

# Executive Summary

## Aim and objectives of evaluation

Aim of the evaluation is to define the efficiency of use of EU structural assistance for energy sector and energy efficiency improvement; and to define financial and social economic impact on State energy sector development and improve the use of 2014–2020 EU structural assistance by considering the 2017–2013 practice.

Evaluation objectives:

- To define the sustainability, sufficiency, relevance and effectiveness of 2007–2013 EU structural assistance to achieve defined operational programmes targets for energy sector and energy efficiency improvement.
- To define financial and social economic impact on State economics of measures funded by 2007–2013 EU structural assistance.
- To define best practice examples my major 2007–2013 EU structural assistance investment areas in energy sector; to present outcomes and actual recommendations for improvement of measures planed in 2014–2020.

The evaluation results are relevant for submission report on use of assistance to European Commission. The evaluation also could be used for improvement of mechanism of use of assistance in 2014–2020; for improvement of implementation of energy sector projects in current timeline; for better results of assistance use and impact.

## Scope of the evaluation:

The focus of evaluation is the Lithuanian strategy for use of 2007–2017 structural assistance and operational programmes 2007–2013; other legal acts related to sectors of energy and improvement of energy efficiency. Measures implemented by the Economic Growth Operational Programme (EGOP) 4th priority called „Basic economic infrastructure“; Social Cohesion Operational Programme (SCOP) 1 priority called „Local and urbanistic development, preservation of cultural heritage and nature and adoption of tourism development“ and 3 priority called „Environment and sustainable development“ are included in the scope of evaluation.

## Methods applied

Different quantitative and qualitative methods for data collection and analysis were used for the evaluation. It ensures accessibility, reliability and quality, justification of outcomes and recommendations, continuity and practical applicability of evaluation.

The methods are used: analysis of secondary sources, interview with experts and representatives of institutions which administrated the structural assistance, benchmarking, survey of project executors, reconstruction of intervention logic, statistical analysis, econometric model, focus group discussion, and triangulation.

## The main findings of the evaluation

### **The scale of achievements of energy sector and energy efficiency improvement aims, tasks and indicators.**

EU interventions for energy sector were planned by two operational programmes: EGOP and SCOP. The programmes are focused on the identified problems, by selecting aims and tasks which are related to modernisation of infrastructure, integration into West European energy market, security and reliability of energy supply, increase of renewable energy use in energy production, improvement of housing and environmental quality. Aims and tasks are achieved by 15 measures in five energy subsectors<sup>1</sup>.

In the electricity subsector in period 2007–2013 EU structural funds investments were focused on infrastructure modernisation while other strategically important projects such as NordPool, LitPol Link, which contribute on connectivity with Western markets as well as for use of renewables for electricity production where funded by other EU or State funds. Measures were well selected and adjusted to the existed problematic and purpose to increase energy supply reliability.

The investment into gas subsector was strategically important decision, because it create circled gas supply system and create preconditions to connect Lithuanian gas supply system to the liquid natural gas (LNG) terminal (it ensure energy

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<sup>1</sup> Electricity, gas, heating, renewables, renovation of buildings.

independence from one supplier – Gazprom) as well as to avoid decrease of technical pressure in Klaipeda in the cold season.

The relevance of EU investments in 2007–2013 period is reasoned by rapid growth of renewable energy resources. An EU structural fund investment into solid bio fuel for heating sector was relevant, because it was the best potential to use renewables and reduce dependency on gas. While other renewables potential was less.

2007–2013 projects are estimated as sustainable because their impacts are ensured in the long time perspective. Modernisation of electricity infrastructure is used to serve the consumers as well as ensure use of connection of NordBalt. In gas subsector new build pipeline is used for 17 991 761,06 kWh gas transit daily. In the heating sector there is increase in usage of central heating system (+1,8 proc. 2008–2015).

#### **The measures and projects with the highest impact**

Evaluation shows the hugest impact in the electricity subsector was achieved by the measure for improvement of energy transmission infrastructure. It increases the number of customers whom was improved energy supply quality.

2007–2013 EU structural investments into gas sector was implemented by one measure (it took 2,6 percent of whole 2007–2013 EU structural investments in Energy sector) which contribute additional 79 thousands m<sup>3</sup>/h capacities and precondition to connect to LNG terminal.

2007–2013 EU structural investments into heating subsector (financed by one measure) (8,1 percent of whole 2007–2013 EU structural investments in Energy sector) contribute to quality and reliability of central heating supply for 1,404 million consumers. The technological losses also decrease (–0,92 percent).

2007–2013 EU structural investments into renewables (11,1 percent of whole 2007–2013 EU structural investments in Energy sector) contribute to heating energy production capacities to 796,18 MW power (9,66 percent of installed heating production power country wide). Renewables contribute to reduction of gas use (36,1 percent by the 2015 m.) in heating sector.

6 measures were used for building renovation takes 69,5 percent of whole 2007–2013 EU structural investments in Energy sector. Renovation of public buildings at national and regional level contribute to savings of 279,22 GWh of energy and 38,72 GWh in private dwelling. The measure “Renovation of buildings at national level” contribute to the most savings – 170,06 GWh.

#### **Sufficiency and relevance of activities in 2007–2013 EU funded measures to achieve aims and tasks of operational programmes**

According to the intervention logic reconstruction „activity – measure – task – aim“, investment into energy supply (electricity transmission and distribution – 48,26 mio. EUR, gas transmission – 20,69 mio. EUR, heat transmission – 64,84 mio EUR) contribute energy efficiency aim and tasks by achieving energy supply reliability indicators. Modernisation of old and physically obsolete infrastructure and implementation of new technologies and infrastructures was the best solution in energy supply area, especially in heating subsector. Other solutions or activities to get reliability in energy supply reliability is considered as impossible technically.

Solid renewable biofuel power stations was the right solution to ensure energy independency, independency from fossil fuel (gas) and development of renewable energy. Meanwhile wind, solar and geothermal energy was funded by other non EU structural fund measures (Special Programme for Climate Change, Rural development programme), so was ensured avoiding of cross funding and common harmonisation.

#### **Evaluation of 2007–2013 EU assistance to energy sector alignment of measures funding forms to achieve the aims**

The measures were evaluated not separating those according subsectors and not comparing each to other. All measures of 2007–2013 EU assistance to energy sector were implemented in form of subsidy except JESSICA controlling fund measure. All the forms applied by the Ministry of Economy was suitable, however there was not enough adjustment made in interinstitutional level. It causes the competition between measures (for instance the Ministry or Interior measures for renovation of dwellings compete to measure of Ministry of Environment, where financial engineering form was applied). The funding intensity is evaluated as suitable, because lower intensity would cause lack of resource for co-funding especially for municipal buildings as municipalities have reached formal borrowing limits. The highest funding intensity (83–88 %) was applied in buildings subsector, because of applicants were non-commercial entities. i.e. municipal institutions and public services institutions which owned by municipality or State – schools, health and social services. Without the high intensity subsidy those projects would be not implemented.

The intensity of funding for energy production, heating supply and renewables was lower (34–50 %), however the demand for those measures and results of survey of project owners shows that intensity was enough and it promoted the competition between applicants.

Projects implemented in gas and electricity subsector were implemented by financial strong entities (AB „Amber Grid“, AB „Litgrid“), for which theoretically could be suitable financial engineering measures. However during evaluation was considered, that AB Lietuvos dujos (Lithuanian gas) before 2015 consolidation of energy sector was owned by various shareholders such as („Gazprom“, „E. On“), which has limited incentives to modernise transmission and distribution networks without subsidy. So subsidy in retrospective causes analysis is considered and suitable, as otherwise the projects would not be implemented.

### **Evaluation of impact on social and economic impact on country and energy sector by 2007–2013 structural fund funded energy sector and energy efficiency measures**

The econometric models (SVAR and VECM) are used to define the impact of EU investments to solid renewable biofuel consumption and energy change in energy use. It is counted that EU investments into solid renewable biofuel get the benefit – 1 invested EUR create 0,001 tne biofuel consumption annually (total investments to renewables proportion seeks 88,667 mio. EUR, so common increase in biofuels use comes to 88,67 tne. Solid renewable biofuel change major part of natural gas in heating subsector market and create benefit to consumers counted 563,651 mio. EUR). The heating energy consumption changes (from 7 965,9 GWh in 2007 to 6 857,4 GWh in 2015). Investments into buildings renovation gives cumulative effect, i.e. effect come in short term and long term (after 10 years) perspective. The investment made in 2007–2013 period makes long term impact and economic benefit – investment statistically correlates with the amount consumed energy. Having in mind that impact is not only short term and investments contribute efficiency of energy consumption, the investments into renovation of buildings get significant impact on energy consumption reductions, which is counted as economic benefit of 107,198 mio. EUR.

Modernisation of central heating system pipelines also causes reduction of heating costs; however impact comes for smaller number of beneficiaries – only users of central heating system.

In the electricity energy transmission and distribution subsector impact is perceived as as reliability of electricity supply. The average electricity interruption duration (SAIDI indicator) in 2008–2015 period reduced by 7,8 % annually in distribution system and 13,7 % in transmission system (in 2010–2015)

### **Changes after implementation of 2007–2013 energy sector and energy efficiency measures**

The measures funded by 2007–2013 EU structural assistance for energy sector and energy efficiency causes following changes:

- The circling of Lithuanian gas transmission system causes precondition to ensure alternative sources of natural gas and competition in gas market. Measure causes precondition to connect LNG terminal to Lithuanian gas transmission system.
- In the heating sector solid renewable biofuel significantly changed gas and dependency on one supplier was avoided.
- Increase in energy consumption efficiency. Renovation of 763 dwelling houses by using JESSICA controlling fund measure, the energy consumption efficiency is increased in 67,3 percent. The public buildings renovation also causes savings which is counted as 279,22 GWh.
- Reduction of energy transmission losses. Modernisation of central heating pipelines the energy transportation losses was reduced in 3,5 %. In electricity sector – the electricity transmission losses reduced 3,23 %.

### **The influence on energy sector competition enhancing by the 2007–2013 EU structural assistance funding impact**

The situation in energy sector competition was changed after the end of 2007–2013 EU structural funds period – the number of natural gas exchanges reduced to one (UAB Get Baltic), the solid renewable biofuel become open, the electricity distribution market restructured (UAB „Rytų skirstomieji tinklai“ and UAB „VST“ become one operator AB LESTO), increased diversification of energy suppliers.

EU investments mostly contribute to the heating energy production competition (the market concentration reduced). The competition increase in electricity and gas sector also, however it is not directly influenced by EU funds investments which

are scope of current evaluation. Very small part of EU funds in cover total investments in gas subsectors (10,02 % of whole investments into gas subsector, and 6,0 % – into electricity subsector).

### **The influence on energy price by the 2007–2013 EU structural assistance funding impact**

The huge impact on reduction of heating prices comes from shift to solid renewable biofuel production – it is counted, that if balance would leave the same as for 2007 (77,7 % natural gas vs. 16,2 % solid renewable biofuel), than the average heating price for final consumers would be 57,2 % higher than existing now.

For electricity prices the impact was caused by the closing of Ignalina Nuclear Power Plant, because of import caused almost 50 % electricity prices for consumers. 2007–2013 EU investments take 4,79 % of all investment for electricity subsector so for that share prices was influenced as non-increased (considering that if investments comes from companies itself).

### **200 –2013 lessons learned**

- Complexity in energy consumption area (buildings renovation subsector) – it is important to ensure that measures should contribute to each other and to implement complex of measures in technical point of view in the same time for the same object.
- Evaluating of potential – it is important that by planning energy transmission (pipelines system) and energy production capacities in central heating system to adjust with changes in consumption potential, that is related to process of building renovation.
- Introduction of energy efficiency criteria and indicators in all building renovation related measures – it is important to ensure, that energy efficiency measures which are focused on different primary purposes (e.g. implementation of regional policy) would be implemented for all technically similar measures (buildings renovation) the same selection and evaluation criteria (funding of those which causes the highest savings) and measuring by the same indicators.
- The use of energy efficiency measures for achievement of minimal hygienic requirements – it is important to consider, that part of energy efficiency measures do not causes real financial savings for project implementors, meanwhile renovation of building is just helping to achieve minimal hygiene requirements for heating. In case of just relative and not real factual financial savings – the use of financial engineering measure and attraction of energy saving company (ESCO) is hard to implement. It is actual not only for heating subsector bus also in street lighting subsector (which is funded in 2014–2020 period).
- The planning of indicators and data on indicators – it is important to ensure by planning the indicators, that information needed to evaluate indicator will be collected properly, and statistics will be always updated in EU structural assistance information management and monitoring system.
- To ensure energy efficiency priority in regional policy implementation – it is important to ensure, that regional development councils shall approve regional planning measures projects by using energy efficiency criteria.

### **The EU practice in energy sector to follow**

There are selected successful practices that may be used in Lithuanian by implementing following:

- **Selection of energy efficiency criteria as horizontal priority.** It will ensure energy efficiency for different measures and guarantee comprehensive energy efficiency increase not only by direct means of energy sector. Good example is Poland. Increase in energy efficiency causes higher evaluation during project selection process for funding. This promote applicant take care of energy efficiency.
- **The common monitoring system.** Such system is based on interinstitutional cooperation and appointing ministries to be responsible for whole priority within the programme. It causes easier comparability of the similar measures and evaluation of common benefit. Such principle is used in Estonia and helped to distribute the responsibility among ministries in better way and to have common monitoring system.

### **Recommmendations**

The areas of strategic suggestions to 2014–2020 EU funds investment in energy sector and energy consumption efficiency („To know that“).

- The continuity of the measures for energy consumption efficiency.
- Common adjustment of sort of funding (subsidy and financial engineering).
- The harmonisation of indicators for direct and indirect building renovation measures.
- The subsequence of measures in heating sector.
- Non competition between measures.
- Diversification of energy sources in heating sector.
- Funding forms for energy saving measures (to adjust financial engineering with other kind of measures).

The areas of strategic suggestions to 2014–2020 EU funds investment in energy sector and energy consumption efficiency („To do that“).

- Harmonisation of implementation time and activities between measures.
- Public procurement monitoring and consulting.
- The energy efficiency criteria in state and regional planing projects.

The areas of reccomendations to 2014–2020 EU funds investment in energy sector and energy consumption efficiency („To know that“).

- Support to energy production efficiency and renewables.
- Support for energy transmission and distribution modernization / development by different forms of funding.
- The browing limits (in case of energy saving company takes risk of work and demand that not to include the loan into the borrowing limits account for municipalities).
- Dynamics of changes of funding conditions (model from „worst to better“).