



# Economic and Social Council

Distr.: General  
29 January 2013

Original: English

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## Economic Commission for Europe

### Committee on Sustainable Energy

#### Steering Committee of the Energy Efficiency 21 Programme

##### Twenty-fourth session

Geneva, 17 April 2013

Item 4 (a) of the Provisional Agenda

#### Financing Energy Efficiency and Renewable

#### Energy Investments for Climate Change

#### Mitigation

### Financing Energy Efficiency and Renewable Energy Investments for Climate Change Mitigation

### Development of Energy Service Companies (ESCO) Market and Policies in Selected Countries of South-Eastern Europe, Eastern Europe and Central Asia - Background paper

Note by the secretariat

## I. Introduction

1. This note outlines the development of energy service companies (ESCO) market in the countries participating in the project Financing Energy Efficiency Investments for Climate Change Mitigation (FEEI). The Mid-term Evaluation of the FEEI project indicated that “experience proved that setting up ESCOs, that have both the technical expertise and the financial capabilities to invest in energy efficiency measures and/or renewable energy projects, is one of the best ways to address the issue of financing energy efficiency investments.”

2. The countries of South-Eastern Europe, Eastern Europe and Central Asia do not have a developed ESCO market, mainly because the local potential ESCO sponsors do not have the equity basis to form such companies, as well as miss the adequate level of reliability and creditworthiness. Although the experience shows the difficulties of starting up ESCOs in a weak regulatory-policy context, the conceptual case for ESCOs as an instrument in energy efficiency programs remains valid. The potential ability of ESCOs as integrator of energy efficiency projects and bundling the procurement of goods across

several projects into one demand for external funding is a key theme of the original project document for the FEEI project.

## II. Development of ESCO Market and Policies in Albania

3. There are **no established ESCOs** in the country. However, the importance of ESCO creation is being promoted by the specialized institutions: Albania-EU Energy Efficiency Centre (EEC) and Albanian National Agency of Natural Resources (AKBN) which are involved in energy planning, preparing the annual energy balance and establishing legal frameworks on energy efficiency and renewable energy.

4. **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 of 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.

5. 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 hot water, improved use of decentralized heating and hot water systems, and the promotion of public transport.

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

7. A draft document for a new Energy Efficiency Law contains certain improvement with respect to the existing law. 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 Albanian National Action Plan on Energy Efficiency is expected to be approved.

8. Among the **existing barriers to ESCO** in Albania can be considered as the existence of complex non-transparent regulations, legislation which is more declaratory than operational, low tariffs, lack of experience of financing energy efficiency (EE) and renewable energy sources (RES) projects by commercial banks as well as lack of appropriate and accessible financial resources and still low awareness.

9. **The success factors** for further establishment and functioning of ESCOs in Albania can be an adoption of new Law on Energy Efficiency and draft of National Action Plan on Energy Efficiency. Albanian Energy Efficiency Law aims to create energy investment-friendly measures, including 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 programs for energy conservation, has engaged in energy audits and may have the potential to serve as an ESCO.

## III. Development of ESCO Market and Policies in Belarus

10. **Several ESCOs are operating** in Belarus, including BelinvestESCO, Vneshnergoservice and Center of New Technologies “Connectikum”. BelinvestESCO has been established in 2005 as the first ESCO in Belarus by the Belinvestbank and the Department for Energy Efficiency of the State Committee for Standardization.

11. The main attractions for ESCOs are projects aimed to modernization of energy sources, co-generation plants in large industry. The first ESCO contract followed the UK Energy Management Contract model. In this, the ESCO executes a turn-key project, including the delivery, installation and operation of a combined heat and power (CHP) plant or other energy efficiency installation. The ESCO owns the installation during the timeframe of the project, and is selling the service (electricity and heat) at a lower price than the local supplier, but when the project ends, the installation is handed over to the client. This is also referred to as build-own-operate-transfer (BOOT) contract. The ESCO project is financed from foreign bank loans through the ESCO, and a guarantee by a local bank or European Union (EU) stakeholders is provided.

12. There is no specific legislation regulating energy services in the Republic of Belarus and the acting ESCOs are operating on the basis of the currently existing legislation. **Policies and regulations on energy efficiency** include Law on Energy Saving adopted in 1998, the National Programme on energy saving for the period of 2006–2010 (2006) and 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 Program 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)

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

14. Among **barriers to ESCOs operation** are lack of legislation on energy services, state monopoly on production and transportation 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 as well as lack of awareness about ESCO potential. The most significant barrier is the fixed rates for electricity and heating prices.

15. Among **success factors** towards better ESCOs operation in the market in the Republic of Belarus is elaboration of the draft Law on Electricity where activities of ESCO will be regulated, establishment of International Energy Center (in the framework of the United Nations Development Programme (UNDP) supported project) as well as awareness raising and dedicated trainings for energy efficiency project developers and owners.

#### IV. Development of ESCO Market and Policies in Bosnia and Herzegovina

16. At present, there are officially **no ESCOs** operating in Bosnia and Herzegovina, though there are few companies operating on ESCO concept in implementing small-scale boiler biomass heating project, and a number of other ESCO projects have taken place. 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.

17. There are **no energy efficiency laws** in place at the state or entity level in Bosnia and Herzegovina, although a Law on Energy Efficiency has been developed in both entities; they are in the process of adoption (expected to be adopted by the end of 2012). As a step forward by-laws in the field of energy efficiency are also prepared in both entities.

18. The proposed energy efficiency laws and sub 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.

19. However, in the recent period Bosnia and Herzegovina made significant step forward when it comes to the energy efficiency development. Both on 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 field and attract foreign and domestic investors to invest in EE projects. Mentioned activities are a necessary precondition for the establishment of ESCO in Bosnia and Herzegovina.

20. 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 principle and benefits of ESCO concept. That is a basic precondition for future establishment of ESCO.

21. However, the **main barrier for ESCO** success is non-existing of necessary regulatory framework that will define way of establishing and functioning of ESCO. This is also necessary in order to achieve systematic approach in establishment of ESCO.

22. **The success factors** for establishment of ESCOs can be considered a compliance with EU regulation as a driver for development of energy regulatory framework, the preparation of drafts of Law on Energy Efficiency. One of the most important initiatives for supporting set-up of ESCO is preparation of new credit line for EE and RE projects. This credit line will be prepared by the European Bank for Reconstruction and Development (EBRD) in the beginning of 2013. This new credit line will promote and further expand ESCO as all projects to be implemented through this line will be done on base of ESCO principle.

## V. Development of ESCO Market and Policies in Bulgaria

23. The business model for **ESCOs in Bulgaria** is set up on the principle of public-private partnership, whereas ESCOs provide 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 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 in 2004 (State Gazette No. 18 from 5 March 2004). It is estimated that at present about 150 companies are in the possession of a license for carrying out energy audits in Bulgaria. However, there are few ESCO that are offering guarantees on savings.

24. ESCOs 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.

25. 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.

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

27. 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.

28. 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. A primary energy intensity reduction of 17 per cent and a primary energy intensity reduction of eight per cent by 2015 were targeted by the Long-term Programme. Additionally, there is the First National Energy Efficiency Action Plan for 2008–2010, 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 currently developing in line with EU regulations.

29. The main general programme for energy efficiency in residential and tertiary sector buildings is 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.

30. The **existing barriers to ESCOs** success are the frequent amendments to existing legislation, still existing corruption, lack of awareness and lack of capacities at the municipal level as well as lack of financing of EE projects by commercial banks.

31. However, among **success factors** to overcome the existing barriers can be considered the continuing operation of the Bulgarian Energy Efficiency Fund (providing financing for ESCOs). Currently ministries, departments and municipalities can plan funding for performance of ESCO services within their annual budgets, which have been approved by the Law of State Budget. Contracts with guaranteed results in Bulgaria are legally regulated in the Energy Efficiency Act (EEA) and the special Ordinances.

32. To overcome most of the existing barriers, it is crucial to drastically change people's thinking about the need for energy efficiency together with information dissemination on the opportunities opened up by ESCOs.

## VI. Development of ESCO Market and Policies in Croatia

33. There are currently two **ESCOs in Croatia**: HEP ESCO d.o.o. (a subsidiary company of HEP Hrvatska Elektroprivreda) and EETEK Holding Plc. (a private direct equity investment company active in the energy services business). HEP ESCO is 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 (HBOR). 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.

34. 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.

35. The principal objectives of Croatia's energy policy are stated in the Energy Sector Development Strategy adopted by the Parliament in 2002 for the period of ten years. 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.

36. The Croatian **energy efficiency legislation** is primarily based on the Energy Act (Official Gazette 68/01, 177/04 and 76/07 and 152/08), which is 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 2004). It is later followed by the Act on Efficient Utilization of Energy in Final Consumption (Official Gazette 152/08).

37. The Physical Planning and Building Act (Official Gazette No. 76/2007) laid the legal bases for the adoption of the regulations of the EU Directive 2002/91/EC on energy performance of buildings.

38. 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.

39. The Energy Efficiency Master Plan for Croatia (for 2008–2016 period) and the two 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.

40. The Environmental Protection and Energy Efficiency Fund was established in 2003 and 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 CO<sub>2</sub>, SO<sub>2</sub> and NO<sub>2</sub>), 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.

41. 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 (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.

42. 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 Company) 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, as well as household sector.

43. There are **barriers** for implementation of ESCO projects in Croatia. Consumers also show a lack of interest in energy efficiency probably due to the little knowledge in the country about ESCO benefits and the concept in principle. The legislative framework is not particularly supportive of the ESCO concept. Secondary legislation on energy efficiency has not been developed, and the ESCO model is not recognized by the authorities as an individual business model. 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 the profits. Market barriers which appears during the implementation of the ESCO projects include unsolved ownership relations, prevalence of long term contracts (treated as a credit relationship), existing low and insufficient support to energy efficiency projects.

44. **The success factors** for the overcoming of barriers can be the elaboration and further implementation of the first and second National Energy Efficiency Action Plan (NEEAP). Physical Planning and Building Act can serve as a basis for adoption of regulations on energy performance of buildings. The mandatory energy certification of buildings is introduced from 2010.

## VII. Development of ESCO Market and Policies in Kazakhstan

45. There is **no ESCO** in operation in Kazakhstan. New ESCO is to be established in Karaganda city in the framework of the United Nations Development Programme/Global Environment Facility project on Removing Barriers to Energy Efficiency in the Municipal Heat and Hot Water Supply.

46. The governmental policy 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.

47. 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, the improvement of the power generation structure by developing technologies using renewable energy resources, the 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.

48. Among **policies and regulations on energy efficiency** there is the current Law on Energy Savings that came into force in 1997. The State Energy Supervision Agency within the Ministry of Energy and Mineral Resources has the operational responsibility for the development of the new Law on Energy Savings. They have also been asked to evaluate and propose establishment of an Energy (Efficiency) Agency, within or outside the Ministry. In 2011 the new Law on Energy Savings had been adopted.

49. **Main barriers to ESCO** development can be seen in the absence of energy efficiency agency & action plan for energy efficiency in place. Vast availability of natural resources also precluded development of awareness on relevance of energy efficiency projects. There is a limited experience and lack of institutional and financing mechanisms for implementation of energy efficiency investment projects.

50. Among one of the **success factors** one can see fact that the newly developed ESCO aims to undertake energy efficiency measures either on supply or demand sides by contracting with customers under EPC. However, by now this still stay as the assumption only.

## VIII. Development of ESCO Market and Policies in the Republic of Moldova

51. **ESCO-Voltaj** has been established in the Republic of Moldova in 2007 as part of Proderox Group JSC. There are few engineering companies working on donor-financed turn-key contracts. There are also companies providing professional consulting services on energy conservation. The main activities include designing and building clean ecological and energy saving houses; design and installation of ventilation systems with heat recovery; development and implementation of heat/cooling systems based on heat pumps; providing energy audits for buildings; installation of water saving systems; supplying the installations and materials; ensuring service of supplied installations.

52. Among **policies and regulation** in the energy sectors include Energy Law (1998), Law on Conservation (2000), Law on Renewable Energy Sources (2007), 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: 1) security of energy supply; 2) promoting energy and economic efficiency; and 3) 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 the 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 (UCTE) 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.



53. 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 sets out quantitative targets for efficiency improvements, priority areas for energy conservation and efficiency interventions, and it indicates 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.

54. **Barriers to ESCO** success include the absence of the secondary legislation to guarantee implementation of regulatory framework (e.g. support to development of ESCOs); absence of national and municipal funds for development of EE projects, low level of awareness among population and policy makers

55. **The success factor** toward further development of the ESCO market in the Republic of Moldova can be seen a creation of the Revolving Fund, which will partially serve to help ESCOs' operation.

## IX. Development of ESCO Market and Policies in Romania

56. There are currently **few ESCOs** operating in Romania, including Energy Serv S.A, Romanian Industrial Energy Efficiency Company (RIEEC), Eco-Energo. The private company Energy Serv S.A. has been created in 1996 as the first Romanian ESCO, and focuses on steam boilers, process heaters in the power sector, refineries, and petrochemicals. The maximum pay-back time is three years. In 2003, the EBRD which contributed USD 11 million and the Romanian American Investment Fund which contributed USD four million, established the Romanian Industrial Energy Efficiency Company (RIEEC). RIEEC was one of the first energy ESCOs in Romania to provide financing for energy efficiency investments in creditworthy industrial companies. RIEEC makes standardized investments in on-site cogeneration systems, which enable companies to significantly reduce energy consumption. Eco-Energo, has been launched in May 2005, as a joint-venture between the Canadian company Econoler International and EnergoBit from Cluj-Napoca.

57. 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.

58. 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.

59. 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.

60. **Policies and regulations on energy efficiency** include National Strategy for Energy Efficiency, which is the most important document concerning the energy efficiency policy in Romania, was approved by the Government in 2004. 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.

61. 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.

62. Among existing **barriers to the ESCO** success is lack of internal expertise of local banks to evaluate EE projects as well as restricted capacity to develop fully bankable project proposals. However the Romanian Agency for Energy Conservation conducted several awareness-raising actions (seminars, publications in mass-media) in order to present the importance and the role of third party financing or ESCOs in the field of energy efficiency investments.

63. The success factors to ESCO market is the establishment in Romania of a specific measure focused on third party financing and EPC. Currently local commercial banks started move into energy efficiency market. Financing mechanism of the National Programme for Increasing Energy Efficiency and Renewable Energy Utilization in Public Sector for the period 2009–2010 can be used to support contribution to ESCO development.

## **X. Development of ESCO Market and Policies in the Russian Federation**

64. There are **several ESCO-type companies** operating in the Russian Federation, including Federal Service Company (FESCO), regional (municipal) public-private Energy Service Companies (RESKO), Center for Energy Efficiency (CENEF), Center for Energy Policy, AcademEnergServis, Institute for Energy Policy, RusDem, ESCO Negawatt, Rus Esco, 3E, Energo Servis and regional centers for energy efficiency with the major located in Kaliningrad, Murmansk, Kola, Karelia, and Ekaterinburg. They are mostly implementing energy savings projects as “turnkey.”

65. Some of the Russian Federation regions have already established regional energy efficiency programmes or initiatives. One example of such a regional initiative is the territorial project of the region of Archangelsk, called White Sea Energy. Jointly with the Russian energy company Roskommunenergo, the administration of the Archangelsk region, established a public-private partnership programme. The participating financing institutions are the Russian banks Mosuralbank and Sberbank, as well as the Czech Export Bank and the Foreign Trade Bank of the Russian Federation. The aim of the project is the comprehensive optimization and development of the power supply of the regional enterprises and the housing sector. Furthermore, it is envisaged to implement efficient, high-tech and ecological projects in the electricity, industry, and municipal services sector in the Archangelsk region. The third project task comprises the improved competitiveness of the enterprises in Archangelsk through the optimization of the energy costs. The programme envisages investments of USD one billion.

66. The main policy document in energy sector is the Energy Strategy of the Russian Federation for the period up to 2030, which was approved in November 2009 by the Government. The overall goals of the strategy can be summarized as follows: energy security, energy efficiency of the domestic economy, economic efficiency of the national

Fuel Energy Complex and ecological security of the national fuel energy complex. The new Energy Strategy is based on two scenarios. The first scenario envisages a quick recovery of the national economy, i.e. the consequences of the economic downturn will be successfully tackled before 2015, while the second scenario envisages a slower pace of economic recovery, i.e. a full recovery is expected by 2020/2022.

67. **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 and the Laws on Electricity Sector and on Municipal Housing Sector.

68. The new law replaces the previous Law on Energy Efficiency (Federal Law No. 28), 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” which was adopted in 2008, thus marking the first step in a comprehensive revision of the regulation on energy efficiency of 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 central and ground breaking 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).

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

70. **Barriers for ESCO** further market development include absence of developed action or implementation plans on energy efficiency, absence of operational dedicated credit lines by national funds, absence of completed process of privatization and liberalization in the energy sector. Additionally, availability of natural resources provides no incentives to increase of energy efficiency.

71. Among **success factors** can be seen the introduction of the EPC in the law and its linkage with the budgetary legislation (for state and municipal energy service contracts), introduction of energy audit (on voluntary basis) and “energy passport”, support for energy-saving technologies- introduction of tax incentives.

## XI. Development of ESCO Market and Policies in Serbia

72. **ESCOs do not exist** in Serbia, mainly because there is no support mechanism in place for these companies’ activity. The legal framework for running such companies is also missing, but work has been done by the German technical cooperation agency (GTZ) 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.

73. Energy **policy framework** includes the Serbian Energy Law which was adopted in 2004. This Law regulates the generation, transmission, distribution and supply of electricity, the organization and functioning of the electricity market, the 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*, the

provision of a safe, qualitative and reliable supply of energy and energy sources, the 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 power generation.

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

75. 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.

76. There is no existing Energy Efficiency Law, although substantive energy efficiency provisions are set by the Energy Law while its amendments will bring additional provisions, such as the establishment of the Energy Efficiency Fund, which is regarded as a necessary tool to increasing energy efficiency and stimulating rational energy use.

77. The European Union helped the establishment of the Serbian Energy Efficiency Agency (SEEA) via the European Agency for Reconstruction (EAR)

78. Among **barriers to development of ESCOs** is the absence of dedicated energy efficiency law, absence of support mechanism in place for ESCO activity and absence of public funding dedicated to EE projects, low electricity and heat prices, lack of awareness on energy efficiency and ESCO potential and lack of financing by commercial banks.

79. However, as a **success factor** can be seen a provision of the Energy Law that foresees new responsibilities for municipalities: energy balancing, energy strategic planning and establishment of local energy markets. The energy price liberalization has started in Serbia. An institutional framework has also been created and the Serbian Energy Efficiency Fund (SEEF) has been established.

## **XII. Development of ESCO Market and Policies in the former Yugoslav Republic of Macedonia**

80. There are two companies which operate with business models similar to those of **ESCOs** in the former Yugoslav Republic of Macedonia. Both are strongly related to Toplifikacija, the private-owned district heating company in Skopje.

81. The first one is Toplifikacija Engineering, which was established in 2007 with the objective to provide engineering services to the mother company Toplifikacija, as well as to external clients. Toplifikacija Engineering is not operating as a pure ESCO company. Its areas of business include design and documentation of central and district heating systems and highvoltage alternating current systems, as well as energy efficiency projects and the trade of highvoltage alternating current equipment. Toplifikacija decided to offer energy efficiency services through their engineering company, and the first "ESCO-type" project started at the end of 2008, based on an energy saving programme for a hotel. The related loan was provided by the Macedonian Bank for Development Promotion. Toplifikacija

Engineering decided to found, jointly with AD ELEM, the public electricity generation company, a pure ESCO named ET ESCO.

82. Another company is ESCO-Fonko, which bears the name of an ESCO company, but is not fully based on an ESCO business model. The company is mainly focused on production of geothermal heating pumps, also in public buildings.

83. The Energy Law from 2006 is the **framework for energy** regulation in the former Yugoslav Republic of Macedonia. It defines following priorities: harmonization with EU legislation, establishment of market conditions, and 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. There is a 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 the construction of new thermal and hydro power plants, the analysis of nuclear power plants and of natural gas supply and the improvement of energy efficiency by 30 per cent in 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. 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.

84. 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 2006, 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 for improvement of energy efficiency for a period of ten years and a five-year programme for the implementation of the strategy. The Energy Law obliges municipalities to elaborate and implement five-years 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.

85. 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 (NEEAPs) for the period 2010 – 2018, following the EU Directive 2006/32/EC on energy end-use efficiency and energy services (ESD). The first NEEAP was prepared and submitted to the Energy Community Secretariat at June 25, 2010. The adoption procedure, however, started in March 2011. The NEEAP presented the recommended programs that will achieve the 9% energy savings target specified in the Energy Efficiency 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 energy efficiency needs to be built in both Ministry of Energy and the Energy Agency and that an Energy Efficiency Fund should be established.

86. **Barriers to ESCOs** operation include absence of 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 protocols, lack of awareness and information, lack of expertise and resources for preparing ESCO projects.

87. Among **success factors** for further development of the ESCO market can be an elaboration of municipal local Energy Efficiency Programmes and Action Plans, introduction of mandatory energy audits in 2010, consideration for creation of the Energy Efficiency Credit Line by the local banks.

### **XIII. Development of ESCO Market and Policies in Ukraine**

88. **Several ESCOs** are operating in Ukraine, among them UkrESCO, ESCO-Rivne, Kherson-ESCO Aitikon, KyivESCO and OdesaESCO. There are also around 130 ESCO-type companies.

89. UkrESCO and Energy Alliance have been created with support of international financial institutions. The EBRD provided a loan of USD 20 million to support the creation of the UkrESCO in 1998. In 2005 the EBRD provided UkrESCO a second loan of USD 30 million to enable UkrESCO's business expansion. Additionally in 2003, the EBRD provided a loan of USD ten million for the establishment of a new private sector Energy Service Company, known as the Energy Alliance. The Bank's loan was used by the Energy Alliance to finance the purchase of cogeneration equipment.

90. UkrESCO, which was created in 1998 as the first ESCO in Ukraine, has been implementing energy saving projects as 'turnkey' at small and medium enterprises of Ukraine. UkrESCO has successfully implemented 25 energy saving projects in various Ukrainian enterprises. The projects costs usually range between USD 200,000 and five million. The project payback period is 1-4 years; the commodity credit term is up to four years.

91. The activities of ESCOs in Ukraine are considered to be reasonably successful although it is not clear whether they will be able to remain viable without the support from grants, preferred loans, and budget. However, most of the above mentioned ESCOs are not working based on energy performance contracts, but act more like consultancies.

92. There are some examples of using energy performance contract model in the municipal sector in Ukraine. The ESCO-Centre implemented a project in the city of Nejin. Its experience shows how to analyze the project risks and reflect these risks in contracts. This is a necessary condition for a successful business. There are a number of reasons why the ESCO market is not developed in the utilities sector in Ukraine. The causes and barriers include absence of a clear definition of the ESCO and energy performance contracts (EPC) in the legislation. There is an inconsistency of legislation and public procurement procedures for the implementation of EPC. The inconsistency of the budget code for implementing EPC is also a barrier: annual budget planning is horizontal; there is no possibility of redistribution of budgetary expenditure (energy costs and capital investments).

93. 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.

94. The main energy policy document is the Energy Strategy of Ukraine for the period until 2030 (2005), which is efficient in combination with the Comprehensive State Energy Conservation Programme till 2010. 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.

95. In addition, there is a dedicated institution responsible for energy efficiency, the State Agency on Energy Efficiency and Energy Conservation of Ukraine (former 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

96. 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).

97. 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 concepts 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.

98. The **barriers for ESCO** development in Ukraine can be seen in the following: ESCO market is hindered financially, because their own funds are insufficient to carry out many successful projects, except if they are financed from outside; and due to high interest rates on loan funds which hamper profitability. Legislative incentives, such as tax exemptions, are missing, while investments are perceived too risky for Ukrainian companies that are often in a difficult financial position. Lack of a liberalized energy market with market-driven prices is also seen as a basic limiting factor on the profitability of energy efficiency projects. Finally, information on ESCOs is very scarce and thus the concept is little known.

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