D2.4 Country Report on Identified Barriers and Success Factors for EPC Project Implementation

LITHUANIA

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Report on identified barriers and success factors for EPC implementation in LITHUANIA

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Abbreviations

ESCO – Energy Service Company.

EPC – Energy Performance Contract.

NEEAP – National Energy Efficiency Action Plan

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1 Summary

The present report aims at providing an overview of the existing EPC market in LITHUANIA. The report focuses on identified barriers and success factors for the implementation of EPC projects.

The report is building on the data and information gathered by two other similar projects, the European Energy Service Initiative[1] (EESI) and the ChangeBest project[2]. It is also intended as a continuation on the work of the European Commission's Joint Research Centre – Institute for Energy, and more particularly on its 2010 Status Report on Energy Service Companies Market in Europe[3].
Overview of existing situation with energy efficiency shows, that the potential for ESCOs in Lithuania is big. The biggest potential exists in buildings sector (households and public buildings). Energy saving potential in this sector is 80% of the total energy saving potential in country. Lithuanian financial system is dominated by the banking sector, which leaves only 1/5 to the other participants in terms of assets. More than half of assets (60%) are concentrated in three banks owned by their Nordic parent banks.
Energy performance contracting and ESCOs is still an emerging field. Only very limited number of companies are eager to call themselves ESCOs, without having proper qualification.
The key documents reflecting the objectives of Lithuanian energy efficiency policy are the Law on Energy, National Energy Independency Strategy and National Energy Efficiency Action Plan.
Existing legislative, administrative and financial barriers are presented in this report.

2 Introduction

2.1 Methodology

The contents of this report are based on several sources:

- the results of a nation EPC survey which was sent to the country's main actors within the EPC market

[1] http://www.european-energy-service-initiative.net/eu/toolbox/national-reports.html
[2] http://www.changebest.eu/index.php?option=com_content&view=article&id=43&Itemid=10&lang=en
[3] http://publications.jrc.ec.europa.eu/repository/bitstream/111111111/15108/1/jrc59863%20real%20final%20esco%20report%202010.pdf

- the market knowledge of the authors, as well as research from local / national literature (publications and studies, legislation documents, official statistics and databases)

Lithuania is the beginner of EPC. There are not real working ESCOs in country. But exist a lot engineering companies implementing different energy efficiency measures in energy production, consumption, energy service fields. Part of them are interested and want to start his business on ESCO models. For survey were selected 4 the most potential companies, working in energy service field. Also, were selected 4 the main banks in country. Banking is the largest member of existing financial system. Biggest part of assets (60%) are concentrated in the three major banks “SEB”, “Swedbank” and “DNB” – all of them are fully owned by their Nordic parent banks.

The first step in collecting the data used in this document was to distribute a survey focused on Energy Performance Contracting (EPC) to the selected, most potential energy services companies and banking sector. The survey contained questions around four main areas: existing ESCOs and national EPC market; EPC models, financing models and policy initiatives. The answers were then analysed and the results are presented in this report in aggregated form.

The survey was sent to 4 potential ESCOs and 4 banks.

Once the survey responses had been obtained, additional information was gathered by the authors in order to present a thorough and up-to-date picture of the state of the EPC market in Lithuania.

2.2 What is Energy Performance Contracting

Energy performance contracting (EPC) is when an energy service company (ESCO) is engaged to improve the energy efficiency of a facility, with the guaranteed energy savings paying for the capital investment required to implement improvements. Under a performance contract for energy saving, the ESCO examines a facility, evaluates the level of energy savings that could be achieved, and then offers to implement the project and guarantee those savings over an agreed term.

A typical EPC project is delivered by an Energy Service Company (ESCO) and consists of the following elements:

- **Turnkey Service** – The ESCO provides all of the services required to design and implement a comprehensive project at the customer facility, from the initial energy audit through long-term Measurement and Verification (M&V) of project savings.

- **Comprehensive Measures** – The ESCO tailors a comprehensive set of measures to fit the needs of a particular facility, include energy efficiency and in addition, can include renewables, distributed generation and water conservation.
- **Project financing** – The ESCO arranges for long-term project financing that is provided by a third-party financing company, typically in the form of a bank loan.
- **Project Savings Guarantee** – The ESCO provides a guarantee that the savings produced by the project will be sufficient to cover the cost of project financing for the life of the project.

Energy Performance Contracting allows facility owners and managers to upgrade ageing and inefficient assets while recovering capital required for the upgrade directly from the energy savings guaranteed by the ESCO. The ESCO takes the technical risk and guarantees the savings.

The ESCO is usually paid a management fee out of these savings (if there are no savings, there is no payment) and is usually obligated to repay savings shortfalls over the life of the contract. At the end of the specific contract period the full benefits of the cost savings revert to the facility owner.

The methodology of Energy Performance Contracting differs from traditional contracting, which is invariably price-driven. Performance contracting is results-driven: ensuring quality of performance. ESCOs search for efficiencies and performance reliability to deliver contractual guarantees.

2.3 Definition of EPC and EPC provider

While there is a vast number of definitions of EPC within Europe, within Transparense project we use the EU wide definition provided by the Energy Efficiency Directive[4] (EED):

"'energy performance contracting' means a contractual arrangement between the beneficiary and the provider of an energy efficiency improvement measure, verified and monitored during the whole term of the contract, where investments (work, supply or service) in that measure are paid for in relation to a contractually agreed level of energy efficiency improvement or other agreed energy performance criterion, such as financial savings;".

At the same time, within Transparense project, the focus will be given to the EPC projects, where the above mentioned "contractually agreed level of energy efficiency improvement"

[4] Directive 2012/27/EU of the European Parliament and of the Council on energy efficiency, amending Directives 2009/125/EC and 2010/30/EU and repealing Directives 2004/8/EC and 2006/32/EC was approved on 25 October 2012.

is **guaranteed** by the EPC provider[5]. This is in line with the EED, as in its Annex XIII, guaranteed savings[6] are listed among the minimum items to be included in energy performance contracts with the public sector or in the associated tender specifications. Moreover, in the article 18 of EED, Member States are required to promote the energy services market and access for SMEs to this market by, inter alia, disseminating clear and easily accessible information on available energy service contracts and clauses that should be included in such contracts to **guarantee energy savings** and final customers' rights.

Further, within the Transparense, we define the companies providing EPC as follows:

" 'EPC provider' means a natural or legal person who delivers energy services in the form of Energy Performance Contracting (EPC) in a final customer's facility or premises"

Such definition respects the fact that EPC is only one type of energy services, and is in line with the definition of the energy services provider specified in the EED (for its definition see the glossary at the end of the report). Within the Transparense texts, we use the commonly used term "ESCO" as equivalent of the energy service provider.

3 The EPC market in LITHUANIA: an introduction

Existing EPC potential for ESCOs

Overview of existing situation with energy efficiency shows, that the potential for ESCOs in Lithuania is big. The biggest potential of energy saving exists in buildings sector (households and public buildings). Energy saving potential distribution between sectors is presented in Figure 1.

[5] Guarantee of energy efficiency improvement is defined by EN 15900:2010 as "commitment of the service provider to achieve a quantified energy efficiency improvement".
[6] Annex XIII of the EED lists the minimum item as: „Guaranteed savings to be achieved by implementing the measures of the contract."

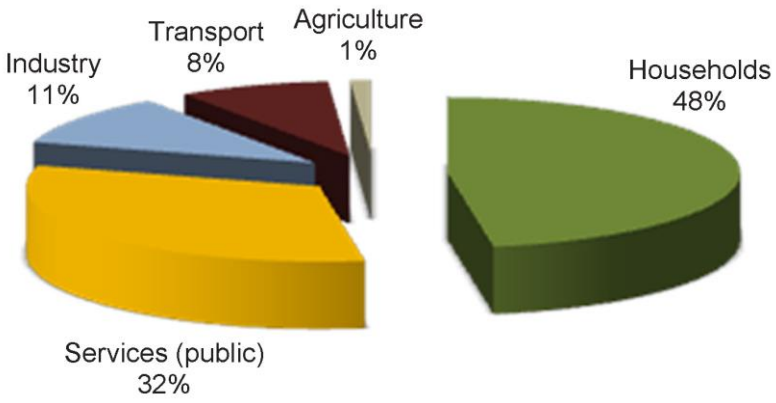

Figure 1. Energy saving potential distribution between sectors

Energy saving potential in buildings sector is 80% of the total energy saving potential in country. This sector is a priority area of the Lithuanian NEEAP, with particular attention given to multi-flat buildings and various types' public buildings.

The main part of buildings sector is residential houses, Table 1.

Table 1. Data about buildings in Lithuania, 2012

Nr.	Type of buildings	Number of buildings	Overall area of buildings, m^2
1.	**Residential**	**478 898**	**1090 037 945**
	- one and two flats	439 767	53 481 976
	- three and more flats	37 379	51 917 557
	- social houses	1 752	3 638 412
2.	**Public**		
	- administrative	9 981	8 899 715
	- hotels, commerce, others	17 086	8 938 532
	- culture, science, sport	7 261	10 869 414
	- hospitals	1 843	2 821 783
	- others		

Detailed survey of buildings sectors showing that the biggest numbers of buildings were built in period 1961 – 1990, table 2.

Table 2. Age of single and residential houses in Lithuania

Year of construction	Residential (multiflat) houses		Single houses (one or two flats)	
	numbers	percentage	numbers	percentage
Till 1940 m.	10 311	27,6	115 907	26,3
1941-1960 years	3 750	10,0	86 599	19,7
1961-1990 years	20 118	53,8	193 777	44,1
1991 years and later	3 200	8,6	43 484	9,9
Total	37 379	100	439 767	100

Legal requirements for energy consumption in these buildings were very low, so energy consumption in existing buildings is too big. Average heat demand for heating in single houses makes up 200 kWh/m^2 year, for multiflats buildings 120-200 kWh/m^2 year. Energy-saving potential in these buildings of up to 50 percent.

By establishing of energy efficiency in buildings Lithuania seek to attract a financial resources of various organizations also EU funds (Structural, Cohesion funds). Under initiative of Lithuanian Ministry Environment the Lithuanian Housing Strategy in 2004 was prepared and adopted.

Lithuanian Housing Strategy foresees to renovate 70% of the multi-apartment dwelling houses built before 1991 and to reduce the cost of heat-energy up to 30%. The implementation period of the strategy is foreseen until 2020.

The strategy mentions the following objectives:

- to ensure broader housing choices to all social groups,
- to rationally use the existing housing stock and energy resources necessary for its adequate maintenance and renovation.
- to improve capacity of housing entities to participate in activities of the housing market and management.

Real implementation of Lithuanian Housing Strategy through Programme for the Modernization of Multi-family Buildings was very slow (until 2013 only several hundreds of multi-family buildings were renovated). Evaluating that in May 2011, the Government of Lithuania approved an additional grant scheme for the residents of multifamily building, who intend to refurbish their buildings until the end of 2013 by using JESSICA (Join European Sustainable Investment in City Areas) financial instrument.

More about JESSICA financial instrument in Lithuania: http://www.been-online.org/Modernization-of-multifamily-buildings-in-Lithuania-by-using-JESSICA-f.503.0.html?&L=15517

The Lithuanian government's JESSICA holding fund, managed by the EIB was established by the Ministry of Finance and the Ministry of Environment of Lithuania in June 2009 as an effective way of deploying EU Structural Funds for energy efficiency instruments. The initial capital committed by the Lithuanian government to the JESSICA holding fund is EUR 227 million. This is one of largest and one of the first JESSICA holding funds established. The loan agreement between the holding fund and Swedbank was signed. The Fund will be used as long term (up 20 years) loans with fixed low interest rate (3%) for the improvement of energy efficiency in multi-family buildings.

The Lithuanian Government also will support the preparation of technical documentations and the supervision of construction works with financial support of 50% of the costs. Precondition is that after the renovation the building achieves the D class according to the Energy Performance Certification classification. If the building demonstrates C class – 15% state support for energy efficiency measures is foreseen. The Lithuanian government also will provide a support of 100% for low income families.

From June 2013 financial support scheme from JESSICA was developed and named JESSICA 2. This scheme (Figure 2) is similar to ESCOs financial model and may be new adopted scheme will initiate ESCOs activities in Lithuanian.

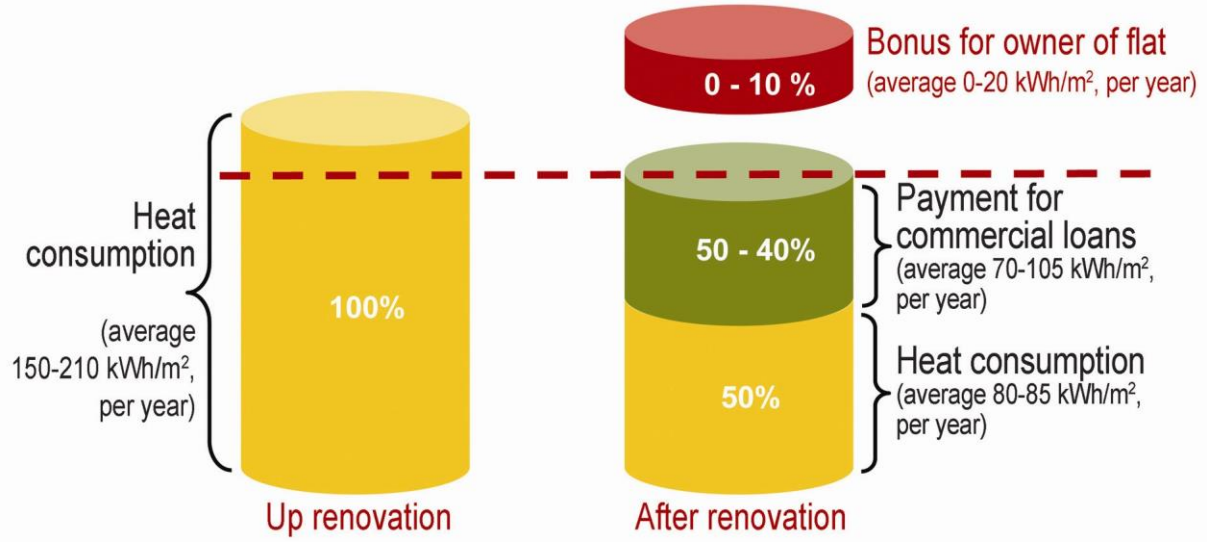

Figure 2. Developed financial scheme (according JESSICA 2)

Financial system

Lithuanian financial system is dominated by the banking sector, which leaves only 1/5 to the other participants in terms of assets. Besides banks in the financial sector operate credit unions, leasing companies, insurance companies and variety of capital market participants such as brokerage and asset management firms engaged in the financial intermediation. Number of financial system members (in September 2011) presented in Table 3.

Table 3. Number of financial system members*

	Number
Banks:	**20**
Banks, excluding foreign bank branches	11
Foreign bank branches	9
Credit unions	**73**
Leasing companies	**9**
Insurance companies:	**12**
Life insurance companies	5
Non-life insurance companies	7
Capital market participants:	**107**
Financial brokerage firms	9
Management companies	13
Open-ended collective investment undertakings	1
Investment funds	22
Foreign collective investment	62
Pension funds:	**38**
Second pillar pension funds	29
Third pillar pension funds	9
TOTAL	**255**

* classification by the Bank of Lithuania
Source: Lithuanian national statistics

Lithuanian financial system structure by assets in 2012 presented in Figure 3.

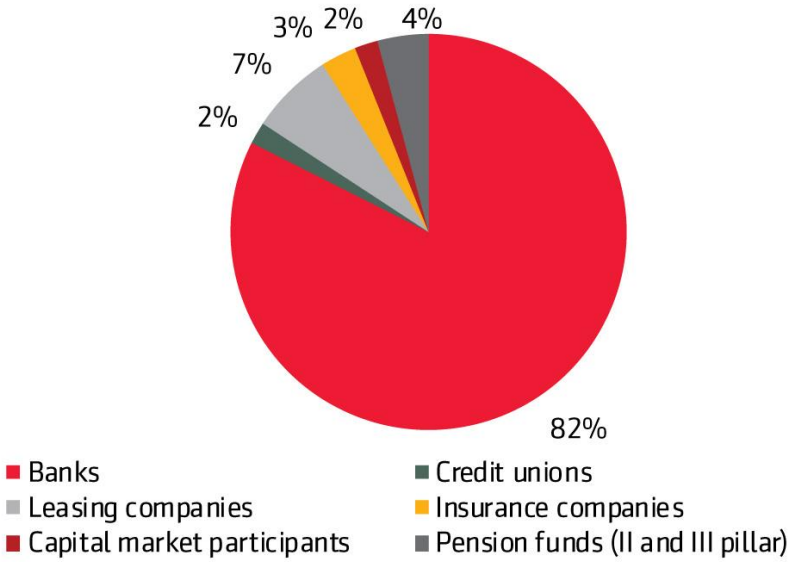

Figure 3. Lithuanian financial system structure by assets, 2012

Banking sector is the largest member of existing financial system.

The total number of banks including foreign bank branches is equal to 20. More than half of assets (60%) are concentrated in three major banks: “SEB”, “Swedbank” and “DNB” – all of them are fully owned by their Nordic parent banks.

Over the last decade banking system has gone through a rapid growth stage and later it was hit by the global economic crisis. Since 2001 banking system assets have grown more than 4 times at an average growth rate of ca. 20% y/y. The greatest boost occurred after the entrance to European Union. The rapid economic growth has encouraged parent banks to feed their subsidiaries with the funds, which were used for credit expansion. Domestic credit growth at its peak reached almost 70% y/y. This has altered the structure of domestic credit and introduced new ways for consumption. The households became more leveraged, their share in bank loan portfolio has grown from 19% to 45% in the period from 2000 to 2011.

Credit unions are very small market players, together taking only 2% share in the total financial system. Also very small market players are leasing companies.

Assets of leasing companies account 7% of the total Lithuanian financial system, though the leasing business in Lithuania was started only back in 1993. In 1997 this financial service started to gain popularity among vehicle buyers and in 1999 expanded in a consumer credit sector. Not surprisingly the asset portfolio of Lithuanian leasing companies is primarily

dominated by vehicle leasing services (heavy transportation – 30%, car leasing – 20, mostly commercial) with machinery and technological and real estate lease accounting both for the 20% share of total assets.

The leasing market in Lithuania is divided between a several players which are all daughter companies of the largest banks of Lithuania. The most significant market share is being held by „SEB lizingas“ and „Swedbank lizingas“, both of them having more than a 30% stake. „Nordea Finance Lithuania“, „DNB lizingas“ and „Ukio banko lizingas“ in July, 2011 had respectively 11%, 7% and 5% with the rest four companies not exceeding 5% (according to the data of Association of Lithuanian banks).

Supervisory institutions

Currently financial sector companies fall under the supervision of three authorities:

- Bank of Lithuania (www.lb.lt): banks and credit unions.
- The Securities Commission (www.vpk.lt): capital market players (brokerage firms, management companies etc.).
- Insurance Supervisory Commission (www.dpk.lt): life and non-life insurance firms.

Leasing companies have no supervisory institution. Their activity can not violate the requirements of the Civil Codex of Lithuania, the Law of Financial Institutions and other laws and legal requirements on corporate activity.

Since 2012 the supervision of the Lithuanian financial sector will be reorganized. All three supervisors will be merged with the Bank of Lithuania, which should help to improve the regulation and make it more coordinative and effective.

Existing ESCOs

Energy performance contracting and ESCOs is still an emerging field in Lithuania. Only several successful small scale energy efficiency projects using similar to EPC model were implemented in the last five years period. Until this time projects realized in heat production companies (for example conversion fuel from natural gas to biomass), mostly own by municipalities.

Only very limited number of companies are eager to call themselves ESCOs, without having proper qualification (Table 4). Part of existing ESCOs companies is as subsidiaries of large foreign companies (for example JSC “Litesko” – Dalkia). Only one “new face” in Lithuanian ESCO market is JSC “ESCO LT”.

ESCO LT" is the company established by other enterprises working in the fields of biofuel production, designing of engineering systems and construction works. The construction and exploitation of industrial biofuel boilers, the renovation and administration of multi-flat buildings, the implementation of different energy efficiency measures are the main its activities.

The company business is based on ESCO (Energy Service Company) model. It means, that all necessary investments are made from own or borrowed resources of JSC "ESCO LT". Afterwards, the Client pays current or even lesser price for energy. When the contract time is finished, the new infrastructure and excellent possibilities to save money come to the Client. ESCO model can be implemented in various ways; it depends on the needs, financial capabilities and other specific aspects of the Client. If the Client chooses to implement an investment project according the principles of ESCO model, the financial and technical risks of the project are transferred to "ESCO LT".

Table 4. List of ESCO's in Lithuania (June, 2013)

	ESCO	Address	Telephone	Fax	Web, Email address	Activities
1.	JSC „Litesko“	Jočionių str. 13, LT-02300, Vilnius, Lithuania	+370 5 266 7510	+370 5 266 7510	http://www.litesko.lt info@litesko.lt	Provide heat service, active in DH
2.	JSC “New heat group”	Savanorių av. 159A, LT-03150, Vilnius, Lithuania	+370 5 231 1472	+370 5 2361937	http://www.newheat.lt nh@newheat.lt	Provide financing and implementation energy projects
3.	JSC “E Energija”	Jogailos str. 4, LT-01116, Vilnius, Lithuania	+370 5 268 5989	+370 5 268 5988	http://www.e-energija.lt info@e-energija.lt	Provide services to the public sector and corporate customers, providing efficient energy supply for household, public and industrial needs
4.	JSC “Fortum Heat Lietuva”	J. Jasinsko str. 168, LT-01112, Vilnius, Lithuania	+370 5 243 0043	+370 5 278 8221	http://www.fortum.lt info@fortum.lt	Provide heat production, supply other services, financing and implementation energy projects
5.	JSC “ESCO LT”	Vilkpėdės str. 22, LT-03151, Vilnius, Lithuania	+370 652 56202	+370 5 212 6840	http://www.escolietuva.eu info@escolietuva.eu	Provide financing and implementation energy projects on energy efficiency for Public Sector, Industry, Renovation of Multi-Apartment Buildings, Consulting service

4 Legislative framework

ESCOs, EPC models in Lithuania

The key documents reflecting the objectives of Lithuanian energy efficiency policy are the Law on Energy and National Energy Strategy.

The Law on Energy defines general provisions of energy activities and basic principles for the development, efficiency and management of the energy sector. The Law of Energy, together with sectorial Electricity, Heat and Gas laws, stipulates activities and efficiency of individual energy sub-sectors.

The National Energy Strategy reflects the objectives of Lithuania's energy policy and its main development trends. The first version of strategy was approved at the beginning of 1994 and included the Government's main guidelines for restructuring and developing of the energy sector up to 2015. The most recent version of strategy, approved on 10 October 2002, revises and updates trends outlined in the 1994 version.

26 June of 2012 Lithuanian Parliament approved new version of Strategy named "National Energy Independency Strategy".

The new version takes into account significant changes in the country's economy and the energy sector, experience gained and information necessary for planning and estimating the development of individual energy sub-sectors. It also takes into consideration the requirements of energy policy formation principles in the EU and individual member states. The 2012 strategy has the following objectives:

- Security of energy supply;
- Efficient use of energy sources and energy;
- Mitigation of the adverse impact of energy activities on the environment;
- Promotion of justified competition;
- Promotion of the use of indigenous and renewable energy sources.

In new Strategy presented vision of development Energy Sector in Lithuania up 2050. The new Strategy continues strong support for energy efficiency in energy production, transmission and consumption.

One of the main national programme documents promoting energy efficiency is the National Programme for Energy Efficiency Improvement. This is an interinstitutional programme implemented since 1992 and updated every five years with respect to political, economic,

social and technological changes. The 2006-2010 programme was approved by Resolution No 443 of the Government of the Republic of Lithuania of 11 May 2006. The objectives of the programme cover the implementation of an energy policy in line with the sustainable development goals and coordination among sectors, development and application of appropriate regulation and activities on the issues of efficient use of energy.

Other very important national document is the National Energy Efficiency Action Plan (NEEAP). The first Lithuanian Energy Efficiency Action Plan was prepared (according with EC Directive 2006/32/EC) and adopted in 2007 (Decision of Ministry of Economy No 4-270, 02.07.2007).

In 2011 the second Energy Efficiency Plan was adopted.

The Second Energy Efficiency Action Plan (hereinafter referred to as the Action Plan) was prepared pursuant to the provisions of Article 14(2) of Directive 2006/32/EC of the European Parliament and of the Council of 5 April 2006 on energy end-use efficiency and energy services and repealing Council Directive 93/76/EEC (hereinafter referred to as Directive 2006/32/EB).

The main objective of the Action Plan is to describe the results of achieving the intermediate energy saving target for 2010. The Action Plan also presents an overview of the current energy consumption situation and describes newly adopted and envisaged energy efficiency measures aimed at the improvement of energy efficiency that must ensure the achievement of the national energy savings target for 2016.

The national energy savings target for a period of nine years (2008–2016) set in the FirstEnergy Efficiency Action Plan, which was calculated in line with the requirements laid down in Annex I of Directive 2006/32/EC equals 9% of the average final energy consumption in 2001–2005, which is 3 797 GWh. The intermediate energy savings figure for a period of three years (2008–2010) is 1.5% of the average energy end-use in2001-2005 and is equal to 628 GWh.

The energy end-use savings for 2010 amount to 780 GWh, which represents 1.8% of the energy end-use consumption average for 2001–2005 established according to the scope of Directive 2006/32/EC. The energy savings were calculated using the bottom-up method with regard to the energy savings per each energy efficiency improvement measure. Savings for some of the energy efficiency improvement measures described in the Action Plan are not covered, as quantification of their effect is impossible.

The main contributions to the achievement of the 2010 target came from horizontal measures(76%, 590 GWh), the service sector (14%, 110 GWh) and the household sector (10%, 80 GWh) With regard to the impact of individual energy savings measures that have

already been implemented, are being implemented or are planned, the energy end-use savings for the2008–2016 period are estimated at 3 962 GWh, which accounts for 9.4% of the energy end-use average in 2001–2005 established according to the scope of Directive 2006/32/EC. It is estimated that horizontal measures will account for 31% (1240GWh), the energy sector – 19% (740 GWh), industry – around 14% (565 GWh), the household sector – around 14% (558 GWh), the transport sector – 12% (472 GWh), and the service sector – 9% (374 GWh) of the 2016 savings target. Authorities responsible for energy efficiency improvement presented in Table 5 and Table 6.

Table 5. Authorities responsible for energy efficiency improvement

Authority	Functions
Ministry of Energy	➢ Adopts the audit methodologies for energy consumption in buildings, installations and technological processes; ➢ In cooperation with the Ministry of Transport and Communications, establishes the procedure and conditions for audits on energy consumption in buildings, installations, transport facilities and technological processes; ➢ In cooperation with the Ministry of Transport and Communications, establishes the procedure for the training and certification of specialists performing audits on energy consumption in buildings, installations, transport facilities and technological processes; ➢ Establishes the procedure for the conclusion of voluntary agreements and concludes voluntary agreements with energy undertakings; ➢ Organises exchange of experience of efficient use of energy resources and energy among public authorities, bodies, enterprises and organisations at national and international levels; ➢ Establishes efficiency requirements and the efficiency control procedure for: • hot water boilers; • boilers and other installations using energy resources with an effective heat output above 0.4 MW.

Ministry of Transport and Communications	➢ Develops programmes for the improvement of energy resource and energy efficiency in transport facilities and coordinates the implementation thereof; ➢ Gives recommendations and implements measures improving energy resource and energy efficiency in transport facilities; ➢ Adopts methodologies for auditing energy efficiency in transport facilities (except for structures); ➢ Carries out informational and educational activities promoting efficient use of energy resources and energy in transport facilities.
Ministry of the Environment	➢ Drafts and submits recommendations on energy resource use; ➢ Intends to enable the country's residents to upgrade their housing, while reducing energy consumption; ➢ Regulates the thermal characteristics of building envelopes and energy performance certification of buildings, and prepares proposals on assistance for housing upgrading while reducing energy consumption.
Ministry of Energy	➢ Implements the National Energy Efficiency Improvement Programme and its implementing plan; ➢ Carries out promotional and informational work for efficient consumption of energy resources and energy and performs the functions prescribed by law or entrusted by the Ministry of Energy of the Republic of Lithuania in connection with energy efficiency improvement.
State Energy Inspectorate	➢ Controls energy and energy resource efficiency of energy facilities and installations.
Energy undertakings	➢ Take part in the preparation and development of efficient energy supply, distribution and transmission plans; ➢ Supply residents and local authorities with information on efficient use of energy resources and energy.
Municipalities	➢ Take part in the preparation of educational public awareness raising measures helping to use energy and energy resources efficiently; ➢ Implement energy efficiency improvement programmes.

Training bodies	➢ Are responsible for the inclusion of the issues of efficient use of energy and energy resources into the training programmes for the employees building and operating energy facilities and installations.

Table 6. Authorities responsible for the monitoring of energy efficiency improvement

Authority	Functions
Efficiency measure implementing bodies	Having implemented energy efficiency measures, during the same calendar year and the next calendar year record the ambient and specific indicators of the facility and transfer the collected data to the administrator of the respective programme.
Efficiency programme administrators	Evaluate individual indicators presented by the bodies implementing efficiency measures, summarise the monitoring, offer projections and submit to the Ministry of Energy the monitoring reports on the efficient use of energy resources and energy for the programmes of the previous calendar year.
Ministry of Energy	Performs the evaluation of the indicators for the previous calendar year, the monitoring summary and projections on a national scale based on the monitoring reports on the programmes for efficient use of energy resources and energy submitted by programme administrators
Energy Agency	Performs the calculations of national-scale energy savings and drafts a report on national-scale energy savings.

Experience of many countries shows that good energy efficiency projects can result in significant energy savings with short payback periods, which turns there projects into interesting investment opportunities. However, one of the impediments to implementation of energy efficiency projects is the failure of financial markets to provide appropriate financing. On the other hand, the limited capacity of the project sponsors to follow a process of project development may be a barrier to a successful implementation. To overcome financials barriers for financing energy efficiency projects can help Energy Service Companies ESCOs are expected to play an important role in promoting and implementation energy efficiency projects in Lithuania in nearest future.

5 Identified Barriers

5.1 Regulatory and administrative barriers

5.1.1 General regulatory barriers

There is no clear legal definition on ESCOs in Lithuania, so there is no legal requirement for this type of companies. ESCO type business licensing and/or certification is not defined. The existing country legal system does not provide financial support that could get ESCO of its activities.

In the absence of clear legal status, there are many different barriers for the establishment, operation and development of ESCO, its promotion, potential clients and financial institutions confidence, etc.

Governmental initiatives in developing the existing legal system, promoting ESCO for the interested companies, public, are not sufficient.

5.2 Structural barriers

EPC model is directly related to the guaranteed energy savings. So, the assessment of energy savings should be adopted strict legislation on the energy audits, implementation of energy saving measures (quality of implementation) and what is very important – energy savings measurement and verification functions. Currently Lithuanian legislation is insufficient to ensure the guaranteed energy savings. The existing accounting system prevents from potential direct settlements with the ESCO. At present time, an energy consumer for consumption of energy can pay directly to the energy supplier. A more flexible accounting system should be developed, that allows payments for energy consumed through ESCO.

The existing structure of authorities, responsible for energy efficiency improvement, is quite complicated (presented in Table 5 and 6). There is lack of good coordination and cooperation between the existing responsible authorities.

5.3 Financial barriers

The financial crisis in Lithuania (from the end of 2008 until now) had huge negative outcomes for initiating and developing ESCO projects. The economic downturn made potential ESCO clients more unstable, reducing their activity, increasing the difficulty in ensuring energy saving and raising the risk of insolvency. The economic downturn has also raised the importance of contractual flexibility. But, on the other hand, the financial crisis and economic restrictions had positive impact as well. The attention was focused on achieving cost for energy reduction through energy efficiency measures and taking

advantage of the flexible financing mechanisms offered by ESCOs. Problems still exist in banking and other financial institutions. Lithuanian financial system is dominated by the banking sector, which leaves only 1/5 to other participants in terms of assets. The total number of banks including foreign bank branches is equal to 20. More, than half of assets (about 60%) are concentrated in three major banks: “SEB”, “Swedbank” and “DNB” – all of them are fully owned by their Nordic parent banks.

The financial crisis influence on the possibilities to receive loan from banks due to higher access to loan, higher interest rates. Banks need stronger securities, substantially reduced the availability of providers to engage in long term (15-20 years) contracts.

6 Success factors

The main country document supporting ESCOs activities is “National Energy Independency Strategy” (approved by the Lithuanian Parliament on the 26th of June, 2012). One of the Objectives of the Strategy is efficient use of energy sources and energy. The Strategy proposed strong support to energy efficiency. The second very important national document is the National Energy Efficiency Action Plan (NEEAP, adopted in 2008, second in 2011). Lithuanian Energy Efficiency Action Plan was prepared (according with the EC Directive 2006/32/EC) and adopted in 2007 (the Decision of Ministry of Economy No 4-270, 02.07.2007). The Action Plan presents an overview of the current energy consumption situation and describes newly adopted and envisaged energy efficiency measures aimed at the improvement of energy efficiency that must ensure the achievement of the national energy savings target for 2016.

The national energy savings target for a period of nine years (2008–2016) set in the Energy Efficiency Action Plan, which was calculated in line with the requirements laid down in Annex I of Directive 2006/32/EC equals 9% of the average final energy consumption in 2001–2005, which is 3 797 GWh. The intermediate energy savings figure for a period of three years (2008–2010) is 1.5% of the average energy end-use in 2001-2005 and is equal to 628 GWh.

The energy end-use savings for 2010 amount to 780 GWh, which represents 1.8% of the energy end-use consumption average for 2001–2005 established according to the scope of Directive 2006/32/EC. The energy savings were calculated using the bottom-up method with regard to the energy savings per each energy efficiency improvement measure. Savings for some of the energy efficiency improvement measures described in the Action Plan are not covered, as quantification of their effect is impossible.

The main contributions to the achievement of the 2010 target came from horizontal measures (76%, 590 GWh), the service sector (14%, 110 GWh) and the household sector (10%, 80 GWh). Regarding the impact of individual energy savings measures that have already been implemented, are being implemented or are planned, the energy end-use savings for the period 2008–2016 are estimated at 3 962 GWh, which accounts for 9.4% of the energy end-use average in 2001–2005 established according to the scope of Directive 2006/32/EC. It is estimated that horizontal measures will account for 31% (1240GWh), the energy sector – 19% (740 GWh), industry – around 14% (565 GWh), the household sector – around 14% (558 GWh), the transport sector – 12% (472 GWh), and the service sector – 9% (374 GWh) of the 2016 savings target.

The overview of existing situation with energy efficiency reveals that the biggest potential of energy saving exist in building sector (households and public buildings). With initiatives in this area, significant energy savings can be achieved. The main contribution to the achievement of the national targets came from EU relevant supportive policies. A number of legislative acts (Directive on Energy End-Use Efficiency and Energy Services (2006/32 EC), Directive 2012/27/EC, the European Performance of Buildings and its recast 2010/31/EU, Eco – design Directive (2009/125 EC), other EC acts are backgrounds for the development of country legislative acts, addressed for increasing energy efficiency in Lithuania and have direct impact on the demand for Energy Services.

All the above mentioned initiatives will enable real ESCOs activities in Lithuania.

Definitions and glossary

Term	Definition
energy efficiency (EE)	means the ratio of output of performance, service, goods or energy, to input of energy (as defined by EED)
energy efficiency improvement	means increase in energy efficiency as a result of technological, behavioural and/or economic changes (as defined in EN 15900:2010)
energy management system	means a set of interrelated or interacting elements of a plan which sets an energy efficiency objective and a strategy to achieve that objective (as defined by EED)

energy savings	means an amount of saved energy determined by measuring and/or estimating consumption before and after implementation of an energy efficiency improvement measure, whilst ensuring normalisation for external conditions that affect energy consumption (as defined by EED)
final energy consumption	means all energy supplied to industry, transport, households, services and agriculture. It excludes deliveries to the energy transformation sector and the energy industries themselves (as defined by EED)
guarantee of energy efficiency improvement	means commitment of the service provider to achieve a quantified energy efficiency improvement (as defined in EN 15900:2010)
energy performance contracting (EPC)	means a contractual arrangement between the beneficiary and the provider of an energy efficiency improvement measure, verified and monitored during the whole term of the contract, where investments (work, supply or service) in that measure are paid for in relation to a contractually agreed level of energy efficiency improvement or other agreed energy performance criterion, such as financial savings (as defined by EED)
EPC provider	means a natural or legal person who delivers energy services in the form of Energy Performance Contracting (EPC) in a final customer's facility or premises
energy service provider /energy service company (ESCO)	means a natural or legal person who delivers energy services or other energy efficiency improvement measures in a final customer's facility or premises (as defined by EED)
energy service (ES)	the physical benefit, utility or good derived from a combination of energy with energy-efficient technology or with action, which may include the operations, maintenance and control necessary to deliver the service, which is delivered on the basis of a contract and in normal circumstances has proven to result in verifiable and measurable or estimable energy efficiency improvement or primary energy savings (as defined by EED)

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