sector” (2013-2020).

Ukraine

Ukraine has a complex legal framework for energy sector. The main legislation includes the Law on Electricity Sector (1997), the Law on Heat Supply (2005), and the Law on Combined Heat and Power Production (Cogeneration) and Utilization of Energy Waste Potential (2005). The laws are supplemented by a number of government resolutions, presidential decrees, by-laws, regulations, norms, standards, and methodological guidelines. Ukraine is a contracting party of the Energy Community Treaty (acceded in February 2011).

The main energy policy document is the Energy Strategy of Ukraine for the period until 2030 (2005). The Energy Strategy is a document mainly of a declarative nature, and provides general outlook of energy sector development up to 2030. The Strategy focuses on traditional energy sectors (natural gas, oil, nuclear and coal). One of its goals is reducing country’s energy dependence, in particular on natural gas imports. It envisages the ambitious target of reduction of energy intensity by 50 per cent by 2030. The Comprehensive State Energy Conservation Programme until 2010 provides for the enhancement of energy efficiency and competitiveness of national economy, the optimization of state energy balance through decrease of imported fossil fuels (natural gas) and their replacement with alternative sources of energy and secondary energy sources.

There is a dedicated institution responsible for energy efficiency, the State Agency for Energy Efficiency and Energy Saving of Ukraine (SAEE). It is responsible for development and implementation of the national policy in the area of energy efficiency, energy conservation, and development of alternative energy sources.

Issues related to energy saving and energy efficiency in housing and communal sector are reflected in the State Programme of Reform and Development of the Housing and Communal Sector for 2004–2010 (2004).

In 2008 the Concept of the State Target Economic Energy Efficiency Programme for 2010-2015 has been approved by order of the Cabinet of Ministers of Ukraine. The Concept envisages, *inter alia*, the creation of a legislative framework, the provision of economic incentives to promote energy saving activities, the creation of a state system for monitoring and controlling the efficient use of fuel and energy sources; in this context, the development of a Draft Law on Efficient Use of Fuel and Energy Resources introducing a market-based approach represents a first implementation step.

Current Ukrainian legislation contains few incentives for promotion of alternative energy use. These are currently provided by the Law of Ukraine “On Electric Energy Industry” (establishing “green tariffs”), the Law of Ukraine “On Amendments of the Certain

Legislative Acts of Ukraine in Regard to Promotion of the Energy Saving Measures” (envisaging tax and duty preferences) and by the recently adopted Law of Ukraine “On Lands for Energy Facilities and the Legal Regime of Special Areas for Energy Facilities”.

The law on energy audit is absent. However, the concept of energy audit has been introduced by the Law of Ukraine “On Amending the Law of Ukraine “On Energy Saving” (2005), prescribing that the order of performance of energy audit would be envisaged by a separate law. Nevertheless, the referred law is not adopted by the parliament until now.

CURRENT ESCO ACTIVITIES

European Union member countries

The ESCO market in the new EU member countries that fall under the scope of this publication, namely Bulgaria, Croatia and Romania, is in a more active stage of its development. In each of these countries there are certain ESCOs operating and implementing various projects. Some of them operate based on the EPC model.

The business model for energy services companies in **Bulgaria** is set up on the principle of public-private partnership, whereas the ESCOs provide the necessary investment for implementation of the project for energy efficient service with own means and at their own risk. The investment is paid off from the achieved energy savings. For the purposes of that activity the ESCOs and the user of the service sign a contract with a guaranteed result. The ESCO business model has been regulated in the Energy Efficiency Act of 2004. More than 150 companies are in possession of a license for carrying out energy audits in Bulgaria.

One of the most successful ESCO operating in Bulgaria is Enemona SA, a private Bulgarian engineering company, established in 1990. The company implements energy efficiency projects in the industrial sector, public buildings (municipal and state) and civil buildings, based on an energy performance ESCO contracting business model (guaranteed result contracts). The company implements also renewable energy projects (small hydro power plants, solar and biomass power stations). Based on the 2004 Energy Efficiency Act, Enemona, which before has worked exclusively as an engineering services company, decided to enter the field of services for energy audits and energy saving projects. The repayment period is usually in the range of five-seven years based on the EPC model. Enemona may be suitable to serve as a financing vehicle to address small energy efficiency projects in the industry and public sector.

Another ESCO company is Energy Efficiency Systems Ltd., which is focused on energy audits for industrial enterprises and providing of energy services. The company has been established in the 1990s with the support of the United States Agency for International Development. However, unlike the pure ESCO concept, Energy Efficiency Systems Ltd. does not take any financial risks. The main customers of the company derive mostly from the food and beverages industry.

Overall the implemented projects include the ones for financing of fuel switch, heating modernization, public lighting, and industrial processes, including mostly boiler and steam equipment modernization. Sometimes, municipal projects are bundled in order to increase profitability and decrease transaction costs.

Since 2006 the Bulgarian Energy Efficiency Fund is operational, providing financing also for ESCOs. The Fund offers three types of assistance: partial credit guarantee, joint crediting with commercial banks and technical assistance for project development.

The main ESCOs operating in **Croatia** are the HEP ESCO and EETEK Holding Plc. The HEP ESCO, a subsidiary company of HEP Hrvatska Elektroprivreda (HEP Group) is an ESCO, whose core business consists of preparation, financing, and implementation of energy

efficiency projects on a commercial basis. The company was founded in April 2002 with the aim of becoming the key creator of the market for energy efficiency projects in Croatia and began operations in September 2003. HEP ESCO can also be considered as the implementing agency for the Energy Efficiency Project Croatia, which was initiated by the World Bank and the Global Environment Facility in cooperation with HEP and the Croatian Bank for Reconstruction and Development. For this purpose HEP ESCO received a loan from the World Bank in the amount of 4.4 million Euro and a grant from the GEF in the amount of 7 million USD, which is being used over a period of six years for technical assistance, preparation of feasibility studies and for procurement of some equipment and works needed for the implementation of energy efficiency projects on end user sites. Customers of HEP ESCO services are end users of electricity and heat energy, in both private and public sectors. Project partners are consulting, design, and engineering firms, small and medium enterprises, equipment manufacturers and contractors, and domestic commercial banks.

Overall, ESCO projects are usually implemented on the basis of an EE implementation contract signed between HEP ESCO and each client. The contract specifies the investments of ESCO, mainly modernization or reconstruction of existing plants or buildings, with the aim of improving the efficiency of the energy use. Usually the investment is being paid back through cost savings resulting from energy savings. ESCO finances the project completely or partially, depending on the investment amount and savings to be achieved. Depending on the project type, ESCO assumes the risk of the investment and guarantees the savings to be achieved over the investment payback period.

EETEK Holding Plc., which can also be considered an ESCO, is a private direct equity investment company active in the energy services business. The company is based in Budapest, with operations in Hungary, Slovakia, Bulgaria, and Romania. It is implementing projects in renewable energy sources and energy efficiency. It provides engineering and financial assessment, detailed engineering due diligence, energy services outsourcing, acquisition of energy systems, financial structuring of development project as well as engineering design, implementation, investment and operation.

There is, however, an argument that there is only one ESCO in Croatia – HEP ESCO – which offers EPC.

In **Romania** the first ESCO was created in 1996. The private company Energy Serv S.A. was the first Romanian ESCO and has 100 per cent local Romanian ownership. It focuses on steam boilers, process heaters in the power sector, refineries, and petrochemicals. The maximum pay-back time of the projects was three years. Recently the company successfully implemented a CHP project based on biomass utilization. This is the first plant to be built in Romania, by its new concept and technology employed for the specific application and it is hoped that this project will open the door to a large market of similar applications in wood and furniture industry, district heating and industrial heat recovery.

In 2003, the EBRD and the Romanian-American Investment Fund established the Romanian Industrial Energy Efficiency Company (currently SE-GES). It was one of the first ESCOs in Romania to provide financing for energy efficiency investments in creditworthy industrial companies. It makes standardized investments in on-site cogeneration systems, which enable companies to significantly reduce energy consumption. The investments are based on the BOOT (Build-Own-Operate-Transfer) financing scheme. SE-GES portfolio includes several projects that are operational at Zentiva Pharmaceuticals Bucharest, Ursus Brewery Buzau,

Isovolta Insulators Bucharest, Spicul flower mill Bucharest, Petrom Crude Extraction Oprisenesti, etc. Since its inception in 2004, SE-GES has invested more than 7 million Euro in small cogeneration projects, installing 6.4 MW electrical cogeneration installations and 8 thermal energy production and recovery units (recovery boilers, economisers, absorption chillers, special boilers, etc). Other important projects are under preparation, in different stages of development.

EnergobitESCO has been launched in May 2005 as a joint venture between the Canadian company Econoler International and EnergoBit from Cluj-Napoca and is specialized in development and implementation of energy efficiency projects and use of renewable energy sources. The main objective is to offer and develop economic and ecological solutions, especially in the industry sector with the purpose of obtaining the optimization of energy consumption and producing energy from alternative sources. The company offers energy services, including energy audit, issuance of proposals for the reduction of energy consumption, elaboration of feasibility studies and solution studies, assistance in obtaining the best financing sources (drafting of the business plan, elaboration of feasibility studies and the preparation of the financing file) as well as identification and development of financial mechanisms addressed at the energy area. The company successfully negotiated a 2 million Euro contract with EBRD in order to increase its financing capacity.

SERVELECT is a Romanian privately owned ESCO launched in 2005 in Cluj-Napoca, which develops energy efficiency projects mainly for the industrial and commercial sectors. The company offers complex energy efficiency projects, paid from the generated savings. The typical applications that optimize energy consumptions are: variable speed flow control, efficient indoor and outdoor lighting, power factor correction, compressed air production, distribution, consumption, energy quality optimization, heat recovery, cogeneration or trigeneration, process optimization etc. In 2011, SERVELECT has received the distinction “Best European Energy Service Provider” from the European Union for its achievements during 2010.

Krobath Romania SRL is a subsidiary of an Austrian ESCO very active in Romania, having the first ambitious pilot project for a hospital heating system rehabilitation in Bisericani, Neamt County.

Cothec Energetikai Uzemelteto SRL. is a Hungarian company active in Romania, which provides financial background required for realisation, installs the equipment with professional workers certified with quality assurance in building construction and putting into; operation is supervised by Cothec Ltd

Proenergy Contract Installations SRL is an ESCO based in Timisoara city as a Romanian subsidiary of Proenergy international company active in Germany, Austria and Hungary. They successfully implemented a project, including cogeneration unit, in a large touristic complex.

Energy Services Group is an ESCO active in public sector having three contracts in building rehabilitation and one in private sector for hotel rehabilitation; two new projects are in preparation for 2013.

Luxten Lighting is a very large company specialized in public lighting sector, and having a pilot project also in school rehabilitation, implemented in the framework of the EU project “European Energy Services Initiative”.

ENEAS S.R.L.-Romania is also an ESCO specialized in cogeneration installations. The company has established cooperation with Romanian Energy Efficiency Fund in order to have financing for industrial capacity in food industry.

All the above mentioned companies offer a wide range of services, including ESCO projects, auditing, equipment installation, operation and further engineering projects. ESCOs also make boiler renovation and operation of residential district heating.

There are also other companies included in the list of ESCOs by the Romania Energy Regulatory Authority (ANRE), but a certification process for these companies is not implemented.

South-East European countries

The ESCO market is not developed in the countries of South-East Europe. In four countries, namely Albania, Bosnia and Herzegovina, Serbia and the former Yugoslav Republic of Macedonia there are no operating ESCOs.

ESCO market in **Albania** is only to be developed. It is planned to be done with particular emphasis on the public sector. The new Energy Efficiency Law envisages the inclusion of necessary provisions for establishment of ESCO market, as well as securing financing through the Energy Efficiency Fund. Currently, there are only two institutions which are involved in the energy efficiency area – Albania-EU Energy Efficiency Centre (EEC) and the Albanian National Agency of Natural Resources (AKBN). AKBN is involved in energy planning, preparing the annual energy balance and establishing legal frameworks on energy efficiency and renewable energy.

In **Bosnia and Herzegovina** there are also no officially operating ESCOs, though there are a few companies using ESCO concept in implementing small-scale boiler biomass heating projects and a number of other projects. ESCO projects range from installation of mini-heating systems, through boiler exchanges to the establishment of tri-generation plants. The example projects have involved guarantees on energy savings by an ESCO-type private company and the simple payback time has been less than five years.

In **Serbia** ESCOs do not exist mainly because there is no support mechanism in place for the activities of these companies. The legal framework for running such companies is also missing; however, recently some work has been done to determine the existing legal obstacles to the establishment of such companies in Serbia. Development has started, legislation and some capacity are in place, but further legal and capacity advancement are still necessary in order to fully enable the development of third party financing schemes.

In **the former Yugoslav Republic of Macedonia** there are also no ESCOs. There was an attempt to establish an ESCO (MT ESCO llc, a joint venture between Toplifikacija AD Skopje and MEPSO AD Skopje) in the period of 2006-2007 with funding from the GEF project. However, this attempt was not successful.

Another initiative was made to create company operating on ESCO business model. The ESCO Fonko private company was established. As the previous attempt, this one was not successful too and after two years of existence this company (as well as the mother company Fonko) became bankrupt and was closed. There is no certain information about any ESCO projects completed by this company.

Countries of Eastern Europe and Central Asia

The ESCO market in the countries of Eastern Europe, namely Belarus, Republic of Moldova, Russian Federation, and Ukraine, is relatively developed. However, the companies operating in this market cannot be called ESCOs in its strict sense as they do not operate based on the EPC model. In Kazakhstan, there are no ESCO companies.

For example, several ESCO-type companies are operating in **Belarus**, including BelinvestESCO, Vneshenergосervice and Centre of New Technologies «Connecticum». BelinvestESCO was established in 2005 as the first ESCO in Belarus by Belinvestbank and the Department for Energy Efficiency of the State Committee for Standardization. The company conducted feasibility studies for different energy companies and was involved in constructing two small combined heat and power plants jointly with the local municipalities of Lido and Birosa.

The projects are usually characterised by three- to four-year pay-back periods. The existing ESCO-type companies have implemented projects in large industrial companies. They execute mostly turn-key projects, including delivery, installation and operation of energy-efficient equipment. The company owns the installation during the project time and sells electricity and heat at a lower price but when the project ends the installation is handed over to the client.

In **Kazakhstan** there are no existing ESCOs. The UNDP/GEF project on “Removing barriers to energy efficiency in the municipal heat and hot water supply” aimed to establish the first ESCO. Initially it was planned to be in Almaty city but then was changed to Karaganda. However up to date there is no information on the progress of this initiative.

There are a limited number of companies working in the field of energy efficiency in the **Republic of Moldova**. One ESCO type company ESCO-Voltaj was set up in 2007. Another example is the company SC Geothermal-AV SR, which is providing professional consulting services in the field of energy conservation. The main activities provided by the company include designing and building clean ecological and energy saving houses, design and installation of ventilation systems with heat recovery, implementation of heat or cooling systems based on heat pumps, providing energy audits for buildings, installation of water saving systems and ensuring service of supplied installations. The company Dina-Cociug is the market leader in the Republic of Moldova for heating, water supply, air conditioning, ventilation equipment and energy conservation equipment. There are also few other companies that have worked on donor-financed turn-key contracts in the range from USD 50,000 to USD 150,000.

In the **Russian Federation** there are several energy service companies. They include ENEFCO, H2O-Technology, GPB-EnergyEffect, Energoprofit, FNESCO, FRESKO, CESKO, NESCO, Invest ESCO ENEFCOM, SBERENERGORESURS. There are also

regional centres for energy efficiency with the major ones located in Kaliningrad, Murmansk, Kola, Karelia, and Yekaterinburg.

The state Federal Energy Service Company (FESCO) and regional public-private energy service companies (RESCO) were established. The network of such companies in the regions covers many regions of the Russian Federation. These federal and regional ESCOs however only serve state-owned enterprises and municipal buildings.

All regions of the Russian Federation have already established regional energy efficiency programmes and some regions have taken initiatives to implement pilot energy service projects. One example of such a regional initiative is the territorial project of the Kaluga Oblast. Kaluga City Administration together with the Working Group on Energy Efficiency of the Commission on Modernization of the President of the Russian Federation initiated energy service contracts in public schools. Experts from Invest ESCO ENEFKOM conducted an energy audit, prepared a feasibility study and implemented energy saving measures. Energy savings (heat and electricity) amounted to 25 per cent per year. This project is the first energy service project in Russia. It has demonstrated the benefits of energy services and at the same time displayed the typical problems associated with the implementation of an energy project in the public sector.

The Russian Energy Agency (REA) is one of the most important entities in the Russian Federation with expertise in the area of energy efficiency in the country. It actively develops and supports the implementation of energy service projects. Staff of REA translated the International Performance Measurement and Verification Protocol (IPMVP) into Russian and prepared methodological recommendations on the preparation and implementation of energy service projects.

REA is involved in selection, preparation and implementation of energy service projects in various regions of the Russian Federation (for example, in Smolensk Oblast, in Tula Oblast and in Moscow). This work is being jointly undertaken by REA, representatives of the regional authorities, representatives of municipalities and other stakeholders. Implemented projects include street lighting, projects in the municipal and public sectors including regulation of the use of water and heat, and introduction of metering systems.

Total number of registered ESCO-type companies in **Ukraine** is close to 130. Major ESCOs operating in the country include UkrESCO, ESCO-Rivne, ESCO-Zakhid, Kherson-ESCO and Energy Alliance. UkrESCO and Energy Alliance have been created with the support of international financial institutions. EBRD provided a loan of 20 million USD to support the creation of UkrESCO in 1998. UkrESCO has been implementing energy saving projects as a turn-key operation at small and medium enterprises in Ukraine. It has successfully implemented a number of energy saving projects in various Ukrainian companies. The usual project payback period is from one to four years, the commodity loan term is up to four years.

In 2005 the EBRD provided UkrESCO a second loan of 30 million USD to enable UkrESCO's business expansion. Additionally in 2003, the EBRD provided a loan of 10 million USD for the establishment of a new private ESCO known as Energy Alliance. The loan was used by the Energy Alliance to finance the purchase of cogeneration equipment.

Overall, the activities of ESCOs in Ukraine are considered to be reasonably successful. There are, however, two unclear factors for such consideration. It is not clear if ESCOs in Ukraine

will be able to operate without support from grants and international loans. And ESCOs are not working based on EPC but rather act more as consultancy companies.

Types of projects implemented

ESCOs are active in different sectors depending on a particular country. Overall, the public sector and in some cases the industrial sector, are the most important clients and drivers for the ESCO industry. Residential sector is not a frequent target of the EPC.

The public sector is usually the most important in the ESCO activities portfolio as many ESCOs are created from utilities and large multinational manufacturing firms, which enable them to receive financing more easily.

In some countries the industrial sector projects prevail. This, however, might happen due to the limited funds available to regional and local authorities. Although in theory the EPC concept should be very attractive to tap the enormous potential of cost-effective energy efficiency options in all countries, the varying success of ESCOs in different sectors and countries suggests that numerous barriers preclude further development of the ESCO industry.

Overall, ESCOs implement a variety of energy efficiency measures, including high-efficiency lighting, heating and air conditioning, industrial process improvement, cogeneration, waste heat recovery and centralized energy management systems. ESCOs are often consulting firms that have a general expertise in engineering or energy efficiency. They are often energy technology suppliers and sometimes can be linked to a particular energy-efficient equipment manufacturer.

EXISTING BARRIERS AND CHALLENGES TO ESCO SUCCESS

Overview of barriers by sectors

Public sector remains one of the most important sectors for ESCO activities. However there are numerous barriers that prevent the implementation of a bigger number of projects.

One of such barriers is the absence of a clear tendering or public procurement process. In many countries, specific provisions on ESCOs are still missing in the regulatory framework and the existence of certain traditional legal provisions can create problems for ESCOs' operations, especially concerning public procurement. EPC in the public sector almost always requires public procurement, and therefore, requires following the public procurement rules such as tendering obligations. Unfortunately, most of the tendering decisions are taken based only on the best price proposed and without taking into account the lifecycle costs of new equipment.

Another major barrier in the public sector is the budgetary problems experienced by national, regional and local authorities. In many countries an important barrier for EPC is the inadequate energy service level.

In the **industrial sector** the EPC is used less frequently than in the public sector. This is dictated by certain problems that hinder ESCO activities.

In most cases industrial companies are not much interested in EPC compared to their core activities. EPC can limit the company's investment ability since the loans and payments for EPC can negatively affect the balance sheet.

One of the major problems is that payback periods for ESCO projects are considered to be long for many industrial companies. Managers accept payback periods longer than three years only when investments in the production area are concerned, but not for "inputs" such as energy.

In many companies there is a lack of qualified staff, and the energy management infrastructure is limited. Additionally, the link between the technical staff and the strategic management level is missing. In some case the technical understanding can come directly from ESCOs but the management's commitment to energy efficiency is required for success of the project.

Usually the barriers in the industrial sector are not so much of a financial nature but rather due to low interest of potential customers in the ESCO's activities.

In developing countries and in countries with economy in transition the situation is, however, different. Many companies prefer to modernize their manufacturing processes rather than invest in energy efficiency. In many of those countries the financing system is not well developed, and private sector often involves higher credit risk, which makes ESCOs less willing to work with industrial sector.

Residential sector is the smallest part of ESCO activities. In most cases ESCOs consider energy and cost savings from projects in residential sector being small compared to transaction costs especially in cases when buildings are owned by different private owners. In these cases legal uncertainties about the ownership of residential buildings make the implementation of EPC projects more difficult. The distinction in responsibilities for energy efficiency measures between owners and renters stays unclear.

Building owners and renters are often not aware of energy saving potential and opportunities, which EPC offers. On the other side, energy service levels are sometimes also not sufficient. Additionally, many building and apartment owners have a limited budget and would prefer in many cases to spend money on improvements of the living conditions, such as installing an elevator. Owners of the residential buildings in many cases perceive the implementation of EPC projects as disturbance to their homes and creation of hassle. There is also often suspicion of energy suppliers and fear of any specific commitment.

Low subsidized energy prices existing in many countries also do not provide an incentive for energy efficiency improvements.

Overall, the existence of the abovementioned barriers prevent almost all ESCO activities in the residential sector although saving potential in this sector is much higher than in other sectors.

Challenges of the EPC business model

In their business operations ESCOs face certain challenges due to the nature of implementation of the EPC projects.

The remuneration process in implementing the EPC is somewhat cumbersome. It is taking time for ESCOs to find clients, sign contract and start earning profits. ESCOs have to prepare and submit energy audits and proposals usually with no remuneration and in the expectation of signing a contract by the client. And even if the client signs on, it is the ESCOs which keep responsibility for acquiring financing, in case of the shared savings model, while the client might not be financially involved.

There are also risks for ESCOs associated with providing guarantees and having to prove that savings have been achieved. The client and ESCO need to agree very clearly on how energy savings are going to be calculated and measurement and verification (M&V) methods are going to be used for this. The energy savings are usually calculated based on the existing energy prices. As a consequence of rising energy prices, ESCOs remuneration can be negatively affected. This can present difficulty in agreeing for savings with clients, and as a consequence, the uneasy situation in looking for financing from banks.

In addition, ESCOs do not always have control over how the technology is operated and maintained, which can also present problems in implementing EPC projects.

When ESCOs have to raise capital from the market and look for financing of the project, they risk not to get paid in the previewed period of time due to the procurement delays. Such delays can considerably alter financial projections and payback time.

Finally, in some countries clients are considered to be less financially viable. In the industrial sector, companies can also be moved or stop their operation rather fast. Therefore ESCOs prefer public sector clients.

Legislative and regulatory barriers

One of the major existing barriers to ESCO development is absent or insufficient legislation on energy efficiency and energy services, as it is currently in Belarus, Bosnia and Herzegovina and the former Yugoslav Republic of Macedonia.

While having the primary legislation in place is very important, the ESCO success also depends on the existence and implementation of the secondary legislation. The absence of such is currently a barrier to ESCO development in the Republic of Moldova. In Bosnia and Herzegovina a major barrier for ESCO success is absence of necessary regulatory framework that can define ways of establishing and functioning of ESCO.

In Croatia the secondary legislation on energy efficiency is not fully developed. The result of this situation is that ESCOs cannot invoice their services as a package, and VAT must be paid for the equipment installed for the client, which may jeopardize profits.

In Albania the existence of complex non-transparent regulations and legislation which is more declaratory than operational is a barrier. In Bulgaria the barriers also include frequent amendments to the existing legislation.

Legislative incentives, such as tax exemptions, are missing in Ukraine, while investments are perceived too risky for Ukrainian companies that are often in a difficult financial position.

Absence of energy efficiency agency in the country can also become a barrier towards development of the ESCO market, for example in Kazakhstan.

In the Russian Federation one of the barriers for further ESCO market development includes absence of the developed action or implementation plans on energy efficiency. The same situation is in Kazakhstan.

In both the Russian Federation and Kazakhstan the vast availability of natural resources also precluded development of awareness on relevance of energy efficiency projects and therefore provided no incentives to increase energy efficiency. However, nowadays the situation changes and the priority to increase energy efficiency is given at the highest governmental level.

The existence of low energy prices does not provide incentives for improving energy efficiency. Low electricity and heat prices are indicated particularly in Albania, Serbia, and the former Yugoslav Republic of Macedonia. Lack of a liberalized energy market with market-driven prices is seen as a basic limiting factor on the profitability of energy efficiency projects in Ukraine.

In some countries energy prices are still heavily subsidized, and the funds which could be used for energy efficiency improvements are diverted to pay for energy subsidies. In Belarus, for example, energy tariffs are subsidized for building sector and there are fixed rates for

electricity and heating prices. Additionally, in Belarus there is a state monopoly on production and transport of energy.

Understanding of opportunities that energy efficiency offers is often missing in all reviewed countries. Safety concerns can also hinder introduction of more energy efficient new technologies. Many companies are not interested in reducing energy use because of the fear to lose income. In Croatia, for example, a lot of consumers still show lack of interest in energy efficiency due to little knowledge in the country about ESCO benefits and the concept in principle.

In the former Yugoslav Republic of Macedonia the barriers to ESCOs operation also include lack of clarity on legal procedures regarding ESCO projects as well as lack of contract and tender templates.

Additionally, energy efficiency technology and equipment in some cases is not manufactured domestically and, as a result, can be costly due to high import taxes.

Financing of projects

Numerous banks and financial institutions lack information about energy efficiency potential. This affects the possibility for ESCOs to borrow money, especially, when implementation of the EPC model is seen as a risky business.

In Albania there is lack of experience in financing energy efficiency projects by commercial banks as well as lack of appropriate and accessible financial resources. A similar situation is with commercial banks in Bulgaria and Serbia. There is also limited experience and lack of institutional and financing mechanisms for implementation of energy efficiency investment projects in Kazakhstan. However, positive examples also exist. In the former Yugoslav Republic of Macedonia there are twelve banks with the dedicated EE credit lines (mostly implemented via the Macedonian Bank for Development Promotion) and/or EE project finance.

Among existing barriers to ESCO success in Romania there is lack of internal expertise in local banks to evaluate energy efficiency projects as well as restricted capacity to develop fully bankable project proposals.

Very often banks do not want to lend any money to ESCOs or demand high interest rates. Banks are especially reluctant to lend money to small and new ESCOs who cannot provide enough guarantees or whose creditworthiness they cannot judge.

The operations of ESCOs and further ability to obtain financing is affected by the fact that clients and financial institutions do not believe that project will result in the energy and cost savings projected by the ESCOs.

Croatian market barriers, which appear during the implementation of the ESCO projects, include unsolved ownership relations, prevalence of long-term contracts (treated as a credit relationship), and low and insufficient support to energy efficiency projects.

Absence of national and municipal funds for development of energy efficiency projects or absence of operational dedicated credit lines by national funds (the case of the Russian Federation and Serbia) hinder further development of ESCO market.

ESCO market in Ukraine is hindered financially, because their own funds are insufficient to carry out many successful projects, except if they are financed from outside. High loan interest rates hamper profitability.

In principle, sufficient funds are available in the markets both locally and internationally to finance ESCO activities. These can be the support through grants, loans or credit facilities offered by many financial institutions. However, the main problem seems to be the missing link between possible funders and ESCOs or their clients.

On the other hand, in all countries ESCOs are also at risk that their client can appear to be not creditworthy and ESCO may discover it only after the preparatory work for the contract is finished.

Low level of awareness

Low level or lack of awareness about ESCO potential exists among population. There is no understanding of the opportunities that energy efficiency measures can offer. This appears not only among general population but also among policy makers in the countries under the present review.

There is also scepticism towards outsourcing and unwillingness to allow and involve outsiders in facility operation due to fear of job losses. Information on ESCOs is sometimes very scarce, and thus the concept is little, if at all, known.

Organization of awareness-raising actions and campaigns, including seminars, dedicated trainings and publications in media are required in order to raise awareness of the importance and the role of ESCOs in the area of energy efficiency investments.

SUCCESS FACTORS FOR FURTHER ESCO MARKET DEVELOPMENT

Governmental support to develop ESCO market

Governmental commitment to energy efficiency is a very important factor for ESCO success. Introduction of state **programmes and policies on energy efficiency** even if they are not specifically targeted at ESCOs can help their development.

For example, a success factor for the Albanian ESCO market development can be adoption of a new Law on Energy Efficiency and a draft of National Energy Efficiency Action Plan. The draft law has been prepared and it envisages a number of energy investment-friendly measures, including obligation to conduct energy audits, national evaluation of energy saving potentials, establishment of an Energy Efficiency Fund.

Introduction of the EPC in the law will be a big incentive to develop ESCO market. Such measure has been done in the Russian Federation, for example, where the EE law also was connected with the budgetary legislation (for state and municipal energy service contracts).

The energy efficiency law has been adopted in Serbia where this law foresees new responsibilities for municipalities: energy balancing, energy strategic planning and establishment of local energy markets.

ESCOs would also benefit from having clear institutional frameworks for their business operations. These frameworks should specify options for taxation and reduce some of the institutional challenges associated with starting an ESCO.

Energy agencies can play a key role in promoting ESCO activities. They can serve as central sources of information and coordination on EE policies and ESCOs. They can be critical for supporting ESCO demonstration projects and other ESCO promotion activities. These agencies can also play an important role as mediators between ESCOs and their customers especially in public and residential sectors. In particular, the agencies can support officials in public sector, provide model elements for EPC contracts, provide EE advice and sometimes assist during negotiations between an ESCO and customers.

The level of energy prices is critical for EE improvements. **Eliminating energy price subsidies** would be a key step in promoting ESCO business. The energy price liberalization, for example, has started in Serbia.

Introduction of **energy efficiency obligations** can become another policy instrument to support ESCOs indirectly. The existence of building codes, targets for energy consumption, mandatory energy audits and management requirements increases demand for ESCO operations. On the other hand, subsidizing by the state of mandatory energy audits cannot always be seen positively by ESCOs since the quality of such audits can be low and a second audit might be needed later if ESCOs are requested to submit the EPC offer.

In Croatia, for instance, the Physical Planning and Building Act serves as a basis for adoption of regulations on energy performance of buildings. Mandatory energy certification of buildings was introduced from 2010.

A requirement to improve EE in public buildings can lead to success for ESCOs. Introduction of legal provisions for public procurement process, especially those which enable public institutions to enter into multi-year financial commitments are the best creator of a demand for ESCO services in the public sector. The targets and obligations for EE with fixed deadlines are more effective than overall EE supporting programmes.

White certificates, also known as energy savings certificates or energy efficiency credits, are appearing in some countries. Under these schemes, energy producers, suppliers or distributors are required to deliver savings to the final user equivalent to some fixed target. If they do not, they must pay a penalty. White certificates are given to those who can demonstrate energy savings. These certificates can be kept or sold to producers, suppliers or distributors who cannot meet their own targets.

Some approaches to encouraging ESCOs can also be through **subsidies and tax exemption** made to ESCOs or on EE projects, service tax exemptions on energy audit fees and subsidies for energy audits. However, the value of such subsidies is debatable. These subsidies can be counter-productive and preclude the growth of commercially sustainable solutions in the market.

Demonstration projects organized by the public sector may be essential in increasing awareness about ESCOs and improving trust in their activities. Demonstration projects can be done in cooperation with experienced ESCOs or energy agencies from other countries or, if possible, even from the local market.

The energy efficiency **promotion programmes** can include information programmes and public campaigns on EE. Dissemination of information and publicity for ESCOs can be done by an energy agency, ESCOs themselves and/or their associations. The joint efforts by the government and the private sector in this case can only bring benefits for both parties.

In order to improve the quality of services provided by existing ESCOs and increase trust in them and their reliability, the **accreditation system** for ESCOs and criteria and mechanisms for certification system can be introduced. Potential accreditation criteria could include a range of services offered, financing and project management capabilities, technological and project design capabilities, and measurement and verification (M&V) capabilities. However, the accreditation system may also be disadvantageous as the process of receiving accreditation is usually expensive and, therefore, smaller ESCOs might not be able to afford it.

ESCOs in the countries with economies in transition often need guarantees enabling them to receive bank loans. They often have good ideas and technical knowledge but can only provide their property as a guarantee to banks. In this case the creation of **financial support mechanisms** may help ESCOs. Such mechanisms may include creation of the guarantee facility for EE projects, revolving fund for EE activities, public benefit charges, partial risk guarantees, special purpose funds or interest credits. The example of creation of the revolving fund in the Republic of Moldova can be inspiring and can partially serve to help ESCOs' operation.

International support to ESCO activities

Because of budget constraints many countries are not able to create guarantee funds and other support mechanisms for ESCOs. Thus financial support from international financial institutions (such as World Bank and EBRD) and international donor agencies (for example, GEF and UNDP) is important.

For example, one of the most important initiatives for supporting set-up of ESCO in Bosnia and Herzegovina was the preparation of a new credit line for EE and RE projects. This credit line is scheduled to be prepared by EBRD in 2013. It aims to promote and further expand ESCOs as all projects to be implemented through this facility will be done on the basis of the ESCO principle.

Grants and concessional loans provided within international support schemes can be used for project preparation, as major capital, and as a guarantee. They may also take the form of interest-free loans.

Loan guarantees could be a critical component of fostering the interest of local commercial banks in lending money to further develop ESCO industry. Loan guarantee programmes assist new ESCOs in getting initial financing, establishing a credit history and developing a borrowing relationship with a bank. Once this is established, larger ESCOs no longer need a loan guarantee programme.

International agencies can also provide financing for the establishment of the ESCO development fund, green fund or an energy-efficiency fund. For example, World Bank provided loans for ESCOs in Croatia to implement EPC. In Bulgaria the Bulgarian Energy Efficiency Fund (BEEF) has been created with such international assistance.

In Romania the EE financing facility (EEFF) was created with financial support from EBRD and the European Union. The EEFF is structured as a credit line based on grants that is carried out through six Romanian banks and is designed for private companies. These companies can get a low-interest loan of up to 2.5 million Euro from one of the participating banks, free technical assistance from a specialized consulting, and a grant amounting up to 15 per cent at the investment completion.

Capacity building and other support can also be provided by international institutions. For example, in the framework of the UNDP project in Belarus the International Energy Center was established.

Commercial institutions' support to ESCOs

A possibility of provision of financing by the local banking system can play a crucial role in supporting ESCOs. Understanding of ESCO business and support by commercial institutions is a sign of maturity of the financial industry in a country.

However, in many countries banks lack knowledge about EPC. In many cases they are also uncertain about the creditworthiness of ESCOs and their clients. Local financial institutions often lack capacity to properly evaluate EPC offers and are unwilling to invest time and

resources in this. Therefore, information dissemination and capacity building are important factors for ESCOs success.

Transition from funding from public or international institutions to commercial bank financing is not easy since the former can usually propose better conditions than the latter. Thus **terminating public loans and grants** as soon as the commercial banks are able and willing to engage in EPC is very important. Preparing ESCOs to face commercial financing terms and enabling commercial banks to finance ESCOs requires significant efforts.

Market-based mechanisms provide incentives for EE improvement. Financial institutions need to develop mechanisms to recognize and outline cost-savings and cash flows arising from ESCO projects and employ these funds as a means of loan repayment and loan security. The key success to implementation of contracts by ESCOs is creation of a payment structure to ensure that the cash flows arising from the project are provided to lenders. Overall, ESCOs need greater flexibility in loan products, so that programmes can be adjusted during implementation.

Smaller projects often do not qualify for financing due to the preferences of financial institutions and high transaction costs of smaller projects. **Bundling projects** can be a solution to lower transaction costs and thus facilitate financing and implementation of projects. Bundling can be done in different ways. A bank or an ESCO could act as the project aggregator. Bundling of projects in buildings is especially important since many ESCOs and banks do not accept projects below a certain value. Bundles could be several commercial or residential buildings, or multi-project facilities. A standardized approach and criteria for smaller projects can improve their access to funding.

Commercial banks can introduce specific **energy efficiency financing programmes** and ESCOs would definitely benefit from them. These programmes clearly identify the terms of lending and thus create more possibilities for ESCOs to apply for financing.

The creation of the in-house EE departments or finance teams with engineers and analysts will help commercial banks to assess technological risks associated with EE projects. And it eventually will lead to better financing of the EE projects by the commercial institutions.

Other measures

Capacity building on ESCO's importance is critical to the long-term ESCO success. The clients need to develop a greater awareness and understanding of EE and ESCOs through information dissemination, public campaigns and training. Information needs to be disseminated to potential ESCO clients in all sectors (public, industrial, residential and commercial) in a sustained manner. Politicians, decision makers and facility managers in all sectors need to understand that energy efficiency measures can reduce costs.

ESCOs also require capacity building and information sharing regarding new technology, financial institutions and appropriate approaches to contracting. This can be provided through educational institutions, international conferences, training programmes, workshops and manuals.

An important role in ESCO's development can be played by **ESCO associations**. The main function of ESCO associations is to provide technical, legal and other support to their

member companies. They can also encourage their members to play an active role in training their clients in operations and maintenance of the equipment they are installing.

Standardization of contracts, measurement and verification (M&V) protocols and dispute resolution mechanisms will improve client and financial institution understanding of ESCOs. Development of acceptable M&V protocols would also assist in the development of ESCO industry. The International Performance Measurement and Verification Protocol (IPMVP) has been developed by the Efficiency Valuation Organization (EVO). It defines standard approaches to measuring energy savings. The IPMVP provides an overview of current best practice techniques available for verifying results of EE and RE projects in commercial and industrial facilities. It may also be used by facility operators to assess and improve facility performance.

CONCLUSIONS

Energy service companies represent a growing trend in the energy efficiency field. These consultancy groups apply measures aimed at reducing energy consumption, technical and financial costs, and delivering guarantees on energy savings for energy efficiency projects.

ESCOs can have a significant impact in promoting EE. As such they can provide services, finance EE projects, install EE equipment and control the projects' energy savings. The major difference between ESCOs and other types of EE consultancy firms is that ESCOs assure energy savings and can offer an efficient, flexible way to leverage technical and financial risks for energy efficiency projects.

ESCO market expands globally, though the level of its development differs from region to region and from country to country. This review is focused on the countries participating in the FEEI project, namely Albania, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Kazakhstan, Republic of Moldova, Romania, Russian Federation, Serbia, the former Yugoslav Republic of Macedonia, and Ukraine. For the purposes of the report all participating countries were divided into three groups: member States of the European Union, South-East European countries and countries of Eastern Europe and Central Asia.

The review revealed that legislative and regulatory framework supporting energy efficiency measures has been developed in all countries except Bosnia and Herzegovina. However, specific measures supporting ESCOs were not introduced in the legislation in Albania, Belarus, Kazakhstan, and the former Yugoslav Republic of Macedonia. This becomes a barrier preventing development of ESCO market in these countries. Furthermore, absence of the secondary legislation is an obstacle in implementation of the overall regulatory framework in the Republic of Moldova, Russian Federation, Serbia, and Ukraine. Adoption of National Energy Efficiency Action Plans (NEEAPs), on the other hand, plays an important role in promoting ESCO activities.

Introduction of measures encouraging energy efficiency and providing incentives for ESCO market maturity is a requirement for the member States of the European Union (EU) and is done in compliance with the relevant EU Directives. This has been incorporated into the primary and secondary legislation in Bulgaria, Croatia, and Romania. Additionally, compliance with EU regulations is a driving force for other countries, such as Serbia and the former Yugoslav Republic of Macedonia.

Introduction of legal incentives for ESCO development leads to the expansion of ESCO activities and initiatives in the countries. However, in Albania, Kazakhstan and the former Yugoslav Republic of Macedonia there are no ESCO in spite of the existing EE regulatory framework. Other countries have few ESCO initiatives, for example, Belarus, Bosnia and Herzegovina, Serbia and Republic of Moldova, but these activities are very fractional. Operation of ESCO-type companies is active in the Russian Federation and Ukraine. However one can claim that operations by those companies are not of pure ESCO nature as they are not based on implementing EPC business model. More developed ESCO

market is in Bulgaria, Croatia and Romania, where ESCO operations are supported by the appropriate legislation and introduced in the NEEAPs and other state programmes.

Existing challenges to further ESCO development include legislative barriers and barriers for financing of projects. Most countries lack secondary legislation and specific action plans to support ESCOs. Lack of funding and banking support prevents ESCOs from implementing EE projects. Low level of awareness about ESCO potential by the population and the decision makers is one of the major barriers. Lack of expertise by the local banks to evaluate EE projects also hinders successful ESCO operations.

However, success factors for further ESCO market development provide incentives for ESCO projects' accomplishments. Besides legislative incentives, other measures such as liberalization of the energy market, establishment of energy efficiency funds and creation of energy efficiency credit lines can also be among success factors.

There are several non-state support mechanisms for ESCO development, including financial grants and loans international financial institutions and international donor agencies (EBRD, World Bank, GEF, UNDP, etc.) as well as energy efficiency financing programmes from local banks and other financial institutions. Market-based mechanisms play an important role in providing incentives for financing and implementation of ESCO projects. Bundling projects is also required as it provides a possibility of reducing transaction costs for smaller projects and thus facilitating further financing.

Awareness raising and capacity building activities are critical to the long-term ESCO success. Dissemination of information, public campaigns and trainings will help better understanding of the importance of introducing EE measures and implementing ESCO projects at all levels.

ANNEX

Albania

Existence of ESCO: no ESCO

Specialized institutions: Albania-EU Energy Efficiency Centre (EEC) & Albanian National Agency of Natural Resources (AKBN) (energy planning, preparing the annual energy balance and establishing legal frameworks on energy efficiency and renewable energy).

Types of contracts: N/A

Types of projects: N/A

Regulatory framework: National Energy Strategy (2003), Energy Action Plan (2007), Energy Efficiency Law (2005).

Compliance with EU regulations: ratification of the Energy Community Treaty (2006), aims to develop adequate regulatory framework and liberalize energy markets until 2015.

Barriers: complex non-transparent regulations, legislation is more declaratory than operational, low tariffs, lack of experience of financing EE and RES projects (by commercial banks), lack of appropriate and accessible financial resources and still low awareness.

Success factors: draft of new Law on Energy Efficiency, draft of National Action Plan on EE, Albanian EE Law aims to create energy investment-friendly measures: obligation to conduct energy audits, national evaluation of energy saving potentials, establishment of Energy Efficiency Fund. Albanian-EU Energy Efficiency Centre has been carrying out international and national programmes for energy conservation, has engaged in energy audits and may have the potential to serve as an ESCO.

Existence of ESCO

There is no ESCO in Albania. The institutions actively involved in the energy efficiency area are the Albania-EU Energy Efficiency Centre (EEC) and the Albanian National Agency of Natural Resources (AKBN). AKBN exists since 2006 as a public entity that is responsible for energy planning, preparing the annual energy balance and establishing legal frameworks on energy efficiency and renewable energy.

Energy efficiency policy and regulatory framework

Policies and regulations on energy efficiency in Albania are based on provisions of the National Energy Strategy which was approved by the Government in June 2003. The Energy Action Plan for its implementation was updated in June 2007. The primary objective of the Strategy is restructuring of energy sector based on market economy principles and developing a modern energy policy.

In 2005 the Albanian Parliament approved Energy Efficiency Law, which set out plans to improve energy efficiency. The main goals of the Law are the reduction of transmission and distribution losses, enhanced enforcement of the energy provisions of the Building Code (2002), greater use of solar water heaters, improved use of decentralized heating and hot water systems, and promotion of public transport.

The law of 2002 on “Conservation of thermal energy in buildings” established the necessary legal basis for setting up the rules and making mandatory actions for conservation of thermal

energy in buildings. This law stipulates that designing and construction of buildings should meet necessary technical parameters for conservation, saving and efficient use of energy. Based on this law, the Council of Ministers set up norms and rules, and designing and construction conditions, heat generation and conservation in buildings are included in the building code.

Furthermore, the technical norms, rules and conditions of designing, construction, production and conservation of thermal energy in buildings are set up by the Governmental Decree of 2004 on “Technical Norms of Heat Saving in Buildings”. According to the Decree, the physical or legal persons dealing with buildings design, either private or public, shall observe these norms, rules and conditions. The Councils of Regulatory Adjustment in municipalities or counties approve construction permission only when designs meet the requirements. This regulation is in compliance with the EU Directive 2002/91/EC on the energy performance of buildings.

In 2008 the new Law on “Production, transportation and trade of biofuels and other renewable fuels for transport” was also adopted.

The 2009 Law on “Indication by labelling and standard product information of the consumption of energy and other resources by household appliances” is fully in line with EU Directive 92/75/EEC, stipulates the obligations of supplier regarding the information for consumers concerning consumption of electric energy, other forms of energy and other essential resources through a fiche and a label related to household appliances offered for sale, hire, hire-purchase or displayed to end-users. Based on this law, the Council of Ministers issued decisions which transpose the relevant EU directives, so called “implementing measures”.

Furthermore, provisions of the Energy Community Treaty (ratified by Albania in 2006) foresee that all member countries must approve a national action plan on energy efficiency, introducing obligatory measures to be implemented by regulatory institutions.

The National Energy Efficiency Action Plan of Albania for 2010-2018 was adopted in 2011 and tries to be in compliance with the EU directive 2006/32/EC on “energy efficiency end use and energy services” and the EU directive 2002/91/EC “on energy performance in buildings”. It contains a description of measures to improve energy efficiency in Albania that are planned in order to achieve indicative targets for 2010-2018. National energy savings target for 2018 is 9 per cent.

Improved energy efficiency in all sectors is one of the main goals defined in the Albanian National Strategy on Energy. The Action Plan to implement Strategy will enable a more focused implementation of energy efficiency policy and better monitoring of its success with short-term measures until 2012 and long-term measures until 2018.

The first NEEAP is the initial phase of the implementation of the national EE policy. NEEAP has a strong emphasis on EE improvements in public sector. Comprehensive package of EE measures for public sector includes measures dealing with stricter standards for new public buildings, certification of buildings, refurbishment programmes, promotion of energy performance contracting, promotion of public street lighting, information and awareness raising campaigns, energy management, energy labelling, and minimum standards for electric appliances.

The existing energy agency could take on the role to advise Government on energy policy, provide and analyze energy data to support policy formulation and be a lead institution to support market dissemination of EE technologies.

In Albania a major challenge is implementation of existing legislation and adoption of secondary legislation and supportive policy tools. Further programmes are required to demonstrate and promote EE at all levels, including in schools, hospitals and other public buildings.

Albania has not yet introduced financial incentives to promote EE. However, the National Energy Strategy notes that an EE fund should be established. The energy utility is not yet promoting energy savings through demand-side management programmes. Government has not yet developed a public information capacity to promote EE benefits and technologies.

EU Regulation

As stated in the National Energy Strategy, consistency with EU requirements is a key consideration in the development of the Albanian energy sector. As a step towards the European Union, Albania ratified the Energy Community Treaty as a Contracting Party in 2006. The Contracting Parties have committed themselves to implement the relevant *acquis communautaire*, to develop an adequate regulatory framework and to liberalize their energy markets in line with the *acquis* under the Treaty until 2015. The latter includes key EU legal acts in the area of electricity, gas, environment and renewable energy.

Belarus

Existence of ESCO: “BelinvestESCO”, “Vneshenergосervice”, Center of New Technologies “Connectikum”.

Types of contracts: BOOT contracts

Types of projects: co-generation plants in large industry

Regulatory framework: Law on Energy Saving (1998), Concept of Energy Security (2007), Strategy for Development of Energy Potential (2010), National Programme on Energy Saving for the period 2011-2015, National Programme on Development of Local, Renewable and Unconventional Energy Sources in 2011-2015.

Compliance with EU regulations: not a member of Energy Community Treaty, ENP Annual Action Programme (2007) aimed at providing support to implementation of a comprehensive energy policy.

Barriers: lack of legislation on energy services, state monopoly on production and transport of energy, absence of budget planning for more than one calendar year, differentiation of tariffs for private and state owned companies, subsidized energy tariffs for residential sector, fixed rates for electricity and heating prices, lack of awareness about ESCO potential.

Success factors: draft Law on Electricity where activities of ESCO will be regulated, establishment of International Energy Center (UNDP supported project), awareness raising and dedicated trainings.

Existence of ESCO

Several ESCO-type companies are operating in Belarus, including BelinvestESCO, Vneshenergосervice and Centre of New Technologies «Connecticum». BelinvestESCO was established in 2005 as the first ESCO in Belarus by the Belinvestbank and the Department for Energy Efficiency of the State Committee for Standardization. The company conducted feasibility studies for different energy companies and was involved in constructing two small combined heat and power plants jointly with the local municipalities of Lido and Birosa.

The projects are usually characterised by the three- to four-year pay-back periods. The existing ESCO-type companies implemented projects in large industrial companies. They execute mostly turn-key projects, including delivery, installation and operation of energy efficient technology. The company owns the installation during the project time and sells electricity and heat at a lower price, but when the project ends the installation is handed over to the client.

Energy efficiency policy and regulatory framework

At present, there is no specific legislation regulating energy services in the Republic of Belarus, and the functioning ESCO-type companies operate on the basis of the currently existing legislation.

Policies and regulations on energy efficiency include the Law on Energy Saving adopted in 1998, the National Programme on energy saving for the period of 2006-2010 (Resolution No. 137 of 2 February 2006) and specific plans approved by Ministries in their respective industries.

On 25 August 2005, the President of the Republic of Belarus adopted Decree No. 399 on the Strategy of Energy Security and Raising Energy Independence of the Republic of Belarus. The Strategy is related to upgrading of basic production assets, energy conservation and broader usage of the country's domestic fuel and energy sources.

Policies and regulations on energy efficiency also include the establishment of a Concept of Energy Security (2007), Strategy of Development of Energy Potential of the Republic of Belarus (9 August 2010, No. 1180), National Programme on Energy Saving for the period 2011-2015 (24 December 2010, No. 1882), National Programme on Development of Local, Renewable and Unconventional Energy Sources in 2011-2015, the Law "On Renewable Energy Sources" of the Republic of Belarus (27 December 2010, No. 204-3), Decree of the President of the Republic of Belarus on Development of Entrepreneurship and Business Activity Stimulation in the Republic of Belarus (31 December 2010).

A Draft Law of the Republic of Belarus "On Energy Saving" was prepared and submitted to the Government of the Republic of Belarus in May 2012. The Draft Law envisaged the existence of articles regulating energy service activities in the country, as well as defining the main provisions of an energy service contract. However, at the stage of draft law agreement the majority of these clauses was not supported.

The Law "On Electric Power Industry" is expected to regulate the market aspects, including activities of private energy and energy service companies. Hence, the state policy on energy efficiency and renewable energy sources has started its implementation. The Department for Energy Efficiency of the State Committee for Standardization is responsible for the policy regarding energy efficiency.

EU Regulation

Currently the compliance with the energy regulation of the European Union is not a priority for the Republic of Belarus. However, the Republic of Belarus is cooperating with the EU in the field of energy. For instance, the EU financed part of the Annual Action Programme of the Republic of Belarus in 2007, which aims at providing support to the implementation of a comprehensive energy policy of Belarus. Belarus is neither a member nor an Observer of the Energy Community Treaty.

Bosnia and Herzegovina

Existence of ESCO: few ESCO-type companies

Types of contracts: guarantees on energy savings by ESCO-type private company and simple payback time less than five years

Types of projects: projects range from installation of mini-heating systems through boiler exchanges to the establishment of tri-generation plants

Regulatory framework: no energy efficiency law at the state level and in the entity of the Federation of Bosnia and Herzegovina, no specialized agency for EE and RE.

Compliance with EU regulations: Contracting Party of the Energy Community Treaty (2006).

Barriers: absence of decision competences in energy matters, lack of coordination between the entities, no EE legislation in place, lack of awareness and capacities to develop EE projects.

Success factors: compliance with EU regulations as a driver for development of energy regulatory framework, Law on Energy Efficiency has been proposed at the entity level. In the Republika Srpska it has been adopted, in the Federation the adoption is expected by the end of 2013, introduction of feed-in-tariff on electricity from RE.

Existence of ESCO

At present, there are officially no ESCOs operating in Bosnia and Herzegovina, though there are few companies using ESCO concept in implementing small-scale boiler biomass heating projects and a number of other projects. ESCO projects range from installation of mini-heating systems, through boiler exchanges to the establishment of tri-generation plants. Projects have involved guarantees on energy savings by an ESCO-type private company and the simple payback time has been less than five years.

Energy efficiency policy and regulatory framework

There is no energy efficiency law in place at the state level in Bosnia and Herzegovina. However a Law on Energy Efficiency has been developed in both entities. In the Republika Srpska this law has been adopted by the National Assembly of the Republika Srpska on 27 June 2013, while the Law on Energy Efficiency in the Federation of Bosnia and Herzegovina is in the process of adoption and is expected to be adopted by the end of 2013. Only indirectly is energy efficiency covered by other legislation. Regulators for example have the responsibility of considering both environmental and energy efficiency issues in their tariff making and investment approval regulations and decisions. There are no energy efficiency targets in place at the state level. The assumption at this stage is that Bosnia and Herzegovina will aim to comply with EU efficiency targets and will conform to the Energy Charter Treaty and applicable EU Directives.

The existing legal regulations and tax policy in the civil engineering, construction, and building industry do not encourage energy saving (such as greater use of construction insulation materials and more efficient heating systems). There are no specialized agencies for energy efficiency or renewable energy in place. Due to the use of gas in cogeneration, the efficiency is rather low.

The Energy Law of the Republika Srpska foresees the obligation of energy distribution companies to make annual reports on the current progress in the rational use of energy. Additionally, information campaigns and mailing of information brochures to customers must be organized.

The National Energy Efficiency Action Plan was also prepared but its adoption is much delayed while there have been many attempts for its finalisation and implementation. The resource constraints and other political barriers are the reasons for this delay.

However, in the recent period Bosnia and Herzegovina made significant steps forward when it comes to promotion of energy efficiency. The Energy Community Treaty has been signed and Bosnia and Herzegovina has committed itself to develop an appropriate energy efficiency strategy accordingly. Both on the state and entity levels a lot of activities were done in order to develop energy efficiency framework that will promote EE, raise awareness in this area and attract foreign and domestic investors to invest in EE projects. Capacity building activities and awareness campaigns to promote ESCO have been organized in the framework of various energy efficiency promoting projects that have been implemented or are in the process of implementation in Bosnia and Herzegovina. Due to that fact, both public and private sector is becoming familiar with the principle and benefits of the ESCO concept. Mentioned activities are a necessary precondition for the establishment of ESCO in Bosnia and Herzegovina.

EU Regulation

Bosnia and Herzegovina is a Contracting Party of the Energy Community Treaty (acceded in October 2006). It aims at a broader adoption of the EU *acquis communautaire* and a convergence of South-Eastern Europe energy sectors towards EU standards with the underlying objective to establish a single regulatory framework for trading energy across South-Eastern Europe and the EU.

The compliance with the EU regulations is expected to be the main driver for the development of the energy regulatory framework, in particular in the fields of EE and RE. However, so far such legislation is lacking in Bosnia and Herzegovina.

Bulgaria

Existence of ESCO: Enemona SA, Energy Efficiency Systems Ltd and about 150 companies carrying out energy audits

Types of contracts: energy performance contracting business model

Types of projects: EE projects in industrial sector, public buildings (municipal and state) and civil buildings, renewable energy projects (small HPP, solar and biomass power stations).

Regulatory framework: National Energy Strategy (2002), National Long-term Energy Efficiency Programme 2005-2015, First National Energy Efficiency Action Plan for 2008-2010, National Programme for Renovation of Panel Residential Buildings for 2005-2020, Condominium-Project Building Act (2009), National Strategy for Financing of Buildings Insulation for Energy Efficiency Improvement for the period 2005-2020.

Compliance with EU regulations: EU member state, introduction of the First National Energy Efficiency Action Plan required by the EU Directive on Energy Efficiency and Energy Services, Participant of the Energy Community Treaty.

Barriers: frequent amendments to existing legislation, corruption, lack of awareness and lack of capacities at the municipal level, lack of financing of EE projects by commercial banks

Success factors: operation of the Bulgarian Energy Efficiency Fund (providing financing for ESCOs), ministries/departments and municipalities can plan financing for performance of ESCO services within their annual budgets, which have been approved by the Law on State Budget, contracts with guaranteed results in Bulgaria are legally regulated in the Energy Efficiency Act (EEA) and special Ordinances.

Existence of ESCO

The business model for energy services companies in Bulgaria is set up on the principle of public-private partnership, whereas the ESCOs provide necessary investments for implementation of projects for energy efficient service with own means and at their own risk. The investment is paid off from the achieved energy savings. An ESCO and a user of the service sign a contract with a guaranteed result. The ESCO business model has been regulated in the Energy Efficiency Act in 2004. More than 150 companies are in the possession of a license for carrying out energy audits in Bulgaria.

One of the most successful ESCOs operating in Bulgaria is Enemona SA, a private Bulgarian engineering company, established in 1990. The company implements energy efficiency projects in the industrial sector, public buildings (municipal and state) and civil buildings, based on an energy performance ESCO contracting business model (guaranteed result contracts). The company implements also renewable energy sources projects (small hydro power plants, solar and biomass power stations). Based on the Energy Efficiency Act, which was introduced in 2004, Enemona, which before has worked exclusively as an engineering services company, decided to enter the field of services for energy audits and energy saving projects. The repayment period is usually in the range of five-seven years based on the EPC model. Enemona may be suitable to serve as a financing vehicle to address small energy efficiency projects in the industry and public sector.

Another ESCO company is Energy Efficiency Systems Ltd., which is focused on energy audits for industrial enterprises and providing energy services. The company has been established in the 1990s with the support of the United States Agency for International

Development (USAID). However, unlike the pure ESCO concept, Energy Efficiency Systems Ltd. does not take any financial risks. The main customers of the company are mostly from the food and beverages industry.

Overall the implemented projects include financing of fuel switch, heating modernization, public lighting, and industrial processes (mostly boiler and steam equipment modernization). Sometimes, municipal projects are bundled in order to increase profitability and decrease transaction costs.

Since 2006 the Bulgarian Energy Efficiency Fund is operational, providing financing also for ESCOs. The Fund offers three types of assistance: partial credit guarantee, joint crediting with commercial banks and technical assistance for project development.

ESCOs in Bulgaria work primarily in the public sector (schools and other educational buildings), mostly contracted for improving heating systems. Small and medium-sized industrial companies also tend to contract ESCOs for energy efficiency investment solutions. Projects finance fuel switch, heating modernization, public lighting, and industrial processes, including mostly boiler and steam equipment modernization. Sometimes, municipal projects are bundled in order to increase profitability and decrease transaction costs. The most widely used contracting format is the shared savings model.

Energy efficiency policy and regulatory framework

The National Energy Strategy, adopted by the Parliament in 2002, lays down the basis for the introduction of market mechanisms and for transforming the energy sector, including improving the efficiency of energy use in Bulgaria. The Energy Strategy has been revised. Based on this Strategy, Bulgaria aims to reduce energy intensity of the GDP by 50% by 2020. The National Energy Strategy till 2020 reflects the political vision of the Government of Bulgaria to pursue the up-to-date European energy policy framework and the global trends in the development of energy technologies.

Among main policies and regulations on energy efficiency there are the National Long-term Energy Efficiency Programme 2005-2015 and the National Short-term Energy Efficiency Programme 2005-2007, instituted by the Energy Efficiency Act. Two Directives of the European Commission play a key role regarding energy efficiency. These are Directive 2006/32/EC on energy end-use efficiency and provision of energy services and Directive 2002/91/EC on energy performance of buildings. Under the EU Directive 2006/32/EC, Bulgaria is committed to reduce its energy consumption by nine per cent of the average final energy consumption for the period 2001 to 2005 before 2016. The first National Energy Efficiency Action Plan for 2008-2010 was adopted by the Government in 2007.

During the last years the process of harmonization of the energy efficiency framework of Bulgaria with European legislation was a priority. A new Energy Efficiency Act was adopted by the Bulgarian Parliament in November 2008, substituting the former Energy Efficiency Act of 2004 (and amended in 2006 and 2007). The secondary legislation for the implementation of the Energy Efficiency Act has been developed. The latest ordinances that have been elaborated are mainly directed at the implementation of the legal provisions concerning the certification of buildings.

On the basis of the Energy Efficiency Act, all buildings with a total built-up area that exceeds 1,000 m² shall be subject to mandatory certification according to the established procedure after energy audits. The energy certification of buildings shall seek to certify the current state of energy consumption in the buildings, the energy performance, and the conformity thereof with the energy consumption class scale from A to G. The industrial facilities with the annual energy consumption above 3,000 MWh need to carry out energy audits. These energy certification and audits can be carried out by licensed companies that employ certified employees.

The National Energy Efficiency Strategy is prepared in accordance with the requirements of the Energy Efficiency Law. It formulates the purposes, basic principles, relevant instruments, sector policies, the expected results and the necessary funding for their achievement. It is aimed at the development and implementation of a comprehensive national policy for energy efficiency. This strategy is based on the EU Green Paper on Energy Efficiency and Action on Energy Efficiency, published in 2006-2007, the Strategy for Economic Development of Bulgaria, the National Strategic Reference Framework, and Energy Strategy.

The Energy Efficiency Act and its secondary legislation were adopted in 2008. For the period of 2008 to 2016, Bulgaria is expected to save up to 627 ktoe, as stipulated by the second National Energy Efficiency Action Plan that Bulgaria had developed in line with EU regulations.

The First National Energy Efficiency Action Plan covered the period 2008-2010. The transitional objective, formulated in it, amounts to 209 ktoe saved energy by the end of 2010, representing one third of the ultimate target by 2016. The summary report of implementation of this NEEAP was prepared and adopted by the Council of Ministers. The report includes the analysis of energy efficiency in the period 2000-2009 and assessment of the results attained.

The Second National Action Plan for Energy Efficiency was adopted by the Council of Ministers in 2011 and covered the period from 2011 to 2016. Currently the plan is the only strategy in energy efficiency in the country. The plan determines an interim target for the period 2011-2013 equal of two thirds of the national target by 2016, which is 418 ktoe / year or 4,860 GWh. This NEEAP has a list of responsible institutions, funding sources as well as expected savings from its implementation. The plan contains the analysis of the public sector and the market for energy services and preparation of plan for buildings with near-zero energy consumption.

The main general programme for energy efficiency in the residential and tertiary sector buildings remains the National Programme for Renovation of Panel Residential Buildings 2005-2020 (Decision of the Council of Ministers of January 2005). A subsidy of up to 20 per cent from the state budget is envisaged for expenditures related to the implementation of energy efficiency measures in apartment buildings. The Programme has not started yet. Its implementation is expected to start after the enforcement of the Condominium-Project Building Act (2009) and founding of associations of building owners under the provisions of that law. Furthermore the National Strategy for Financing of Buildings Insulation for Energy Efficiency Improvement for the period 2005-2020 (adopted by the government in May 2004) is important regarding energy efficiency in residential and tertiary sector buildings. In addition, Bulgaria has introduced a number of important energy efficiency measures in buildings, such as measures linked to EU accession, measures in support of thermal performances of homes, subsidies, and fiscal measures.

EU Regulation

Bulgaria signed the Treaty of Accession to the EU in 2005 and officially became an EU member state in 2007. The progress review of the Energy Charter in 2008 states that Bulgaria has made good use of the EU accession process in the past years to improve the energy efficiency policy framework.

Bulgaria has achieved substantial progress in the introduction of a coherent set of medium- to long-term strategies, specific legislation for energy efficiency, and concrete action plans, supported by the general move in the country towards EU accession and the interaction with other EU member states. This is evidenced by the multitude of support programmes for the residential and industry sector.

In the framework of the Energy Efficiency Act and in particular with the introduction of the First National Energy Efficiency Action Plan required by the EU Directive on energy end-use efficiency and provision of energy services, Bulgaria has developed clear objectives, tasks, and targets for all end-use sectors. In this context, Bulgaria is also working to introduce suitable policy and progress monitoring provisions. The challenge for energy efficiency policy makers will be to ensure efficient implementation of the policy measures and coherence among various sector instruments in the coming years.

Croatia

Existence of ESCO: HEP ESCO, EETEK Holding Plc

Types of contracts: energy performance contracting

Types of projects: services for end users of electricity and heat energy in private and public sectors, public lighting, modernization/reconstruction of existing plants or buildings

Regulatory framework: Energy Law (2001), PROHES: Programme of Development and Organization of Croatian Energy Sector (2002), National Energy Strategy (2009), Energy Act (2007), Act on the Regulation of Energy Activities (2007).

Compliance with EU regulations: participating country of the Energy Community Treaty, transposition of the EU Directives 2002/91/EC and 2010/31/EU on energy performance of buildings and EU Directive (2006/32/EC) on energy end-use efficiency and energy services.

Barriers: Legislative framework is not particularly supportive of the ESCO concept, lack of capacity and know-how, lack of development and project financing, lack of consumer demand, “there are enough funds BUT there are not enough good projects”.

Success factors: First and second National Energy Efficiency Action Plan (NEEAP), Physical Planning and Building Act as a basis for adoption of regulations on energy performance of buildings, mandatory energy certification of buildings (from 2010), Retrofitting programme for public sector buildings (04/2012-12/2013).

Existence of ESCO

The main ESCOs operating in Croatia are the HEP ESCO and EETEK Holding Plc. HEP ESCO, a subsidiary company of HEP Hrvatska Elektroprivreda (HEP Group) is an ESCO, whose core business consists of preparation, financing, and implementation of energy efficiency projects on a commercial basis. The company was founded in April 2002 with the aim of becoming the key creator of the market for energy efficiency projects in Croatia and began operations in September 2003. HEP ESCO can also be considered as the implementing agency for the Energy Efficiency Project Croatia, which was initiated by the World Bank and the Global Environment Facility in cooperation with HEP and the Croatian Bank for Reconstruction and Development. For this purpose HEP ESCO received a loan from the World Bank in the amount of EUR 4.4 million and a grant from the GEF in the amount of 7 million USD, which is being used over a period of six years for the technical assistance, preparation of feasibility studies and for procurement of some equipment and works needed for the implementation of energy efficiency projects on end user sites. Customers of HEP ESCO services are end users of electricity and heat energy in both private and public sectors. Project partners are consulting, design, and engineering firms, small and medium enterprises, equipment manufacturers and contractors, and domestic commercial banks.

Overall, ESCO projects are usually implemented on the basis of an EE implementation contract signed between HEP ESCO and each client. The contract specifies the investments of ESCO, mainly modernization or renovation of existing plants or buildings, with the aim of improving efficiency of energy use. Usually the investment is being paid back through cost savings resulting from energy savings. ESCO finances the project completely or partly, depending on the investment amount and savings to be achieved. Depending on the project type, ESCO assumes the risk of the investment and guarantees the savings to be achieved over the investment payback period.

EETEK Holding Plc., which can also be considered an ESCO, is a private direct equity investment company active in the energy services business. The company is based in Budapest, with operations in Hungary, Slovakia, Bulgaria, and Romania. It is implementing projects in renewable energy and energy efficiency. It provides engineering and financial assessment, detailed engineering due diligence, energy services outsourcing, acquisition of energy systems, financial structuring of development project as well as engineering design, implementation, investment and operation.

Energy efficiency policy and regulatory framework

Energy policy and regulatory framework of Croatia includes the Energy Law approved in 2001, which defines measures to ensure a secure and reliable energy supply, efficient power generation, and its use. It addresses enforcement of regulations in the energy sector, regulates energy activities based on market principles or pursuant to public service obligation, and other key issues relevant for the energy sector. In 2008 the Act on Efficient Utilization of Energy in Final Consumption defined responsibilities and legal framework for energy efficiency projects. The principal objectives of Croatia's energy policy are stated in the Energy Sector Development.

The Croatian energy efficiency legislation was based on the Energy Act (Official Gazette 68/01, 177/04, 76/07, 152/08, 127/10 and 120/12), which was the key legal act regarding energy efficiency. It treats energy efficiency as a national interest and sets the basis for the establishment of the Environmental Protection and Energy Efficiency Fund (established in 2003). It was later followed by the Act on Efficient Utilization of Energy in Final Consumption (Official Gazette 152/08 and 55/12). Act on Efficient Utilization of Energy in Final Consumption defined what strategic documents were needed to achieve energy efficiency goals, what are the responsibilities of public sector and energy companies and introduced energy service.

The Physical Planning and Building Act (Official Gazette No. 76/2007, 38/09, 55/11, 90/11 and 50/12) laid the legal basis for the adoption of the regulations of the EU Directive 2010/31/EU on energy performance of buildings.

The National Energy Strategy adopted in 2009 stipulates an energy efficiency improvement of nine per cent of the annual final inland energy consumption (based on the average of the five years prior to 2008) in the period of 2008 to 2016. On the basis of the Strategy, a National Energy Programme (PROHES: Programme of Development and Organization of Croatian Energy Sector) has been developed. It was launched to develop an energy management framework that will promote clean technologies, shift to fuels with lower carbon contents (natural gas), diversification of energy resources, higher energy efficiency and renewable energy sources utilization, demand-side management, energy savings development of energy markets, and environmental protection.

In 2009 the Ministry of Economy, Labour and Entrepreneurship published the Croatian National Energy Strategy in the form of a white book. This white book is based on subsequent discussions of the earlier publication of the green book. Evaluations of energy intensities of three different potential energy sources have been conducted. At present, it is still not clear which energy sources should be focused on. Additionally, very concrete targets and methodologies regarding renewables and energy efficiency have been set. The share of renewables in the overall energy consumption has been set at 20.1 per cent by 2020.

The Act on Efficient Utilization of Energy in Final Consumption (Official Gazette 152/08, 55/12) has been adopted in 2008 and amended in 2012. It is based on EU Directives 2002/91/EC and 2010/31/EU on energy performance of buildings and 2006/32/EC on energy end-use efficiency and energy services. The Energy Efficiency Master Plan for Croatia (for 2008-2016) is a basis for three other strategic documents: the Energy Efficiency Programme for Croatia (2008–2016), the First National Action Plan for Energy Efficiency (2008–2010), and the Second National Action Plan for Energy Efficiency (2011-2013).

The Environmental Protection and Energy Efficiency Fund is the first and only extra-budgetary fund dedicated to financing environmental protection, energy efficiency and RES programmes. The financial resources are secured from charges levied in accordance with the Act on the Fund, bilateral and multilateral cooperation, grants, charges on polluters of the environment (charges for emissions of CO₂, SO₂ and NO₂), charges for burdening the environment with waste, and a special environmental charge on motor vehicles. Resources can be allocated as “soft” loans, interest rate subsidies, grants and financial aid.

The Physical Planning and Building Act states the significance of energy efficiency and introduces mandatory energy certification of buildings (from April 2010). The energy certificate will be issued on the basis of calculation data for space heating (EN 13790) and on the basis of energy audits. The certificates will be made available to a buyer or a leaseholder and will be issued by persons authorized for this purpose by the responsible ministry. Energy certification of buildings, i.e. their classification by energy consumption, is a significant novelty, which will very likely facilitate the improvement of quality of construction and upgrading of the existing buildings.

Retrofitting programme for public sector buildings (04/2012–12/2013) was developed in Croatia. The model to be applied in the Programme implementation is the ESCO model, implying the type of business operation where energy service provider (ESCO) offers measures for energy efficiency improvement, which result in provable savings in energy consumption. Since implementation of such a model in Croatia is limited, this Programme sets preconditions for development of an ESCO market. Main beneficiaries are owners, users and managers of public buildings, service providers (consultants, engineering companies), financial institutions, architects and constructors.

In Croatia, the implementation of the regulations regarding energy efficiency is the responsibility of two ministries: Ministry of Environmental Protection, Physical Planning and Construction and Ministry of Economy, Labour and Entrepreneurship.

EU Regulation

Croatia acceded to the Energy Community Treaty in July 2007 and its legal status changed from Contracting Party to Participant following its EU accession in July 2013. The treaty should ensure that Croatia adopts EU single market regulations regarding energy (the *EU acquis communautaire* in the relevant fields of Energy, Environment, Competition, and others). Building upon the South-East Europe Regional Energy Market for electricity and natural gas formed in the framework of the Stability Pact for South-Eastern Europe through the Athens Memorandum of November 2002, the Treaty foresees a full liberalization of the energy markets by 2015. The Treaty creates an institutional framework allowing for free transmission and trade of energy products, which should attract investors, improve security of

investments, enhance energy supply and environmental protection, and encourage efficient use of energy and development of renewable energy sources. Croatia has transposed the EU Directives 2002/91/EC and 2010/31/EU on energy performance of buildings by adopting the Physical Planning and Building Act (Official Gazette, 76/2007, 38/09, 55/11, 90/11 and 50/12).

Kazakhstan

Existence of ESCO: no ESCOs

Types of contracts: N/A

Types of projects: N/A

Regulatory framework: Law on Energy Saving (1997), Law on Supporting the Use of Renewable Sources of Energy, Energy Sector Development Programme until 2030, Programme for the Development of the Electricity Sector up to 2030, State Programme for industrial-innovative development of Kazakhstan for 2010-2014, Law on Energy Saving and EE (2011).

Compliance with EU regulations: signed MOU between EU and Kazakhstan.

Barriers: absence of energy efficiency agency and action plan for EE; abundance of conventional energy sources prevents development of awareness on relevance of EE projects; limited experience and lack of institutional and financing mechanisms for implementation of EE investment projects.

Success factors: possible creation of an ESCO in Karaganda where ESCO will aim to undertake energy efficiency measures on either supply or demand sides by contracting with customers under EPC.

Existence of ESCO

There is no Energy Service Company in operation in Kazakhstan. Almaty aimed to establish the first ESCO within the UNDP/GEF project «Removing barriers to energy efficiency in the municipal heat and hot water supply». Later the place for the establishment of the first ESCO was changed from Almaty to Karaganda. However up to date there is no information on the progress of this initiative.

Energy efficiency policy and regulatory framework

The governmental policy in Kazakhstan regarding heat supply is targeted at privatization. As stated in the Energy Sector Development Programme until 2030, the development of centralized heating systems on the basis of cogeneration plants where it is economically feasible is one of the main directions of heating systems development. According to the Energy Sector Development Programme until 2030 it is envisaged to reduce the electricity production from coal to 60 per cent, compared to 70 per cent in 2006.

The goal and the basic priorities of the development of the electricity sector are presented in the Programme for the Development of the Electricity Sector up to 2030 (adopted in April 1999). The principal strategic directions in development of the sector are the creation of an integral power system of Kazakhstan, synchronized operation with the integral power system of the Russian Federation and the power systems of the Central Asian republics, further development of an open competitive power market, improvement of the power generation structure by developing technologies using renewable energy resources, reconstruction and modernization of the existing heating systems with combined generation of heat and electricity, and implementation of modern autonomous high-quality sources of heat. The Law on Electricity was adopted in July 2004. Another basic act regulating electricity market is the Law on Natural Monopolies, which was last amended in December 2004.

Among policies and regulations on energy efficiency there is the recently adopted Law on Energy Saving and Energy Efficiency Increase (13 January 2012). Establishment of an Energy (Efficiency) Agency has been considered.

Currently, Kazakhstan aims to develop a new state programme to reduce energy consumption and promote energy efficiency. The draft programme “Energy Efficiency 2020” aims to achieve a reduction of energy intensity by 10 per cent by 2015, and by 25 per cent by 2020. The programme would incorporate nine areas, including energy-efficient enterprises, energy-efficient construction and transport, energy-efficient society as well as the innovative energy sector. A legislative norm for the mandatory reduction of energy consumption in industrial facilities is planned to be introduced. Additionally, the state would provide support for enterprises in the purchase of energy saving technologies and equipment. The “Energy Efficiency 2020” programme is being developed at the initiative of the President of Kazakhstan.

Restructuring of the electric power sector has been completed: the large majority of national power generating capacities has been privatized or placed under management of private companies. The National Electricity Grid has been formed and the open competitive market of electricity has been created. The transmission company remains state owned.

EU Regulation

On 4 December 2006, the European Union and Kazakhstan signed a Memorandum of Understanding (MoU) on energy. The MoU outlines two road maps for cooperation on enhancing energy security and industrial cooperation. This includes regular exchange of information concerning respective energy policies, cooperation on transport infrastructure of mutual interest, and development of environmentally friendly clean technologies. The last dialogue on energy between Kazakhstan and the European Union was held in May 2009 in Brussels, without resulting in further commitments, except for discussing prospects of extension and deepening of their strategic partnership.

Development of Energy Service Companies Market and Policies

This publication is prepared in the framework of the Financing Energy Efficiency (EE) and Renewable Energy (RE) Investments for Climate Change Mitigation (FEEI) project and outlines the development of energy service companies (ESCO) market in the countries participating in the FEEI project. The experience proved that setting up ESCOs is one of the best ways to address the issue of EE and RE financing. ESCOs have both technical expertise and financial capabilities to invest in EE measures and RE projects. ESCOs can serve as an integrator of EE projects and for bundling the procurement of goods across several projects into one request for external financing.

This report examines the current status of ESCO development in twelve countries participating in the FEEI project. For the purposes of the report all participating countries are divided into three groups: member states of the European Union (Bulgaria, Croatia, and Romania), countries of South-Eastern Europe (Albania, Bosnia and Herzegovina, Serbia, and the former Yugoslav Republic of Macedonia), and countries of Eastern Europe and Central Asia (Belarus, Kazakhstan, Republic of Moldova, Russian Federation, and Ukraine). The proposed grouping helps examine the current situation with ESCOs in the countries based on their geographical situation and neighborhood as well as the membership in and/or relationship with the EU.

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Republic of Moldova

Existence of ESCO: ESCO-Voltaj, other ESCO-type companies

Types of contracts: fee-for-service

Types of projects: installation of heat-meters, installation of modern high efficiency boilers in industrial sites, thermal insulation of buildings, application of new industrial high-efficiency technologies.

Regulatory framework: Energy Law (1998), Law on Conservation (2000), Law on Renewable Energy Sources (2007), Law on Energy Efficiency (2010), National Programme of Energy Conservation for 2003-2010, Energy Strategy until 2020.

Compliance with EU regulations: EU-Moldova Action Plan (2004) under the Partnership and Cooperation Agreement. Republic of Moldova is a Contracting Party of the Energy Community Treaty (since May 2010).

Barriers: absence of the secondary legislation to guarantee implementation of regulatory framework (e.g. support to development of ESCOs), no national and municipal funds for development of EE projects, low level of awareness among population and policy makers.

Success factors: A Revolving Fund has been created, which partially serves to help ESCOs' operation.

Existence of ESCO

One ESCO type company ESCO-Voltaj was set up in 2007. Another example is the company SC Geothermal-AV SR, which is providing professional consulting services in the field of energy saving. The main activities provided by the company include designing and building clean ecological and energy saving houses, design and installation of ventilation systems with heat recovery, implementation of heat or cooling systems based on heat pumps, providing energy audits for buildings, installation of water saving systems and ensuring service of supplied installations. The company Dina-Cociug is the market leader in the Republic of Moldova for heating, water supply, conditioning, ventilation equipment and energy conservation equipment. There are also a few other companies that have worked on donor-financed turn-key contracts in the range from USD 50,000 to USD 150,000.

Energy efficiency policy and regulatory framework

Policies and regulation in the energy sector include Energy Law (1998), Law on Conservation (2000), Law on Renewable Energy Sources (2007), National Programme of Energy Conservation for 2003-2010, Law on Energy Efficiency (2010). One of the most important policy documents is the Energy Strategy of the Republic of Moldova until 2020, which has been published in 2007 and has three strategic objectives: (i) security of energy supply; (ii) promoting energy and economic efficiency; and (iii) liberalization of the energy market and restructuring of power industry. The Ministry of Economy monitors the progress of strategy implementation on a quarterly basis. Based on the mentioned three strategic objectives the following priorities have been defined:

- Establishment of an acceptable level of energy security by construction of own power plants and enlargement of the capacity of Moldova-Ukraine and Moldova-Romania high voltage interconnection lines;
- Adherence to the regional electricity market in South-East Europe with the aim to join the Union for the Co-ordination of Transmission of Electricity system;
- Creation of conditions to ensure real market competition leading to cheaper electricity prices;

- Full liberalization of the power market;
- Strengthening of the gas transport network and improvement of energy efficiency.

Energy efficiency is a priority in the Republic of Moldova and strategic policy objectives for energy conservation have been defined in the National Programme of Energy Conservation (2003). It is the policy document guiding government actions in pursuing increased energy efficiency of the economy. It set out quantitative targets for efficiency improvements, priority areas for energy conservation and efficiency interventions, and it indicated activities to carry out in order to achieve stated objectives. The Programme aims at increasing energy efficiency by minimizing energy intensity by two to three per cent annually.

The Law on Energy Efficiency (2010) covers fundamental aspects regarding efficient use of energy created a framework for infrastructure renewal and performance monitoring. It provides the basis for application of the EU Directive 2006/32/EC on energy end-use efficiency and energy services; establishes conditions for the creation of the institutional capacity in charge of EE and RES promotion and monitoring; mandates periodical development of national and local EE Programmes and Action Plans; promotes energy auditing through training and appointment of energy managers for regions and municipalities; promotes creation of ESCOs, third party financing, energy performance contracting, and energy consumption metering; and sets minimum energy performance standards. Energy Efficiency Agency was created by the Government decision in December 2010.

Recently, Moldova made significant progress in introducing measures supporting energy efficiency. In particular, in January 2013, the Government adopted the Energy Strategy until 2030. The draft laws on natural gas, heat and renewable energy law are currently in preparation. Moldova prepared drafts of a national energy efficiency action plan 2012-2014 and a national renewable action plan 2012-2020. It also drafted an incentives package, including on feed-in tariffs, for increased use of renewable energy sources. In June 2013, the Energy Efficiency Fund was established.

Secondary legislation elements like the law on ESCOs or regulation regarding energy conservation incentives are under development and will play a crucial role in supporting the implementation of the energy conservation policy.

EU Regulation

The EU Moldova Action Plan from 2004 is a political document laying out the strategic objectives of the cooperation between the Republic of Moldova and the EU. The implementation of the Action Plan will help fulfil the provisions in the Partnership and Cooperation Agreement (PCA) and will encourage and support the Republic of Moldova's objective of further integration into European economic and social structures. Regarding energy, the Action Plan outlines the preparation of an updated energy policy converging towards EU energy policy objectives, a gradual convergence towards the principles of the EU internal electricity and gas markets, and the improvement of the transparency, reliability and safety of the gas transit network. Republic of Moldova is a Contracting Party of the Energy Community Treaty (since May 2010). The European Energy Manager Training Programme was launched in April 2011 with the main objective to create a group of trainers who will instruct future energy managers - specialists in the area of energy efficiency and the use of alternative and renewable energy sources.

Romania

Existence of ESCO: Energy Serv S.A, SE-GES, EnergobitESCO, SERVELECT, Krobath Romania SRL, Cothec Energetikai Uzemelteto SRL, Energy Services Group, Luxten Lighting, ENEAS S.R.L-Romania.

Types of contracts: EPC and energy metering before and after solution implementation.

Types of projects: Variable speed flow control, lighting revamp, daylight sensors, compressed air efficient use, power grids optimal reconfiguration, load management, heat recovery, heat pumps for heat recovery, on-site cogeneration systems in the industrial sector, BMS integration, power factor correction, telemetering systems, ISO 50001 implementation.

Regulatory framework: National Strategy for Energy Efficiency (2004), Law 372/2005 on energy performance of buildings, Romanian Electricity Law (2007), Energy Strategy for 2007-2020 (2007), National Action Plan for Energy Efficiency (2008), National Programme for Increasing EE and RE Utilization in Public Sector for the period 2009-2010 (2008).

Compliance with EU regulations: Participant of the Energy Community Treaty (2007).

Barriers: Lack of internal expertise of local banks to evaluate EE projects, restricted capacity to develop fully bankable project proposals.

Success factors: NEEAP established a specific measure for promotion of EPC; “Promotion of development for ESCO” focused on third party financing and EPC; local commercial banks started move into EE market; financing mechanism of the National Programme for Increasing EE and RE Utilization in Public Sector for the period 2009-2010 can be used to support contribution to ESCO development.

Existence of ESCO

In Romania the first ESCO was created in 1996. The private company Energy Serv S.A was the first Romanian ESCO and has 100 per cent local Romanian ownership. It focuses on steam boilers, process heaters in the power sector, refineries, and petrochemicals. The maximum pay-back time of the projects was three years. Recently the company successfully implemented a CHP project based on biomass utilization (1.3 MW_e electricity and 7 MW_t thermal energy). This is the first plant to be built in Romania with a new concept and technology employed for a specific application. There are hopes that this project will open the door to a large market of similar applications in wood and furniture industry, district heating and industrial heat recovery.

In 2003, the EBRD and the Romanian-American Investment Fund established the Romanian Industrial Energy Efficiency Company, currently SE-GES. It was one of the first energy ESCOs in Romania to provide financing for energy efficiency investments in creditworthy industrial companies. It makes standardized investments in on-site cogeneration systems, which enable companies to significantly reduce energy consumption. The investments are based on the BOOT (build-own-operate-transfer) financing scheme. SE-GES portfolio includes several projects that are operational at Zentiva Pharmaceuticals Bucharest, Ursus Brewery Buzau, Isovolta Insulators Bucharest, Spicul flower mill Bucharest, Petrom Crude Extraction Oprisenesti, etc. Since its inception in 2004, SE-GES has invested more than 7 million Euro in the small cogeneration projects, installing 6.4 MW electrical cogeneration installations and 8 thermal energy production and recovery units (recovery boilers, economisers, absorption chillers, special boilers, etc). Other important projects are under preparation, in different stages of development.

EnergobitESCO has been launched in May 2005 as a joint-venture between the Canadian company Econoler International and EnergoBit from Cluj-Napoca, and is specialized in the development and implementation of energy efficiency projects and use of renewable energy sources. The main objective is to offer and develop economic and ecological solutions, especially for the industrial field with the purpose of obtaining the optimization of energy consumptions and producing energy from alternative sources. The company offers energy service, including energy audit, issuance of proposals for the reduction of energy consumptions, elaboration of feasibility studies and solution studies, assistance in obtaining the best financing sources (drafting of the business plan, elaboration of feasibility studies and preparation of the financing file) as well as identification and development of financial mechanism customized for the energy area. The company successfully negotiated a 2 million Euro contract with EBRD in order to increase its financing capacity.

SERVELECT is a Romanian privately held ESCO company launched in 2005 in Cluj-Napoca, which develops energy efficiency projects mainly for the industrial and commercial sectors. The company offers complex energy efficiency projects, paid from the generated savings. The typical applications that optimize energy consumptions are: variable speed flow control, efficient indoor and outdoor lighting, power factor correction, compressed air optimization - production, distribution, consumption, SCADA and telemetering systems, energy quality optimization, heat recovery, cogeneration or trigeneration, process optimization etc. In 2011, SERVELECT has received from the European Union the distinction “Best European Energy Service Provider” for its achievements during 2010.

Krobath Romania SRL is a subsidiary of an Austrian ESCO very active in Romania, having the first ambitious pilot project for a hospital heating system rehabilitation in Bisericani, Neamt County.

Cothec Energetikai Uzemelteto SRL. is a Hungarian company active in Romania, which provides financial background required for implementation, installs the equipment with certified professional workers with quality assurance in building construction.

Proenergy Contract Installations SRL is an ESCO based in Timisoara as a Romanian subsidiary of Proenergy international company active in Germany, Austria and Hungary. It successfully implemented a project, including cogeneration unit, in a large touristic complex.

Energy Services Group is an ESCO active in public sector having three contracts in building rehabilitation and one in private sector for hotel rehabilitation; two new projects are in preparation for 2013.

Luxten Lighting is a very large company specialized in public lighting sector. It also has a pilot project in school rehabilitation implemented in the framework of EU-IEE co-financed project “European Energy Services Initiative”.

ENEAS S.R.L.-Romania is an ESCO specialized in cogeneration installations. The company has established cooperation with Romanian Energy Efficiency Fund in order to have financing for industrial capacity in food industry.

All the above mentioned companies offer a wide range of services, including ESCO projects, auditing, equipment installation, operation and further engineering projects. ESCOs also make boiler renovation and operation of residential district heating.

There are other companies included in the list of ESCOs by Romanian Energy Regulatory Authority (ANRE) but a certification process for these companies is not implemented.

Energy efficiency policy and regulatory framework

The main governmental institutions responsible for energy efficiency policy in Romania are the Ministry of Economy, Commerce and Business Environment, the Ministry of Environment and Forests, the Ministry of Regional Development and Tourism, the Ministry of Administration and Internal Affairs, and the Romanian Energy Regulatory Authority.

The energy policy framework includes the Romanian Electricity Law (2007) which created the legal framework for performance of activities in the electricity sector under conditions of safety and high standards of quality with the goal to optimize the use of primary energy resources and to protect the environment. The Law also contains provisions for issuing authorizations and licences, the obligations resulting from these, the duties of the system operators and the suppliers, and the structure of the tariff system.

In September 2007, the Romanian Government approved a long-term Energy Strategy for 2007-2020. It aims to increase energy efficiency, boost renewable energy, diversify import sources and transport routes, and protect critical infrastructure. Furthermore, the Energy Strategy underlines Romania's ambitions to become a major electricity exporter by 2020. Approximately EUR 35 billion will be required for its energy infrastructure until 2020 to achieve its triple priorities of security of supply, sustainable development, and competitiveness. The strategy projects total domestic electricity production rising from 62.7 TWh in 2006 to 100 TWh in 2020. To achieve this target, Romania intends to focus on increasing production from nuclear, coal, and renewable energy sources. Renewable energy production is expected to increase from 18.4 TWh in 2006 to 32.5 TWh in 2020. The strategy stipulates investments of EUR 4.7 billion for the modernization of existing hydro capacity as well as construction of new hydropower plants, compared to EUR 1.8 billion for other new renewable energy sources such as wind and biomass. To achieve its policy objectives in the electricity sector, the strategy recommends creation of a national power sector champion. The state aims to hold 25-40 per cent of a new holding company, while the investment fund Fondul Proprietății is envisaged to hold 20 per cent, the remaining shares will be listed on the Bucharest Stock exchange. By creating a national sector holding company from the consolidation of distributors and generators, policy makers believe the new entity would have the critical mass to attract financing more easily.

Other important regulatory acts concerning the energy sector are the Government Decision No. 540/2004 on approving of the Regulation for granting authorizations and licences in the energy sector, the Government Decision No. 1661/2008 on approving the National Programme for increasing energy efficiency and using renewable energy resources in the public sector for the years 2009–2010, and the Government Decision No. 90/2008 on approving the Regulation for the connection of users to public electricity networks.

Policies and regulations on energy efficiency include the National Strategy on Energy Efficiency approved by the Government Decision 163/2004, which is the most important document concerning the energy efficiency policy in Romania. The National Strategy on Energy Efficiency sets forth the objectives concerning energy efficiency for the period until 2015. The main purpose of the strategy is to identify possibilities and means to increase

energy efficiency at all levels of the energy chain, by implementing specific programmes in order to reach its ultimate goal: the increase of primary energy efficiency by 40 per cent by 2015. The strategy sets a priority in the residential sector, followed by the industrial and transport sectors.

The Law 372/2005 transposes the EU Directive 2002/91/EC on energy performance of buildings into the Romanian legislation. It has been in force since 1 January 2007 and states that starting with this date, all new buildings and public buildings need to be evaluated and to have an energy performance certificate. As of 1 January 2010 all existing buildings are also subject to this requirement.

The National Strategy on the heat supply of localities by means of district heating systems approved by the Government Decision 882/2004 is based on the analysis of the existing situation and establishes the main domains of intervention: the thermal insulation of the blocks of flats and rehabilitation of the heat transmission and distribution networks.

The Energy Strategy of Romania for the period 2007-2020 has a general objective to cover the present and future energy demand at the lowest price, in the conditions of a modern market economy, ensuring quality and security of supply and observing the principles of sustainable development.

The National Strategy for Romania's Sustainable Development 2013-2020-2030 approved in 2008 establishes that the efficient use of energy and promotion of RES are essential for ensuring the sustainable development in the long term.

As a Member State of the European Union, Romania has to transpose the EU directives into its internal legislation and observe the energy policy measures established by the European Commission. Romania transposed the EU Directive 2005/32/EC that sets a framework establishing the eco-design requirements that apply to the energy-using products. It introduced the Ordinance 22/2008 on energy end-use efficiency and promotion of renewable energy source utilization by the end-consumers based on the EU Directive 2006/32/EC on the energy end-use efficiency and energy services, envisaging the establishment of a legal framework for the development and application of the national energy efficiency policy.

Romania adopted the Law 220/2008 (with later amendments) on the establishment of the system for the promotion of energy production from RES. In its current form the law transposes the provisions of the EU Directive 2009/28/EC into internal legislation.

The National Programme for increasing energy efficiency and using renewable energy sources in the public sector over the period 2009-2010 was approved by the Government Decision 1661/2008. It ensures co-financing of the projects whose direct beneficiaries are local public administration authorities. The following types of investment objectives are eligible: rehabilitation and modernization of district heating systems, thermal rehabilitation of certain public buildings, and modernization of interior and exterior public lighting.

According to the provisions of the Directive 2006/32/EC Romania adopted the First National Energy Efficiency Action Plan in 2007. Romania aimed to reduce final energy consumption in the period 2008-2016 at an average annual rate of 1.5% against the average in the period 2001-2005.

In 2011 Romania developed the Second National Energy Efficiency Action Plan. The calculations made by means of top-down indicators projected Romania's final energy consumption savings in 2010 to be 2,223 ktoe, of which approximately 1,060 ktoe in industry, 782 ktoe in the services sector, and 281 ktoe in the household sector.

EU Regulation

Romania is an EU member state since 2007. In 2006, the country was mostly compliant with the EU energy regulations with some provisions still missing in a few areas (public service obligation and customer protection, generation, unbundling, and access to accounts and cross border trade mechanisms) as confirmed by the Energy Community in its final report on compliance for electricity benchmarks.

The Energy Community Treaty establishing the Energy Community was signed on 25 October 2005 in Athens by the European Community and then nine Contracting Parties from South East Europe. Following ratification, the Treaty entered into force on 1 July 2006. Romania endorsed the treaty as a Contracting Party. Following its accession to the European Union, the legal status of Romania changed from Contracting Party to Participant in 2007.

Russian Federation

Existence of ESCO: Federal Service Company (FESCO), regional (municipal) public-private Energy Service Companies (RESCO), ENEFCO, H2O-Technology, GPB-EnergyEffect, Energoprofit, FNESCO, FRESKO, CESKO, NESCO, Invest ESCO ENEFCOM, SBERENERGORESURS, etc.

Types of contracts: energy savings projects as “shared-savings”.

Types of projects: street-lighting, heating, controlled systems, compressed air systems, district heating, projects in municipalities.

Regulatory framework: Energy Strategy of the Russian Federation for the period up to 2030 (2009), Law on Energy Saving and on Increasing Energy Efficiency and on Introduction of Changes in Selected Legislative Acts of the Russian Federation (2009), decree of the President on measures to increase the energy and environmental efficiency of the Russian economy (2008).

Compliance with EU regulations: Russia-EU Energy Dialogue (overall cooperation on energy saving, rationalization of production and transport infrastructures, investment possibilities & relations between producer and consumer countries).

Barriers: no action or implementation plans have been developed, absence of operational dedicated credit lines by national funds, not completed process of privatization and liberalization in the energy sector, availability of resources provides no incentives to increase of EE, lack of interpretation and guidelines from the Ministry of Finance of Russia to customers, providers of energy services and the Federal Treasury on the issue of planning expenditures budget on energy service contracts and payment, accounting, budget and tax accounting operations carried out within the framework of energy service contracts.

Success factors: introduction of the EPC in the law and links to the budgetary legislation (for state and municipal energy service contracts), EE regulation in the construction industry and housing sector, introduction of energy audit (on voluntary basis) and “energy passport”, support for energy-saving technologies, and introduction of tax incentives.

Existence of ESCO

In the Russian Federation there are several energy efficiency centres. They include ENEFCO, H2O-Technology, GPB-EnergyEffect, Energoprofit, FNESCO, FRESKO, CESKO, NESCO, Invest ESCO ENEFCOM, SBERENERGORESURS, etc. and regional centres for energy efficiency with major ones located in Kaliningrad, Murmansk, Kola, Karelia, and Ekaterinburg.

The state Federal Energy Service Company (FESCO) and regional public-private energy service companies (RESCO) were established. The network of such companies in the regions covers many regions of the Russian Federation. These federal and regional ESCOs however only serve state-owned enterprises and municipal buildings.

All of the Russian Federation regions have already established regional energy efficiency programmes and some of the regions have taken initiatives to implement pilot energy service projects. One example of such regional initiative is the territorial project in Kaluga Oblast. The Kaluga City Administration together with the Working Group on Energy Efficiency of the Commission on modernization of the President of the Russian Federation initiated energy service contracts in the public school. Invest ESCO ENEFKOM conducted an energy audit,

prepared a feasibility study and implemented energy saving measures. Saving energy (heat and electricity) amounted to 25 per cent in year. This project is the first energy service project in Russia. It has demonstrated the benefits of energy services and at the same time displayed typical problems associated with the implementation of an energy service project in the public sector.

The Russian Energy Agency (REA) is one of the most important entities in the Russian Federation with expertise in the area of energy saving in the country. It actively develops and supports the implementation of energy service projects. Staff of REA translated the International Performance Measurement and Verification Protocol (IPMVP) into Russian and prepared methodological recommendations on the preparation and implementation of energy service projects.

REA is involved in selection, preparation and implementation of energy service projects in various regions of the Russian Federation (for example, in Smolensk Oblast, in Tula Oblast and in Moscow). This work is being jointly undertaken by REA, representatives of the regional authorities, representatives of municipalities and other stakeholders. Implemented projects include street lighting, projects in the municipal and public sectors including regulation of the use of water and heat, and introduction of metering systems.

Energy efficiency policy and regulatory framework

Energy efficiency is one of the priorities on the political agenda in the Russian Federation. Modernizing energy infrastructure and promoting energy efficiency is the number one of the five priority areas for modernization and is overseen by the Presidential Commission for Modernisation and Technological Development of Russian Economy. Russian energy efficiency goals are to reduce energy intensity of GDP of the Russian economy by 40 per cent by 2020 compared to the 2007 levels.

In 2009 the Energy Strategy of Russia until 2030 was adopted. Main priorities of the Energy Strategy of Russia include a completion of structural reform of natural monopolies in the fuel and energy complex and re-structuring of the coal industry, prolongation of structural modification of branches in the fuel and energy complex and improvement of the structure of fuel and energy balance, decrease of production costs in the energy sector, optimization of the use of available industrial potential, liquidation of unprofitable plants, formation of the internal prices for energy resources at a level providing self-financing of the energy sector and fuel producers, raising the level of management in joint-stock companies operating in the fuel and energy complex.

The legal framework for energy efficiency is based on the Law on Energy Saving and on Increasing Energy Efficiency and on Introduction of Changes in Selected Legislative Acts of the Russian Federation (2009) and on various Codes and Federal Laws, such as the Civil Code, the Tax Code, the Forestry Code, the Customs Code, the Urban Development Code, the Housing Code and the Laws on Electricity and Heat Sectors.

The 2009 law replaced the previous Law on Energy Efficiency, which was in force since 1996 and which was distinguished by its declarative nature and absence of real measures allowing real development of energy saving technologies in the Russian Federation. It provides the regulatory framework for implementation of the decree of the President of the Russian Federation “On measures to increase the energy and environmental efficiency of the

Russian economy” which was adopted in 2008, thus marking the first step in a comprehensive revision of the regulations on energy efficiency in the Russian Federation. The presidential decree envisages energy intensity target reduction of 40 per cent by 2020. The new Law on Energy Saving and on Increasing Energy Efficiency is a major act embracing general principles of the policy of the Russian Federation in the area of energy efficiency and energy savings. The approval of the Law is accompanied by various legislative changes (including the Tax Code and the Federal Law on Public Procurement).

The new energy efficiency legislation establishes standards for regulating energy consumption to encourage energy savings and amends existing legislation on enforcing energy saving rules. The law also requires an energy audit for all public agencies, utility companies and large energy consumers, metering for all buildings and establishes that public agencies must reduce their energy and water consumption by 15 per cent by 2015.

Furthermore, the adoption of the Law, as a framework act, required the development of numerous bylaws by the Government and relevant federal ministries.

One of the most important legal acts in the area of energy services is the Decision of the Government of the Russian Federation of 18 August 2010 No. 636 “On the requirements for the contract for energy services and features of determining the initial (maximum) contract price (lot price) for energy services”. This Decision applies to government (municipal) contracts and defines its essential terms.

The Federal Programme on “Energy Savings and Improving Energy Efficiency until 2020” was adopted by the Russian Parliament in 2010. The programme recognizes that energy intensity in the country is 2.5 times higher than the world’s average and up to 3.5 times higher than that of developed countries. The Federal Programme on “Energy Savings and Improving Energy Efficiency up to 2020” was replaced by the new Federal Programme on Development of the Energy Sector” (2013-2020).

EU Regulation

The Russian Federation is neither a member of the European Union nor a candidate country. However, since October 2000 a Russia–EU Energy Dialogue is pursued with a special area dedicated to energy efficiency. The purpose of the dialogue is to raise all issues of common interest relating to the energy sector, including the introduction of cooperation on energy saving, rationalization of production and transport infrastructures, European investment possibilities, and relations between producer and consumer countries. However, the summit in Khabarovsk in May 2009 was marked by articulate tension between the Russian Federation and the European Union. The Russian Federation and the EU had drafted contradictory proposals for the summit. The Russian Federation came up with its conceptual approach as a substitute for the Energy Charter, while the EU prepared a new energy strategy and a mechanism of early warning, both of which are an extension of the Energy Charter.

Serbia

Existence of ESCO: no ESCO, few ESCO oriented activities

Types of contracts: N/A

Types of projects: N/A

Regulatory framework: the Energy Law (2004), Energy Sector Development Strategy by 2015, Implementation Programme of the Energy Sector Development Strategy by 2015 for the period 2007-2012.

Compliance with EU regulations: contracting party to the Energy Community Treaty (2006), assistance of the EU in establishment of Serbian Energy Efficiency Agency (SEEA) via the European Agency for Reconstruction (EAR).

Barriers: no dedicated energy efficiency law, no support mechanism in place for ESCO activity, absence of public funding dedicated to EE projects, low electricity and heat prices, no financial incentives for EE, lack of awareness on EE and ESCO potential, lack of financing by commercial banks.

Success factors: Energy Law foresees new responsibilities for municipalities: energy balancing, energy strategic planning and establishment of local energy markets; energy price liberalization has started, an institutional framework has been created; establishment of the Serbian Energy Efficiency Fund (SEEF).

Existence of ESCO

In Serbia ESCOs don't exist mainly because there is no support mechanism in place for the activities of these companies. The legal framework for running such companies is also missing; however, recently some work has been done to determine the existing legal obstacles to the establishment of such companies in Serbia. Development has started, legislation and some capacity are in place, but further legal and capacity advancement are still necessary in order to fully enable the development of the third party financing schemes.

Energy efficiency policy and regulatory framework

Energy policy framework includes the Energy Law which was adopted in 2004. This Law regulates generation, transmission, distribution and supply of electricity, organization and functioning of the electricity market, transmission, distribution, storage, trade and supply of petroleum products and gas, and production and distribution of heat. The main objectives of the Energy Law are, *inter alia*, provision of a safe, good quality and reliable supply of energy and energy sources, stimulation of market competition, provision of conditions for promoting energy efficiency in carrying out energy activities and energy consumption, as well as stimulating use of renewable energy sources and combined heat and power generation.

In addition to this legal basis, Serbia has developed the Energy Sector Development Strategy by 2015, whose objectives are technological modernization of existing energy facilities, increase of energy efficiency in production and use of energy, as well as use of renewable energy sources and construction of new energy infrastructure facilities.

In 2007 the Government of the Republic of Serbia adopted the Implementation Programme of the Energy Sector Development Strategy of the Republic of Serbia by 2015 for the period 2007-2012. The Programme identifies barriers to increasing efficiency in energy

consumption and to widely using renewable energy, recommending regulatory, policy, institutional, organizational and technical measures to overcome these barriers. It foresees development of national regulations to establish favourable conditions for ESCOs' operation and introduction of an energy passport system in buildings. The Programme has been under implementation.

In accordance with the Directive 2006/32/EC of the European Parliament and of the Council on energy end-use efficiency and energy services Serbia had adopted the National Energy Efficiency Action Plan. The first NEEAP was adopted in June 2010 and covers the period of 2010-2012. The second NEEAP is in preparation and will cover the period from 2013 to 2015.

Serbia is now in the process of adoption of the Law on Efficient Use of Energy. This law will contain basic principles on implementation of EE measures in production, transmission, distribution and consumption of energy, reducing the cost of production and service, reducing energy consumption, higher efficiency, eco-design requirements, use of EE technologies, sustainability in terms of environmental impact as well as integrated approach to reduce primary energy consumption and environmental impact. The establishment of the Energy Efficiency Fund is regarded as a necessary tool to increasing energy efficiency and stimulating rational energy use.

EU Regulation

Serbia is a Contracting Party of the Energy Community Treaty (July 2006). The Energy Community Treaty establishing the Energy Community was signed on 25 October 2005 in Athens by the European Community and then nine Contracting Parties from South-Eastern Europe. Following ratification, the Treaty entered into force on 1 July 2006. It aims at a broader adoption of the EU *acquis communautaire* as well as to the creation of the regional energy markets and their incorporation into a single Pan-European energy market as the main goal.

The former Yugoslav Republic of Macedonia

Existence of ESCO: no ESCOs

Types of contracts: N/A

Types of projects: N/A

Regulatory framework: Energy Law (2006), Strategy for Energy Development in the Republic of Macedonia until 2030, National Action Plan (2009), new Energy Law (2011, 2013), Energy Efficiency Strategy until 2020, First National Energy Efficiency Action Plan 2010-2018.

Compliance with EU regulations: Stabilization and Association Agreement between the EU and FYR of Macedonia, ratification of the Energy Community Treaty (2006).

Barriers: no specific energy efficiency law, lack of experience in ESCO projects by commercial banks, low tariffs for energy, lack of clarity of legal procedures regarding ESCO projects, lack of contract and tender templates, lack of monitoring and verification, lack of awareness and information, lack of expertise and resources for preparing ESCO projects/tenders.

Success factors: elaboration of municipal Local EE Programmes and Action Plans, introduction of mandatory energy audits in 2010, consideration for creation of the EE Credit Line.

Existence of ESCO

In the former Yugoslav Republic of Macedonia there are no ESCOs. There was an attempt to establish an ESCO (MT ESCO llc, a joint venture between Toplifikacija AD Skopje and MEPSO AD Skopje) in the period of 2006-2007 with funding from the GEF project. However, this attempt was not successful.

Another initiative was made to create a company operating on ESCO business model. The ESCO Fonko private company was established. As the previous attempt, this one was not successful too and after two years of existence this company (as well as the mother company Fonko) got bankrupt and was closed. There is no certain information about ESCO projects completed by this company.

Energy efficiency policy and regulatory framework

The Energy Law from 2006 was the framework for energy regulation in the former Yugoslav Republic of Macedonia. It defined following priorities: harmonization with EU legislation, establishment of market conditions, further development of energy systems by construction of new energy generating facilities and multiple connections to energy systems of neighbouring countries, increase of energy efficiency, development of renewable energy resources in the country, and introduction of adequate environmental standards and measures. The new Energy Law was adopted in 2011 and amended in 2013.

There is a Strategy for Energy Development in the Republic of Macedonia for the Period 2008-2020. The main pillars of it are construction of new thermal and hydropower plants, analysis of nuclear power plants and of natural gas supply, and improvement of energy efficiency by 30 per cent by 2020 compared to the base year 2006. According to the strategy, the main energy efficiency measures on the production side will be construction of

cogeneration power plants. The main goal of the Strategy is to develop a framework for accelerated adoption of EE practices in a sustainable way and to implement series of programmes and initiatives that are related to reducing dependence on imports, as well as reducing energy intensity and non-productive use of energy. On the demand side, new energy efficiency measures in the industrial sector are envisaged. Until 2020 the production of electricity should be in line with the demand for electricity. After 2020 the former Yugoslav Republic of Macedonia could become an exporter of electricity.

The former Yugoslav Republic of Macedonia has no specific Energy Efficiency Law but provisions for energy efficiency have been included in the Energy Law. The Energy Law of 2011 clearly targets energy efficiency by including a special chapter where the current national policy and activities for improvement of energy efficiency are elaborated. The Energy Law obliges municipalities to elaborate and implement five-year Local Energy Efficiency Programmes and Action Plans for their implementation. The council of municipalities will receive these action plans, while the government will control these action plans based on legal documents. The law includes provisions for energy efficiency in the construction of new and reconstruction of existing facilities, including energy audits and buildings certificates. The Energy Efficiency Strategy until 2020 has been adopted, but is currently being revised.

Additionally, the former Yugoslav Republic of Macedonia as a Contracting Party of the Energy Community Treaty is required to prepare three National Energy Efficiency Action Plans in the period of 2010-2018, following the EU Directive 2006/32/EC on energy end-use efficiency and energy services. The first NEEAP was prepared and submitted to the Energy Community Secretariat in June 2010. The NEEAP presented the recommended programmes that will achieve the 9% energy saving target specified in the EE Strategy, as well as the implementation timeframe, financial means, and the expected energy savings. As in the Strategy, the public buildings sector is not a separate sector, but falls under the commercial and services sector. NEEAP puts priority on the public sector in the short-term as the sector that is easier to address, and for the expected leading-by-example impact on commercial sector actors. It also emphasizes that capacity for EE needs to be built in both the Ministry of Energy and the Energy Agency and that an EE Fund should be established.

EU Regulation

After 2004, when the Stabilization and Association Agreement between the European Union and the former Yugoslav Republic of Macedonia entered into force, the former Yugoslav Republic of Macedonia gradually moved towards meeting the EU requirements regarding the development of the energy sector. In December 2005, the former Yugoslav Republic of Macedonia received the status of an official EU candidate, although no decision was made about the date of opening accession negotiations.

Besides the reforms in the institutions and regulation of the electricity and natural gas markets, the Stabilization and Association Agreement creates obligations for the former Yugoslav Republic of Macedonia to implement the provisions of Directives 2003/54/EC on the general relations within the internal electricity market and 2003/55/EC on the general relations within the internal gas market, and to create a framework for opening the market and for all customers to be able to choose their supplier by 2015.

In 2006, the former Yugoslav Republic of Macedonia ratified the Energy Community Treaty, which commits the country to implement the relevant *acquis communautaire*, to develop an adequate regulatory framework and to liberalize its energy markets by 2015. The strategic priorities of the former Yugoslav Republic of Macedonia in the energy sector and provisions that transpose the *acquis communautaire* are incorporated in the Energy Law, adopted by the Parliament in 2006, and reinforced with the adoption of the new Energy Law, adopted by the Parliament in 2011, and subsequently amended in 2013.

Ukraine

Existence of ESCO: UkrESCO, ESCO-Rivne, Kherson-ESCO, Energy Alliance, Aitikon, KyivESCO, OdesaESCO, around 130 ESCO-type consultancies

Types of contracts: BOOT, turn-key concepts

Types of projects: energy saving projects (co-generation stations, compressed air systems, heat supply systems, cooling, and equipment modernization) in small and medium enterprises, projects in municipalities.

Regulatory framework: Energy Strategy of Ukraine until 2030 (2005), Law on Energy Saving (1994), Comprehensive State Programme of Energy Saving of Ukraine (1997), State Programme of Reform and Development of the Housing and Communal Sector for 2004–2010 (2004), State Targeted Economic Programme on Energy Efficiency and Promotion of Energy Production from Renewable Energy Sources and Alternative Types of Fuel for 2010–2015.

Compliance with EU regulations: Ukraine-EU Action Plan set up a Technical Assistance and Information Exchange Instrument (TAIEX) programme, development of a new joint instrument in the form of Directives, Action Plans or Road Map. Ukraine is a Contracting Party of the Energy Community Treaty (since February 2011).

Barriers: ESCO market is hindered financially, high interest rates on loan, absence of legislative incentives, lack of a liberalized energy market, information on ESCOs is very scarce, budget year ends on 31 December (no guarantee that municipal authorities can honour the obligations in the next budget period), lack of possibility to receive local guarantees, insufficient support for servicing energy saving measures

Success factors: existence of the State Agency for Energy Efficiency and Energy Saving of Ukraine

Existence of ESCO

About 130 ESCO-type companies are operating in Ukraine, among them UkrESCO, ESCO-Rivne, ESCO-Zakhid, Kherson-ESCO and Energy Alliance. UkrESCO and Energy Alliance have been created with support of international financial institutions. The EBRD provided a loan of 20 million USD to support the creation of UkrESCO in 1998. UkrESCO has been implementing energy saving projects as turn-key at small and medium enterprises in Ukraine. It has successfully implemented a number of energy saving projects in various Ukrainian companies. The usual project payback period is from one to four years, the commodity credit term is up to four years.

In 2005, the EBRD provided UkrESCO with a second loan of 30 million USD to enable UkrESCO's business expansion. Additionally in 2003, the EBRD provided a loan of 10 million USD for the establishment of a new private ESCO known as the Energy Alliance. The Bank's loan was used by the Energy Alliance to finance the purchase of cogeneration equipment.

Overall, activities of ESCOs in Ukraine are considered to be reasonably successful. There are, however, two unclear factors for such consideration. It is not clear if ESCOs in Ukraine will be able to operate without support from grants, and international loans. And ESCOs are not working based on EPC but rather act more as consultancy companies.

Energy efficiency policy and regulatory framework

Ukraine has a complex legal framework for energy sector. The main legislation includes the Law on Electricity Sector (1997), the Law on Heat Supply (2005), and the Law on Combined Heat and Power Production (Cogeneration) and Utilization of Energy Waste Potential (2005). The laws are supplemented by a number of government resolutions, presidential decrees, by-laws, regulations, norms, standards, and methodological guidelines.

The main energy policy document is the Energy Strategy of Ukraine for the period until 2030 (2005). The Comprehensive State Energy Conservation Programme until 2010 is linked to it. The Energy Strategy is a document mainly of a declarative nature, and provides general outlook of energy sector development up to 2030. The Strategy focuses on traditional energy sectors (natural gas, oil, nuclear and coal). One of its goals is reducing country's energy dependence, in particular on natural gas imports. It envisages the ambitious target of reduction of energy intensity by 50 per cent until 2030. The Comprehensive State Energy Conservation Programme until 2010 provided basis for enhancement of energy efficiency and competitiveness of national economy, optimization of state energy balance through decrease of imported fossil fuels (natural gas) and their replacement with alternative sources of energy and secondary energy sources.

There is a dedicated governmental institution responsible for energy efficiency, the State Agency on Energy Efficiency and Energy Saving of Ukraine (until 2012 – National Agency for Efficient Use of Energy Resources). It has been established at the end of 2005 after the State Committee on Energy Saving has been abolished and is responsible for development and implementation of the national policy in the area of energy efficiency, energy conservation, and development of alternative energy sources.

The main policy document in the area of energy saving remains the Comprehensive State Programme of Energy Saving of Ukraine (1997). Issues related to energy saving and energy efficiency in housing and communal sector are reflected in the State Programme of Reform and Development of the Housing and Communal Sector for 2004–2010 (2004).

In 2008 the Concept of the State Target Economic Energy Efficiency Programme for 2010-2015 has been approved by the Order of the Cabinet of Ministers of Ukraine. The concept envisages, *inter alia*, the creation of a legislative framework, the provision of economic incentives to promote energy saving activities, the creation of a state system for monitoring and controlling the efficient use of fuel and energy sources; in this context, the development of the Draft Law On Efficient Use of Fuel and Energy Resources introducing a market-based approach represents a first implementation step. The State Targeted Economic Programme on Energy Efficiency and Promotion of Energy Production from Renewable Energy Sources and Alternative Types of Fuel for 2010-2015 is currently under implementation. The Government is expected to approve the first National Energy Efficiency Action Plan until 2020.

Ukrainian legislation provides some incentives for promotion of alternative energy use. These are currently provided by the Law “On Electric Energy Industry” (establishing “green tariffs”), the Law “On Amendments of the Certain Legislative Acts of Ukraine in Regard to Promotion of the Energy Saving Measures” (envisaging tax and duty preferences), by the

recently adopted Law “On Lands for Energy Facilities and the Legal Regime of Special Areas for Energy Facilities”, and by the Law “On Alternative Types of Fuel”.

The law on energy audit is absent. However, the concept of energy audit has been introduced by the Law of Ukraine “On Amending the Law of Ukraine “On Energy Saving” (2005), prescribing that the order of performance of energy audit would be envisaged by a separate law. Nevertheless, the referred law is not adopted by the parliament until now.

EU Regulation

The Ukraine-EU Action Plan, which stresses EU commitments to support Ukraine, was approved in February 2005 for a three-year period. Based on the Ukraine-EU Action Plan, a Technical Assistance and Information Exchange Instrument (TAIEX) programme has been set up. In January 2012, the EU launched the technical assistance Project “Capacity Building of the State Agency for Energy Efficiency and Energy Conservation of Ukraine”. Another EU project in Ukraine is the twinning project “Improvement of the Policy Framework in the Sphere of Energy Efficiency and its Approximation to the Requirements of the EU Legislation”. Ukraine is a Contracting Party of the Energy Community Treaty (since February 2011). The Government is expected to approve the first National Energy Efficiency Action Plan until 2020.

SOURCES

Albania: Regular Review of Energy Efficiency Policies 2007, Energy Charter Protocol on Energy Efficiency and Related Environmental Aspects PEEREA, 2008

Belarus: National Indicative Programme 2012-2013, European Neighbourhood and Partnership Instrument, European Union, 2011

Belarus: In-Depth Review of the Investment Climate and Market Structure in the Energy Sector, Energy Charter Secretariat, 2007

Bosnia and Herzegovina: In-Depth Review of Energy Efficiency Policies and Programmes, Energy Charter Secretariat, 2012

Bulgaria Country Profile: 2011 Survey of resource efficiency policies in EEA member and cooperating countries, European Environment Agency, May 2011

Chiharu Murakoshi, Hidetoshi Nakagami, Current state of ESCO activities in Asia: ESCO industry development programs and future tasks in Asian countries, Jyukankyo Research Institute, 2009

Corneliu Rotaru, Framework Conditions for Energy Performance Contracting, National Report of Romania, November 2009

Diana Ürge-Vorsatz *et al.*, An Assessment of on Energy Service Companies (ESCOs) Worldwide, Central European University, March 2007

Dilip R. Limaye, Anke S. Meyer, National Program for Energy Efficiency in Public Buildings in the Former Yugoslav Republic of Macedonia, 2012-2018: Financing and Implementation Plan, The World Bank Institute, Climate Change Practice, August 2012

Energy Efficiency in Romania, Demo Report, FRD Center Market Entry Services, January 2011

Energy Efficiency Policies in the European Union, ODYSSEE-MURE Project, Agence de l'Environnement et de la Maîtrise de l'Energie (ADEME), July 2013

Energy Savings: Performance Contracts Offer Benefits, but Vigilance is Needed to Protect Government Interests, Report to Congressional Requesters, United States Government Accountability Office, June 2005

Energy Strategy of the Republic of Bulgaria till 2020: For Reliable, Efficient and Cleaner Energy, June 2011

Energy Strategy of the Republic of Moldova until 2030

Energy Strategy of Russia for the Period up to 2030, Ministry of Energy of the Russian Federation, Moscow 2010

ESCO Market in Poland: Current State and Development Perspectives, Institute of Environmental Economics, March 2012

Financing Energy Efficiency in the Western Balkans –Public Finance Options to Fund the Second NEEAP, “Food for Thought” Paper, IFI Coordination Office, September 2012

Igor Georgiev, Strategies for Developing Energy Efficiency in Macedonia, *Evrodijalog 15: Journal for European Issues*, December 2011

Implementation of the European Neighbourhood Policy in Republic of Moldova: Progress in 2012 and recommendations for action, *European Neighbourhood Policy: Working towards a Stronger Partnership*, March 2013

International Experiences with the Development of the ESCO Markets, Berliner Energieagentur GmbH, December 2008

Jennifer Ellis, Energy Service Companies (ESCOs) in Developing Countries, International Institute for Sustainable Development, May 2010

Kazakhstan: Investment Climate and Market Structure Review in the Energy Sector, Energy Charter Secretariat, 2013

Kazakhstan: Removing Barriers to Energy Efficiency in Municipal Heat and Hot Water Supply, UNDP Project Document, 2006

Lychuk *et al.*, Analysis of the Russian Market for Building Energy Efficiency, Pacific Northwest National Laboratory, December 2012

Maria Rugina, Iuliana Lazar, Energy Efficiency Policies and Measures in Romania in 2012, ODYSSEE-MURE 2010 Project, Energy Research and Modernizing Institute, Romanian Energy Regulatory Authority, September 2012

Michael Baechler, Lia Webster, A Guide to Performance Contracting with ESCOs, Pacific Northwest National Laboratory, Portland Energy Conservation, Inc., September 2011

New Energy Efficiency Legislation in Russia, CMS Newsletter, December 2009

Paolo Bertoldi *et al.*, Latest Development of Energy Service Companies across Europe- A European ESCO Update, European Commission, Joint Research Centre, Institute Environment and Sustainability, 2007

Pierre Langlois, The evolution of ESCOs in Developing Countries and Economies in Transition, Econoler International, Canada

Policies and Measures on Energy Efficiency in Bulgaria, Odyssee-MURE 2010, Sustainable Energy Development Agency, September 2012

Renewable Energy Resources and Energy Efficiency in Albania, Albania Energy Association, 2012

Republic of Albania: National Energy Efficiency Action Plan 2010-2018, Tirana 2010

Republic of Macedonia: First National Energy Efficiency Action Plan 2010-2018, Skopje 2010

Rory Bowen, Models of Financing Mechanisms for the Energy Retrofit of Residential Buildings of Comunidad Valenciana, concentrating on Third-Party Finance and ESCO Models, Valenciana Institute of Building

Serbia's Capacity for Energy Efficiency and Renewable Energy, Jefferson Institute, February 2009

Internet Addresses

Agence de l'Environnement et de la Maîtrise de l'Energie (ADEME) <http://www2.ademe.fr/servlet/getDoc?id=38480&m=3&cid=96>

Better Buildings Partnerships <http://www.betterbuildingspartnership.co.uk/>

Energy Charter <http://www.encharter.org/index.php?id=4>

European Commission: Summaries of EU legislation http://europa.eu/legislation_summaries/energy/energy_efficiency/

European Bank for Reconstruction and Development (EBRD) <http://www.ebrd.com>

European Investment Bank (EIB) <http://www.eib.org/>

European Association of Energy Service Companies <http://www.eu-esco.org/>

Financing Energy Refurbishment for Social Housing (FRESH) project <http://www.fresh-project.eu/>

International Energy Agency (IEA) <http://www.iea.org/>

International Institute for Sustainable Development <http://www.iisd.org/>

International Finance Corporation <http://www.ifc.org/>

World Energy Council <http://www.worldenergy.org/>

The World Bank <http://www.worldbank.org>