

**STATE ENTERPRISE ENERGY AGENCY**

**2013 PROGRESS REPORT ON THE  
IMPLEMENTATION OF THE NATIONAL  
ENERGY EFFICIENCY TARGETS  
Vilnius, 2015**

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### Abbreviations

|                                  |   |
|----------------------------------|---|
| Report                           | 2013 Progress Report on the implementation of the national energy efficiency targets  |
| BETA                             | Public body Housing Energy Saving Agency  |
| GDP                              | Gross domestic product  |
| GDPi                             | Energy consumption per GDP unit by chain linking method   |
| CE                               | Conformite europeenne   |
| CPMA                             | Public body Central Project Management Agency   |
| Multi-Apartment Building Project | Project to improve energy efficiency in multi-apartment residential buildings (Energizija)  |
| Directive 2012/27/EU             | Directive 2012/27/EU of the European Parliament and of the Council of 25 October 2012 on energy efficiency amending Directives 2009/125/EC and 2010/30/EU and repealing Directives 2004/8/EC and 2006/32/EC (OJ 2012 L 315) |
| EEA                              | European Economic Area  |
| EU                               | European Union  |
| EE                               | Energy efficiency   |

|   |   |
|---|---|
| Horizontal measures                               | Horizontal EE improvement measures  |
| INPP  | State Enterprise Ignalina Nuclear Power Plant   |
| LEIF  | Budgetary institution Lithuanian Environmental Investment Fund  |
| LED   | Light emitting diode  |
| LMI   | Lithuanian Metrology Inspectorate   |
| LBSA  | Public body Lithuanian Business Support Agency  |
| RM systems  | Remote data collection and management system  |
| Measures  | Energy efficiency improvement measures  |
| Products on the list of product groups 1, 2 and 3 | List of product groups 1, 2 and 3 in green procurement procedures subject to environmental criteria <sup>1</sup>  |
| PVi   | Energy consumption per value added unit by chain linking method   |
| Lists   | A list of goods subject to energy efficiency requirements during public procurement procedures and a list of energy efficiency requirements for these goods approved by Resolution No 1023 of the Government of the Republic of Lithuania of 8 October 2008 approving a list of goods subject to energy efficiency requirements and a list of energy efficiency requirements for these goods; a list of goods except for vehicles subject to energy efficiency requirements during public procurement procedures and a list of energy efficiency requirements for these goods approved by Order No 1-266 of the Minister for Energy of the Republic of Lithuania of 27 October 2011 approving a list of goods except for vehicles subject to energy efficiency requirements during public procurement procedures and a list of energy efficiency requirements for these goods |
| Municipal public buildings                        | Public buildings owned by municipalities  |
| Calculation Rules                                 | Calculation rules for national energy savings approved by Order No 1-33 of the Minister for Energy of the Republic of Lithuania of 10 April 2009 approving  |
|   | rules for calculating national energy savings   |
| Monitoring Rules                                  | Rules for monitoring the efficiency of energy resources and energy approved by Resolution No 692 of the Government of the Republic of Lithuania of 9 July 2008 approving rules for monitoring the efficiency of energy resources and energy   |
| STR   | Technical construction regulation   |
| TEN-T   | Trans-European Transport Network  |
| State public buildings                            | Public buildings owned by the State   |
| SEI   | State Energy Inspectorate under the Ministry of Energy  |
| Public Building Projects                          | Projects to improve energy efficiency of public buildings   |
| OP  | Operational Programme for EU funds investments  |

<sup>1</sup> In accordance with the List of products in public procurement procedures subject to environmental criteria (product groups 1, 2 and 3) approved by Order No D1-508 of the Minister for the Environment of the Republic of Lithuania of 28 June 2011 (recast of Order No D1-925 of the Minister for the Environment of the Republic of Lithuania of 14 November 2012).

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## 1. Introduction

The purpose of this Report is to provide an overview of energy resources and energy efficiency improvement programmes and other measures implemented in the country by the end of 2013 and to evaluate the progress made in pursuing EE targets for 2020. The Report presents the key EE indicators and their evolution trends in the national sectors of economic activity and an overview of the measures implemented in the country.

Like many other EU Member States, Lithuania faces fundamental challenges in three areas: energy security, competitiveness of the energy sector and sustainable development of the energy sector. Such Lithuania's position is a result of both historic and political circumstances as well as domestic energy resources that have to be limited. The country has much untapped EE potential, particularly in the heating sector and the transport sector.

By 2020, in Lithuania heat energy consumption in buildings would decrease by 30-40% due to the upgrading of the most of them. Given an urgent need for investment, upgrading priority will be given to buildings with the biggest energy efficiency improvement potential.

The household sector and the transport sector offer the biggest energy savings accounting for 65% of the total savings potential (the savings potential of the household sector is 290 ktoe while that of the transport sector is 300 ktoe).

Given the overall energy saving potential, the key strategic goal in the area of energy efficiency is to attain the common final energy saving target by 2020 – to save 11.7 TWh of final energy (calculated by using the cumulative method).

Lithuania plans to improve energy efficiency in the sectors of residential and public buildings by upgrading them. About 48 ktoe of energy are to be saved per year due to the improved heat energy efficiency and the use of energy-efficient appliances.

In the transport sector EE will be improved by applying measures to upgrade the car fleet, moving on to modern environmentally-friendly public transport, optimising transport infrastructure and promoting investment in environmentally-friendly vehicles.

The Report is drawn up in accordance with the requirements of Directive 2012/27/EU, the Calculation Rules, the Monitoring Rules and the recommended methodology drafted by the European Commission “Recommendations on measurement and verification methods within the framework of Directive 2006/32/EC on energy end-use efficiency and energy services”<sup>2</sup>.

The Report is drawn up on the basis of data supplied by Statistics Lithuania, power companies and other institutions and organisations responsible for the implementation of the

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<sup>2</sup> <http://www.energy-community.org/pls/portal/docs/906182.PDF>;

measures and publicly available information.

The total savings for 2013 have been calculated using the *bottom-up* approach assessing the total savings of each measure completed. It is impossible to quantitatively measure and check the effect of some of the measures, which is why the total energy savings achieved by implementing such measures are not presented while the total energy savings by group of measures of individual sectors are shown in Table 1. This table shows the total energy savings in 2013 and the total energy savings for the period between 2008 and 2013.

*Table 1. Total energy savings, GWh*

|                     | Total energy savings in 2013 <sup>3</sup> ,<br>GWh | Total energy savings in 2008 to<br>2013, GWh |
|---------------------|--|--|
| Household sector    | 25.50  | 185.84 <sup>4</sup>                          |
| Service sector      | 82.36  | 304.60 <sup>5</sup>                          |
| Industry sector     | 5.85   | 12.82  |
| Energy sector       | 74.03  | 523.46                                       |
| Transport sector    | 0.70   | 0.70   |
| Horizontal measures | 56.20  | 777.60                                       |
| Total:              | 244.64   | 1 805.02                                     |

## **2. Overview of developments in gross inland energy consumption and final energy consumption**

This chapter contains an estimate of the indicators of the year before the previous year (X<sup>6</sup>-2 years) and a broader overview of the developments in gross inland energy consumption<sup>7</sup> and final energy consumption<sup>8</sup> in 2000 to 2013. A more detailed description is offered for energy consumption indicators in the sectors of households, services, industry, transport and energy, with an overview of developments in energy intensity.

<sup>3</sup> It is impossible to quantitatively measure and check the effect of some of the measures, and qualitative indicators of measures are shown in sections below dedicated to individual groups of measures;

<sup>4</sup> Specified on the basis of the data of the monitoring report on the implementation of the programme for the renovation (upgrading) of multi-apartment buildings for 2013 <http://www.am.lt/VI/index.php#a/14322>;

<sup>5</sup> In accordance with the information supplied by municipalities, 6 projects renovating cultural buildings were implemented using the funds of the State budget and municipal budgets and the energy savings were 1.66 GWh.

<sup>6</sup> Current year (i.e. 2015);

<sup>7</sup> Gross inland energy consumption is primary energy production plus regenerated products and imports and minus exports and international marine bunkers and plus or minus changes in stocks;

<sup>8</sup> Final energy consumption is fuel and energy supplied to final consumers: industry, construction, agricultural and other economic undertakings and households.

## 2.1. Estimate of indicators for the year before the previous year

Table 2.1 of the Report presents the key statistical indicators defining energy consumption in Lithuania in 2013 as required in accordance with Part 1 of Annex XIV to Directive 2013/27/EU with corresponding comparable data for 2012 that make it possible to assess the overall progress towards EE targets of 2020. Indicators to be mentioned include total final energy consumption in the country and its sectors of the economy (industry, transport, households and services), gross value added in the sectors of industry and services, total number of households and average disposable income of households (cash and in-kind income per household), energy generation and fuel consumption required to generate it, energy transportation and distribution losses, etc.

Given the state of the Lithuanian economy and the impact of external factors on developments, the growth of the Lithuanian economy is to be slower than forecast in 2014 but it will still remain among the fastest in the EU and the euro area. This year, in 2015, the expected GDP growth is 2.5%. The forecast has been updated taking into account new circumstances having emerged in September 2014. External factors having the greatest impact on the Lithuanian economy are currently difficult to foresee and their risks remain high. The ever-deepening conflict between Russia and Ukraine and reciprocal sanctions between the EU and Russia have resulted in a slower pace of economic development of foreign trade partners important to Lithuania in 2015. Cheaper energy products and a drop in the euro exchange rate will in the short term diminish the negative effects of the lower external demand on the Lithuanian economy and bring competitive advantages in trading with non-euro countries. A forecast of growing demand in the markets of the key foreign trade partners of Lithuania, successful penetration of Lithuanian exporters into new markets and growing internal demand and EU-wide economic stimulus policies promises that as of the next year the growth rate of Lithuania's GDP will be continuously increasing: in accordance with the forecast, in 2016 the GDP will grow by 3.2%, in 2017 – by 3.5% and in 2018 – by 3.9%<sup>9</sup>.

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<sup>9</sup> In accordance with the data of the Ministry of Finance of the Republic of Lithuania.

Table 2.1. Summary table of the key indicators for 2012-2013<sup>10</sup>

| Indicator (unit of measurement)  | Value    |          |
|--|----------|----------|
|  | 2012     | 2013     |
| Total primary energy consumption (ktoe)  | 7 385.3  | 6 980.3  |
| Total final energy consumption <sup>11</sup> (ktoe)                                | 4 833.9  | 4 725.0  |
| final energy consumption in the industry sector (ktoe)                             | 960.7    | 939.2    |
| final energy consumption in the transport sector (ktoe)                            | 1 574.5  | 1 578.8  |
| final energy consumption in the household sector (ktoe)                            | 1 535.1  | 1 467.8  |
| final energy consumption in the service sector (ktoe)                              | 611.8    | 594.11   |
| Gross value added in the industry sector <sup>12</sup> (EUR million)               | 6 513.5  | 6 730.7  |
| Gross value added in the service sector <sup>13</sup> (EUR million)                | 18 569.3 | 19 125.1 |
| Disposable income in households <sup>14</sup> (EUR)                                | 8 244    | 8 916    |
| Total number of households (thousand units)  | 1 327    | 1 310    |
| GDP <sup>15</sup> (EUR million)  | 30 854.1 | 31 859.1 |
| Electricity generated by thermal plants (GWh)                                      | 3 336.6  | 2 807.3  |
| Electricity generated by cogeneration (GWh)  | 1 823    | 1 665    |
| Heat generated by thermal plants (ktoe)  | 467.3    | 449.0    |
| Heat generated by cogeneration plants including residual heat of industries (ktoe) | 703.3    | 672.7    |
| Fuel consumption at thermal plants (ktoe)  | 1 048.8  | 908.9    |
| Fuel consumption at cogeneration plants (ktoe)                                     | 624.4    | 605.5    |
| Transportation and distribution losses (ktoe)                                      | 215.4    | 203.7    |
| Total number of passenger-kilometres (pkm) (million km)                            | 4 408    | 4 334    |
| Total number of tonne-kilometres (tkm) (million tkm)                               | 38 255   | 40 247   |
| Population <sup>16</sup> (thousand)  | 2 987.8  | 2 957.7  |
| District heat generation <sup>17</sup> (TWh)                                       | 9.8      | 9.2      |
| Fuel consumption for district heat generation <sup>18</sup> (ktoe)                 | 1 416.9  | 1 251.6  |

In 2013 in Lithuania the gross primary energy consumption as compared to 2012 decreased by 405 ktoe, or 5.5%. The gross final energy consumption decreased by 108.9 ktoe, or 2.3%. The final energy consumption in sectors of the economy as compared to 2012 has changed as follows:

- 1) in the industry sector decreased by 21.5 ktoe, or 2.2%;
- 2) in the transport sector increased by 4.3 ktoe, or 0.3%;
- 3) in the household sector decreased by 67.3 ktoe, or 4.4%;
- 4) in the service sector decreased by 17.69 ktoe, or 2.9%.

The data supplied show that final energy consumption has decreased in all sectors of

<sup>10</sup> The table is compiled on the basis of the data of Statistics Lithuania.

<sup>11</sup> not recalculated for climate conditions.

<sup>12</sup> chain linking method.

<sup>13</sup> chain linking method.

<sup>14</sup> cash and in-kind income per household.

<sup>15</sup> chain linking method.

<sup>16</sup> average annual population.

<sup>17</sup> Complementary data supplied in accordance with Regulation (EC) No 1099/2008 of the European Parliament and of the Council on energy statistics.

<sup>18</sup> Complementary data supplied in accordance with Regulation (EC) No 1099/2008 of the European Parliament and of the Council on energy statistics.



the economy, except for the transport sector. Here final energy consumption has increased only slightly, i.e. by 0.3%. So, the developments in gross final energy consumption are to be viewed positively.

The Gross Value Added in Lithuania's industry sector in 2013 increased by EUR 217.2 million, or 3.3%, while in the service sector – by EUR 555.8 million, or 3.0%.

Disposable income of households (cash and in-kind income per household) in 2012 was EUR 8 244 while in 2013 it reached EUR 8 916 per household. Disposable income of households has grown by EUR 672, or 8.2%.

In 2012 the total number of households in Lithuania was 1 327 000 while in 2013 it was 1 310 000, i.e. it decreased by 17 000, or 1.3%.

In 2012 the national GDP amounted to EUR 30 854.1 million while in 2013 it was EUR 31 859.1 million, so the increase was EUR 1 005 million, or 3.3%. So, Lithuania's GDP developments in 2013 can be assessed as good.

In 2013 the volume of electricity generated by thermal plants in Lithuania decreased. In 2012 those plants generated 3 336.6 GWh of electricity while in 2013 that figure was 2 807.3 GWh, i.e. 529.3 GWh, or 15.9%, less.

In Lithuania, in 2012 cogeneration plants (simultaneous energy generation of electricity and usable heat energy within a single technological process) generated 1 823 GWh of electricity while in 2013 it was 1 665 GWh. Here, the generation of electricity dropped by 158 GWh, or 8.7%.

In 2012 the country's thermal plants generated 467,3 ktoe of heat while in 2013 that figure was smaller – 449 ktoe, i.e. heat generation dropped by 18.3 ktoe, or 3.9%.

Heat energy generated by cogeneration plants including residual heat energy of industries in 2012 was 703.3 ktoe, and in 2013 it decreased to 672.7 ktoe, i.e. heat energy generated by cogeneration plants in 2013 decreased by 30.6 ktoe, or 4.4%.

Fuel consumption in thermal plants in 2012 was 1 048.8 ktoe, and in 2013 it was 908.9 ktoe, so it decreased by 139.9 ktoe, or 13.3%.

Fuel consumption in cogeneration plants in 2012 was 624.4 ktoe, and in 2013 it was 605.5 ktoe, so it decreased by 18.9 ktoe, or 3.0%.

Energy transportation and distribution losses in 2012 were 215.4 ktoe, and in 2013 they dropped to 203.7 ktoe, i.e. 11.7 ktoe, or 5.4%.

In 2013 as compared to 2012 final energy consumption in the transport sector increased modestly, by 4.3 ktoe, or 0.3%. Moreover, the total number of passenger-kilometres (pkm) decreased by 74 million kilometres, or 1.7%, i.e. in 2012 it was 4 408 million kilometres while in 2013 it was 4 334 million kilometres. The total number of tonne-kilometres (tkm) however increased by 1 992 tonne-kilometres, or 5.2%, i.e. in 2012 it amounted to 38 255

million tonne-kilometres while in 2013 it increased to 40 247 tonne-kilometres.

In 2012 the average annual population of Lithuania was 2 987 800 while in 2013 it dropped to 2 957 700, i.e. by 30 100, or 1.0%.

District heat generation in 2012 was 9.8 TWh, and in 2013 it was 9.2 TWh, i.e. it decreased by 0.6 TWh, or 6.1%. Fuel consumption in district heat generation in 2012 was 1 416.9 ktoe, and in 2013 it was 1 251.6 ktoe, so it decreased by 165.3 ktoe, or 11.7%.

## 2.2. Gross inland energy consumption and final energy consumption

Lithuania's economy has been rapidly growing since 2000, and this growth is also reflected in gross inland energy consumption and final energy consumption. Between 2000 and 2007 the economic growth affected the growth in gross inland energy consumption and final energy consumption (gross inland energy consumption grew by 24% and final energy consumption – by 27%). The economic downturn that started in 2007 resulted in decreasing gross inland energy consumption and its significant drop in 2010 (from 9 512 ktoe in 2007 to 7 045 ktoe in 2010). Between 2010 and 2013 gross inland energy consumption showed slight fluctuations and in 2013 it dropped to 6 980 ktoe.

Primary energy<sup>19</sup> intensity and final energy consumption intensity between 2000 and 2013 decreased because of higher energy costs per unit of the Gross Domestic Product (primary energy intensity – from 501 toe/EUR million to 278 toe/EUR million, and final energy consumption intensity – from 306 toe/EUR million to 229 toe/EUR million).

Developments in energy consumption and energy intensity between 2000 and 2013 are shown in Figure 1.

|  |                                    |
|--|------------------------------------|
| ktne   | ktoe                               |
| tne/mln. eurų                                | toe/EUR million                    |
| Bendrosios vidaus sąnaudos                   | Gross inland energy consumption    |
| Pirminės energijos intensyvumas              | Primary energy intensity           |
| Galutinės energijos suvartojimas             | Final energy consumption           |
| Galutinės energijos suvartojimo intensyvumas | Final energy consumption intensity |

*Figure 1. Developments in gross inland energy consumption, final energy consumption, primary energy*

<sup>19</sup> Primary energy is energy accumulated in natural resources: energy lurking in organic fuel (oil, peat, biomass, etc.); potential water energy; wind energy, geothermal energy and energy of chemical processes; and energy generated by nuclear reactions. Nuclear power is shown as local energy despite the fact that nuclear fuel is imported.

*intensity and final energy consumption intensity between 2000 and 2013*

The biggest change in final energy consumption between 2000 and 2013 was in the transport sector. During that period consumption in the transport sector grew from 1 056 to 1 579 ktoe, and in 2000-2013 energy consumption also increased in the industry sector and the service sector (from 781 ktoe to 939 ktoe in the industry sector; and from 468 ktoe to 594 ktoe in the service sector).

Before 2007, due to the economic growth energy consumption in the sectors of industry and services continuously increased while in the sectors of households and agriculture energy consumption experienced slight fluctuations. After 2007, in the wake of the economic downturn, final energy consumption dropped in all sectors (except for households) to 5 114 ktoe (for comparison, in 2000 it was 3 775 ktoe). The drop in the household sector was not that significant due to more stable energy consumption needs independent of market fluctuations.

The greatest decrease in final energy consumption was in the sectors of transport, agriculture, industry and services. As compared to 2007, in 2013 final energy consumption decreased by 8.6%. In the overall context of final energy consumption, in 2013 the largest quantity of final energy was consumed in the transport sector (1 578.8 ktoe) and in the household sector (1 467.8 ktoe), in the industry sector (939.2 ktoe) and in the commerce and service sector (594.1 ktoe). The lowest consumption was in the agricultural sector (103.1 ktoe).

Developments in final energy consumption between 2000 and 2013 by sector are shown in Figure 2.

|                      |                     |
|----------------------|---------------------|
| ktne                 | ktoe                |
| Pramonės sektorius   | Industry sector     |
| Žemės ūkio sektorius | Agricultural sector |
| Transporto sektorius | Transport sector    |
| Paslaugų sektorius   | Service sector      |
| Namų ūkio sektorius  | Household sector    |

*Figure 2. Developments in final energy consumption in the sectors of industry, agriculture, transport, services and households between 2000 and 2013*

### 1.3. Energy efficiency improvement measures implemented in the household sector and developments in energy consumption

The aim of the measures completed and ongoing in the household sector is to ensure the funding and implementation of projects renovating residential buildings and projects for the use of renewable energy resources in such buildings and to raise public awareness and ensure education and training in the area of EE improvement and energy saving in buildings.

*Table 2.2. Summary results of measures completed and ongoing in the household sector<sup>20</sup>*

| Measure  | Measure implementation period, years | Energy savings in 2013, GWh | Energy savings between the start of the measure implementation and the end of 2013, GWh |
|--|--------------------------------------|-----------------------------|---|
| <b>Ongoing measures</b>  |                                      |                             |   |
| Programme for renovating (upgrading) multi-apartment buildings <sup>21</sup> | 2005-2020                            | <b>21.74</b>                | <b>155.22</b>   |
| EU Structural Funds for 2007-2013  | 2007-2013                            |                             |   |
| Programmes for the development of municipal problem areas                    | 2008-2013                            | <b>3.41</b>                 | <b>10.27</b>  |
| Special Climate Change Programme   | 2010-                                | <b>n/a</b>                  | <b>n/a</b>  |
| Ignalina Programme for 2007-2013   | 2007-2013                            | <b>0.35</b>                 | <b>0.35</b>   |
| EU Structural Funds for 2014-2020 <sup>22</sup>                              | 2014-2020                            | <b>not applicable</b>       | <b>not applicable</b>   |
| <b>Measures completed before 2013 and affecting energy savings in 2013</b>   |                                      |                             |   |
| Energy saving/housing demonstration project                                  | 1998-2003                            | <b>not applicable</b>       | <b>20</b>   |
| <b>TOTAL</b>   |                                      | <b>25.50</b>                | <b>185.84</b>   |

In 2000-2006 final energy consumption in households was marked by the average growth of 1.6% while between 2007 and 2013 final energy consumption fluctuated because of changing electricity and thermal energy costs. In 2013 final energy consumption in the household sector was 1 467.8 ktoe and was smaller than in 2012 or 2011. This was affected by the diminished consumption of natural gas and heat.

Lower consumption of heat is associated with building renovation processes while a drop in natural gas consumption is to be seen as due to the transition to another fuel.

Since 2000 natural gas consumption in the household sector has been rapidly increasing (from 104 ktoe in 2000 to 158 ktoe in 2010) while in the long run, as the population transitioned to other fuels, since 2011 natural gas consumption started to decrease and in 2013 it

<sup>20</sup> Detailed information is given in Annex to the Report;

<sup>21</sup> The presentation of the implementation results of the programme for renovating (upgrading) multi-apartment buildings includes individual energy-saving measures implemented in 2012 at the initiative and on the account of managers of public areas or residents of multi-apartment buildings;

<sup>22</sup> In accordance with the plan, about 14% of the funds of the EU Structural Funds for 2014-2020 are to be invested in EE and renewables.

was only 123 ktoe. In 2013 households mainly consumed firewood and waste wood and agricultural waste intended to be used as fuel (540.1 ktoe). Developments in final energy consumption are shown in Figure 3.

|                                    |   |
|------------------------------------|---|
| ktne                               | ktoe  |
| Akmens anglys                      | Coal  |
| Malkos, medienos ir ž. ū. atliekos | Firewood, waste wood and agricultural waste |
| Suskystintos naftos dujos          | Liquefied petroleum gas                     |
| Gamtinės dujos                     | Natural gas                                 |
| Šilumos energija                   | Thermal energy                              |
| Elektros energija                  | Electricity                                 |
| Kita                               | Other                                       |

Figure 3. Developments in final energy consumption in the household sector in 2000-2013

#### 2.4. Energy efficiency improvement measures implemented in the service sector and developments in energy consumption

The aim of the measures completed and ongoing in the service sector is to reduce energy consumption in public buildings, to renovate healthcare, cultural, education, sports, administrative and other buildings and to promote and carry out green procurement procedures and public procurement procedures involving goods subject to EE requirements.

Table 2.3. Summary results of measures completed and ongoing in the service sector<sup>23</sup>

| Measure   | Measure implementation period, years | Energy savings in 2013, GWh | Energy savings between the start of the measure implementation and the end of 2013, GWh |
|---|--------------------------------------|-----------------------------|---|
| <b>Ongoing measures</b>   |                                      |                             |   |
| EU Structural Funds for 2007-2013                                 | 2007-2013                            | <b>82</b>                   | <b>208</b>  |
| Programme for upgrading educational institutions                  | 2009-2016                            | n/a <sup>24</sup>           | n/a   |
| Programme for renovating and upgrading of libraries for 2007-2013 | 2003-2013                            | n/a                         | n/a   |
| Programme for upgrading cultural centres for 2007-2020            | 2007-2020                            | n/a                         | n/a   |
| Programme for upgrading museums for 2007-2015                     | 2007-2015                            | n/a                         | n/a   |
| Ignalina Programme for 2007-2013                                  | 2007-2013                            | <b>0.36</b>                 | <b>0.94</b>   |
| Special Climate Change Programme                                  | 2010-                                | n/a                         | n/a   |

<sup>23</sup> Detailed information is given in Annex to the Report.

<sup>24</sup> Data not available.

|   |           |     |     |
|---|-----------|-----|-----|
| EEA and Norwegian Financial Mechanisms            | 2004-2014 | n/a | n/a |
| EE requirements for public procurement procedures | 2008-     | n/a | n/a |

| Measure  | Measure implementation period, years | Energy savings in 2013, GWh | Energy savings between the start of the measure implementation and the end of 2013, GWh |
|--|--------------------------------------|-----------------------------|---|
| Green procurement  | 2008-                                | n/a                         | n/a   |
| Lithuania-Switzerland Cooperation Programme  | 2011-2017                            | n/a                         | n/a   |
| Administration Programme for the National Documents Fund   | 2002-2020                            | n/a                         | n/a   |
| Programme to improve energy efficiency of public buildings   | 2014-2020                            | not applicable              | not applicable  |
| EU Structural Funds for 2014-2020 <sup>25</sup>  | 2014-2020                            | not applicable              | not applicable  |
| <b>Measures completed before 2013 and affecting energy savings in 2013</b>   |                                      |                             |   |
| EU Structural Funds for 2004-2006  | 2004-2006                            | not applicable              | 34  |
| Programme for improving schools  | 2002-2005                            | not applicable              | 11  |
| Investment programme for energy savings in buildings of public authorities   | 2003-2005                            | not applicable              | 4   |
| Programme for reconstructing general education and vocational training schools and providing them with learning tools for 2006-2008              | 2006-2008                            | not applicable              | 23  |
| Programme for renovating and reconstructing research and education establishments for 2007-2009  | 2007-2009                            | not applicable              | 1   |
| Programme for renovating student residence buildings of higher education schools   | 2006-2009                            | not applicable              | 4   |
| Programme for renovating detention facilities and humanising detention conditions for 2004-2009  | 2004-2009                            | not applicable              | 11  |
| Special programme "Implementation of energy-saving projects"   | 2004-2008                            | not applicable              | 6   |
| Programmes for constructing, reconstructing, repairing and providing for municipal educational, cultural, healthcare, social and other buildings | 2003-2008                            | not applicable              | n/a   |
| <b>TOTAL</b>   |                                      | <b>82.36</b>                | <b>304.60<sup>26</sup></b>  |

Developments in final energy consumption in the service sector are shown in Figure 4.

In 2000-2007 final energy consumption in the service sector showed the average growth of five percentage points per year. That growth was associated with the increased consumption of electricity, heat and natural gas.

Because of the economic slowdown, between 2008 and 2013 gross final energy consumption in this sector dropped to 594.1 ktoe. During that period final energy consumption fluctuated (in 2013 it decreased and was 269.2 ktoe of electricity, 171.2 ktoe of heat, 63.4 ktoe of natural gas and 34.6 ktoe of firewood and waste wood).

<sup>25</sup> In accordance with the plan, about 14% of the funds of the EU Structural Funds for 2014-2020 are to be invested in EE and renewables;

<sup>26</sup> In accordance with the information supplied by municipalities, 6 projects renovating cultural buildings were implemented using the funds of the State budget and municipal budgets and the energy savings were 1.66 GWh.

|                             |                         |
|-----------------------------|-------------------------|
| ktne                        | ktoe                    |
| Malkos ir medienos atliekos | Firewood and waste wood |
| Akmens anglis               | Coal                    |
| Gamtinės dujos              | Natural gas             |
| Šilumos energija            | Thermal energy          |
| Elektros energija           | Electricity             |
| Kita                        | Other                   |

*Figure 4. Developments in final energy consumption in the service sector in 2000-2013*

Developments in energy consumption per employee (toe/employee) in the service sector in Figure 5. The number of employees in the service sector fluctuated between 2007 and 2013, and consumption of heat and fuel fluctuated accordingly. Electricity consumption increased in spite of fluctuations in the number of employees during that period (Figure 5).

|                          |                         |
|--------------------------|-------------------------|
| tne/darbuotojui          | toe/employee            |
| Šilumos ir kuro energija | Thermal and fuel energy |
| Elektros energija        | Electricity             |

*Figure 5. Developments in energy consumption per employee in the service sector in 2007-2013*

A more rapid growth of the value added in the service sector than of energy consumption resulted in a lower energy intensity in the service sector. Developments in PVi in the service sector are shown in Figure 6.

|                   |                     |
|-------------------|---------------------|
| tne/mln. eurų PVi | toe/EUR million PVi |
|-------------------|---------------------|

*Figure 6. PVi in the service sector in 2005-2013*

## 2.5. Energy efficiency improvement measures implemented in the industry sector and developments in energy consumption

The aim of the measures completed and ongoing in the industry sector is to promote the implementation of smart and efficient energy production technologies and to improve energy production efficiency; to encourage small and medium-sized enterprises to implement modern management methods and management systems; and to promote the implementation of projects relating to the reduction of pollutant and greenhouse gas emissions.

Table 2.4. Summary results of measures completed and ongoing in the industry sector<sup>27</sup>

| Measure   | Measure implementation period, years | Energy savings in 2013, GWh | Energy savings between the start of the measure implementation and the end of 2013, GWh |
|---|--------------------------------------|-----------------------------|---|
| <b>Ongoing measures</b>   |                                      |                             |   |
| EU Structural Funds for 2007-2013 (improvement of energy production efficiency) | 2007-2013                            | n/a                         | n/a   |
| EU Structural Funds for 2007-2013 (Procesas LT)                                 | 2007-2013                            | n/a                         | n/a   |
| Programme of the Lithuanian Environmental Investment Fund                       | 1999-                                | n/a                         | 4.3   |

| Measure  | Measure implementation period, years | Energy savings in 2013, GWh | Energy savings between the start of the measure implementation and the end of 2013, GWh |
|--|--------------------------------------|-----------------------------|---|
| Special Climate Change Programme                                 | 2010-                                | n/a                         | n/a   |
| EEA and Norway financial mechanisms – green industry innovations | 2009-2014                            | n/a                         | n/a   |
| Measures implemented by industries                               | 2011-                                | 5.85                        | 8.518   |
| EU Structural Funds for 2014-2020 <sup>28</sup>                  | 2014-2020                            | not applicable              | not applicable  |
| <b>TOTAL</b>   |                                      | <b>5.85</b>                 | <b>12.82</b>  |

Developments in final energy consumption in the industry sector are shown in Figure 7.

In 2002 final energy consumption in the industry sector increased to 863 ktoe due to

<sup>27</sup> Detailed information is given in Annex to the Report.

<sup>28</sup> In accordance with the plan, about 14% of the funds of the EU Structural Funds for 2014-2020 are to be invested in EE and renewables.



the increasing electricity, heat and natural gas consumption.

In the wake of the economic recession, in 2008 and 2009 final energy consumption decreased by 12%. As of 2009, as the industry sector adapted to the changed market conditions, final energy consumption in this sector started to grow from 782 ktoe to 939 ktoe in 2013.

In 2013 industry mainly consumed electricity (247.5 ktoe), natural gas 240,1 (240.1 ktoe) and heat (204.8 ktoe) while the consumption of coal was 122.5 ktoe and that of firewood and waste wood was 81.1 ktoe.

|                             |                         |
|-----------------------------|-------------------------|
| ktne                        | ktoe                    |
| Malkos ir medienos atliekos | Firewood and waste wood |
| Gamtinės dujos              | Natural gas             |
| Šilumos energija            | Thermal energy          |
| Elektros energija           | Electricity             |
| Kokšas ir puskokšis         | Coke and semi-coke      |
| Akmens anglis               | Coal                    |
| Kita                        | Other                   |

*Figure 7. Developments in final energy consumption in the industry sector in 2000-2013*

Developments in PVi in the industry sector are shown in Figure 8.

Between 2001 and 2008 the value added generated by the industry sector increased by 39% while energy consumption grew by 17%. This resulted in a drop in the value added per unit of energy consumption by 26%. The growth of energy consumption was 2.2 times below the value added growth rate, which was why the PVi was decreasing.

Between 2009 and 2013 the PVi in the industry sector decreased by 2% because of the 16% growth of the value added and the 17% growth of energy consumption.

|                   |                     |
|-------------------|---------------------|
| tne/mln. eurų PVi | toe/EUR million PVi |
|-------------------|---------------------|

*Figure 8. PVi in the industry sector in 2001-2013*

## 2.6. Energy efficiency improvement measures implemented in the transport sector and developments in energy consumption

The aim of the measures completed and ongoing in the transport sector is to upgrade the system of public transport services, to implement traffic safety measures, to improve railway traffic conditions and to reduce the negative impact of transport on the environment; to reconstruct national roads and railways, to develop regional transport infrastructure and to create a communications infrastructure network (streets, pedestrian and bicycle paths) of the required capacity and reliability.

*Table 2.5. Summary results of measures completed and ongoing in the transport sector<sup>29</sup>*

| Measure   | Measure implementation period, years | Energy savings in 2013, GWh | Energy savings between the start of the measure implementation and the end of 2013, GWh |
|---|--------------------------------------|-----------------------------|---|
| Ongoing measures  |                                      |                             |   |
| Roadworthiness tests of road vehicles   | 1994-                                | n/a                         | n/a   |
| EU Structural Funds for 2007-2013 (integrated development of green public transport)  | 2007-2013                            | n/a                         | n/a   |
| EU Structural Funds for 2007-2013 (Priority “Essential economic infrastructure” of the Operational Programme for the Economic Growth)               | 2007-2013                            | n/a                         | n/a   |
| EU Structural Funds for 2007-2013 (Priority “Development of Trans-European Transport Network” of the Operational Programme for the Economic Growth) | 2007-2013                            | n/a                         | n/a   |
| Improvement of road infrastructure and reduction of traffic congestion  | 2000-2015                            | n/a                         | n/a   |
| A Day Without Cars Initiative   | 2002-                                | n/a                         | n/a   |
| Measures implemented by transport undertakings  | 2013                                 | 0.70                        | n/a   |
| EU Structural Funds for 2014-2020 <sup>30</sup>   | 2014-2020                            | not applicable              | not applicable  |
| Measures completed before 2013 and affecting energy savings in 2013   |                                      |                             |   |
| Special Climate Change Programme  | 2012                                 | not applicable              | n/a   |
| Automated transport management systems  | 2006                                 | not applicable              | n/a   |
| TOTAL   |                                      | 0.70                        | n/a   |

Developments in final energy consumption between 2000 and 2013 in the transport sector are shown in Figure 9.

Between 2000 and 2008 final energy consumption in the transport sector steadily grew (on average by 9.5% per year), with the main reason for such growth being a rapid growth of the number of vehicles. In 2000-2008 the number of road vehicles grew by a third, with the number of passenger cars and semi-trailers growing the most rapidly. That growth in the number of

<sup>29</sup> Detailed information is given in Annex to the Report.

<sup>30</sup> In accordance with the plan, about 14% of the funds of the EU Structural Funds for 2014-2020 are to be invested in EE and renewables.

vehicles could be explained by a better economic situation of the population and a more active movement of goods.

Between 2009 and 2013, as compared to 2008, the consumption of car petrol and liquefied petroleum gas decreased. Such a change in fuel consumption is a direct consequence of the decreasing cargo flows. As compared to 2008 where carriage of goods by all means of transport was 134 773 900 tonnes, in 2009 carriage of goods decreased to 105 845 600 tonnes. In 2013 the volume of carriage of goods increased to 123 269 700 tonnes but did not reach the 2008 level. In 2013, the transport sector mostly consumed diesel fuel (1 044.5 ktoe), petrol (215.7 ktoe) and liquefied petroleum gas (146.9 ktoe).

|                                 |                          |
|---------------------------------|--------------------------|
| ktne                            | ktoe                     |
| Žibaliniai reaktyviniai degalai | Jet engine kerosene fuel |
| Suskystintos naftos dujos       | Liquefied petroleum gas  |
| Dyzelinas (gazoliai)            | Diesel fuel (gas oils)   |
| Gamtinės dujos                  | Natural gas              |
| Automobilių benzinas            | Car petrol               |
| Kita                            | Other                    |

*Figure 9. Developments in final energy consumption in the transport sector in 2000-2013*

Developments in energy consumption per car equivalent<sup>31</sup> (toe/car equivalent) in the transport sector are presented in Figure 10. The reduction of energy consumption per car equivalent is associated with the increased number of newer and more fuel-efficient cars. The leap in energy consumption per car equivalent in 2007 and 2008 is associated with the 17% increase in energy consumption in road transport.

|                      |                    |
|----------------------|--------------------|
| tne/automobilio ekv. | toe/car equivalent |
|----------------------|--------------------|

*Figure 10. Developments in energy consumption per car equivalent in the road transport sector in 2000-2013*

<sup>31</sup> Car equivalent is the product of the number of individual modes of transport (units) in accordance with the data of Statistics Lithuania and factors attributable to each mode of transport in accordance with the European Commission's Recommendations on Measurement and Verification Methods in the Framework of Directive 2006/32/EC on energy end-use efficiency and energy services.

Developments in energy consumption per tonne-kilometre (kgoe<sup>32</sup>/tkm) in the railway transport sector are presented in Figure 11. Energy consumption in railway transport per tonne-kilometre between 2000 and 2013 dropped from 0.008 to 0.004 kgoe/tkm. This is due to the upgrading and renovation of railway transport and existing facilities and the use of EU and other funds for the implementation of upgrading projects.

|          |          |
|----------|----------|
| kgne/tkm | kgoe/tkm |
|----------|----------|

*Figure 11. Developments in energy consumption per tonne-kilometre in the railway transport sector in 2000-2013*

## **2.7. Energy efficiency improvement measures implemented in the energy sector and developments in energy consumption**

The aim of the measures completed and ongoing in the energy sector is to modernise the power distribution system and the heat supply system; to implement modern and efficient energy production technologies; to promote the use of renewable energy resources; to implement projects relating to the reduction of pollutant and greenhouse gas emissions; and to raise awareness of final consumers of energy about energy consumption and so encourage them to save.

**Table 2.6. Summary results of measures completed and ongoing in the energy sector<sup>33</sup>**

| <b>Measure</b>  | <b>Measure implementation period, years</b> | <b>Energy savings in 2013, GWh</b> | <b>Energy savings between the start of the measure implementation and the end of 2013, GWh</b> |
|---|---|------------------------------------|--|
| <b>Ongoing measures</b>   |   |                                    |  |
| EU Structural Funds for 2007-2013 (Operational Programme for Economic Growth)       | 2007-2013                                   | <b>30.96</b>                       | <b>82.09</b>   |
| EU Structural Funds for 2007-2013 (Operational Programme for Promotion of Cohesion) | 2007-2013                                   | <b>6.182</b>                       | <b>43.162</b>  |

<sup>32</sup> Kilograms of oil equivalent

<sup>33</sup> Detailed information is given in Annex to the Report.

|  |   |                       |                       |
|--|---|-----------------------|-----------------------|
| Voluntary agreements with energy companies   | 2010-2011,<br>2010-2012,<br>2010-<br>015,<br>2011-<br>014, 2011-2013, | <b>36.07</b>          | <b>374.53</b>         |
| Lithuanian Environmental Investment Fund   | 1999-   | <b>n/a</b>            | <b>n/a</b>            |
| Special Climate Change Programme   | 2010-   | <b>n/a</b>            | <b>n/a</b>            |
| Requirements to energy accounting and to the installation of metering devices to carry out such accounting | 2002-   | <b>n/a</b>            | <b>n/a</b>            |
| Installation of smart energy meters at final energy consumers  | 2008-   | <b>n/a</b>            | <b>n/a</b>            |
| Measures implemented by energy undertakings  | 2013-   | <b>0.817</b>          | <b>0.817</b>          |
| EU Structural Funds for 2014-2020 <sup>34</sup>  | 2014-2020   | <b>not applicable</b> | <b>not applicable</b> |
| <b>Measures completed before 2013 and affecting energy savings in 2013</b>                                 |   |                       |                       |
| Structural Funds for 2004-2006   | 2004-2006   | <b>not applicable</b> | <b>22.86</b>          |
| <b>TOTAL</b>   |   | <b>74.03</b>          | <b>523.46</b>         |

Developments in energy production efficiency and transport and distribution losses of total energy production are presented in Figure 12.

Between 2000 and 2004 energy production efficiency decreased from 52.5% to 47.3% due to higher energy consumption for transformation at power plants and in boiler houses. Energy consumption for transformation grew because of the growing electricity export and electricity generation by the INPP.

As the largest electricity generator, the first unit of the INPP, discontinued its activity in 2004, by 2006 electricity exports dropped by 3.4 times. As energy consumption for transformation decreased by a third, energy production efficiency increased by 6.5%.

Between 2006 and 2009 energy consumption for transformation increased by 10% while energy generated during the transformation process grew by 4%. Energy transport and distribution losses of the total energy generated between 2000 and 2008 decreased by 6%.

Energy transport and distribution losses of the total energy generated between 2000 and 2013 decreased by 2.4%. During that period heat and electricity generation dropped from 2 163 ktoe to 1 451 ktoe, and heat and electricity transportation losses also decreased from 352 ktoe to 202 ktoe. The decrease in energy transport and distribution losses of the total energy generated between 2000 and 2013 resulted from relatively less transportation of heat and electricity.

The sudden leap of energy production efficiency in 2010 was a direct consequence of the decommissioning of the second unit of the INPP at the end of 2009. Between 2010 and 2013 transformation output of power plants and boiler houses dropped from 1 354 to 1 203 ktoe while energy consumption for transformation decreased from 1 857 ktoe to 1 428 ktoe. Those developments resulted in higher energy production efficiency.

<sup>34</sup> In accordance with the plan, about 14% of the funds of the EU Structural Funds for 2014-2020 are to be invested in EE and renewables.

The leap in energy production efficiency shown in Figure 12 is associated with the drop in energy production in 2010 shown in Figure 13. The sudden leap of energy production efficiency in 2010 was due to the decommissioning of the second unit of the INPP.

| proc.  | %  |
|--|--|
| Energijos gamybos efektyvumas  | Energy production efficiency   |
| Energijos transportavimo ir paskirstymo nuostoliai nuo bendro pagaminto kiekio | Energy transportation and distribution losses of total energy production |

*Figure 12. Developments in energy production efficiency and transport and distribution losses of total energy production in 2000-2013*

The drop in energy production between 2004 and 2006 was due to the decommissioning of the first unit of the INPP, and during that period electricity generation decreased by 35%.

|                                     |                                      |
|-------------------------------------|--------------------------------------|
| GWh                                 | GWh                                  |
| Elektros gamyba                     | Electricity production               |
| Bendrasis sunaudojimas              | Overall consumption                  |
| Perdavimo ir paskirstymo nuostoliai | Transmission and distribution losses |

*Figure 13. Developments in electricity production, total consumption and transmission and distribution losses in 2000-2013*

Electricity consumption during the period of the country's economic growth between 2000 and 2008 increased by 28%. In 2013 electricity consumption dropped as compared to 2008. The increase in electricity generation in 2009 was mainly influenced by its exports. The significant drop in energy production in 2010 was due to the decommissioning of the second unit of the INPP.

The level of heat generation between 2008 and 2013 fluctuated only slightly and was mostly affected by fluctuations of outdoor temperatures during the heating season. Heat transmission and distribution losses continued to decrease steadily.

|     |     |
|-----|-----|
| GWh | GWh |
|-----|-----|

|                                     |                                      |
|-------------------------------------|--------------------------------------|
| Šilumos gamyba                      | Heat production                      |
| Perdavimo ir paskirstymo nuostoliai | Transmission and distribution losses |

Figure 14. Developments in heat generation, transmission and distribution losses in 2000-2013

## 2.8. Horizontal energy efficiency improvement measures

Horizontal measures include legislation and public awareness raising activities. They are of a broad scope and their implementation affects all sectors and all areas including buildings, installations, technological processes and consumer behaviour.

Table 2.7. Summary results of horizontal measures completed and ongoing<sup>35</sup>

| Measure  | Measure implementation period, years | Energy savings in 2013, GWh | Energy savings between the start of the measure implementation and the end of 2013, GWh |
|--|--------------------------------------|-----------------------------|---|
| <b>Ongoing measures</b>  |                                      |                             |   |
| STR 2.05.01:2005 “Heating facilities of building walls”  | 2005-2013                            | <b>56.2</b>                 | <b>526.6</b>  |
| STR 2.05.01:2013 “Energy-efficient building design”  | 2013-                                | n/a                         | n/a   |
| STR 2.09.02:2005 “Heating, ventilation and air conditioning”   | 2005-                                | n/a                         | n/a   |
| STR 2.01.09:2005 “Energy performance of buildings. Energy performance certification”                 | 2006-                                | n/a                         | n/a   |
| Efficiency checks of heating boilers and heating systems   | 2007-2013                            | n/a                         | n/a   |
| Checking the compliance of heating systems with energy efficiency requirements                       | 2013-                                | n/a                         | n/a   |
| Efficiency checks of air conditioning systems of buildings   | 2008-2013                            | n/a                         | n/a   |
| Checking the compliance of air conditioning systems of buildings with energy efficiency requirements | 2013-                                | n/a                         | n/a   |
| Pollution tax concessions  | 2004-                                | n/a                         | n/a   |
| Labelling of products relating to energy consumption   | 2004-                                | n/a                         | n/a   |
| Ecodesign  | 2005-                                | n/a                         | n/a   |
| Information, educational and training activities   | 1996-                                | n/a                         | n/a   |
| Qualification and certification systems  | 2005-                                | n/a                         | n/a   |
| EE obligation scheme and alternative policy measures   | 2014-2020                            | <b>not applicable</b>       | <b>11 677<sup>36</sup></b>  |
| Energy audit and energy management systems   | 2008-                                | n/a                         | n/a   |

<sup>35</sup> Detailed information is given in Annex to the Report.

<sup>36</sup> calculated using the cumulative method.

|   |           |                       |                |
|---|-----------|-----------------------|----------------|
| Long-term plan for the renovation of the national pool of buildings | 2015-     | <b>not applicable</b> | <b>n/a</b>     |
| <b>Measures completed before 2013 and affecting</b>                 |           | <b>energy savings</b> | <b>in 2013</b> |
| National Energy Strategy  | 2007-2012 | <b>not applicable</b> | <b>n/a</b>     |
| National programme for energy efficiency improvement for 2006-2010  | 2006-2010 | <b>not applicable</b> | <b>n/a</b>     |
| STR 2.05.01:1999 "Heating facilities of building walls"             | 1999-2005 | <b>not applicable</b> | <b>251</b>     |
| <b>TOTAL</b>  |           | <b>56.2</b>           | <b>777.6</b>   |

### 3. Implementation of Articles 5 and 7 of Directive 2012/27/EU

By Resolution No 1328 of 26 November 2014 approving the Programme for energy efficiency improvement of public buildings the Government of the Republic of Lithuania approved the Programme for energy efficiency improvement of public buildings with a view to improving energy efficiency of public buildings. The implementation of this programme by 2020 is to cover the renovation of public buildings of the surface area of 700 000 m<sup>2</sup>, including: 470 000 m<sup>2</sup> of state public buildings and 230 000 m<sup>2</sup> of municipal public buildings. The planned energy savings in renovated public buildings by 2020 are 60 GWh of annual primary energy and greenhouse gas emissions are to decrease by 14 000 tonnes.

In accordance with the requirements of the methodology for compiling a list of heated and/or cooled buildings owned by the State and used by public authorities and bodies that are public administration entities approved by Order No 1-47 of the Minister for Energy of the Republic of Lithuania of 13 March 2014 approving the methodology for compiling a list of heated and/or cooled buildings owned by the State and used by public authorities and bodies that are public administration entities, state public buildings are selected and included in a list of buildings to be renovated.

In accordance with the List of heated and/or cooled buildings owned by the State and used by public authorities and bodies that are public administration entities (<https://www.e-tar.lt/portal/legalAct.html?documentId=8beb222084falle3aba3d2563f167b94>) approved by Order No 1-7 of the Minister for Energy of the Republic of Lithuania of 23 January 2014 on a list of heated and/or cooled buildings owned by the state and used by public authorities and bodies that are public administration entities, the total surface area of state public buildings is 3 137 933 m<sup>2</sup>, and the total surface area of buildings of Classes F, E and D to be renovated is 1 068 759 m<sup>2</sup> (3% of the surface area of the buildings to be renovated per year – 32 063 m<sup>2</sup>).

Order No 1-118 of the Minister for Energy of the Republic of Lithuania of 19 May 2014 approving a list of five pilot public buildings of central authorities where energy efficiency improvement projects will be implemented approved a list of five pilot public buildings of



central authorities where energy efficiency improvement projects will be implemented. Pilot projects involving state public buildings are included in the List of buildings to be renovated if they meet project financing conditions.

In implementing the requirements of Article 7 of Directive 2012/27/EU, the overall target of final energy consumption savings for Lithuania as of 2015 until 31 December 2020 is 11.677 TWh (calculated by the cumulative method). It has been calculated on the basis of Articles 7(2)(a), 7(2)(c) and 7(2)(d) of Directive 2012/27/EU, without prejudice to Article 7(3) of Directive 2012/27/EU. In accordance with the second paragraph of Article 7(1), the calculations did not include the total energy consumed in the transport sector. The target will be achieved by implementing the obligation scheme under development and combining it with alternative measures. The implementation of the obligation scheme is to result in achieving about 80% of the said target while the remaining 20% are to be achieved by implementing the alternative measures. The Ministry of Energy of the Republic of Lithuania is responsible for the attainment of this target.

The first phase of the obligation scheme takes place between 1 January 2014 and 31 December 2016, while the second one is between 1 January 2017 and 31 December 2020. In accordance with the model of the obligation scheme being developed, the key participants and their functions are only provided for in the draft law of the Republic of Lithuania on energy efficiency: The obligation scheme aims at the implementation of EE improvement measures in buildings and sectors of the industry and buildings but there are no limitations preventing obligated parties from seeking optimal energy savings in other areas as well.

The key categories of EE measures will be identified after approving the Catalogue of energy efficiency improvement measures and resulting savings being developed.

Alternative measures such as the renovation of buildings by improving their energy characteristics are to be implemented in multi-apartment buildings and public buildings. State aid to owners of flats in multi-apartment buildings and other premises implementing renovation projects under the Multi-Apartment Building Renovation Programme approved by Resolution No 1213 of the Government of the Republic of Lithuania of 23 September 2004 approving the Programme for renovating (upgrading) multi-apartment buildings or municipal programmes is granted where the measures envisaged in the renovation project attain at least Class D of building energy performance. Public buildings are renovated in accordance with the requirements of Article 5 of Directive 2012/27/EU on the exemplary role of public bodies' buildings. Where necessary, the list of alternative measures may be extended.

Until new legislation regulating the calculation of energy savings and the performance and verification of energy audits is approved, the said actions will be performed in accordance with the existing legislation.

#### **4. Latest information on the key legislative and non-legislative measures implemented during the previous year that contribute to the attainment of common national energy efficiency targets of 2020**

The key legislative measures implemented during the previous year (2014) that contribute to the attainment of common national energy efficiency targets of 2020 include the draft Law of the Republic of Lithuania on energy efficiency drawn up in accordance with the requirements of Directive 2012/27/EU seeking to lay down the main requirements to, procedure for and conditions of the efficiency of energy supply and consumption ensuring energy supply and consumption efficiency and primary energy saving targets in the Republic of Lithuania. It is envisaged to attain energy savings matching the targets set in the EU legislation and to eliminate obstacles in the energy sector hindering the efficient supply and consumption of energy. Draft laws of the Republic of Lithuania on electricity, on natural gas and on heating facilities are also drawn up.

Moreover, by Resolution No 284 of 18 March 2015 approving the National Programme for the development of heating facilities for 2015-2021 the Government of the Republic of Lithuania approved the National Programme for the development of heating facilities for 2015-2021 aiming at, taking into account national and international environmental and energy development trends and the economic situation, evaluating and establishing opportunities, priorities, targets and objectives for the development of the heating facilities of the Republic of Lithuania and means to implement them. The Programme covers the development and upgrading of heating facilities, technical implementation solutions, the selection of the optimal model of energy or multi-fuel consumption for heat generation, the establishment of the need for and the potential of the installation of cogeneration facilities, the selection of the amount of investments, and the need for financing and financial sources for the development and upgrading of heating facilities and the setting of development and upgrading measures for heating facilities, the timetables and deadlines for their implementation, conditions necessary for ensuring and implementing the development and upgrading of heating transmission networks and implementing measures in the territory of the respective country and other provisions.

By Order No 1-67 of 10 March 2015 amending Order No 1-149 of the Minister for Energy of the Republic of Lithuania of 30 May 2014 approving the action plan for energy efficiency, the Minister for Energy of the Republic of Lithuania amended the action plan for energy efficiency approved by Order No 1-149 of the Minister for Energy of the Republic of Lithuania of 30 May 2014 approving the action plan for energy efficiency by adding Annex 4 containing the Long-term plan for renovating the national pool of buildings.

The draft resolution of the Government of the Republic of Lithuania on the provision of information relating to energy efficiency was drawn up in 2015 with a view to approving a procedure for the provision of information relating to energy efficiency setting out a procedure for drafting and submitting energy efficiency actions plans, reports and other information to the European Commission and for collecting, systemising and submitting information required for drawing up energy efficiency action plans, reports and other information concerning energy efficiency to the Ministry of Energy of the Republic of Lithuania.

## **ANNEX**

## 1. Measures completed in the household sector:

In accordance with the monitoring data on the implementation of the **Programme for the renovation (upgrading) of multi-apartment buildings (for 2005-2020)** supplied by the Ministry of the Environment of the Republic of Lithuania and the information published on its website (<http://www.am.lt/VI/index.php#a/14322>), in 2013, 41 multi-apartment buildings were renovated, with the usable surface area of 57.582 million m<sup>2</sup>. The estimated heat savings are 9.22 GWh/year. The reduction of greenhouse gas (CO<sub>2</sub> equivalent) emissions is 2 150 tonnes per year. In 2005-2013, 520 multi-apartment buildings were renovated, with the usable surface area of 1.334 billion m<sup>2</sup>. The estimated heat savings are 91.48 GWh/year. The reduction of greenhouse gas (CO<sub>2</sub> equivalent) emissions is 23 030 tonnes per year.

In 2013, 1 475 energy-saving measures were implemented by owners of flats and other premises in multi-apartment buildings. The usable surface area of multi-apartment buildings where energy-saving measures are implemented is 3.090 billion m<sup>2</sup>. The estimated heat savings are 12.52 GWh/year. The reduction of greenhouse gas (CO<sub>2</sub> equivalent) emissions is 2 920 tonnes per year. In 2005-2013, 5 072 energy-saving measures were implemented by owners of flats and other premises in multi-apartment buildings. The usable surface area of multi-apartment buildings where energy-saving measures are implemented is 9.313 billion m<sup>2</sup>. The estimated heat savings are 63.74 GWh/year. The reduction of greenhouse gas (CO<sub>2</sub> equivalent) emissions is 14 860 tonnes per year.

In accordance with the information provided by BETA and the implementation report on the Operational Programme for the Promotion of Cohesion for 2013 (<http://www.esparama.lt/metines-ataskaitos>), 56 municipalities are involved in the process of renovating multi-apartment buildings:

- 914 least energy-efficient multi-apartment buildings were selected in municipalities for the first stage of the renovation of multi-apartment buildings under the municipal programme for increasing energy efficiency (the average of 16 houses from each municipality). 56 partnership and cooperation agreements were concluded with municipalities with a view to improving energy efficiency of multi-apartment buildings;
- 58 municipal energy efficiency improvement programmes were drafted and evaluated;
- 1 269 investment projects for renovating multi-apartment buildings were drafted and coordinated including 1 015 that were to be implemented under municipal programmes (the value planned was 800);
- a call for the second phase of the renovation was published and attracted 58 municipalities expressing their wish to participate (1 683 multi-apartment buildings). On 31 October 2013 contracts on the drafting of investment plans for the second phase of the renovation were signed with municipalities.

In 2013, 7 model renovation projects for multi-apartment buildings were approved and

5 model projects were approved for Druskininkai multi-apartment buildings with expert evaluations conducted for them. A contract for the drawing up of 5 model projects for residential buildings in Klaipėda City was pending in 2014.

All in all, BETA has approved renovation investment plans for 2 400 multi-apartment buildings including 1 073 that have been approved for 2014.

**EU Structural Funds for 2007-2013 (Promoting the upgrading of multi-apartment buildings).** In accordance with the implementation report for the Operational Programme for the Promotion of Cohesion (<http://www.esparama.lt/metines-ataskaitos>), in 2013, 2 projects were ongoing (including 1 that was completed in 2013) to which EUR 7.4 million were allocated.

There was a campaign for public awareness raising and presenting good practices in the Programme for the renovation (upgrading) of multi-apartment buildings in implementing the project “Promoting the upgrading of multi-apartment buildings, Phase I”: the Programme has been introduced at 39 seminars and 36 other public events, 221 discussions with municipalities and municipal enterprises, 10 radio talk shows “Miesto veidas” (“Face of the City”) and 1 special informational TV show “Pinigų karta” (“Money Generation”), promoted in the press, 6 press releases have been prepared, 10 projects announced in online mass media, the information on the website [www.atnaujinkbusta.lt](http://www.atnaujinkbusta.lt) has been continuously updated, 75 leaflets about specific buildings and state aid for different cities have been prepared, 13 interactive discussions have been organised and their videos posted on the website [www.atnaujinkbusta.lt](http://www.atnaujinkbusta.lt).

In implementing the project “Promotion of the modernisation of multi-apartment buildings, Phase I” and its activity “Drafting of sample investment plans and energy performance certificates for the renovation (modernisation) of multi-apartment buildings for multi-apartment buildings consuming most heat energy”, 649 investment plans and energy performance certificates were drafted. Moreover, an evaluation covered the drafting of 104 investment plans, 85 technical works projects, 79 calls to participate in procurement procedures for building maintenance works and 63 – for contract works. 7 197 consultations were provided in implementing the project activity “Provide consultations (in person and by phone) on organisational, administrative and project implementation matters”.

19 initiatives to promote the upgrading of multi-apartment buildings implemented by 31 December 2013 encouraged 40.24% of prospective beneficiaries (the number is calculated as follows: the number of encouraged beneficiaries is divided by the number of prospective beneficiaries (flat owners) and multiplied by one hundred (percent) where the number of all prospective beneficiaries (flat owners) before 2015 is 292 500).

### **Programmes for the development of municipal problem areas for 2011-2013.**

Before 2011, programmes for the development of municipal problem areas for 2008-2010 were implemented.

In accordance with the information supplied by the Ministry of the Environment of the Republic of Lithuania and the information published on the website (<http://www.am.lt/VI/index.php#a/14322>), in 2013, 75 multi-apartment buildings were renovated (the total usable surface area being 71 805 820 m<sup>2</sup>) with heat savings of 3.41 GWh per year<sup>37</sup>. The reduction of greenhouse gas (CO<sub>2</sub> equivalent) emissions is 790 tonnes per year. Between 2005 and 2013, 131 multi-apartment buildings (of the total usable surface area of 159 829 520 m<sup>2</sup>) were renovated with heat savings of 10.27 GWh per year. The reduction of greenhouse gas (CO<sub>2</sub> equivalent) emissions is 2 370 tonnes per year.

In accordance with the information supplied by the Ministry of the Environment of the Republic of Lithuania and the information published on the website (<http://www.am.lt/VI/index.php#a/14322>), when renovating multi-apartment buildings in implementing **the Programme for the renovation (upgrading) of multi-apartment buildings, the Programmes for the development of municipal problem areas for 2007-2013 and the EU Structural Funds programme “Promoting the upgrading of multi-apartment buildings” for 2007-2013**, in 2013, 116 multi-apartment buildings were renovated (of the total usable surface area of 129 387 480 m<sup>2</sup>) with heat savings of 25.15 GWh per year. The reduction of greenhouse gas (CO<sub>2</sub> equivalent) emissions is 5 860 tonnes per year. Between 2005 and 2013, 651 multi-apartment buildings (of the total usable surface area of 149 430 970 m<sup>2</sup>) were renovated with heat savings of 165.50 GWh per year. The reduction of greenhouse gas (CO<sub>2</sub> equivalent) emissions is 40 260 tonnes per year.

The **Special Climate Change Programme** is ongoing **since 2010**. In accordance with the information published on the website of the LEIF (<http://www.laif.lt/index.php7136533252>), under Measure “Renovation (upgrading) of one- or two-apartment residential buildings of natural persons ensuring Class C of building energy performance and reducing energy consumption by at least 20%”, in 2013, 180 projects were financed (with the total amount of investments reaching EUR 909 050). Moreover, in 2013, under Measure “Use of renewable energy resources (solar, wind, biofuel, geothermal energy, etc.) in individual residential buildings”, 235 projects were financed (with the total amount of investments reaching EUR 598 160).

**Ignalina Programme for 2007-2013.** In accordance with the information published on the CPMA’s website (<http://www.cpva.lt/lt/dokumentai/projektu-dokumentai/51/po.html>), in 2013, 1 project with a multi-apartment building was ongoing in Visaginas Municipality (EUR

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<sup>37</sup> Heat savings (GWh per year) and the reduction of greenhouse gas (CO<sub>2</sub>) emissions (thousand tonnes per year) are evaluated on the basis of the monitoring data of the Programme for the renovation (upgrading) of multi-apartment buildings collected in 2012 by the budgetary institution the Housing and Urban Development Agency (as of 8 July 2013 known as BETA).

7 000 000), and in 2012 there were 2 ongoing projects with multi-apartment buildings: Zarasai Region (EUR 1 235 000) and Ignalina Region (EUR 1 579 000) municipalities, and in 2010 there was 1 project with a multi-apartment building completed in Visaginas Municipality (EUR 63 480).

In accordance with the information supplied by the CPMA, by the end of 2020 Zarasai Region Municipality plans to renovate 46 buildings (of the total heated surface area of 46 288 m<sup>2</sup>) with heat savings of 12.14 GWh, and in 2013, 9 buildings were undergoing renovations (of the heated surface area of 5 516 m<sup>2</sup>) with planned heat savings of 1.09 GWh. In 2013 (and by the end of 2013), 2 buildings were renovated in Ignalina Region Municipality (of the heated surface area of 989.74 m<sup>2</sup>) with heat savings of 0.35 GWh, and by the end of 2020 the plan is to renovate 71 buildings (of the heated surface area of 66 861.81 m<sup>2</sup>) with heat savings of 14.16 GWh.

### **Measures completed in the household sector by 2013 and affecting energy savings in 2013:**

The period before 2012 saw the implementation of **the Energy savings/housing demonstration project** involving the completion of renovation projects of 626 residential buildings with energy savings of 20 GWh. The energy-saving measures implemented allowed for average heat savings of 20 to 30% and in some cases 60 to 70%.

## **2. Measures completed in the service sector:**

In accordance with the information provided by the Ministry of the Economy of the Republic of Lithuania, under **the EU Structural Funds for 2007-2013**, the Operational Programme for the Promotion of Cohesion, Priority “Environment and sustainable development”:

- Measure VP3-3.4-ŪM-03-V “Renovation of public buildings on the national level”, 442 buildings were renovated before the end of 2013 including 27 buildings during 2013. Energy savings before the end of 2013 were 130 GWh including 63 GWh during 2013;
- Measure VP3-3.4-ŪM-04-R “Renovation of public buildings on the regional level”, 317 buildings were renovated before the end of 2013 including 54 buildings during 2013. Energy savings before the end of 2013 were 64 GWh including 17 GWh during 2013;
- under Measure VP3-3.4-ŪM-05-V “Renovation projects of public buildings meeting the performance and quality criteria of Single Programming Document for Lithuania for 2004-2006, Measure 1.2 “Ensuring energy supply stability, accessibility and improved energy efficiency”, 40 buildings were renovated by the end of 2013 with energy savings of 15 GWh.

The total of 799 buildings were renovated by the end of 2013 with energy savings of



208 GWh In 2013, 81 buildings were renovated with energy savings of 82 GWh.

The implementation report of the Operational Programme for the Promotion of Cohesion for 2013 (<http://www.esparama.lt/metines-ataskaitos>) contains information showing that the need for building renovation in Lithuania remains great.

*Table 1. Number of public buildings to be renovated in 2013*

| Purpose of the building                                | Type of ownership |           | Total     |
|--|-------------------|-----------|-----------|
|  | State             | municipal |           |
| Healthcare   | 387               | 676       | 1 063     |
| Culture, research and sports                           | 992               | 4 287     | 5 279     |
| Administrative   | 1 540             | 746       | 2 286     |
| Residential buildings for various social groups        | 304               | 231       | 535       |
| Specialised, religious and other purpose               | 2 433             | 1 652     | 4 085     |
| Hotels, commercial, service, catering and recreational | 843               | 517       | 1 360     |
| Total  | 6 499             | 8 109     | <b>14</b> |

Moreover, the funds of the EU structural support for 2007-2013 were allocated to **infrastructure projects** where (some) measures implemented may be linked with EE improvement or energy saving.. However it is impossible to evaluate the number of the said measures and calculate related energy savings as the legislation in force did not oblige implementing authorities to collect and store energy indicators.

In implementing **the Programme for the upgrading of educational establishments (2009-2012 and 2013-2016)**, the plan is to renovate at least 120 educational establishments by 2013 and ensure annual energy savings of about 20%.

In accordance with the information supplied in the Programme for the upgrading of educational establishments approved by Order No V-410 of the Minister for Education and Science of the Republic of Lithuania of 10 May 2013 approving the Programme for the upgrading of educational establishments, between 2009 and 2013, in implementing the procedure for the drawing up of the Programme for the development of municipal infrastructure for 2000-2004 approved by Resolution No 734 of the Government of the Republic of Lithuania of 28 June 2000 approving the procedure for the drawing up of the Programme for the development of municipal infrastructure for 2000-2004, the Programme for the improvement of schools approved by Resolution No 759 of the Government of the Republic of Lithuania of 28 May 2002 approving the Programme for the improvement of schools, the Programme for the reconstruction of and provision of learning tools to general education and vocational schools for 2006-2008 approved by Resolution No 1230 of the Government of the Republic of Lithuania of 16 November 2005 approving the Programme for the reconstruction of and provision of learning tools to general education and vocational schools for 2006-2008 and the Programme for the upgrading of educational establishments approved by Resolution No 1290 of the Government of the Republic of Lithuania of 3 December 2008 approving the Programme for the upgrading of

educational establishments, 576 educational establishments were renovated (upgraded). The experience of implementing the projects of the renovation (upgrading) of buildings of educational institutions between 1996 and 2012 has shown that the implementation of energy saving measures relating to the renovation (upgrading) of buildings and heating systems improved hygiene conditions in educational institutions renovated (upgraded) and yielded energy savings between 30 and 47%.

In accordance with the Programme for the cultural development of regions for 2012-2020 approved by Order No IV-639 of the Minister for Culture of the Republic of Lithuania of 19 October 2011 approving the Programme for the cultural development of regions for 2012-2020, in implementing:

- **the Programme for the renovation and upgrading of libraries for 2003-2013**, 28 libraries were renovated by the end of 2011. Investment projects of the renovation of 27 library buildings and premises were completed between 2003 and 2010;
- **the Programme for the renovation and upgrading of cultural centres for 2007-2020**, 3 cultural centres were upgraded by the end of 2011. In 2011, works were ongoing in 28 buildings using the amount of EUR 5 751 560. 63 cultural centres of the highest and first categories to be renovated were involved in the Programme for the upgrading of cultural centres for 2007-2020;
- **the Programme for the upgrading of museums for 2007-2015**, there were no museum buildings completed under the programme by the end of 2011. In 2011 renovation works are ongoing in 16 museums and their branches (8 museums supervised by the Ministry of Culture, 2 museums – by the Ministry of the Environment, 1 museum – by the Ministry of Defence and 4 municipal museums). In implementing this Programme, the plan is to cover 29 buildings of 3 national museums, 32 buildings of 13 republican museums and 35 buildings of 26 municipal museums (involving the total of 96 buildings of 42 museums).

In accordance with the information supplied by municipalities, 6 projects renovating cultural buildings were implemented using the funds of the State budget and municipal budgets and the energy savings were 1.66 GWh. Moreover, 11 projects for the renovation of cultural buildings were ongoing in 2013 using the funds of the State and municipal budgets.

**Ignalina Programme for 2007-2013.** In accordance with the information published on the CPMA's website (<http://www.cpva.lt/lt/dokumentai/projektu-dokumentai/51/p0.html>), the following were completed in 2008: the project for energy efficiency improvement of the Ignalina Region hospital (EUR 359 990) and the project for energy efficiency improvement of the Visaginas Region hospital (EUR 759 310). The project for energy efficiency improvement of the building of the Zarasai cultural centre was completed in 2009 (EUR 361 890). In 2010, 2 projects with public buildings were completed: in Ignalina Region Municipality (EUR 680 190) and in Visaginas Municipality (EUR 911 100). The project for energy efficiency improvement

of the building of the Zarasai cultural centre was also completed (EUR 380 610). In 2011, there was 1 project with public buildings in Ignalina Region Municipality (EUR 647 980) and 2 projects with public buildings were completed/implemented: in Zarasai Region Municipality (EUR 684 940) and in Visaginas Municipality (EUR 857 790). In 2013, 3 projects with public buildings were ongoing: in Visaginas Municipality (EUR 4 200 000), in Ignalina Region Municipality (EUR 356 270) and in Zarasai Region Municipality (EUR 1 034 000). 1 new project with public buildings was started in Zarasai Region Municipality (EUR 763 000).

In accordance with the information supplied by the CPMA, in 2013 (by the end of 2013) 3 buildings were renovated in Zarasai Region Municipality (of the total heated surface area of 10 560.72 m<sup>2</sup>) with heat savings of 0.33 GWh. By the end of 2020 the plan is to renovate 9 buildings (of the heated surface area of 11 218.86 m<sup>2</sup>) with heat savings of 3.61 GWh. 2 buildings were renovated in 2013 in Ignalina Region Municipality (of the heated surface area of 4 640.46 m<sup>2</sup>) with heat savings of 0.033 GWh. By the end of 2013, 5 buildings were renovated (of the heated surface area of 22 270.76 m<sup>2</sup>) with heat savings of 0.61 GWh. By the end of 2020 the plan is to renovate 11 buildings (of the heated surface area of 12 634 m<sup>2</sup>) with heat savings of 1.57 GWh. By the end of 2013, Visaginas Region Municipality renovated 6 buildings (of the heated surface area of 30 723.32 m<sup>2</sup>) By the end of 2020 the plan is to renovate 14 buildings (of the heated surface area of 55 416.89 m<sup>2</sup>).

The **Special Climate Change Programme** is ongoing **since 2010**. In accordance with the information published on the LEIF's website (<http://www.laaif.lt/index.php7136533252>), in 2013, under Measure "Renovation (upgrading) of public and residential buildings (for persons of various social groups) reducing energy consumption", 50 projects were financed with the total amount of investments reaching EUR 16 921 350. Also, in implementing Measure "Installation of biofuel boilers in public and residential buildings (for persons of various social groups)", 2 projects were financed with the total amount of investments reaching EUR 510 240.

In accordance with the information supplied by the LEIF, in implementing Measure "Renovation (upgrading) of public buildings reducing energy consumption" and Measure "Renovation (upgrading) of buildings of educational establishments reducing energy consumption", 1 building was renovated by the end of 2013 (1 580.26 m<sup>2</sup>). By the end of 2020 the plan is to renovate 73 buildings (265 861.62 m<sup>2</sup>) with heat savings of 22.42 GWh.

**EEA and Norwegian Financial Mechanisms, 2004-2009 and 2009-2014 (planned until 2016)**. In accordance with the information supplied by the Ministry of Finance of the Republic of Lithuania (<http://www.finmin.lt/web/finmin/eee-norway/2004-2009>), 13 individual cultural heritage projects and 16 individual healthcare and child care projects relating to the renovation and repairs of buildings were completed. In accordance with the information

supplied by the CPMA, no projects were completed in 2013 relating to energy resources and EE improvement.

112 projects were registered under the call for applications No EEE-LT06-KM-K-1 for the programme “Conservation and revival of cultural and natural heritage” of the EEA Financial Mechanism for 2009-2014 with the total amount of investments reaching EUR 51 701 080..

**EE requirements during public procurement procedures apply since 2008.** The implementation results of this Measure are presented in accordance with the final report for 2013 on the application of EE requirements in public procurement procedures of the budgetary institution the Public Procurement Office.

The value of public procurement procedures conducted in 2013 (excluding low-value procurement) where the goods from the Lists were procured and EE requirements applied (EUR 61.34 million) was 86% of the value of public procurement procedures conducted in 2013 (excluding low-value procurement) where the goods from the Lists were procured (EUR 71.30 million).

The total number of public procurement procedures conducted in 2013 (excluding low-value procurement) where the goods from the Lists were procured and EE requirements applied (219) was 74.2% of the total number of public procurement procedures conducted in 2013 (excluding low-value procurement) where the goods from the Lists were procured (295).

The total value of public procurement procedures conducted in 2013 (excluding low-value procurement) where the goods from the Lists were procured and EE requirements applied (EUR 61.34 million) was 1.6% of the total value of public procurement procedures conducted in 2013 (excluding low-value procurement) (EUR 3 771.11).

The total number of public procurement procedures conducted in 2013 (excluding low-value procurement) where the goods from the Lists were procured and EE requirements applied (219) was 1.8% of the total number of public procurement procedures conducted in 2013 (excluding low-value procurement) (12 505).

In 2013, the total value of low-value procurement procedures<sup>38</sup> subject to EE requirements was EUR 2.43 million.

The value of public procurement procedures (excluding low-value procurement) where the goods from the Lists were procured and EE requirements applied:

- in 2012 and 2013 decreased from EUR 67.54 to 61.34 million, and its share in the total value of public procurement (excluding low-value procurement) in 2012 and 2013 evolved from 1.8 to 1.6%. The number of public procurement procedures

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<sup>38</sup> Since 2011 it has been possible in the Central Public Procurement Information System to set the application of EE requirements to low-value procurement procedures. These procurement procedures are reflected in annual procurement reports as a cumulative value.

where goods from the Lists were procured and EE requirements applied in 2013, as compared to 2012, almost doubled (in 2012 there were 125 procurement procedures while in 2013 their number of 219), and their share in the total number of public procurement procedures in 2012 and 2013 grew from 1.1 to 1.8%;

- the share of the value in the total value of public procurement procedures (excluding low-value procurement) where goods from the Lists were procured in 2012 and 2013 decreased from 97.0 to 86.0%.

The value of low-value procurement procedures where goods from the Lists were procured and EE requirements applied in 2012 and 2013 grew from EUR 1.33 to 2.43 million.

The total value of public procurement procedures where goods from the Lists were procured and EE requirements applied in 2012 and 2013 decreased from 237.8 to 220.1 while its share in the total value of public procurement procedure remained almost unchanged: in 2012 it was 1.6%, and in 2013 it was 1.5%.

Moreover, **since 2008** contracting authorities are encouraged to conduct **green procurement procedures**. The implementation results of this Measure are presented in accordance with the final report on green procurement procedures for 2013 conducted by the budgetary institution the Public Procurement Office.

**Total volume of green procurement procedures conducted in 2013 (number and value)<sup>39</sup>**

The total value of green procurement procedures conducted by all contracting authorities (EUR 750.64 million) was 19.9% of the total value of public procurement procedures (EUR 3 771.11 million), the value of green procurement procedures of contracting authorities that must apply environmental criteria (EUR 305.61 million) was 28.5% of the total value of public procurement procedures conducted by those contracting authorities (EUR 1 071.19 million) and of contracting authorities advised to apply environmental criteria (EUR 445.03 million) was 16.5% (of EUR 2 699.92 million).

The total number (871) of green procurement procedures conducted by all contracting authorities was 7.0% of the total number of public procurement procedures (12 505), the number of green procurement procedures of contracting authorities that must apply environmental criteria (383) was 9.7% of the total number of public procurement procedures conducted by those contracting authorities (3 966) and of contracting authorities advised to apply environmental criteria (488) was 5.7% (of 8 539).

Volume of green procurement procedures conducted in 2013 where products of Product Groups 1, 2 and 3 were procured (number and value).

The largest share in the volume (value and number) of green procurement procedures

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<sup>39</sup> Excluding low-value procurement.

where goods from Product Groups 1, 2 and 3 were procured was green procurement procedures conducted by contracting authorities obliged to apply environmental criteria: the value (EUR 188.25 million) was 56.3% of the total value of public procurement procedures of these contracting authorities where goods of Product Groups 1, 2 and 3 were procured (EUR 334.16 million), and the number of procurement procedures (224) was 27.3% of the total number of procurement procedures of those contracting authorities (822).

The largest share in the volume of procurement procedures involving goods of Product Groups 1, 2 and 3 in 2013, like in 2012, was public procurement procedures involving products from Product Group 2: in 2012 and 2013 the share of the value of public procurement procedures involving such projects changed between 70.0 and 75.7% of the total value of public procurement procedures where goods from Product Groups 1, 2 and 3 were procured, and the number of such procurement procedures changed from 58.5 to 61.1% of the total number of public procurement procedures involving goods from Product Groups 1, 2 and 3.

In terms of the value of the contracts concluded, green procurement procedures mainly concerned products of Product Group 3. The value of green procurement procedures involving these products was 68.0% of the total value of public procurement procedures with the products of that Product Group.

In terms of the number of procurement procedures, green procurement procedures were mainly conducted with products of Product Group 1. The number of green procurement procedures involving these products was 20.3% of the total number of public procurement procedures with the products of that Product Group.

The largest share of the value of green procurement procedures by product was procurement of paper, other stationery goods and road construction and road signs: green procurement procedures accounted for 100% of the value of public procurement of paper, 86.2% of the value of public procurement of other stationery goods and 82.2% of the value of green procurement of road construction and road signs.

In terms of the number of procurement procedures, green procurement mostly involved paper, cleaning substances and services and road construction and road signs. The total number of green procurement procedures involving Product Groups 1, 2 and 3 was about 15% of the total number of all procurement procedures involving goods from Product Groups 1, 2 and 3.

#### Total value of green procurement procedures by type of the object of procurement.

An analysis of the distribution of the total value of green procurement by type of the object of procurement (goods, services or works) has shown that in 2013 environmental criteria mainly applied to public procurement of works where the value (EUR 519.26 million) accounted for 69.2% of the value of all green procurement procedures conducted (EUR 750.64 million).

In 2013, as compared to 2012, the total value of green procurement decreased: in 2012 it was EUR 1 178.61 million while in 2013 it was EUR 750.64 million; the total number of green procurement procedures in 2012 and 2013 changed from 959 to 871.

- the share of the total number of green procurement procedures in the total number of public procurement procedures in 2012 and 2013 decreased from 8.3 to 7.0% while the share of the total value of green procurement procedures in the total value of public procurement changed from 32.2 to 19.9%;
- the share of the number of green procurement procedures conducted by contracting authorities obliged to apply environmental criteria in public procurement procedures in the total number of public procurement procedures conducted by such contracting authorities in 2012 and 2013 decreased from 11.8 to 9.7% while the share of the value grew from 26.5 to 28.5%;
  - the share of the number of green procurement procedures conducted by contracting authorities advised to apply environmental criteria in public procurement procedures in the total number of public procurement procedures conducted by such contracting authorities in 2012 and 2013 decreased from 6.6 to 5.7% while the share of the value dropped from 34.1 to 16.5%.

In 2013, as compared to 2012, the total share of the number of green procurement procedures involving products from Product Groups 1, 2 and 3 decreased from 16.3 to 14.6% of the total number of public procurement procedures involving products from Product Groups 1, 2 and 3, while the value decreased accordingly from 34.2 to 26.8%. The share of the number of green procurement procedures involving products from Product Groups 1, 2 and 3 and conducted by contracting authorities obliged to apply environmental criteria in public procurement procedures in 2012 and 2013 in the total number of public procurement procedures involving products from Product Groups 1, 2 and 3 and conducted by those contracting authorities decreased from 28.5 to 27.3% accordingly, while the value grew from 44.8 to 56.3%. In 2013, like in 2012, procurement mainly concerned products from Product Group 2. In 2013 the value of public procurement of those products accounted for almost 75.7% of the total value of public procurement procedures involving products of Product Groups 1, 2 and 3 while the number of public procurement procedures was accordingly 61.1%. In terms of the value of products involved in green procurement, the most popular product was paper, other stationery goods and road construction and road signs while in terms of the number of procurement procedures, the leaders were paper, cleaning substances and services and road construction and road signs.

The largest share of the value of green public procurement in 2013 was attributable to public procurement of works the value of which was 69.2% of the total value of green procurement procedures conducted during that period.

The number of types of objects of procurement subject to environmental criteria during public procurement in 2013, as compared to 2012, remained unchanged: environmental requirements applied when procuring 316 types of procurement objects in accordance with the common procurement vocabulary.

In 2013, as compared to 2012, the number of contracting authorities conducting green procurement procedures increased: in 2012 there 649 contracting authorities while in 2013 their number was 686.

In 2012 and 2013 the value of low-value green procurement decreased from EUR 92.3 to 26.1 million. As low-value procurement is reflected as a cumulative amount and it is impossible to identify green procurement procedures involving products of Product Groups 1, 2 and 3, their volume is not included in overall indicators.

The Measures for conducting green procurement procedures for 2013-2015 approved by Order No D1-266 of the Minister for the Environment of the Republic of Lithuania of 14 December 2011 approving the measures for conducting green procurement procedures in 2013-2015 envisage an environmental impact evaluation to be conducted for public procurement procedures in 2014-2015. Such an evaluation will make it possible to establish energy savings during the previous year.

**Lithuanian-Swiss Cooperation Programme (Introducing energy-saving technologies in Lithuanian hospitals providing services to pregnant women, new mothers and newborns), 2011-2017.** In accordance with the information published on the website of the Ministry of Health of the Republic of Lithuania ([www.sam.lt](http://www.sam.lt)), the envisaged results of the Measure to be implemented will be as follows:

- improved thermal insulation of hospital buildings (renovated and heat-insulated roofs in 6 hospitals, heat-insulated external walls in 9 hospitals; replaced windows and entrance doors in 5 hospitals and insulated seams between plates connecting external walls in 1 hospital);
- energy-saving measures implemented (upgraded heating facilities in 3 hospitals; upgraded external hot water supply systems (between the heating facilities and the building) in 3 hospitals; upgraded internal heating systems in 10 hospitals; and upgraded power supply systems in 6 hospitals);
- engineering systems to improve indoor climate installed (upgraded/installed ventilation and conditioning systems in 13 hospitals);
- upgraded medical gas supply systems (upgraded vacuum supply systems in 4 hospitals and upgraded oxygen supply systems in 6 hospitals).

Results to be achieved in renovated healthcare establishments: energy savings of 3 GWh, annual heat savings of 79 kWh/m<sup>2</sup>, cash savings (on average per hospital) EUR 17 000 and reduced CO<sub>2</sub> emissions of 675 t per year.



**Programme for the administration of the National Documents Fund (reconstruction of archive buildings and expansion of storage facilities), 2002-2020.** In accordance with the 2013 performance report No V6-66 of the Office of the Chief Archivist of Lithuania of 14 February 2014, with a view to creating adequate conditions for storing documents of the National Documents Fund, the implementation of the investment project “Reconstruction of the archive building in Vilnius, Mindaugo g. 8, and construction of an annex” continued in 2013. Two other investment projects (the reconstruction of the building of the Lithuanian state history archive in Vilnius, Gerosios Vilties g. 10, and the reconstruction of the building of Panevėžys County archive in M. Valančiaus g. 3) have been postponed as no adequate funding has been allocated,

In implementing **the Programme for energy efficiency improvement of public buildings (for 2014-2020)** aiming at improving energy efficiency of public buildings, the plan is by 2020 to renovate public buildings of the surface area of 700 000 m<sup>2</sup> including: 470 000 m<sup>2</sup> of state public buildings and 230 000 m<sup>2</sup> of municipal public buildings. The planned energy savings in renovated public buildings by 2020 are 60 GWh of annual primary energy and greenhouse gas emissions are to decrease by 14 000 tonnes.

Order No 1-118 of the Minister for Energy of 19 May 2014 approving a list of five pilot public buildings of central authorities where energy efficiency improvement projects will be implemented approved a list of five pilot public buildings of central authorities where energy efficiency improvement projects will be implemented. Pilot projects involving state public buildings are included in the List of buildings to be renovated if they meet project financing conditions.

Energy efficiency improvement projects with municipal public buildings are developed and selected in accordance with the procedure laid down by the Minister for the Environment. When selecting energy efficiency improvement projects for municipal public buildings, priority is given to energy efficiency improvement projects with public buildings ensuring the greatest energy savings within the shortest interval and projects included in municipal programmes for spatial planning, renovation and management covering the renovation of buildings, infrastructure objects and engineering networks and the landscaping of the residential environment or regional development programmes approved by the Government of the Republic of Lithuania seeking to ensure sustainable development and management of areas (blocks).

**Measures completed in the service sector by 2013 and affecting energy savings in 2013:**

Within the group of activities **under the EU Structural Funds for 2004-2006**, the total of 86 projects were completed with energy savings of 34 GWh. There was an evaluation of Activity Group 1.2.4 “Energy efficiency improvement in the public sector” that established that

10 projects completed covered the renovation of 26 buildings of the total surface area of 78 260.6 m<sup>2</sup>. The key measures in buildings: thermal insulation of walls (14 145.4 m<sup>2</sup>), thermal insulation of roofs and renovation of roof covering (12 356.9 m<sup>2</sup>) and replacement of windows (15 595.6 m<sup>2</sup>).

In implementing **the Programme for the improvement of schools (2002-2005)**, in 2002, 10 schools were renovated, in 2003 – 29 schools, in 2004 – 17 schools and in 2005 – 6 schools. The total number of lower secondary education schools renovated was 62 schools of the heated surface area of 253 813 m<sup>2</sup>, with energy savings of 11 GWh.

**The Programme for energy-saving investments in buildings of public authorities for 2003-2005** covered the renovation of student residence buildings of 25 university-level higher educational establishments, with energy savings of 4 GWh. The renovation of buildings of public authorities and bodies covered the replacement of 500 m<sup>2</sup> of windows and entrance doors, the upgrading of boiler houses and over 2 km of heating mains and the renovation of 17 heating facilities.

In implementing **the Programme for the reconstruction and provision with learning tools of general education and vocational schools for 2006-2008**, by 2010, 52 projects were completed, with energy savings of 23 GWh. The total surface area of the renovated buildings is 286 696.19 m<sup>2</sup>.

The implementation of **the Programme for the renovation and reconstruction of research and educational establishments for 2007-2009** covered the completion of 42 projects by the end of 2009, with energy savings of 1 GWh. Renovation works were completed in 67 educational buildings. The total heated surface area of the renovated buildings is 334 762 m<sup>2</sup>.

The implementation of **the Programme for the renovation of student residence buildings of higher-education establishments (2006-2009)** covered the completion of renovation works in 78 student residence buildings by the end of 2010, with energy savings of 4 GWh. The total heated surface area of the renovated buildings is 286 568.86 m<sup>2</sup>.

The implementation of **the Programme for the renovation of detention facilities and humanisation of detention conditions for 2003-2009** covered the completion of 18 projects by 2011, with energy savings of 11 GWh.

The **Special Programme “Implementation of energy-saving projects” for 2004-2008** covered the completion of the total number of 22 projects, with energy savings of 6 GWh. The total surface area of the renovated buildings (schools, nurseries and hospitals) is 63 365.3 m<sup>2</sup>.

**Programmes for constructing, reconstructing, repairing and providing for municipal educational, cultural, healthcare, social and other buildings for 2003-2008.** In 2003 the Programme included 82 objects, in 2004 – 86 objects, in 2005 – 85 objects, in 2006 –

87 objects, in 2007 – 94 objects, and in 2008 – 105 objects. The total amount of EUR 19 244 960 was allocated to the implementation of the projects. Those funds were used to renovate buildings of nurseries, kindergartens, schools, healthcare establishments and establishments providing social and cultural services, to renovate and refurbish municipal administrative buildings and to reconstruct street lighting networks.

### **3. Measures completed in the industry sector:**

The total of 7 projects were completed (the total value of the projects was EUR 16 165 430) under **the EU Structural Funds for 2007-2013**, the Operational Programme for the Promotion of Cohesion, Priority 3 “Environment and sustainable development”, Measure VP3-3.4-UM-01-K “**Improvement of energy generation efficiency**”. They included 3 projects in industrial enterprises (the total project value was EUR 12 980 480). In 2013, 2 energy production installations were newly installed and/or renovated, with the capacity of 119 MW.

The total of 48 projects were completed in 2013 (the total value of the projects was EUR 1 178 460) under **the EU Structural Funds for 2007-2013**, the Operational Programme for the Economic Growth, Priority 2 “Improvement of business performance and business environment”, Measure VP2-2.1-UM-03-K “**Procesas LT**”. The total number of projects implemented was 94 projects (the total project value was EUR 3 451 110) and 160 projects received funding.

Under **the LEIF Programme** ongoing since 1999 in 2013 funding was given to 19 projects of industrial enterprises. Funding was allocated to such projects as the implementation of technologies reducing pollutant and odour emissions and processing waste as well as the installation of waste water treatment facilities and a heat pump (<http://www.laif.lt/index.php72993507421>).

**The Special Climate Change Programme** is ongoing since 2010 but in 2013 no projects were completed under that measure.

In implementing **the EEA and Norwegian Financial Mechanisms**, the call for applications NOR-LT09-UM- K-01 under the Partnership Projects Scheme of the Green Industry Innovation Programme of the Norwegian Financial Mechanism for 2009-2014 resulted in the registration of 13 projects of the total amount of investments applied for was EUR 6 182 520. The call for applications NOR-LT09-UM- K-02 under the Small Projects Scheme of the Green Industry Innovation Programme of the Norwegian Financial Mechanism for 2009-2014 resulted in the registration of 6 projects of the total amount of investments applied for was EUR 869 440.

In accordance with the information supplied by various **industrial enterprises**, with a view to improving EE and saving energy, since 2011 the enterprises **at their own expense** implemented the following measures:

AB Lifosa (2013): replacement of power motors, installation of gears and frequency exchangers, renovation of lighting, replacement of insulation of heating pipelines, with heat savings of 2.5 GWh and power savings of 2.34 GWh. The plan is to save 11 GWh of heat and 12.95 GWh of electricity by 2020.

AB Achema (2013): (a) replacement of the obsolete pump supplying water to heat recovery boilers with a new one, with energy savings of 0.13 GWh; the plan is to save 0.91 GWh by 2020; (b) installation of power current frequency exchangers to control oxygen compressors, with energy savings of 0.134 GWh; the plan is to save 0.938 GWh by 2020; (c) replacement of a pump with a smaller-capacity pump, with energy savings of 0.023 GWh; the plan is to save 0.161 GWh by 2020.

UAB NEO GROUP: (a) replacement of warehouse lamps with sodium bulbs with induction lamps (**2013**), with monthly electricity savings of 15.94 MWh; (b) use of voltage stabilisers with a voltage adjustment function for lighting mains (**2013**), with monthly electricity savings of 4.68 MWh; (c) installation of equipment to adjust air flows to high-temperature fluid kilns in accordance with the oxygen content in gas emissions in boiler houses (**2012-2013**), with monthly electricity savings of 16.86 MWh and gas savings of 28 000 m<sup>3</sup>.

AB Palemono keramika (2013): (a) renovation of lighting of three workplaces for brick and block shaping operators, with energy savings of 0.001 GWh; savings planned by 2020 are 0.007 GWh; (b) renovation of lighting in the territory, with energy savings of 0.012 GWh; savings planned by 2020 are 0.084 GWh.

AB Akmenės cementas (2011-2014): changing the clinker production method – reduced fuel consumption planned is from 1 420 to 870 kcal/kg of clinker.

With a view to reducing energy intensity in industrial enterprises, the following financial measures are already provided for under **the EU Structural Funds for 2014-2020**: “Auditas pramonės LT” (the budget of EUR 7.24 million), “RES pramonės LT” (the budget of EUR 10.14 million), “Kogeneracija pramonės LT” (the budget of EUR 3.47 million) and “Pramonės įmonių energetinis efektyvumas LT” (the budget of EUR 4.34 million).

#### **4. Measures implemented in the transport sector:**

**Since 1994 roadworthiness tests of cars** have become mandatory in Lithuania. They involve checks of whether vehicles meet technical and environmental requirements set. The optimal tuning of the vehicle's engine has a direct effect on fuel consumption. Research shows that the maintenance of the proper technical condition of road vehicles can reduce fuel consumption by up to 15%. It is impossible to offer a quantitative assessment of the impact of

the measure and to calculate energy savings.

Under **the EU Structural Funds for 2007-2013** (Integrated development of ecological public transport), EE improvement projects were implemented in 4 municipalities in 2013. 62 public vehicles were renovated

In 2013, under **the EU Structural Funds for 2007-2013** (Operational Programme for the Economic Growth, Priority “Essential economic infrastructure”), Measure “Improvement of technical parameters of national roads and railways”, 2 projects were implemented (1.18 km of new railways were constructed and existing railways reconstructed), 34 projects were implemented under Measure “Upgrading and development of municipal transport infrastructure” (40.81 km of new roads were constructed and existing roads were reconstructed (municipal roads and streets)).

In 2013, under **the EU Structural Funds for 2007-2013** (Operational Programme for the Economic Growth, Priority “Development of Trans-European Transport Network”), Measure “Enhancing the capacity of trans-European road infrastructure and improving its technical parameters”, 3 projects were completed (29.46 km of new TEN-T roads were built and existing TEN-T roads reconstructed), 3 projects were completed under Measure “Upgrading and development of trans-European railways and development of the required infrastructure for establishing public logistics centres” (37.82 km of new TEN-T railways were built and existing TEN-T railways reconstructed; 2 technical design projects were developed), 4 projects were completed under Measure “Development of cargo and passenger infrastructure in Klaipėda State Sea Port” (29.67 km of railway station tracks built and reconstructed; 2 technical design projects were developed; the navigation canal of Klaipėda State Sea Port was deepened: 14.5 m), 3 projects were completed under Measure “Expansion of passenger terminals of international airports and implementation of flight safety and aviation security measures”, and 1 project was implemented under Measure “Implementation of engineering infrastructure improving traffic safety and construction of city by-pass roads” (9.18 km of roads were built and reconstructed).

Good road surface, a convenient road network and properly organised traffic offer a choice of the most efficient travelling mode and minimise fuel consumption. **The improvement of road infrastructure and the reduction of traffic congestion** are financed and implemented **between 2000 and 2015** but it is impossible to carry out a quantitative evaluation of the impact of the measure and to calculate energy savings.

**A Day Without Cars Initiative** has been in place **since 2002**. Information on the campaign is published in local and national media and events are organised in schools and public places. No studies are undertaken to assess the impact of the campaign on the car flows

and pollution reduction. Only a few EU Member States conduct such studies at their own cost. The number of organisers (municipalities) of this initiative is given in Table 2.

*Table 2 . Number of organisers of the initiative*

| <b>Year</b> | <b>Number of municipalities</b> | <b>Year</b> | <b>Number of municipalities</b> |
|-------------|---------------------------------|-------------|---------------------------------|
| 2002        | 12                              | 2008        | 16                              |
| 2003        | 21                              | 2009        | 11                              |
| 2004        | 18                              | 2010        | 23                              |
| 2005        | 25                              | 2011        | 14                              |
| 2006        | 21                              | 2012        | 19                              |
| 2007        | 17                              | 2013        | 18                              |

In accordance with the information supplied by various **transport sector enterprises**, with a view to improving EE and saving energy, since 2013 the enterprises **at their own expense** implemented the following measures:

AB Lietuvos geležinkeliai: renovation of lighting in railway stations with 258 headlights replaced and 116 lamps replaced with lower-capacity installations, with energy savings of 99.5 MWh; replacement of lamps with economical LEDs: 160 lamps were replaced, with energy savings of 34.33 MWh; installation of LEDs in public railway infrastructure facilities: 562 lamps replaced, with energy savings of 31.13 MWh; equipment maintenance, with energy savings of 404.3 MWh.

UAB Kauno autobusai: 20 gas-run radiant warmers were installed to heat premises, with monthly electricity savings of 64.8 MWh.

UAB Naujosios Akmenės autobusu parkas: 3 economical buses were purchased, with fuel savings of 18 500 litres.

AB Klaipėdos jūrų krovinių kompanija: renovation of lighting equipment: industrial lamps were replaced, with energy savings of 18.82 MWh; renovation of technical equipment, with energy savings of 48.95 MWh.

**Measures completed in the transport sector by 2013 and affecting energy savings in 2013:**

Under the **Special Climate Change Programme** ongoing since 2010, the funding of EUR 1.74 million has been allocated to the project “Installation of a passenger lift from the centre of the resort to the skiing area with a view to reducing pollution from vehicles” of Druskininkai Municipality Administration.

**In 2006**, in implementing the **Automated Transport Management System**, Vilnius City was equipped with traffic management and control infrastructure: a traffic control centre, traffic lights switches, traffic lights (207 units), car flow sensors, a system prioritising public transport, a system of electronic driver information boards (13 units), a traffic monitoring system (53 cameras at 22 crossroads), an online information system (www.sviesoforai.lt), and a

speed measurement system (12 units).

## 5. Measures implemented in the energy sector:

Under **the EU Structural Funds for 2007-2013**, the Operational Programme for the Economic Growth, Measure VP2-4.2-UM-01-K “Upgrading and development of power distribution systems”, in 2013, 1 project was financed (the total project value was EUR 5 625 000). The total number of projects implemented was 7 projects (the total project value was EUR 24 400 000) and 14 projects received funding. The achievement in 2013 was that 17 000 electricity consumers were provided with more secure power supply, and the length of new power mains built is 151 km. Under Measure VP2-4.2-UM-02-K “Upgrading and development of the heat supply system”, in 2013, 1 project was completed (the total project value was EUR 184 000). The total number of projects implemented was 91 projects (the total project value was EUR 91 734 000) and 149 projects received funding. The achievement in 2013 was that 105 000 consumers would be provided with more secure heat supply and improved quality of supply, and 80 km of rated 100 mm single pipes of heat supply systems were upgraded. In accordance with the data supplied by 11 energy companies, energy savings in these companies in 2013 under Measure “Upgrading and development of the heat supply system” were 30.96 GWh.

The total of 7 projects were completed (the total value of the projects was EUR 16 165 000) under **the EU Structural Funds for 2007-2013**, the Operational Programme for the Promotion of Cohesion, Measure VP3-3.4-UM-01-K “Improvement of energy generation efficiency”. They included 4 projects in energy enterprises (the total project value was EUR 3 185 000). Under Measure VP3-3.4-UM-02-K “Use of renewable energy resources for energy generation”, in 2013, 19 projects were financed (the total project value was EUR 67 892 000). The total number of projects implemented was 21 projects (the total project value was EUR 107 274 000) and 51 projects received funding. With new energy production facilities installed in 2013 that run on biomass, energy production capacity increased by 18.5 MW. In accordance with the data of energy companies, the implementation of this measure in 2013 resulted in savings of 6.182 GWh.

**Voluntary agreements with energy companies** have been signed **since 2010** (for 2010-2011, 2010-2012, 2010-2015, 2011-2014, 2011-2013 and 2010-2020). Voluntary agreements have been signed with 8 heat supplying enterprises undertaking to save 355.38 GWh during the agreed period. A voluntary agreement has also been signed with 1 electricity transmission enterprise undertaking to save 2.2 GWh of electricity during the agreed period. Actual energy savings in 2013 are 36.07 GWh. Total estimated energy savings between the start of the measure implementation and 2013 (inclusive) is 374.5 GWh.

Under **the LEIF Programme** ongoing **since 1999** in 2013 funding was given to 5

projects of energy enterprises (<http://www.laaif.lt/index.php72993507421>). UAB Mažeikių šilumos tinklai: upgrading of the condensate cleaning equipment in the condensing economiser in Mažeikiai biofuel boiler houses in Montuotojų g. 7, Mažeikiai, increasing its capacity and adapting it to mud drainage and use as fuel. UAB Birštono šiluma: installation of a condensing smoke economiser in Birštonas Region boiler house. AB Kauno energija: reconstruction of the boiler house and installation of a condensing smoke economiser. UAB Akmenės energija: reconstruction project of the boiler house located in Stadiono g. 3A, Akmenė Region. UAB Baisogalos bioenergija: installation of a condensing smoke economiser with a separate chimney and auxiliaries in the boiler house in Maironio g. 36A, Baisogala.

Projects supported by the funds of the **Special Climate Change Programme** ongoing since 2012 are ongoing, so data will be supplied in other reports.

**Requirements for energy accounting and metering equipment to be used for the accounting** have been in place since 2002. The implementation results of this measure in 2013 are shown in Tables 3 to 5 on the basis of the information supplied by energy companies.

Table 3. Heat meters<sup>40</sup>

| Undertaking  | Total number of meters, units | Number of new meters |                                 |
|--|-------------------------------|----------------------|---------------------------------|
|  |                               | units                | % of the total number of meters |
| <b>Heat meters intended for all consumers<sup>41</sup></b>     |                               |                      |                                 |
| UAB Kaišiadorių šiluma   | 175                           | 33                   | 18.8                            |
| UAB Kretingos šilumos tinklai                                  | 157                           | 12                   | 7.6                             |
| UAB Birštono šiluma  | 105                           | 2                    | 1.9                             |
| UAB Vilniaus energija  | 6 412                         | 59                   | 0.9                             |
| UAB Litesko  | 3 155                         | 76                   | 2.4                             |
| UAB Varėnos šiluma   | 254                           | 57                   | 22.4                            |
| UAB Akmenės energija   | 222                           | 3                    | 1.4                             |
| AB Kauno energija  | 4 546                         | 162                  | 3.6                             |
| UAB Radviliškio šiluma   | 279                           | 31                   | 11                              |
| UAB Raseinių šilumos tinklai                                   | 103                           | 3                    | 2.8                             |
| UAB Skuodo šiluma  | 107                           | 4                    | 4                               |
| AB Panevėžio energija  | 2 500                         | 188                  | 7.5                             |
| UAB Mažeikių šilumos tinklai                                   | 646                           | 440                  | 68                              |
| AB Šiaulių energija  | 1 394                         | 129                  | 9.3                             |
| AB Jonavos šilumos tinklai                                     | 521                           | 1                    | 0.2                             |
| UAB Plungės šilumos tinklai                                    | 403                           | 20                   | 4.9                             |
| UAB Kretingos šilumos tinklai                                  | 157                           | 12                   | 7.6                             |
| UAB Elektrėnų komunalinis ūkis                                 | 204                           | 1                    | 0.5                             |
| UAB Fortum Joniškio energija                                   | 140                           | 5                    | 3.5                             |
| UAB Nemenčinės komunalininkas                                  | 231                           | 6                    | 2.6                             |
| UAB Pakruojo šiluma  | 128                           | 10                   | 8                               |
| UAB Silalės šilumos tinklai                                    | 161                           | 1                    | 0.6                             |
| <b>Heat meters intended for consumer of Accounting Group 1</b> |                               |                      |                                 |
| UAB Vilniaus energija  | 166                           | 2                    | 1.2                             |
| UAB Raseinių šilumos tinklai                                   | 128                           | 3                    | 2.3                             |
| AB Panevėžio energija  | 40                            | 4                    | 0.1                             |
| <b>Heat meters intended for heat sources</b>                   |                               |                      |                                 |
| UAB Litesko  | 46                            | 1                    | 2.2                             |

<sup>40</sup> Heat meters meeting legal requirements;

<sup>41</sup> Excluding heat meters intended for consumer of Accounting Group 1.



|                              |    |   |      |
|------------------------------|----|---|------|
| UAB Varėnos šiluma           | 6  | 5 | 83.3 |
| UAB Raseinių šilumos tinklai | 16 | 1 | 5.9  |
| UAB Skuodo šiluma            | 5  | 2 | 40   |
| UAB Plungės šilumos tinklai  | 25 | 5 | 20   |
| UAB Fortum Joniškio energija | 7  | 1 | 14   |
| UAB Pakruojo šiluma          | 8  | 2 | 25   |

Table 4. Electricity meters<sup>42</sup>

| Undertaking         | Number of existing meters, units | Number of new meters installed, units | Number of new meters installed, % of the total number of meters | Multifunctional meters for consumers whose Pallowable > 50 kW, units | Number of old meters replaced with electronic meters, units | Savings of electricity consumption relating to meter capacity, kWh per year |
|---------------------|----------------------------------|---------------------------------------|---|--|---|---|
| AB Achema           | 58                               |                                       |   | 27   |   | 466   |
| AB Akmenės cementas | 5                                |                                       |   | 5  |   |   |
| AB Lifosa           | 88                               | 2                                     | 2   | 88   | 88  | 3 850   |
| AB Lesto            | 1 648 559                        | 131 071                               | 8   | 25 048   | 114 573   | 740 107   |

Table 5. Natural gas metering systems<sup>43</sup>

| Undertaking       | Gas delivery locations | Number of new systems installed, units | Total number of systems installed, units | Number of new systems installed, % of the total number of systems | Systems installed             |                            |                                  |
|-------------------|------------------------|--|--|---|-------------------------------|----------------------------|----------------------------------|
|                   |                        |  |  |   | With a data collection option | With a data display option | Remote reading systems installed |
| AB Lietuvos dujos | 7 066                  | 917                                    | 10 027                                   | 9.15  | -                             | 121                        | 121                              |

### Smart power meters have been installed at final energy consumers since 2008.

In accordance with the information supplied by AB Lesto, in September 2012 the company conducted a cost-benefit analysis of the development of a smart power metering network in Lithuania that showed that the replacement of existing power meters with smart ones would not create any added value (benefit) either for the electricity sector enterprises or for electricity consumers while the costs of installing smart meters would exceed the benefits.

By 2020 the company plans to connect to the RM system smart electricity meters installed at the facilities of business customers of the dedicated capacity of 30 kW and more having consumed over 8 000 kWh of energy within the previous 12 months. At the moment the company automatically reads about 57% of the total electricity consumption data of consumers.

At the moment the company considers implementing a pilot project of the installation of smart meters within the sector of Group I (household) customers. The pilot project is to check out implementation alternatives for technical solutions and to assess the scale of investment, benefits and other aspects to be used in accounting the installation of smart meters throughout or

<sup>42</sup> Electricity meters meeting legal requirements;

<sup>43</sup> Natural gas metering systems meeting legal requirements.

in a part of Lithuania. It is envisaged that customers participating in the pilot project whose electricity consumption is metered by smart meters will be informed using IHDs (in-home display) screens installed in their homes and the information will be published on the company's self-service website "Mano elektra" where consumers will be able to monitor their electricity consumption, view consumption history, the current payment plan, etc.

In accordance with the data of AB Lesto, on 1 January 2014, 20 067 consumers were connected to the RM system.

Every year taking account of the economic aspect as well, AB Lietuvos dujos allocates some funds to the installation of remote control systems and develops related facilities. Recently the company has focuses on and invested in small pilot projects for the installation of remote control systems at final customers consuming up to 20 000 cubic metres per year. To install these systems without increasing tariffs of distribution services, there is a need for financial support of the EU.

UAB Vilniaus energija has an RM system that immediately signals an emergency or accident by mobile phone, e-mail, via a display to the consumer connected to the system or by other selected means; carries out monitoring and controls heating, hot water, ventilation or other selected system parameters; and generates specialised reports.

In accordance with the information supplied by various **energy enterprises**, with a view to improving EE and saving energy, the enterprises **at their own expense** implemented the following measures:

AB LESTO (2013): (a) "As much as needed by a multi-apartment building: safe and economical home": average annual electricity savings of 1.512 MWh. The plan is by 2020 to save 10.584 MWh of electricity; (b) "As much as needed by a city: modern street lighting" **(2013-2014)** : the plan is by 2020 to save 34.96 MWh of electricity.

UAB Kauno energija<sup>44</sup>: (a) reconstruction of Noreikiškės boiler house installing a biofuel-run 4 MW water heating boiler **(2013)**: the plan is by the end of 2020 to save 12 372 MWh of heat;

(b) reconstruction of Ežerėlis boiler house installing a biofuel-run 3.5 MW water heating boiler **(2013)**: the plan is by the end of 2020 to save 4 830 MWh of heat;

(c) installation of redundant fuel facilities in Šilkas boiler house and adaptation of the steam boiler DKVR 10/13 to biofuel (Stage I) **(2013)**: the plan is by the end of 2020 to save 42 000 MWh of heat;

(d) reconstruction of Šilkas boiler house installing a 15 MW water heating boiler with a 1.5 MW condensing economiser and smoke extractor and automating heat generation processes **(2013)**: the plan is by the end of 2020 to save 31 680 MWh of heat;

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<sup>44</sup> Heat savings planned by the end of 2020 are calculated by comparing them with the envisaged heat generation by existing installations.

(e) procurement and installation of a 18 MW gas-run water heating boiler in Pergalė boiler house **(2013)**: the plan is by the end of 2020 to save 9 000 MWh of heat;

(f) reconstruction of the water heating boiler PTVM-100 No 2 at Petrašiūnai Power Plant installing a 10 MW condensing smoke economiser **(2013-2014)**: the plan is by the end of 2020 to save 240 000 MWh of heat.

**AB Lietuvos dujos (2013)**: (a) reconstruction of gas pressure equipment, with heat savings of 465 MWh; (b) stopping of direct and indirect ground leakage of cathodic protection current, with electricity savings of 25 MWh. The plan is by 2020 to save 100 MWh of electricity; (c) replacement of windows in the administrative building in Aguonų g. 24, with heat savings of 14 MWh. The plan is by 2020 to save 50 MWh of electricity; (d) renovation of heating facilities in Smolensko g. 3 and Smolensko g. 5, with heat savings of 255 MWh; (e) moreover, **AB Lietuvos dujos** published articles in public periodicals about energy saving and took advisory thermovisual photographs for new consumers or consumers consuming unreasonable amounts of natural gas.

**AB Jonavos šilumos tinklai (2013)**: electricity-saving measures such as the replacement of a pump's frequency exchanger and the replacement of an outdoor lighting system, with electricity savings of 11 MWh; the plan is by 2020 to save 60 MWh of electricity.

**UAB Kauno energetikos remontas (2013)**: (a) replacement of non-standard old wooden windows with plastic five-layer double-glazed units, with energy savings of 29 MWh; the plan is by 2020 to save 85 MWh of energy; (b) installation of a gas-run radiant warmer, with energy savings of 16.4 MWh; the plan is by 2020 to save 32.8 MWh of energy.

**UAB Akmenės energija (2013)**: installation of condensing economisers in the boiler house, the plan is to achieve annual natural gas savings of 47 700 m<sup>3</sup> and to reduce carbon dioxide CO<sub>2</sub> quantities by 90.4 t.

**UAB Raseinių šilumos tinklai (2012-2013)**: installation of a 1 MW biofuel-run boiler with a biofuel storage in Ariogala Town boiler house; the plan is to achieve an annual drop in carbon dioxide CO<sub>2</sub> quantities by 315 t.

**UAB Plungės šilumos tinklai (2013-2014)**: installation of new heating mains; the plan is to achieve an annual drop in carbon dioxide CO<sub>2</sub> quantities by 1 302 t.

**UAB Šilalės šilumos tinklai (2013)**: installation of a direct-action condensing economiser; the plan is to save 2 000 MWh.

**Balterma ir ko. UAB (2013-2014)**: (a) the quality of heat insulation of building pipelines was tested with the help of thermovision; (b) renovation of the insulation of heating and hot water pipelines of buildings; (c) publication of consumer information on heat saving methods on the website; (d) advice to the population on heat-saving options.

**UAB Litesko. UAB Vilniaus energija (since 2013)** with Vilnius City Municipality Administration: an interactive map of actual energy consumption where consumers are shown

developments in district heating consumption in the city.

UAB Kaišiadorių šiluma (2013-2014): training and seminars organised by public authorities, training establishments and associations.

UAB Šiaulių energija (2013): awareness raising and education of heat consumers.

Measure 04.2.1- LVPA-K-804 “Auditas pramonei LT” was approved under **the EU Structural Funds for 2014-2020**. Energy intensity of Lithuanian industrial enterprises is twice the EU average. Industrial enterprises consume much more energy for production than enterprises in other EU Member States. This directly undermines the competitiveness of industrial enterprises on the market and increases the costs of production. The purpose of the measure is to encourage enterprises to establish their energy consumption volumes, to identify possibilities to reduce energy consumption and to provide for relevant measures to improve energy efficiency of enterprises. Funds of the EU Structural Funds for Measure “Auditas pramonei LT”: EUR 7 240 500.00.

**Measures completed in the energy sector by 2013 and affecting energy savings in 2013:**

26 projects were completed under Activity Group “Energy supply networks” under **the EU Structural Funds for 2004-2006**. Some projects aimed at replacing technically and morally obsolete heat supply system pipelines 20 to 30 years old with channel-free polyurethane-insulated steel pipes with a surveillance system. Out of 26 projects implemented, 22 projects aimed at upgrading heat supply mains. The projects covered the replacement of 51.89 km of heat supply mains, with 0.67 km of new heat supply mains installed. 99 new automated heating facilities were installed in Šalčininkai replacing regional boiler houses; 93 heating facilities were upgraded in Anykščiai. Due to the heat supply mains replaced, mains losses dropped by about 16 GWh, with savings of 6.86 GWh due to the upgrading or installation of new heating facilities. The other 4 projects aimed at upgrading power distribution networks and related infrastructure and reconstructing and gasifying a hydroelectric power plant.

14 projects were implemented under Activity Group “Renovation of boiler houses and adaptation to other fuels”. The implementation of the projects resulted in the erection of a modern gas-run thermal plant and the upgrading of boiler houses by installing economisers and replacing old fuel-oil boilers with boilers running on gas or biofuel.

4 projects were implemented under Activity Group “Use of local and renewable energy sources for energy production”: UAB Plungės bioenergija built a new power plant incinerating waste wood; AB Lifosa made more active use of heat generated during the absorption process in producing sulphuric acid. This made it possible to boost electricity generation by the power plant of AB Lifosa from recycled heat by at least 25 GWh per year; the

public body Juodupės komunalinis ūkis built a new boiler house incinerating biofuel with the total installed capacity reduced from 30.2 MW to 7 MW, doing away with such polluting fuel as fuel oil; the boiler house of AB Panevėžio energija in Rokiškis Region was reconstructed.

## 6. Horizontal measures implemented:

In accordance with the requirements of **STR 2.05.01:2005 “Heating technology of building envelopes” (2005-2013)**, the performance factor of the heating system is  $\eta = 0.98$  while in buildings erected before 2005, in accordance with STR 2.05.01:1999, it is  $\eta = 0.93$ . Total national energy savings by 2010 under this technical construction document are 340 GWh. In 2011, energy savings in residential buildings were 68.35 GWh and in public buildings – 12.75 GWh. In 2012, energy savings in residential buildings were 44.1 GWh and in public buildings – 5.2 GWh. In 2013, energy savings in residential buildings were 46.0 GWh and in public buildings – 10.2 GWh.

**STR 2.05.01:2013 “Energy performance design of buildings”** applies when designing energy performance of residential and non-residential buildings and technical heat properties of building structures. These requirements have been in force **since 18 December 2013**. It is impossible to provide a quantitative assessment of the effect of the horizontal measure and to calculate energy savings.

**The requirements of STR 2.09.02:2005 “Heating, ventilation and air conditioning”** are implemented by installing more efficient engineering systems of buildings as the heat demand of buildings is decreasing and it becomes possible to reduce energy consumption. It is impossible to offer a quantitative assessment of the impact of the horizontal measure and to calculate energy savings.

The requirements of **STR 2.01.09:2005 “Energy performance of buildings. Energy performance certification”** are implemented seeking to ensure that construction sites and their facilities are designed and installed so that taking into account the local climate conditions and the comfort of residents energy consumption is lower. The objective is that new buildings meet the minimal energy efficiency requirements so that factors enhancing energy efficiency of buildings are employed in the optimal manner. It is impossible to offer a quantitative assessment of the impact of the horizontal measure and to calculate energy savings.

The purpose of the horizontal measure **of efficiency checks of heating boilers and heating systems**<sup>45</sup> is to launch continuous efficiency checks of heating boilers installed in

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<sup>45</sup> Regulation on efficiency checks of heating boilers installed in buildings running on non-renewable solid or liquid fuels with the nominal output capacity of at least 20 kW and heating systems with boilers older than 15 years with the nominal output

buildings with at least 20 kW nominal output capacity and running on non-renewable solid or liquid fuels and one-off efficiency checks of heating systems with boilers older than 15 years to ensure that the efficiency of boilers and heating systems meets economically viable requirements. It is impossible to offer a quantitative assessment of the impact of the horizontal measure and to calculate energy savings.

**It is impossible to offer a qualitative assessment of the effect of energy efficiency checks of heating systems<sup>46</sup>** and to calculate energy savings. Compliance checks of heating systems cover the following:

1. compliance of the accessible parts of the heating system such as heating boilers, circulating pumps, management and control equipment, heat distribution systems and heating appliances with the set energy efficiency requirements;
2. heating performance factor;
3. compliance of the nominal output capacity of the heating boiler with the building's heating needs.

**The purpose of** the horizontal measure on efficiency checks of air conditioning systems **of buildings<sup>47</sup>** is to launch regular efficiency checks of air conditioning systems of the nominal output capacity of over 12 kW installed in buildings with a view to ensuring that the efficiency of the conditioning system meets economically viable requirements and that the nominal output capacity matches the building's cooling needs. It is impossible to offer a quantitative assessment of the impact of the horizontal measure and to calculate energy savings.

It is impossible to offer a qualitative assessment of the effect of **energy efficiency checks of air conditioning systems<sup>48</sup>** and to calculate energy savings. Compliance checks cover the following: the performance factor of the air conditioning equipment and the match between the nominal output capacity and the building's cooling needs.

The implementation of the horizontal measure of **pollution tax concessions** is associated with economic measures encouraging polluters to reduce environment pollution, to prevent and manage waste, not to exceed the standard quantities of pollutants emitted into the environments and to raise funds from this tax to implement environmental measures. It is

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capacity of at least 20 kW running on non-renewable solid or liquid fuels approved by Order No 4-73 of the Minister for the Economy of 28 February 2006 approving regulations for efficiency checks of heating boilers, heating systems and air conditioning systems installed in buildings (ineffective as of 9 July 2013).

<sup>46</sup> Regulation on the improvement of boiler-heating energy efficiency of heating systems of buildings with nominal output capacity of more than 20 kW approved by Order No 1-256/4-1205 of the Minister for Energy of the Republic of Lithuania and of the Minister for the Economy of the Republic of Lithuania of 10 December 2012 approving regulations.

<sup>47</sup> Regulation on efficiency checks of air conditioning systems installed in buildings with the nominal output capacity of over 12 kW approved by Order No 4-73 of the Minister for the Economy of the Republic of Lithuania of 28 February 2006 approving regulations on efficiency checks of heating boilers, heating systems and air conditioning systems installed in buildings (ineffective as of 9 July 2013).

<sup>48</sup> Regulation on the improvement of energy efficiency of air conditioning systems of buildings with nominal output capacity of more than 12 kW approved by Order No 1-256/4-1205 of the Minister for Energy of the Republic of Lithuania and of the Minister for the Economy of the Republic of Lithuania of 10 December 2012 approving regulations.

impossible to offer a quantitative assessment of the impact of the horizontal measure and to calculate energy savings.

The outcome of **the labelling of products involving energy consumption** is that consumption of energy and other key resources declared on product labels and in standardised tables of nominal parameters of products enables the consumer to choose the most efficient products. It is impossible to offer a quantitative assessment of the impact of the horizontal measure and to calculate energy savings.

The horizontal measure of **ecodesign** seeks to improve the environment-friendliness of products throughout their lifecycle (selection and use of raw materials; production; packaging, transportation and distribution; installation and operation; use; end of lifecycle) by including environmental aspects at the earliest stages of product design. It is impossible to offer a quantitative assessment of the impact of the horizontal measure and to calculate energy savings.

It is impossible to offer a qualitative assessment of the effect of the horizontal measure of **information, educational and training activities** and to calculate energy savings. The provision of information on energy efficiency encourages consumers to save energy and implement energy-saving measures.

It is impossible to offer a qualitative assessment of the effect of the horizontal measure of **a qualification and certification system** and to calculate energy savings. Quality services of qualified specialists contribute to final energy savings. Auditor's qualifications to conduct energy audits granted by the state enterprise the Energy Agency: in 2010 – 53 persons, in 2011 – 6, in 2012 – 8, and in 2013 – 8 persons. Certificates issued by the state enterprise the Construction Products Certification Centre to experts of energy performance certification of buildings: in 2007 – 123 persons, in 2008 – 85 persons, in 2009 – 113 persons, in 2011 – 17, in 2012 – 107, and in 2013 – 121 persons. Distribution of buildings to which energy performance certificates are granted by energy performance classes in 2007-2010:

*Table 6. Distribution of buildings to which energy performance certificates are granted by energy performance classes in 2007-2010*

| Year | Energy performance class |     |     |     |     |    |    | Total |
|------|--------------------------|-----|-----|-----|-----|----|----|-------|
|      | A                        | B   | C   | D   | E   | F  | G  |       |
| 2007 | -                        | 183 | 178 | 17  | 11  | -  | -  | 389   |
| 2008 | 1                        | 444 | 292 | 55  | 36  | 1  | -  | 829   |
| 2009 | 6                        | 629 | 672 | 191 | 118 | 13 | 10 | 1 639 |
| 2010 | 2                        | 519 | 586 | 117 | 93  | 6  | 2  | 1 325 |

2 325 energy performance certificates were granted to buildings in 2011, in 2012 – 4

078 energy performance certificates of buildings, and in 2013 – 39 977 certificates.

With **the implementation of** the EE obligation scheme and alternative policy measures, the total final energy savings target in Lithuania starting from 2015 and up to 31 December 2020 is 11.677 TWh (calculated using the cumulative method). It has been calculated on the basis of Articles 7(2)(a), 7(2)(c) and 7(2)(d) of Directive 2012/27/EU, without prejudice to Article 7(3) of Directive 2012/27/EU. Moreover, in accordance with the second paragraph of Article 7(1), the calculations did not include the total energy consumed in the transport sector. The target will be achieved by implementing the EE obligation scheme and combining it with alternative policy measures. The Ministry of Energy of the Republic of Lithuania is responsible for the attainment of this target. The first phase of the obligation scheme lasts between 1 January 2014 and 31 December 2016. The second phase is between 1 January 2017 and 31 December 2020.

**Energy consumption audit and energy consumption management systems.** In implementing programmes to improve EE, Lithuania conducts energy audits. One of the examples is the Multi-Apartment Buildings Programme approved by Resolution No 1213 of the Government of the Republic of Lithuania of 23 September 2004 approving the Programme for the renovation (upgrading) of multi-apartment buildings the implementation of which was covered by over 700 audits. In implementing public renovation programmes it is advisable and when seeking EU structural support under the Strategy for 2007-2013 within the context of the Operational Programme for the Promotion of Cohesion and its Measures “Renovation of public buildings on the national level” and “Renovation of public buildings on the regional level” it is obligatory to carry out an energy audit of the building in accordance with the Methodology for conducting comprehensive audits of energy, energy resources and cold water consumption in public buildings approved by Order No 4-184 of the Minister for the Economy of the Republic of Lithuania of 29 April 2008 approving the Methodology for conducting comprehensive audits of energy, energy resources and cold water consumption in public buildings. 304 audits have been conducted under the measure “Renovation of public buildings on the national level”, 21 audits have been completed under the measure “Renovation projects of public buildings meeting benefit and quality assessment criteria of the SPD Measure 1.2” and 318 audits have been conducted under the measure “Renovation of public buildings on the regional level” of the Operational Programme for Cohesion. Energy audits evaluate energy losses in buildings, yield a justified plan of energy saving measures to reduce losses and suggest investments needed to implement these measures.

The purpose of **the long-term strategy for the renovation of the national pool of buildings** is to outline the key national provisions and areas for mobilising investments in the field of the renovation of the national pool of publicly and privately owned residential and commercial buildings. The short-term objective of the renovation of Lithuania’s national pool of



buildings by 2020 is to renovate energy-inefficient residential and non-residential buildings improving their energy efficiency. The long-term objective of the renovation of Lithuania's national pool of buildings by 2030 is to continue and further develop the building renovation policy launched in 2015-2020.

**Horizontal measures completed by 2013 and affecting energy savings in 2013:**

It is impossible to offer a qualitative assessment of the effect of the horizontal measure of **the National Energy Strategy** and to calculate energy savings. With a view to implementing the objectives of the National Energy Strategy, an implementing plan for the National Energy Strategy is approved once every four years setting out specific measures to achieve the objectives. The targets and objectives of the Strategy in the area of energy efficiency: starting from 2008, within 9 years to save 9% of final energy; to continue the improvement of efficiency of all types of energy so that comparative energy consumption in buildings, various installations and appliances, technological processes and transport systems in 2025 are close to the indicators of the developed EU Member States.

It is impossible to offer a qualitative assessment of the effect of the horizontal measure of **the National Programme for energy efficiency improvement for 2006-2010** and to calculate energy savings. Organisational, legal, economic, technology improvement and implementation, applied research, public awareness raising and information measures create conditions for final energy savings.

The purpose of **STR 2.05.01:1999 “Heating technology of building envelopes”** is to reduce energy consumption in buildings. Estimated energy savings when applying the regulation are 251 GWh.