Energy Efficiency Action Plan 2014-2016 with an Outlook up to 2020

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Contents

Annexes

Abbreviations

2AP	Second Action Plan – 'Energy Efficiency Action Plan 2011–2013'
3AP	Third Action Plan – 'Energy Efficiency Action Plan 2014–2016 with an Outlook up to 2020'
DH	District heating
EBRD	European Bank for Reconstruction and Development
BEPC	Building energy performance certificate
EPB	Energy performance of buildings
Commission	European Commission
EMAS	Eco-Management and Audit Scheme
EPC	Energy performance contracting
ERDF	European Regional Development Fund
ESIF	European Structural and Investment Funds (2014–2020)
IEE II	Intelligent Energy – Europe II (EU support programme)
IROP	Integrated Regional Operational Programme (2014–2020)
CB	Commercial banks
FEC	Final energy consumption
OP Research	Operational Programme Science and Research (2007–2013)
OP Competitiveness	Operational Programme Competitiveness and Economic Growth (2007–2013)
OP Environment	Operational Programme Environmental Quality (2014–2020)
RES	Renewable energy sources
PES	Primary energy sources
FU	Fuel
ROP	Regional Operational Programme (2007–2013)
SF	Structural Funds (2007–2013)
ŠFRB	State Housing Development Fund

ITT	Intermodal terminal
CBSA	Central bodies of state administration

Introduction

The strategic energy efficiency framework up to 2016 has been formed by the Energy Efficiency Policy (adopted under Government Resolution No 576 of 4 July 2007), implemented by three three-year energy efficiency action plans. Energy efficiency action plans are intended to put forward energy efficiency measures ensuring compliance with the targets in this area.

The Energy Efficiency Action Plan 2014–2016 (the '3AP' or 'Third Action Plan') has been prepared in accordance with Section 3 of Act No 476/2008 on efficiency in energy use (the Energy Efficiency Act), as amended. The Third Action Plan is the third implementing measure in succession under the Energy Efficiency Policy. It builds on the previous two action plans – the first Energy Efficiency Action Plan 2008–2010 (the 'First Action Plan') and the second Energy Efficiency Action Plan 2011–2013 (the 'Second Action Plan' or '2AP'). The preparation of energy efficiency action plans was originally derived from Directive 2006/32/EC on energy end-use efficiency and energy services ('Directive 2006/32/EC' or the 'Energy Services Directive'). The new Directive 2012/27/EU on energy efficiency[1] follows up on this requirement, extends the obligation to submit action plans and expands the scope covered by action plans. Besides an evaluation of energy efficiency measures proposed in the previous action plan, savings targets, and proposals of new and ongoing measures in pursuit of energy savings targets (energy savings targets are summed up in Section 1), action plans should now include specific information about the implementation of key provisions of the new Directive 2012/27/EU.

In addition, the new Directive also requires an expansion in action plans' consumption-related coverage to include energy transformation, transmission and distribution. As the indicative energy savings target is expressed in the form of both final and primary energy consumption, energy efficiency measures need to be evaluated in both forms of energy consumption.[2]

Whereas, in the Second Action Plan, the energy savings target could be evaluated by means of statistics-based indicators (i.e. by a top-down method) and this calculation could be supplemented by an evaluation of individual measures via specific energy efficiency enhancement projects (a bottom-up method) at a level corresponding to at least 30 % of the set energy savings target, in the Third Action Plan a significant proportion of the target has to be evaluated via individual energy efficiency projects. The Third Action Plan has abandoned the evaluation of energy savings by means of indicators proposed under the European Commission's methodology. A significant proportion (more than 80 %) of the target established in the Energy Efficiency Policy (recalculated in the 2AP) is evaluated by means of specific projects. The methodology used to evaluate and propose individual measures can be found in Annexes 3 and 4. The Third Action Plan includes annual reporting to the European Commission in accordance with Directive 2012/27/EU (the 2013 report is part of the Third Action Plan – see Annex 1). This report contains selected statistical indicators and a basic

[1] 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.

[2] Commission Implementing Decision of 22 May 2013 establishing a template for National Energy Efficiency Action Plans under Directive 2012/27/EU on energy efficiency (2013/242/EU).

update on progress in the fulfilment of the set indicative energy savings targets and on compliance with other provisions of Directive 2012/27/EU.

The Third Action Plan is the product of cooperation between a wide range of relevant departments involved in the Standing Interministerial Working Group on the Preparation of Energy Efficiency Action Plans. Expert organisations and associations active in energy efficiency were also invited to contribute.

1. Overview of national energy efficiency targets and the savings achieved

1.1. National energy savings targets under Directive 2006/32/EC up to 2016, the evaluation thereof to date, and projections if the current trend in savings were to continue

In line with Directive 2006/32/EC on energy services, the Energy Efficiency Policy (July 2007) established energy savings targets up to 2016.[3] The 2016 targets were calculated as energy savings amounting to 9 % of the average value of final energy consumption in the period from 2001 to 2005. These targets were revised in the Second Action Plan by deducting the share of consumption reported for those companies contributing to greenhouse gas emission allowance trading in accordance with Directive 2003/87/EC [4] (ETS companies). The resultant targets are presented in Table 1.

Table 1: Energy savings targets set in Slovakia's strategy documents in accordance with Directive 2006/32/EC[5]

Indicator	Energy savings based on the recalculated average final energy consumption in 2001–2005	
	[%]	[TJ]
Annual target	1 %	3 122
Three-year target up to 2010*	3 %	9 366
Medium-term target up to 2013*	6 %	18 722
Long-term target up to 2016*	9 %	28 098
Long-term target up to 2020*	11 %	34 342

*Note: the objectives are set for the end of the year, i.e. including the year to which the target applies.

The 3 % three-year target for 2011–2013 is consistent with energy savings of 9 366 TJ. However, in the absence of a permanent energy efficiency support mechanism in that period, in the Second Action Plan the target was set at just 2.7 % of the average value of the $FEC_{2001–2005}$,

[3] The energy savings targets established in accordance with Directive 2006/32/EC are valid until 1 January 2017 (Article 27 of Directive 2012/27/EU).

[4] Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC.

[5] These energy savings targets have been adjusted to remove the influence of those companies contributing to greenhouse gas emission allowance trading in accordance with Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC.

corresponding to 8 362 TJ (determined on the basis of realistic projections concerning the implementation of planned measures).

An evaluation of the individual energy efficiency measures in the period from 2011 to 2013 (i.e. by a bottom-up method) indicates that the target set in the Second Action Plan has been 81 % met according to this bottom-up method. This evaluation of progress in the pursuit of the target marks a significant shift compared to the Second Action Plan, when the 3 % energy savings target (set for the 2008–2010 period) was found to be approximately 30 % to 40 % met according to the same method. A summary evaluation of energy savings is presented in Section 2.4. This evaluation and draft measures will also be factored into the preparation of the projection for selected measures to be continued up to 2020.

1.2. National energy savings targets under Directive 2012/27/EU up to 2020, and projections of the trend in final and primary energy consumption

National targets, expressed as final energy consumption and primary energy consumption,[6] were set in accordance with the requirements of Directive 2012/27/EU – see Table 2.

Table 2: Slovakia's national indicative energy efficiency targets pursuant to Directive 2012/27/EU

	Annual target		Three-year target (non-cumulative)		2020 target (cumulative)		
	GWh/year	TJ/year	GWh	TJ	GWh	TJ	%
Energy efficiency target – final energy consumption savings	949	3 416	2 846	10 247	26 565	79 695	23 %
Energy efficiency target – primary energy consumption savings	1 484	5 344	4 453	16 031	41 563	124 689	20 %
Energy efficiency target expressed as the 2020 target final and primary energy consumption							
Energy efficiency target – to achieve the following level of final energy consumption in 2020					105 TWh	378 PJ	
Energy efficiency target – to achieve the following level of final energy consumption in 2020					191 TWh	686 PJ	

Methodology for the calculation of the indicative cumulative energy savings target is explained in the National Reform Programme (2013) and in the Energy Policy (2014). In the new period, projections will be prepared for selected measures to be continued up to 2020.

On the basis of specific projects, measures were planned for 2014–2016 encompassing approximately 85 % of the overall three-year energy savings target for final energy consumption (10.25 PJ) and more than 100 % of the overall three-year energy savings target set for primary energy consumption (16.03 PJ).

[6] Primary energy consumption = consumption of primary energy sources – non-energy consumption.

2. Energy efficiency measures (by sector)

In the pursuit of the national energy efficiency target, measures are broken down into energy consumption measures (in the buildings, industry, public, transport and appliances sectors), energy transformation, transmission and distribution measures and horizontal measures. For each measure, there is a brief description and tables containing an evaluation of the measure's contribution to energy savings in 2011–2013, along with tables detailing the energy savings planned for the new 2014–2016 period. Tables encompassing new and ongoing energy efficiency measures proposed for the 2017–2020 period in the pursuit of the overall 2020 energy savings target are presented in Annex 2.

Those tables also include financing in the reporting period, broken down by source of financing into resources from the EU, the central government budget, the budgets of municipalities and higher territorial units, extra-budgetary public resources and private resources (households, undertakings), and other resources, including specific sources such as the EkoFond. Specific information on individual measures can be found in the methodology tables (Annexes 3 and 4).

In the tables, energy savings are presented in the year following the year of implementation of a measure (unless otherwise indicated). Investment costs are shown in the year in which the measure is implemented. While this method for reporting on energy savings and financing is consistent with the actual situation, it precludes comparisons of savings and finances in a given period (for example, in a particular annual or three-year period) because some energy savings derived from projects financed in the reporting period (for example, 2011–2013) are not manifested until the next period (i.e. 2014–2016). Investment intensity was analysed during the verification and planning of measures and related savings, but the figures presented in the tables are not suitable for a direct calculation.

Methodology for the valuation of energy efficiency measures

Energy efficiency measures were evaluated by reference to figures on energy savings and investment costs incurred under individual projects implemented within the scope of the various support mechanisms (the operational programmes of Structural Funds in the 2007–2013 programming period, Slovseff, Munseff, the EkoFond, the State Housing Development Fund, etc.). This information was subsequently verified by employees of the Slovak Innovation and Energy Agency and the Ministry of Economy (on the basis of the investment intensity, cross-checking with other information available on the programme, such as the number of buildings renovated or the number of buildings from a particular category renovated, taken from the database of building energy performance certificates,[7] the total floor area, the insulated area, etc.). Some programmes (Slovseff, Munseff, EkoFond) have introduced an efficient energy savings monitoring system based on consumption measurements before and after the implementation of a measure. In other programmes, energy consumption monitoring is not compulsory. In these cases, energy savings are determined by reference to the planned savings or on the basis of an expert estimate drawing on similar projects that have already been implemented (for example, based on investment intensity). As the overall investment costs reported for some projects (especially projects financed by the Structural Funds)

[7] The INFOREG information system, www.inforeg.sk.

also include costs other than those required exclusively to implement energy efficiency measures (i.e. horizontal and vertical extensions, technical equipment, etc.), for 3AP purposes overall investment costs were determined on the basis of the investment intensity (EUR/MWh) of projects focused entirely on improving energy efficiency in a particular sector (e.g. Slovseff II projects).

The overwhelming majority of energy efficiency measures under the Second Action Plan were evaluated by a bottom-up method, i.e. on the basis of projects, and projects served as a reference point to demonstrate 81 % compliance with the target set in the Second Action Plan (9.37 PJ, i.e. 2.7 % of final energy consumption in 2001–2005). Although it was impossible to evaluate the overall target set for 2011–2013 on the basis of individual projects, the 81 % share of projects in the evaluated target shows that significant headway has been made compared to the Second Action Plan (when projects accounted for 30–40 % of the evaluated target set for 2008–2010). As different methods were used to evaluate the Second and Third Action Plan, and as their share in the evaluation of the target varied, a comparison of the results achieved by the two action plans is problematic and requires more detailed analysis.

Methodology for the planning of new and ongoing energy efficiency measures

The following were used as points of departure in the planning of new and ongoing measures:

a) specific projects implemented, i.e. projects that were or are being implemented in 2013 and 2014, where the savings will not be felt until the 2014–2016 period;
b) contracted projects planned for implementation in 2014–2020;
c) projected programmes in the pipeline, where the planned savings are determined by reference to the financial allocation of available resources and the investment intensity (EUR/MWh) of similarly focused projects implemented in the past. A similar approach was taken in those cases where sufficient information about planned energy savings was not available for contracted projects.

Analogously to the evaluation of energy savings in 2011–2013, energy savings are presented in the year following the year of implementation of a project (unless otherwise indicated). The projected investment costs of each project are shown in the year in which the project is expected to be implemented.

On the basis of specific projects, measures were planned for 2014–2016 encompassing approximately 85 % of the overall three-year energy savings target for final energy consumption (10.25 PJ) and more than 100 % of the overall three-year energy savings target set for primary energy consumption (16.03 PJ); these are set in accordance with Articles 3, 5 and 7 of Directive 2012/27/EU on energy efficiency (see Section 1.2).

2.1. Energy consumption measures

Energy consumption measures, under which energy savings are manifested as a reduction in final energy consumption, are broken down by sector (buildings, industry, the public sector, transport and appliances).

2.1.1 Energy efficiency measures in the buildings sector

This section encompasses measures in all (residential and non-residential) buildings, with the exception of public-sector buildings. In particular, then, it covers privately owned buildings. Public-sector buildings are discussed in Section 2.1.3.

2011-2013 period

In the reporting period, the greatest energy savings contributions were made by measures intended to improve the thermal performance of residential buildings, financed by various financial mechanisms, especially the State Housing Development Fund, and by Slovseff II.

The State Housing Development Fund was established in 1996 under Act No 124/1996 on the State Housing Development Fund. The State Housing Development Fund currently provides several types of aid: soft loans to purchase, insulate and modernise single- and multi-family buildings, subsidies to remove systemic defects in multi-family buildings, the Government Insulation Scheme, JESSICA 2013–2014, EU-funded residential building insulation 2014–2020 (2014–2020 State Housing Development Fund/EU funding), etc.

In terms of energy savings, the most significant types of aid channelled via the State Housing Development Fund in the 2011–2013 reporting period were:

i. the granting of soft loans to insulate residential buildings;
ii. the Government Insulation Scheme;
iii. JESSICA 2013–2014; and
iv. EU-funded residential building insulation 2014–2020.

State Housing Development Fund soft loans were available subject to a reduction in heat consumption required for space heating purposes by at least 20 % compared to the computationally identified heat requirement for space heating purposes. The space heating energy savings actually achieved were not monitored in the individual projects supported by the State Housing Development Fund. In 2011–2013, the State Housing Development Fund provided assistance for the insulation of 338 buildings. Since energy savings in individual projects were not monitored, energy savings could be quantified only by using the average energy savings design value for all projects at a level of 20 %, i.e. based on the condition of eligibility for State Housing Development Fund loans. The time-limited Government Insulation Scheme (2009– 2011), financed with sales of greenhouse gas emission allowances, also granted soft loans to mitigate the effects of the economic crisis. This scheme's administrator was the State Housing Development Fund.

Subsidies to remove systemic defects (the savings cannot be quantified), resources from commercial financial institutions (especially building societies) and funding from the owners of dwellings (via repair and maintenance funds) also helped to improve the thermal performance of buildings. As neither the State Housing Development Fund nor individual banking sources keep track of precise statistics detailing expenditure on the renovation of residential buildings, expert estimates drawing on the projected co-financing were used to quantify private resources.

Many renovation projects in the buildings sector could not be evaluated individually because there is no functioning mechanism to monitor the savings achieved. Therefore, energy savings are evaluated

by reference to statistics on energy performance certificates (INFOREG) and expert projections on potential reductions in energy requirements following the renovation of a building. When quantifying savings on the basis of energy performance certificate statistics, it is impossible to say with any certainty which financial mechanism was used to renovate specific buildings, nor is it inconceivable that multiple support mechanisms may be sourced to renovate a building. However, this is taken into account on the basis of available information and, as far as possible, duplication in the summary of energy savings in each sector is avoided.

. This deficiency should be resolved in the future by improving the way energy consumption and savings are monitored in each of the projects supported. Gaps in information from private investors are another factor complicating the monitoring of private investments in building renovation and in the construction of low-energy buildings and Passivhaus ('passive') buildings. The most important measures are evaluated below.

Measure 1.3 – Improvements in the thermal performance of buildings – various building types, except public buildings – Energy savings under this measure were quantified by reference to energy performance certificates for various types of non-residential buildings (administrative buildings, hotels and restaurants, retail structures, wholesale establishments and sports halls). Most of the funds for the renovation of school and school-facility buildings and hospital buildings came from the Regional Operational Programme 2007–2013, as well as the EkoFond, the Energy Efficiency in Public Buildings pilot project, and the Munseff programme. These measures, together with administrative public buildings, are presented in Section 2.1.3 (Public sector).

Measure 1.4 – Construction of low-energy buildings and passive buildings – Since 2011 in particular, there has had to be a greater push for new residential and non-residential buildings to be low-energy or energy-passive in nature.

Support Measure 1.5 – Application of legislative measures: Act No 476/2008: hydraulic balancing of space heating and hot water distribution systems, insulation of hot water distribution systems – For the sake of an equal approach to public and private buildings, this statutory obligation was deferred for large buildings for two years (until the end of 2015), with the possibility of a further two-year postponement (up to the end of 2017) if energy savings measures are taken beyond the scope of statutory obligations (Act No 69/2013).

Support Measure 1.6 – Application of legislative measures: Act No 555/2005 – energy performance certification of buildings: Since 1 January 2008, Act No 555/2005 on the energy performance of buildings and amending certain laws has required building owners to have energy performance certification when selling or letting a building, or upon completion of a new building or significant renovation of an existing building. This Act was amended by Act No 476/2008 on energy efficiency, which made it mandatory to register the energy performance certificates of buildings. The Ministry of Transport, Construction and Regional Development is responsible for keeping records of certificates. Implementing Decree of the Ministry of Construction and Regional Development No 625/2006, superseded in 2009 by Implementing Decree of the Ministry of Construction and Regional Development No 311/2009, which reflected the need, arising in practice, to adjust the criteria values regarding the specific building operation energy requirement in the certification of buildings, was issued to implement the Act. At the end of 2012, Act No 555/2005 was amended by Act No 300/2012, which transposed Directive 2010/31/EU on the energy performance of buildings

(recast) into Slovak national law. The new law was accompanied by Implementing Decree of the Ministry of Transport, Construction and Regional Development No 364/2012, which tightened the requirements for the energy performance of buildings and introduced a global indicator – primary energy. Both pieces of legislation took effect on 1 January 2013. Records of certificates remain the responsibility of the Ministry of Transport, Construction and Regional Development. At the end of 2013, there were 47 800 energy performance certificates in the database. Since 1 January 2013, serial numbers have automatically been assigned to the energy performance certificates of buildings in the INFOREG information system, where records are also kept of them. The Slovak Chamber of Civil Engineers, which tests professional competence for individual points of consumption, had a register of 192 professionally competent trade licence holders at the end of 2013.

Support Measure 1.7 – Application of legislative measures: Act No 17/2007: periodic inspection of boilers, air conditioning equipment and space heating systems – Act No 17/2007 was superseded by Act No 314/2012 on the periodic inspection of space heating systems and air conditioning systems as a response to practical needs and the requirement to transpose Directive 2010/31/EU on the energy performance of buildings. The new law reduces the intervals between periodic space heating system inspections to two years for biomass- or biogas-fired equipment with a rated capacity of more than 100 kW. Boiler capacity is assessed relative to the heat requirement of a building the first time the space heating system is inspected. Previously, this assessment did not take place until the space heating system included a boiler that was more than 15 years old. As space heating and air conditioning system inspection reports present energy savings measures, experience suggests that building owners will tend to opt for low-cost measures for their space heating and air conditioning systems, and this factor is taken as a basis. Only a subsequent inspection of a space heating or air conditioning system will be able to show the extent to which the measures recommended in the previous inspection have been implemented and how much they have contributed to energy savings.

Support Measure 1.8 – Draft of (amendment to) legislative measures: The Building Act, Act No 555/2005,[8] Act No 17/2007 and associated secondary legislation in connection with the implementation of Directive 2010/31/EU. Directive 2010/31/EEC was transposed into Slovak law by two main legislative acts, i.e. Act No 300/2012 and Act No 314/2012, accompanied by the relevant implementing regulations. A new Building Act has been drafted and is currently undergoing interministerial consultation.

Support Measure 1.9 – Conceptual solution promoting the construction of low-energy and passive buildings – This measure has yet to be implemented. The National Plan for Increasing the Number of Nearly Zero-energy Buildings (Ministry of Transport, Construction and Regional Development, 2013) recommends proposing financial incentives differentiated 'according to the level of energy savings achieved, aimed at attaining the parameters of nearly zero-energy buildings in new construction and at the possibility of making more significant energy savings in the renovation of building stock'.

Support Measure 1.10 – Application of legislative measures (amendment) – Act No 309/2009 – qualification scheme for installers of RES equipment in buildings. In response to the necessary accreditation process, RES installer qualification training and examinations were not launched until the end of 2012 for heat pump installers and January 2014 for installers of photovoltaic systems and

[8] Act No 50/1976 on spatial planning and building rules (the Building Act), as amended.

solar thermal collectors. The training of biomass boiler installers has not yet been accredited. Although the benefits of having RES equipment professionally installed cannot be quantified directly, this measure does, in principle, help to optimise local energy consumption and, subsequently, contributes to reductions in the consumption of primary energy sources.

Support Measure 1.11 – 'Major Building Renovation' information campaign – In 2012, the Ministry of Transport, Construction and Regional Development, in partnership with the Slovak Innovation and Energy Agency, started preparing an information campaign intended primarily for the end users of buildings. The aim of the campaign is to explain measures proposed for the major renovation of housing stock and the importance of energy performance certificates for buildings. As part of the campaign, the Ministry of Transport, Construction and Regional Development also launched a website at www.byvajusporne.sk to provide information to the owners and occupants of multi- and single-family buildings. The campaign is set to continue in the new period.

The 2014–2016 period, with an outlook up to 2020

In the 2014–2016 period (and, prospectively, the period up to 2020), the State Housing Development Fund will continue to channel resources into support for the improved thermal performance of buildings, and the Slovseff II and Munseff projects will come to an end. Between 2014 and 2016, savings generated by the State Housing Development Fund – JESSICA financial mechanism, bankrolled by the 2007–2013 Structural Funds, will become apparent (under these projects, renovation is planned in 2014), and new State Housing Development Fund projects ('EU-funded residential building insulation') financed by the European Structural and Investment Funds (ESIF 2014–2016) via the Integrated Regional Operational Programme (IROP 2014-2020), will start to be implemented.

In the 2014–2016 period, there are plans to implement projects in the next stage of the Slovseff III programme, as part of the Green Investment Scheme, by drawing on revenues from the sale of emission allowances. Like its predecessors, Slovseff III will promote energy efficiency in buildings, industry and the installation of RES equipment. It is not expected to have the same impact on energy savings as in the previous two stages because support for housing-sector projects under the programme has been reduced and a greater emphasis has been placed on RES projects.

In the new period, it is expected that legislation will continue to be applied and amended to reflect requirements in practice (the draft Energy Efficiency Act, Act No 555/2005, Act No 314/2012, and associated legislation of general application). The amendments expected to implementing regulations on the periodic inspection of space heating systems and air conditioning systems will include the addition, in the inspection report, of a building's total energy consumption so that the potential energy savings can be quantified if the combustion efficiency is not observed and so that the energy savings measures taken since the previous inspection can be evaluated.

In the upcoming period, attention needs to be paid to the monitoring and verification of energy savings in all projects influencing energy consumption and financed with public resources by means of a bottom-up method on a project-by-project basis. Monitoring of the impacts of support mechanisms, such as the state subsidisation of building-society savings schemes, will be introduced on a voluntary basis.

The basic policy and strategy document that will be able to identify investment opportunities for the renovation of building stock in Slovakia and the forms of financing thereof will be the Residential and Non-residential Building Fund Renovation Strategy, which is currently being prepared by the Ministry of Transport, Construction and Regional Development in line with a requirement under Directive 2012/27/EU.

Table 3: Summary overview of measures in the buildings sector in the 2011–2013 period

Measure No	Measure title	Measure specifications	Financial mechanism	Responsible ministry/ organisation	Duration of the measure	Energy savings planned in the 2AP	Energy savings achieved in 2011–2013	Investments planned in the 2AP	Actual investments in 2011–2013
						[TJ]	[TJ]	[EUR thousands]	[EUR thousands]
1.1.1	Improvements in the thermal performance of buildings	Single-family buildings	Own funds	Ministry of Transport, Construction and Regional Development		818	113.49	500 000	63 050
1.1.2			Government Insulation Scheme II	Ministry of Transport, Construction and Regional Development	2011 onwards	33	0.00 C)	20 000	0.00 C)
1 2 1	Improvements in the thermal performance of buildings	Multi-family buildings	Residential building insulation funded by the State Housing Development Fund	Ministry of Transport, Construction and Regional Development	1996 onwards	76	565.89	78 900	326 862
1.2.2			Subsidies for systemic defects	Ministry of Transport, Construction and Regional Development		38	0.00 D)	45 000	0.00 D)
1.2.4			Government Insulation Scheme II	Ministry of Transport, Construction and Regional Development	2011 onwards	152	175.43	180 000	47 027
1.2.5			Government Insulation Scheme – final arrangements from 2009	Ministry of Transport, Construction and Regional Development	2009 onwards	139	0.00 E)	0	0.00 E)
1.2.6			Slovseff II	Ministry of Economy	2010–2014	200	161.78	92 000	72 551

Measure No	Measure title	Measure specifications	Financial mechanism	Responsible ministry/ organisation	Duration of the measure	Energy savings planned in the 2AP	Energy savings achieved in 2011–2013	Investments planned in the 2AP	Actual investments in 2011–2013
						[TJ]	[TJ]	[EUR thousands]	[EUR thousands]
1.2.7			State Housing Development Fund – JESSICA 2013–2014 (supp.)	Ministry of Transport, Construction and Regional Development, Ministry of Agriculture and Rural Development	2013–2014	-	0.00	-	14 637
1.2.8			Munseff (supp.)	ESG, EBRD, Commission	2012–2014	-	0.00	-	1 464
1.2.3			Own funds	Ministry of Transport, Construction and Regional Development		25	2 267.51	20 000	814 414
1.3.1	Improvements in the thermal performance of buildings	Administrative buildings (excluding public buildings)	Own funds	Ministry of Transport, Construction and Regional Development		21	263.84 G)	9 300	665 874
1.3.2		Hotels, restaurants	OP Competitiveness and Economic Growth, 3.1 Tourism	Ministry of Economy	2007–2013	11	0	20 590	0
1.3.3		Hotels, restaurants	Own funds, OP Rural Development	Ministry of Transport, Construction and Regional Development		40	186.44	8 400	98 865
1.3.4		Retail, wholesale	Own funds	Ministry of Transport, Construction		36	138.62	4 800	250 471

Measure No	Measure title	Measure specifications	Financial mechanism	Responsible ministry/ organisation	Duration of the measure	Energy savings planned in the 2AP	Energy savings achieved in 2011–2013	Investments planned in the 2AP	Actual investments in 2011–2013
						[TJ]	[TJ]	[EUR thousands]	[EUR thousands]
				and Regional Development					
1.3.5		Buildings of non-profit organisations	EkoFond – Programme 02 Improvement in the energy performance of buildings	SPP, a.s./ EkoFond		16	0.00 F)	11 771	0.00 F)
1.4.1	New construction to a low-energy standard	Single-family buildings	Own funds, CB[9]	Ministry of Transport, Construction and Regional Development		46	127.34	18 363	1,316,188
1.4.2		Multi-family buildings	Own funds, commercial banks	Ministry of Transport, Construction and Regional Development			41.65		411,230
1.4.3	New construction to a passive standard	Single-family and multi-family buildings	Own funds, lending by commercial banks	Ministry of Transport, Construction and Regional Development		3	12.65	4 284	54,953
1.5	Application of legislative measures	Act No 476/2008 – hydraulic balancing of space heating and hot water distribution systems, insulation of hot water distribution systems		Central bodies of state administration	2009 onwards	100	A)	59 580	0
1.6	Application of legislative measures	Act No 555/2005 – energy performance certification of buildings		Ministry of Transport, Construction and Regional	2008 onwards	A)	A)	1 588	B)

[9] CB – financing via commercial banks.

Measure No	Measure title	Measure specifications	Financial mechanism	Responsible ministry/ organisation	Duration of the measure	Energy savings planned in the 2AP	Energy savings achieved in 2011–2013	Investments planned in the 2AP	Actual investments in 2011–2013
						[TJ]	[TJ]	[EUR thousands]	[EUR thousands]
				Development					
1.7	Application of legislative measures	Act No 17/2007 – periodic inspections of boilers, air conditioning systems and space heating systems		Ministry of Economy	2008 onwards	A)	A)	4,249	1,929
1.8	Draft (amendment to) legislative regulations	Building Act, Act No 555/2005, Act No 17/2007 and associated secondary legislation in connection with the implementation of Directive 2010/31/EU		Ministry of Economy/Ministry of Transport, Construction and Regional Development	2012 onwards	A)	A)	240	B)
1.9	Conceptual solution promoting the construction of low-energy and passive buildings			Ministry of Transport, Construction and Regional Development	-	A)	0	0	0
1.10 (supp.)	Application of legislative measures (amendment)		Act No 309/2009 – qualification scheme for installers of RES equipment in buildings	Ministry of Economy	2012 onwards	A)	0	0	B)
1.11 (supp.)	'Major Building Renovation' information campaign			Ministry of Transport, Construction and Regional Development /Slovak Innovation and Energy Agency	2012 onwards	A)	A)	-	B)
	Total buildings 2011–2013					**1 754**	**4 055.64**	**1 079 065**	**4 139 515**

Notes: A) Energy savings cannot be quantified because the impact is indirect.

B) Expenditure cannot be quantified precisely; implemented by drawing on existing administrative capacities within the scope of the budget approved for individual headings.

C) Energy savings for single-family buildings are included under Measure 1.2.4 Government Insulation Scheme II for multi-family buildings. The vast majority of projects supported under this support programme involved improvements in the thermal performance of multi-family buildings.

D) As the measure's main objective is not to make energy savings and there is no mechanism to monitor them, it is currently impossible to quantify these savings.

E) Energy savings and investment costs under Measure 1.2.5 Government Insulation Scheme – final arrangements from 2009 are included in Measure 1.2.4. Government Insulation Scheme II.

F) As the share of buildings of non-profit organisations among public-sector buildings supported under the EkoFond programme is negligible, the energy savings (and funds expended) in these buildings were not quantified (they are included under Measure 3.8 within the scope of the Public Sector).

G) The energy savings quantified here include savings achieved by improving the thermal performance of commercial administrative buildings; savings made at public administrative buildings are included under public-sector measures (Section 2.1.3, Table 7).

Table 4: Summary overview of measures planned in the buildings sector in the 2014–2016 period

Measure No	Measure title	Measure specifications	Financial mechanism	Responsible ministry/ organisation	Measures under Article 7 of the Directive	Final energy consumption savings planned in 2014–2016	Financing [EUR thousands]						
						[TJ]	EU	Central government budget	Co-financing from the central government budget	HTUs, municipalities, towns	Private sources	Other	Total
1.1.	Improvements in the thermal performance of buildings	Single-family buildings	Own resources, commercial banks[10]	Ministry of Transport, Construction and Regional Development		202.00	0	0	0	0	112 222	0	112 222
1.2.1	Improvements in the thermal performance of buildings	Multi-family buildings	State Housing Development Fund[11]	Ministry of Transport, Construction and Regional Development	x	527.79	0	152 385	0	0	50 795	0	203 180
1.2.2			State Housing Development Fund – JESSICA 2013–2014[11]	Ministry of Transport, Construction and Regional Development, Ministry of Agriculture and Rural Development	x	24.35	469	0	83	0	184	0	736
1.2.3			State Housing Development	Ministry of Transport,	x	48.51	59 181	0	10 444	0	23 208	0	92 833

[10] CB – financing via commercial banks.

[11] This entails lending from public sources which is to be gradually repaid from private sources.

Measure No	Measure title	Measure specifications	Financial mechanism	Responsible ministry/ organisation	Measures under Article 7 of the Directive	Final energy consumption savings planned in 2014–2016	Financing [EUR thousands]						
						[TJ]	EU	Central government budget	Co-financing from the central government budget	HTUs, municipalities, towns	Private sources	Other	Total
			Fund – EU 2014–2020[12]	Construction and Regional Development, Ministry of Agriculture and Rural Development									
1.2.4			Own funds	Ministry of Transport, Construction and Regional Development		2.50	0	0	0	0	898	0	898
1.2.5			Slovseff II[11]	Ministry of Economy		25.86	0	0	0	0	0 C)	902	902
1.2.6			Slovseff III.[11]	Ministry of the Environment	x	16.95	0	0	0	0	0 C)	9 138	9 138
1.2.7			Munseff[11]	ESG, Commission, EBRD		10.59	0	0	0	0	0 C)	4 056	4 056
1.3.1	Improvements in the thermal performance	Administrative buildings (excluding public buildings)	Own resources,	Ministry of Transport,		260.00 D)	0	0	0	0	182 273	0	182 273

[12] State Housing Development Fund – 'EU-funded residential building insulation'. This entails lending from public sources which is to be gradually repaid from private sources.

Measure No	Measure title	Measure specifications	Financial mechanism	Responsible ministry/ organisation	Measures under Article 7 of the Directive	Final energy consumption savings planned in 2014–2016	Financing [EUR thousands]						
						[TJ]	EU	Central government budget	Co-financing from the central government budget	HTUs, municipalities, towns	Private sources	Other	Total
	of buildings		commercial banks	Construction and Regional Development									
1.3.2		Buildings of schools and school facilities	Own resources, commercial banks	Ministry of Transport, Construction and Regional Development		E)	0	0	0	0	E)	0	0
1.3.3		Buildings of hospitals and healthcare facilities	Own resources, commercial banks	Ministry of Transport, Construction and Regional Development		E)	0	0	0	0	E)	0	0
1.3.4		Hotels and and restaurants	Own resources, commercial banks	Ministry of Transport, Construction and Regional Development		170.00	0	0	0	0	90 147	0	90 147
1.3.5		Retail, wholesale	Own resources, commercial banks	Ministry of Transport, Construction and Regional Development		290.00	0	0	0	0	145 555	0	145 555
1.3.6		Sports halls, other buildings intended for sport	Own resources,	Ministry of Transport,		7.00	0	0	0	0	2 359	0	2 359

Measure No	Measure title	Measure specifications	Financial mechanism	Responsible ministry/ organisation	Measures under Article 7 of the Directive	Final energy consumption savings planned in 2014–2016	Financing [EUR thousands]						
						[TJ]	EU	Central government budget	Co-financing from the central government budget	HTUs, municipalities, towns	Private sources	Other	Total
			commercial banks	Construction and Regional Development									
1.4.1	New construction to a low-energy standard	Single-family buildings	Own resources, commercial banks	Ministry of Transport, Construction and Regional Development		175.00	0	0	0	0	877 313	0	877 313
1.4.2		Multi-family buildings	Own resources, commercial banks	Ministry of Transport, Construction and Regional Development		1.50	0	0	0	0	273 318	0	273 318
1.5	New construction to an ultra-low-energy standard	Single-family and multi-family buildings	Own resources, commercial banks	Ministry of Transport, Construction and Regional Development		15.00	0	0	0	0	1 073 925	0	1 073 925
1.6	New construction of nearly zero-energy single-family and multi-family buildings	Single-family and multi-family buildings	Own resources, commercial banks	Ministry of Transport, Construction and Regional Development	x	0.00	0	0	0	0	0	0	0
1.7	Provision of energy services in buildings	Gas, electricity and heat suppliers	Own resources,	Energy suppliers,	x	532.24	0	0	0	0	59 138	0	59 138

Measure No	Measure title	Measure specifications	Financial mechanism	Responsible ministry/ organisation	Measures under Article 7 of the Directive	Final energy consumption savings planned in 2014–2016	Financing [EUR thousands]						
						[TJ]	EU	Central government budget	Co-financing from the central government budget	HTUs, municipalities, towns	Private sources	Other	Total
	via gas, electricity and heat suppliers		commercial banks	Ministry of Economy									
1.8	Application of legislative measures	Insulation of hot water distribution systems in residential buildings with heat supply	Own resources, commercial banks	Ministry of Economy		242.12	0	0	0	0	13 451	0	13 451
1.9		Hydraulic balancing of space heating and hot water distribution systems, insulation of hot water distribution systems	Own resources, commercial banks	Ministry of Transport, Construction and Regional Development, Ministry of Economy, central bodies of state administration		A)	0	750	0	0	14 625	0	15 375
1.10		Energy performance certification of buildings	Ministry of Transport, Construction and Regional Development	Ministry of Transport, Construction and Regional Development		A)	0	15	0	0	0	0	15
1.11		Periodic inspections of space heating systems and air	Central bodies of state	Ministry of Economy		A)	0	36	0	1 893	0	0	1 929

Measure No	Measure title	Measure specifications	Financial mechanism	Responsible ministry/ organisation	Measures under Article 7 of the Directive	Final energy consumption savings planned in 2014–2016	Financing [EUR thousands]						
						[TJ]	EU	Central government budget	Co-financing from the central government budget	HTUs, municipalities, towns	Private sources	Other	Total
		conditioning systems	administration, HTUs, municipalities										
1.12	Draft (amendment to) legislative regulations	Building Act[13]		Ministry of Transport, Construction and Regional Development		A)	0	0 B)	0	0	0	0	0
1.13	Application of policy and strategy documents	System to support the construction of buildings to an ultra-low-energy standard		Ministry of Transport, Construction and Regional Development		A)	0	B)	0	0	0	0	0
1.14	Amendment to the implementing regulations on periodic inspections of space heating systems and air conditioning systems			Ministry of Economy		A)	0	B)	0	0	0	0	0
1.15	Application of policy and strategy documents	Residential and Non-residential Building Stock Renovation Strategy, Slovak Republic		Ministry of Transport, Construction and Regional Development		A)	0	B)	0	0	0	0	0

[13] The draft of the new Building Act envisages spending to set up three new inspectorates with relevant staffing and technical capacities, plus the upsizing of the Building Inspectorate's head office, which will require an outlay of approximately EUR 392 300 in the first year and EUR 333 500 per year thereafter (this Building Act is expected to be passed by the end of 2014). As the draft has yet to be approved, this funding is not included in the table.

Measure No	Measure title	Measure specifications	Financial mechanism	Responsible ministry/ organisation	Measures under Article 7 of the Directive	Final energy consumption savings planned in 2014–2016	Financing [EUR thousands]						
						[TJ]	EU	Central government budget	Co-financing from the central government budget	HTUs, municipalities, towns	Private sources	Other	Total
1.16	Draft (amendment to) legislative regulations	Draft Energy Efficiency Act		Ministry of Economy		A)	0	B)	0	0	0	0	0
1.17	Analysis concerning the installation of individual meters in residential buildings and multipurpose buildings with district heating – implementation of Directive 2012/27/EU on energy efficiency			Ministry of Economy		A)	0	100	0	0	0	0	100
1.18	'Major Building Renovation' information campaign			Ministry of Transport, Construction and Regional Development, Slovak Innovation and Energy Agency		A)	0	B)	0	0	0	0	0
	Total buildings 2014-2016					**3 087**	**59 650**	**156 332**	**10 526**	**1 893**	**2 921 160**	**11 050**	**3 160 612**

Notes: A) Energy savings cannot be quantified because the impact is indirect. B) Expenditure cannot be quantified precisely; it lies within the scope of the budget approved for individual headings.

C) This entails lending from public sources which is to be gradually repaid from private sources. D) The energy savings quantified here include savings achieved by improving the thermal performance of commercial buildings; savings made at public administrative buildings are included under public-sector measures (Section 2.1.3, Table 7).

E) Most school and school-facility buildings and hospital and healthcare facility buildings renovated in the period in question fall within the public sector (Section 2.1.3, Table 7); it is currently impossible to quantify private buildings of this type.

2.1.2 Energy efficiency measures in the industrial sector

2011–2013 period

The energy savings quantified in industry benefited in particular from projects financed by the Operational Programme Competitiveness and Economic Growth 2007–2013, the implementation of low-cost measures derived from energy audits, and measures financed under the Slovseff II programme.

Projects which were financed by the Operational Programme Competitiveness and Economic Growth and which contributed to energy savings were geared towards innovation and technology transfers at industrial enterprises (Measure 1.1 of the Operational Programme) and towards enhancing the energy efficiency of industrial production (Measure 2.1 of the Operational Programme). Action taken under the two measures of the Operational Programme Competitiveness and Economic Growth above includes, in particular:

- reductions in the energy intensity of the production process;
- reductions in the energy intensity of energy facilities;
- improvements in the thermal performance of production halls, operating and administrative/production buildings, heat source replacement, energy management;
- enhanced efficiency in the district heating system, etc.

Savings and finances under Measures 1.1 and 2.1 of the Operational Programme Competitiveness and Economic Growth and under Slovseff II are quantified by project, based on the measurable indicators reported and on information from the Slovseff II administrator. However, because the 'Energy savings' (GJ/year) indicator under Measure 1.1 of the Operational Programme was not compulsory, it was not monitored in most projects (there were two exceptions). Projects implemented under the Operational Programme Bratislava Region (2007–2013 Structural Funds), where annual energy savings were also a measurable indicator, also contributed to the energy savings target in industry.

When quantifying the energy savings achieved on the basis of energy audits in accordance with Act No 476/2008, it is assumed that each undertaking will at least implement low-cost measures stemming from auditing. Savings are quantified by reference to the energy audit reports which obligated parties are required to send annually to the monitoring system operator, i.e. the Slovak Innovation and Energy Agency, every year (in accordance with Act No 476/2008 on energy efficiency, as amended). As energy audits have yet to be carried out at all obligated parties (as at 30 April 2014, 145 entities had submitted an energy audit report), it is assumed that the energy savings made will be much lower than those originally planned. Savings derived from medium- to high cost measures implemented further to mandatory energy audits cannot be quantified because undertakings are not under any obligation to report on such measures.

The 2014–2016 period, with an outlook up to 2020

The 2014–2020 period will see the completion of projects carried over from the previous period, financed by the Structural Funds (Measures 1.1 and 2.1 of the Operational Programme Competitiveness and Economic Growth) and within the scope of Slovseff II, along with the launch of new projects under the Operational Programme Environmental Quality (2014–2020). These new Operational Programme Environmental Quality projects in industry encompass measures focusing on

support for energy auditing at industrial enterprises (this support is limited to small and medium-sized enterprises) and on the implementation of measures derived from energy audits (at all types of industrial enterprise), including the introduction of measurement and management systems, as well as energy and environmental management systems (especially EMAS) in the field of energy production and consumption, with a view to reducing energy consumption and greenhouse gas emissions. However, most of the projects under the Operational Programme Environmental Quality will not deliver savings until 2017–2020. In that period, Operational Programme Bratislava Region projects will also be implemented – these projects have already been contracted, but the energy savings cannot be quantified at this time.

Implementing Decree No 358/2013 made the smart metering of electricity at consumers with annual consumption in excess of 4 MWh mandatory, with the systems to be installed by 2020.

In the new period, projects will be implemented under the third stage of the Slovseff programme (Slovseff III) within the scope of the Green Investment Scheme, which is financed with proceeds from greenhouse gas emission allowances.

The fact that the Operational Programme Environmental Quality 2014–2020 is financed by the European Regional Development Fund (ERDF) precludes the support of auditing at small and medium-sized enterprises and the implementation of measures derived from energy audits in the Bratislava Region. In this light, the Ministry of Economy is planning to support such activities by means of subsidy schemes falling within its purview, although their use is not projected until after 2016.

To address the energy savings required in industry, voluntary agreements will be drawn up with energy suppliers in which the parties will commit to energy savings. In order to meet the target to which they have committed themselves, it is expected that suppliers will make savings in the provision of energy services to their final customers. The projected energy savings that are to be made in this way, i.e. under a voluntary agreement, are quantified in the buildings sector (Measure 1.7) and in the public sector (Measure 3.12).

As part of the development of energy services, support for the development of energy service provision in industry is also being considered. The development of the market in energy services facilitating the implementation of projects via EPCs (energy performance contracts) or through companies providing guaranteed energy services (energy service companies – ESCOs), where energy audits are a crucial factor for a solution achieving guaranteed and contracted energy savings, will make a major contribution.

Table 5: Summary overview of measures in the industry sector in the 2011–2013 period

Measure No	Measure title	Financial mechanism/ Measure specifications	Responsible ministry/ organisation	Duration of the measure	Savings planned in the 2AP	Energy savings achieved in 2011–2013	Investments planned in the 2AP	Investments made 2011-2013
					[TJ]	[TJ]	[EUR thousands]	[EUR thousands]
5.1.1	Innovation and technology transfers at industrial enterprises	2007–2013 Structural Funds, OP Competitiveness and Economic Growth, Measure 1.1	Ministry of Economy	2007-2013	58	0.00 A)	1971	1,025
5.1.2		2007–2013 Structural Funds, OP Bratislava Region	Ministry of Agriculture and Rural Development	2007-2013	4	8.69	137	8,615
5.2.1	Increased energy efficiency in industrial production	2007–2013 Structural Funds, OP Competitiveness and Economic Growth, Measure 2.1	Ministry of Economy	2007-2013	44	391.61	4,896	31,135
5.2.2		Slovseff II – industry	Ministry of Economy	2010–2014	144	128.22	29,000	25,124
5.3	Application of legislative measures	Energy audits at industrial enterprises pursuant to Act No 476/2008	Ministry of Economy	2011 onwards	2 240	540.00	280,000	25,950
	Total industry 2011–2013				**2,490**	**1,068.52**	**316,004**	**91 848**

Notes: A) As monitoring of the measurable indicator is not compulsory for this measure, energy savings cannot be quantified on the basis of the ITMS information available.

Table 6: Summary overview of measures planned in the industry sector in the 2014–2016 period

Measure No	Measure title	Financial mechanism	Responsible ministry	Measure for Article 7 of the Directive	Savings planned in 2014-2016	Financing [EUR thousands]						
					[TJ]	EU	Central government budget	Co-financing from the central government budget	HTUs, municipalities, towns	Private sources	Other	Total
5.1.1	Innovation and technology transfers at industrial enterprises	2007–2013 Structural Funds, OP Competitiveness and Economic Growth, Measure 1.1	Ministry of Economy	x	0.056	343	0	60	0	343	0	746
5.1.2		2007–2013 Structural Funds, OP Bratislava Region	Ministry of Agriculture and Rural Development	x	1.43	600	0	0	0	600	0	1 200
5.1.3		OP Research, Development and Innovation	Ministry of Education, Science, Research and Sport	x	280.00	238 000	0	42 000	0	186 667	0	466 667
5.2.1	Increased energy efficiency in industrial production	2007–2013 Structural Funds, OP Competitiveness and Economic Growth, Measure 2.1	Ministry of Economy	x	294.12	44 989	0	7 939	0	44 989	0	97 916
5.2.2		Slovseff II – industry[11]	Ministry of Economy		99.71	0	0	0	0	0 C)	10 190	10 190
5.2.3		Slovseff III – industry[11]	Ministry of the Environment	x	39.35	0	5 331	0	0	0 C)	15 992	15 992
5.3.1	Implementation of energy efficiency measures derived from energy audits	OP Environmental Quality 2014–2020, Priority Axis 2. Promotion of energy efficiency and use of energy from renewable sources at undertakings	Ministry of the Environment / Ministry of	x	161.03	19 600	0		0	29 357	0	48 957

			Economy									
5.3.2		Undertakings' own funds	Ministry of Economy		43.20	0	0	0	0	6,000	0	6,000
5.4	Promotion of energy audits for SMEs in the Bratislava Region	Subsidy schemes within the purview of the Ministry of Economy	Ministry of Economy	x	A)	0	0 F)	0	0	0	0	0
5 5	Application of legislative measures	Energy audits at industrial enterprises pursuant to the Energy Efficiency Act	Ministry of Economy	x	1 650.00	0	0	0	0	225,958	0	225,958
5.6	Voluntary energy savings agreement	Voluntary contributions by parties to the agreement	Ministry of Economy, gas and electricity traders	x	E)	0	0	0	0	E)	0	0
5.7	Support for the introduction of EMAS and energy management systems		Ministry of Economy	x	A)	0	B)	0	0	0	0	0
5.8	Appointment of energy managers at undertakings	Undertakings' own funds	Industrial plants		A)	0	0	0	0	48.6	0	49
	Total industry 2014-2016				**2 568.89**	**303 531**	**5 331**	**50 000**	**0**	**493 962**	**20 851**	**873 674**

Notes: A) Energy savings cannot be quantified because the impact is indirect. B) Expenditure cannot be quantified precisely; it lies within the scope of the budget approved for individual headings.

C) This entails lending from public sources which is to be gradually repaid from private sources. D) These are savings from projects financed and implemented in 2011–2013. Savings under contracted projects which are to be implemented in this period cannot currently be quantified. E) The projected energy savings that are to be made under a voluntary agreement aimed at meeting the energy savings target derived from Article 7 of Directive 2012/27/EU and the projected investment requirement are presented in the buildings sector (Measure 1.7) and in the public sector (Measured 3.12). F) Budgetary constraints indicate that subsidy schemes within the purview of the Ministry of Economy will not start to be used until after 2016.

2.1.3 Energy efficiency measures in the public sector

2011–2013 period

Measures which contributed most to energy savings in the public sector in the reporting period include projects financed by the Structural Funds. Of the individual operational programmes which are also used to finance projects focusing on the enhanced thermal performance of public-sector buildings (the Operational Programme Health, Operational Programme Science and Research, and ROP), the biggest contribution was made to energy savings by the Regional Operational Programme, specifically Measure 1.1 Education infrastructure. Under that measure, more than 770 school and school-facility buildings – in the main primary and nursery schools – were renovated between 2008 and 2013. There are plans to implement roughly 30 projects in 2014, which will not deliver savings until the new period. It has so far been impossible to quantify energy savings made under the Operational Programme Bratislava Region.

The modernisation of public lighting under Measure 2.2 of the Operational Programme Competitiveness and Economic Growth, along with the Energy Efficiency in Public Buildings pilot project, financed by the Bohunice International Decommissioning Support Fund, have also contributed to energy savings. Under the above pilot project, 69 public buildings in municipalities in the Nitra Region and Trnava Region (particularly primary schools, nursery schools, municipal authorities and multipurpose municipal buildings) were renovated. These renovations were rooted in energy audits. Energy savings are evaluated a year after renovation on the basis of energy consumption measurements. They are subject to professional verification by the Slovak Innovation and Energy Agency.

In the reporting period, energy efficiency projects were also implemented under extra-budgetary programmes, specifically Munseff and EkoFond. Munseff[14] is a programme similar to Slovseff (I and II). It grants loans to local government bodies to improve the thermal performance of buildings in their ownership, with incentive payments available if the conditions set to achieve designated energy-saving levels are met. Loan funds have been provided by the European Bank for Reconstruction and Development (EBRD), while subsidies taking the form of incentive payments are financed by the European Commission. As renovation under most projects is due for completion in 2013–2014, the energy savings they make will now be factored into the new period.

The EkoFond[15] grants subsidies for improvements in the thermal performance of buildings (the insulation of building envelopes and roofs/ceilings under ventilated areas, the replacement of windows, the hydraulic balancing of space heating systems, and thermostat-regulated temperature control). Programme 02 Improvements in the energy performance of buildings supports schools, school facilities and other public buildings (e.g. retirement homes, municipal authorities, community centres, hospitals, etc.). The EkoFond promotes the renovation of buildings built prior to 1984 with their own gas-fired space heating source. Between 2009 and 2014, 80 public buildings were renovated at a cost of approximately EUR 3.8 million.

The application of the principle of energy efficiency in public procurement has the potential to become a pivotal means of achieving energy savings in the public sector. Even so, evaluations of this

[14] www.munseff.eu
[15] www.ekofond.sk

measure are fraught with problems, partly because there are insufficient administrative capacities to engage in the regular evaluation of energy consumption and measures implemented at organisations falling within the competence of individual ministries. Departments responsible for economic governance are currently severely underfunded and in many cases they do not have a specific officer to deal in detail with energy efficiency issues.

The publication of supporting documents covering the lead role played by the public sector – In 2013, the Slovak Environmental Agency published a methodology guide on green public procurement, which entails reductions in the consumption of primary energy sources. However, at present the questionnaire on green public procurement carried out by the Slovak Environmental Agency is insufficient to quantify the energy savings made by such procurement.

The 2014–2016 period, with an outlook up to 2020

The coming period will see the completion of projects under the Regional Operational Programme, the Energy Efficiency in Public Buildings pilot project, Munseff and the EkoFond, and the launch of measures aimed at enhancing energy efficiency in public buildings under the Operational Programme Environmental Quality (2014–2020). These measures will concentrate primarily on: a) improvements in the thermal performance of structures; b) the modernisation of space heating/air conditioning systems, hot water systems, lighting, and lifts in order to reduce energy consumption; c) the installation of measurement and management systems; d) a change in the way heat is supplied, aimed at the use of efficient district heating systems; and e) the installation of RES equipment for energy consumption in buildings. The main priority within the scope of this activity will be 'comprehensive projects designed to reduce the energy requirement to the level of low-energy buildings, ultra-low-energy buildings and nearly zero-energy buildings. The aid intensity will be set on the basis of the energy savings planned.'[16] In this respect, the Operational Programme Environmental Quality could also be used to finance energy efficiency measures in the buildings of central bodies of state administration which are headquartered outside the Bratislava Region. These savings could then be counted towards the fulfilment of the energy savings target under Article 5 of Directive 2012/27/EU, according to which each Member State must ensure that, from 2014, 3 % of the total floor area of the buildings of central bodies of state administration is renovated to meet at least the minimum energy performance requirements. Slovakia has decided to take an alternative approach that will make it possible to achieve the same level of energy savings by other means, e.g. by the deep renovation of such buildings or by changing the behaviour of building occupants.[17] As the Operational Programme Environmental Quality cannot be used to finance all buildings of central bodies of state administration (those headquartered in the Bratislava Region are excluded), financial resources will have to be secured in the new period to renovate buildings of central bodies of state administration seated in Bratislava. If no source of financing is secured, these buildings will have to be renovated with funds from the budget headings of the various ministries.

Another potential source of funding for the implementation of energy efficiency measures in public buildings is the Environmental Fund, under which a call for Activity L1 (Improvements in the energy

[16] The Operational Programme Environmental Quality, approved by Government Resolution No 175/2014.

[17] Report notifying an alternative approach in accordance with Article 5 of Directive 2012/27/EU on energy efficiency, sent to the European Commission in December 2013.

efficiency of existing public buildings, including insulation) was advertised in April 2014.[18] However, projected energy savings in the new period cannot be quantified at this time. Environmental Fund aid in the new period will depend on future sales of greenhouse gas emission allowances, which should be used, among other things, to promote energy efficiency.[19]

Buildings undergoing major renovation must comply with the ultra-low-energy standard (the upper limit of energy class A1) from 2016, and with the standard of nearly zero-energy buildings (the upper limit of energy class A0) from 2018, insofar as this is technically, functionally and economically feasible.

As the public sector needs to play an exemplary role in energy savings, in the new period it is essential to concentrate on the continued training of public administration workers regarding their options and obligations, including energy consumption monitoring at the buildings they manage, the application of energy efficiency principles in public procurement, and in the operation of public buildings (Measured 3.13 E^2 in state administration – training programme). There are plans to publish a methodology guide on the application of energy efficiency principles in public administration procurement (Measure 3.15 Publication of supporting documents covering the lead role played by the public sector) to the extent of a green public procurement methodology guide. To improve monitoring of the application of the energy efficiency principle in public procurement, it would be advisable, in the future, to revise the survey methodology for green public procurement so that it includes quantitative surveying in public administration, especially at central bodies of state administration, regarding the energy efficiency measures taken (partly with regard to energy savings and spending). Further to a resolution on the forthcoming Energy Efficiency Act (transposing Directive 2012/27/EU), central bodies of state administration will be required to procure products, services and buildings only in the highest energy efficiency class, insofar as this is economically and technically feasible.

Within the scope of the Operational Programme Environmental Quality, the Slovak Innovation and Energy Agency will support towns, municipalities and higher territorial units in the preparation and implementation of plans on sustainable energy and reductions in greenhouse gas emissions, and in the introduction of systems of energy management (including energy auditing) and environmental management. The development of the energy services market will be promoted in particular by the provision of financial resources to local government entities to engage in energy auditing and energy service provision contracting.

The Operational Programme Environmental Quality will also support energy services in the public sector (Measure 3.19 – Support for the development of energy services regionally and locally, Operational Programme Environmental Quality 2014–2020). The Operational Programme Environmental Quality will also be used as a vehicle to provide municipal self-governing entities with financial contributions to process energy audits focusing on the provision of energy services, to advertise tendering procedure for energy service providers, and to draw up energy service provision

[18] On 18 June 2014, the Slovak Government approved a proposal for a change in the Environmental Fund's 2014 budget in response to an extension in the specification of subsidy-related support activities for 2014, amounting to EUR 15 million, to include Activity L1 – Improvements in the energy efficiency of existing public buildings, including insulation.

[19] Under Section 18(3) of Act No 414/2012 on emissions trading, as amended, proceeds from the auctioning of allowances are used to finance projects focusing, among other things, on improved energy efficiency.

contracts. It is expected that, under the Operational Programme Environmental Quality, the priority in 2014–2016 will be on financing the renovation of state administration buildings (including the buildings of central bodies of state administration); projects in municipalities and higher territorial units will not be financed until after 2017.

The support of energy services is also covered by Measure 3.12 'Provision of energy services for the public sector via gas, electricity and heat suppliers'. This measure is planned as an alternative measure to the compulsory energy efficiency schemes under Article 7 of Directive 2012/27/EU. Energy suppliers will provide energy services to the public sector (in particular the technical facilities of public buildings and public lighting in municipalities). Energy savings made by way of energy services will be recorded in the energy efficiency monitoring system.

The project 'Support of instruments to introduce and optimise measures in the energy efficiency of public buildings', fully financed under Measure 2.2 of the Operational Programme Competitiveness and Economic Growth, was launched in 2014. This project focuses on energy auditing for 250 public buildings (outside the Bratislava Region), including draft measures and possibilities for the financing of their implementation. This national project will also include an analysis of the potential for energy savings in public buildings based on the results of the energy audits. The results of the analysis will be used, among other things, as input in the preparation of strategy and programming documents, as well as for draft legislation and legislative amendments.

There are plans for the support of the development of energy services in public sector buildings to include improvements in the terms and conditions for the financing public-private partnership projects. This will include a review of legislation of general application concerning the budgetary rules of state and public administration in order to facilitate long-term financing under public-private partnership projects, and to facilitate the repayment of project investments within the scope of the assigned budget headings of public entities (e.g. so that long-term investments can be repaid within the scope of rules related to the financing of primary and secondary schools and school facilities[20]). In this respect, it will also be necessary to prepare guidelines on the co-financing of projects financed with EU resources and implemented by public administration from private resources within the scope of public-private partnership projects.

Measure 3.14 Support for the construction of nearly zero energy buildings in the public sector, within the scope of competence of the Ministry of Transport, Construction and Regional Development. Act No 555/2005 on the energy performance of buildings, as amended, offers the possibility of subsidies 'to accelerate improvements in the energy performance of buildings and their transition to nearly zero-energy buildings in accordance with the National Plan [for Increasing the Number of Nearly Zero-energy Buildings, Ministry of Transport, Construction and Regional Development, 2013].' The granting of subsidies will depend on the earmarking of such resources in the central government budget.

As mentioned above, one of the future challenges will be to arrange for the evaluation of energy efficiency measures implemented within the public administration structure. In addition, according to the current Act No 476/2008, central bodies of state administration, along with higher territorial units, towns and municipalities, are required to disclose information on their energy consumption in

[20] Act No 597/2003 on the financing of primary schools, secondary schools and school facilities, as amended.

the energy efficiency monitoring system. This obligation will remain in place in the forthcoming Energy Efficiency Act. In adversarial procedure, organisations under various budget headings have drawn attention to the need to reinforce staffing within the scope of their headings. However, in line with a Ministry of Finance requirement, any such reinforcement will have to take the form of the filling of vacancies up to the limit on the number of employees and the approved limits on wages, salaries, service income, and other personal remuneration under the Ministry of Finance budget heading for the relevant years. To make it easier to comply with these demands, employees of the Ministry of Economy and the Slovak Innovation and Energy Agency will help individual public administration entities with their reporting. Seminars and other informative and advisory activities related to energy efficiency are also planned for the employees of these entities.

One of the support measures related to the gradual increase in the number of nearly zero-energy buildings is the 'introduction of a model solution for the construction or renovation of buildings owned by public authorities' under the National Plan for Increasing the Number of Nearly Zero-energy Buildings (Ministry of Transport, Construction and Regional Development, 2013).

Table 7: Summary overview of measures in the public sector in the 2011-2013 period

Measure No	Measure title	Measure specifications	Financial mechanism	Responsible ministry/ organisation	Savings planned in 2011-2013	Energy savings achieved in 2011–2013	Investments planned in the 2AP	Actual investments in 2011–2013
					[TJ]	[TJ]	[EUR thousands]	[EUR thousands]
3.1.1	Improvements in the thermal performance of public buildings	Healthcare facilities	2007–2013 Structural Funds, OP Health	Ministry of Health	47	28.10	81 240	103 652
3.1.2			Healthcare facility appropriations	Ministry of Health	95	0.00 B)	7 234	0 B)
3.2.1		Schools and school facilities	2007–2013 Structural Funds, OP Research and Development	Ministry of Education, Science, Research and Sport	34	11.05	101 725	14 387
3.2.2			2007–2013 Structural Funds, ROP, Measure 1.1 Education infrastructure	Ministry of Agriculture and Rural Development	1 814	505.50	282 998	147 115
3.3		Social services	2007–2013 Structural Funds, ROP, Measure 2.1 Infrastructure of social services, social protection and social care	Ministry of Agriculture and Rural Development	82	76.75	141 171	56 412
3.4		Cultural facilities	2007-2013 Structural Funds, ROP, Measure 3.1 Strengthening the cultural potential of the regions	Ministry of Agriculture and Rural Development	4	1.87	7 910	1 625
3.5		Office buildings	2007–2013 Structural Funds, OP Bratislava Region	Ministry of Agriculture and Rural Developmen	4	0.00 C)	0	0 C)

Measure No	Measure title	Measure specifications	Financial mechanism	Responsible ministry/ organisation	Savings planned in 2011-2013	Energy savings achieved in 2011–2013	Investments planned in the 2AP	Actual investments in 2011–2013
					[TJ]	[TJ]	[EUR thousands]	[EUR thousands]
				t				
3.6	Improvements in the thermal performance of public buildings	Fire stations	2007–2013 Structural Funds, ROP, Measure 4.2 Infrastructure of non-commercial rescue services	Ministry of Agriculture and Rural Development	0	7.86	0	5,115
3.7		Miscellaneous public buildings	Energy Efficiency in Public Buildings – pilot project	Ministry of Economy/Slovak Innovation and Energy Agency	-	7.64	-	10,434
3.8		Miscellaneous types of public buildings	EkoFond – Programme 02 Improvement in the energy performance of buildings	SPP, a.s./ EkoFond	0	16.23	0	6,270
3.9		Miscellaneous public buildings	Munseff	ESG, Commission, EBRD	0.00	0.00 D)	0	6,987
3.10	Upgrading of public street lighting		2007–2013 Structural Funds, OP Competitiveness and Economic Growth, Measure 2.2	Ministry of Economy/Slovak Innovation and Energy Agency	27	3.92	34 752	21,618
3.11	Application of the principle of energy efficiency in public procurement			Central bodies of state administration	100	0.00 B)	0	0 B)
3.12	E^2 in state administration – SIEA training programme			Ministry of	A)	A)	195	50

Measure No	Measure title	Measure specifications	Financial mechanism	Responsible ministry/ organisation	Savings planned in 2011-2013	Energy savings achieved in 2011–2013	Investments planned in the 2AP	Actual investments in 2011–2013
					[TJ]	[TJ]	[EUR thousands]	[EUR thousands]
				Economy				
3.13	Support for the construction of nearly zero-energy buildings in the public sector			Ministry of Transport, Construction and Regional Development	A)	A)	100	0 B)
3.14	Publication of supporting documents covering the lead role played by the public sector			Ministry of Economy, Office for Public Procurement	A)	A)	0	0 B)
	Total public sector 2011-2013				**2 234**	**658.92**	**675 624**	**373 613**

Notes: A) Energy savings cannot be quantified because the impact is indirect.

B) Expenditure cannot be quantified precisely; it lies within the scope of the budget approved for individual headings.

C) Data for an evaluation of this measure are not currently available.

D) Energy savings will not emerge until the next period (2014–2016).

Table 8: Summary overview of measures planned in the public sector in the 2014-2016 period

Measure No	Measure title	Financial mechanism	Responsible ministry/ organisation	Measure to comply with Article 7 of Directive 2012/27/EU	Final energy consumption savings planned in 2014–2016		Financing [EUR thousands]						
					[TJ]	EU	Central government budget	Co-financing from the central government budget	Extra-budgetary public sources	HTUs, municipalities, towns	Private sources	Other	Total
3.1	Improvements in the thermal performance of public buildings – Healthcare facilities	2007–2013 Structural Funds, OP Health	Ministry of Health	x	24.60	15 088	0	2 476	0	186	196	0	17 947
3.2.1	Improvements in the thermal performance of public buildings – Schools and school facilities	2007–2013 Structural Funds, OP Research & Development	Ministry of Education, Science, Research and Sport	x	1.77	1 682	0	297	0	0	0	0	1 979
3.2.2		2007–2013 Structural Funds, ROP, Measure 1.1	Ministry of Agriculture and Rural Development	x	69.75	8 217	0	967	0	483	0	0	9 667
3.3	Improvements in the thermal performance of public buildings – Social services	2007–2013 Structural Funds, ROP, Measure 2.1	Ministry of Agriculture and Rural Development	x	334.19	80 417	0	9 461	0	4 730	0	0	94 608
3.4	Improvements in the thermal performance of public buildings – Cultural facilities	2007–2013 Structural Funds, ROP, Measure 3.1	Ministry of Agriculture and Rural Development	x	4.98	2 348	0	276	0	138	0	0	2 763

Measure No	Measure title	Financial mechanism	Responsible ministry/ organisation	Measure to comply with Article 7 of Directive 2012/27/EU	Final energy consumption savings planned in 2014–2016		Financing [EUR thousands]						
					[TJ]	EU	Central government budget	Co-financing from the central government budget	Extra-budgetary public sources	HTUs, municipalities, towns	Private sources	Other	Total
3.5	Improvements in the thermal performance of public buildings – Fire stations	2007–2013 Structural Funds, ROP, Measure 4.2	Ministry of Agriculture and Rural Development	x	27.67	223	0	39	0	14	0	0	276
3.6	Reduction in the energy intensity of public buildings – administrative buildings, buildings of schools and school facilities, healthcare facilities	OP Environmental Quality 2014–2020	Ministry of the Environment, Ministry of Economy	x	464.40	110 066	0	12 949	0	6 474	0	0	129 489
3.7	Improvements in the thermal performance of public buildings – administrative buildings	Budget headings of central bodies of state administration (Article 5 of Directive 2012/27/EU)	Ministry of Finance, central bodies of state administration	x	0.00	0	0 E)	0	0	0	0	0	0
3.8	Improvements in the thermal performance of public buildings – Schools and school facilities, healthcare facilities, administrative buildings	Energy Efficiency in Public Buildings – pilot project	Ministry of Economy/ Slovak Innovation and Energy Agency	x	0 F)	0	31	0	0	0	0	0	0
3.9	Improvements in the thermal performance of public buildings	EkoFond – Programme 02 Improvement in the	SPP, a.s./ EkoFond		10.04	0	0	0	0	0	974	412	1 386

Measure No	Measure title	Financial mechanism	Responsible ministry/ organisation	Measure to comply with Article 7 of Directive 2012/27/EU	Final energy consumption savings planned in 2014–2016		Financing [EUR thousands]						
					[TJ]	EU	Central government budget	Co-financing from the central government budget	Extra-budgetary public sources	HTUs, municipalities, towns	Private sources	Other	Total
		energy performance of buildings											
3.10	Improvements in the thermal performance of public buildings	Munseff[21]	ESG, EBRD, Commission		12.88	0	0	0	0	0	0	7 511	7,511
3.11	Improvements in the thermal performance of public buildings	Activity L1: Enhanced energy efficiency of existing public buildings, including insulation	Environmental Fund	x	47.37 C)	0	0	0	15 000	789	0	0	15,789
3.12	Application of the principle of energy efficiency in public procurement	Central bodies of state administration, municipalities, towns, HTUs	Central bodies of state administration	x	100.00	0	8 299	0	0	0	0	0	8,299
3.13	Upgrading of public street lighting	2007–2013 Structural Funds, OP Competitiveness and Economic Growth, Measure 2.2	Ministry of Economy/ Slovak Innovation and Energy Agency	x	106.98	29 933	0	5 282	0	2 121	0	0	37,336
3.14	Provision of energy services for the public sector via gas, electricity and heat suppliers		Energy suppliers	x	442.78	0	0	0	0	0	49 197	0	49 197
3.15	E^2 in state administration – SIEA training programme		Slovak		A)	0	100	0	0	0	0	0	100

[21] This entails lending from public sources which is to be gradually repaid from the resources of local government entities (EBRD loans, incentive payments from the EU).

Measure No	Measure title	Financial mechanism	Responsible ministry/ organisation	Measure to comply with Article 7 of Directive 2012/27/EU	Final energy consumption savings planned in 2014–2016		Financing [EUR thousands]						
					[TJ]	EU	Central government budget	Co-financing from the central government budget	Extra-budgetary public sources	HTUs, municipalities, towns	Private sources	Other	Total
			Innovation and Energy Agency/Ministry of Economy										
3.16	Support for the construction of nearly zero-energy buildings in the public sector		Ministry of Transport, Construction and Regional Development		A)	0	B)	0	0	0	0	0	0
3.17	Publication of supporting documents covering the lead role played by the public sector		Ministry of Economy, Office for Public Procurement		A)	0	B)	0	0	0	0	0	0
3.18.1	Production, approval and implementation of plans for sustainable energy and reductions in greenhouse gas emissions	OP Environmental Quality 2014–2020 (excluding the Bratislava Region)	Ministry of the Environment, Ministry of Economy		A)	4 286	0	504	0	252	0	0	5 042
3.18.2		Subsidy schemes within the purview of the	Ministry of Economy		A)	0	0 D)	0	0	0 D)	0	0	0

Measure No	Measure title	Financial mechanism	Responsible ministry/ organisation	Measure to comply with Article 7 of Directive 2012/27/EU	Final energy consumption savings planned in 2014–2016		Financing [EUR thousands]						
					[TJ]	EU	Central government budget	Co-financing from the central government budget	Extra-budgetary public sources	HTUs, municipalities, towns	Private sources	Other	Total
		Ministry of Economy (in the Bratislava Region)											
3.19	Introduction of energy management systems, including energy audits and environmental management	OP Environmental Quality 2014–2020 (excluding the Bratislava Region)	Ministry of the Environment, Ministry of Economy	x	A)	1 286	0	151	0	76	0	0	1 513
3.20	Support for the development of energy services regionally and locally	OP Environmental Quality 2014–2020	Ministry of the Environment, Ministry of Economy		A)	5 143	0	605	0	303	0	0	6 050
3.21	Energy audits in public buildings	2007–2013 Structural Funds, OP Competitiveness and Economic Growth, Measure 2.2	Slovak Innovation and Energy Agency	x	24.30	1 477	0	261	0	0	0	0	1 738
3.22	Analysis of energy-saving potential in public buildings	2007–2013 Structural Funds, OP Competitiveness and Economic Growth, Measure 2.2	Slovak Innovation and Energy Agency		A)	52	0	9	0	0	0	0	62

Measure No	Measure title	Financial mechanism	Responsible ministry/ organisation	Measure to comply with Article 7 of Directive 2012/27/EU	Final energy consumption savings planned in 2014–2016		Financing [EUR thousands]						
					[TJ]	EU	Central government budget	Co-financing from the central government budget	Extra-budgetary public sources	HTUs, municipalities, towns	Private sources	Other	Total
3.23	Energy audits of selected buildings of central bodies of state administration	Pilot project	Ministry of Economy/ Slovak Innovation and Energy Agency	x	A)	0	50	0	0	0	0	0	50
3.24	Expansion of the survey of energy savings within the scope of green public procurement to include quantification of annual energy savings and the financial resources expended		Ministry of the Environment, Slovak Innovation and Energy Agency		A)	0	B)	0	0	0	0	0	0
3.25.2	Review of legislation of general application concerning the budgetary rules of state and public administration		Ministry of Finance		A)	0	B)	0	0	0	0	0	0
3.25.3	Support of financing under public-private partnership projects financed with EU resources		Ministry of Finance		A)	0	B)	0	0	0	0	0	0
3.25.4	Expansion of the survey of annual energy savings within the scope of green public procurement (including the resources expended)		Ministry of the Environment		A)	0	B)	0	0	0	0	0	0
	Total public sector 2014-2016				**1,671.7**	**260,219**	**8,480**	**33 278**	**15 000**	**15 567**	**50 368**	**7 923**	**390 834**

Notes: A) Energy savings cannot be quantified because the impact is indirect.

B) Expenditure cannot be quantified precisely; it lies within the scope of the budget approved for individual headings.

C) Because the call for Activity L1 remains pending (until 31 July 2014), energy savings are determined on the basis of an expert estimate. The projects are expected to be implemented over the course of two years.

D) Budgetary constraints indicate that subsidy schemes within the purview of the Ministry of Economy will not start to be used until after 2016.

E) Budgetary constraints indicate that the renovation of the buildings of central bodies of state administration will mainly be carried out in the 2014–2016 period with resources from the Operational Programme Environmental Quality. After 2016, it is expected that funding will come from the central government budget or from an increase in budget headings.

F) It is currently impossible to quantify the estimated energy savings by reference to project data.

2.1.4 Energy efficiency measures in the transport sector

2011–2013 period

The greatest contribution to energy savings in the transport sector came from measures financed by the Structural Funds under the Operational Programme Transport (2007–2013). Within the scope of the Operational Programme Transport, the main contribution was made by a measure focusing on the building and modernisation of the transport infrastructure. It was implemented under Priority Axis 5 – Road infrastructure (specifically Measure 5.1 of the Operational Programme Transport – Construction of expressways, and Measure 5.2 – Modernisation and construction of class I roads). The measure aimed at modernising the rail transport fleet also made a significant contribution (Operational Programme Transport, Priority Axis 6 – Rail public passenger transport, Measure 6.1 – Replacement of railway mobile resources). The building of a basic network of public intermodal terminals (Operational Programme Transport, Measure 3.1 – Construction of public intermodal terminals) can no longer be evaluated because this measure has been partially cancelled and postponed.[22]

Important support measures aimed at reducing energy consumption and transport include Support for the development and use of public passenger transport and Improvements in support for non-motorised modes of transport (cycling). Support for the development of public passenger transport focuses primarily on upgrading the outdated public passenger transport infrastructure, including integrated transport systems. It is expected that this will motivate passengers to make greater use of public passenger transport and that, subsequently, there will be a reduction in the proportion of private vehicle use, accompanied by the replacement of public transport buses with low-energy trolley buses and trams. Another measure is the EkoFond – Programme 05 grant scheme – Support for the use of CNG in Slovak transport. The target group here comprised non-business entities (the general public and non-profit organisations).

Cycling will be promoted in accordance with the 'National Strategy for the Development of Cycling in the Slovak Republic' (approved under Government Resolution No 223/2013 of 7 May 2013), to be financed by the IROP (2014–2020). The main aim is to develop cycling and to ensure its upward convergence so that it is on a par with other modes of transport. This will help to increase the share of cyclists among road users and to reduce fuel consumption in Slovakia. As both of the last mentioned measures are currently being implemented, it will not be possible to quantify energy savings until the new period.

The 2014–2016 period, with an outlook up to 2020

The 'Renewal and modernisation of the fleet' will continue in the new period (the replacement of public buses will be financed by the IROP 2014–2020, while the replacement of rail vehicles will be financed by the Operational Programme Integrated Infrastructure 2014–2020). 'Building and upgrading the transport infrastructure' is another measure that will be continued (this will be

[22] Under the Operational Programme Transport, 'Priority Axis 3 – Intermodal infrastructure', the stated objective was to build intermodal terminals in Žilina, Leopoldov, Bratislava, and Košice, and to build a smart transport system for the management of intermodal terminals in Slovakia. However, under Priority Access 3, three intermodal terminal construction projects (Košice, Bratislava, Leopoldov) were removed, as was the project of a smart transport system for intermodal terminals in Slovakia. Only the Žilina intermodal terminal will be constructed. The first stage of the project is currently underway.

financed by the Operational Programme Transport 2007–2013, the Operational Programme Integrated Infrastructure 2014–2020 and the IROP 2014–2020). It is expected that the construction and development of the transport infrastructure, the completion of a coherent superior road infrastructure network, class II and III roads and the upgrading of the main railway tracks, along with the elimination of bottlenecks and blackspots, will pave the way for a reduction in fuel consumption. The Operational Programme Integrated Infrastructure 2014–2020 will promote public passenger transport by improving the quality of the infrastructure for integrated transport systems and urban rail transport. The IROP 2014–2020 will support public passenger transport infrastructure, including support for the creation and introduction of integrated transport systems. At the same time, more support will be channelled into the development of non-motorised transport in accordance with the above-mentioned 'Cycling Strategy'. This measure will include support for the construction of cycling infrastructure, the introduction of a signposting and information system for cyclists, and parking facilities for cyclists.

In addition, a rise in the number of vehicles powered by compressed natural gas is anticipated in the new period. The main advantages of this are lower specific fuel consumption and reduced emissions of carbon dioxide and particulate matter. The higher initial investment costs of procuring such vehicles and building a network of filling stations remain open challenges.

Table 9: Summary overview of measures in the transport sector in the 2011–2013 period

Measure No	Measure title	Financial mechanism	Responsible ministry	Duration of the measure	Savings planned in the 2AP	Energy savings achieved in 2011–2013	Investments planned in the 2AP	Actual investments in 2011–2013
					[TJ]	[TJ]	[EUR thousands]	[EUR thousands]
4.1	Bus and passenger rail transport policy; restriction on vehicle age	HTUs, towns	HTUs, towns	2011-2013	85	50.57	358 494	127 679
4.2	Bus and passenger rail transport policy – financing of public interest services – regional rail transport	Ministry of Transport, Construction and Regional Development	Ministry of Transport, Construction and Regional Development	1996 onwards	20	0.00	448 118	601 901
4.3	Upgrading of rolling stock – public rail transport	2007–2013 Structural Funds, OP Transport	Ministry of Transport, Construction and Regional Development	2007-2013	30	22.58	236 307	231 958
4.4	Building and upgrading the transport infrastructure	2007–2013 Structural Funds, OP Transport	Ministry of Transport, Construction and Regional Development	2007-2013	291.50	188.28	1 126 555	964 867
4.5	Building a basic network of public interports	2007–2013 Structural Funds, OP Transport – Intermodal transport infrastructure	Ministry of Transport, Construction and Regional Development	2007-2013	370	0.00	118 927	871
4.6	Support for the development and use of public passenger transport	Ministry of Transport, Construction and Regional Development	Ministry of Transport, Construction	2007-2013	82.50	0.00	150	210 113

			and Regional Development					
4.7	Reduction of specific energy consumption in individual transport	Ministry of Transport, Construction and Regional Development	Ministry of Transport, Construction and Regional Development	Not implemented	10	0.00	0	0
4.8	Improvements in support for non-motorised modes of transport (cycling)	Ministry of Transport, Construction and Regional Development	Ministry of Transport, Construction and Regional Development	2013 onwards	10	7.12	2,951	1,036
4.9 (sub.)	Traffic control optimisation and smart transport systems (road transport)	Ministry of Transport, Construction and Regional Development	Ministry of Transport, Construction and Regional Development	2013	0	9.00	0	5,393
4.10	Programme 05 Support for the use of CNG in Slovak transport	Ekofond	SPP, a.s./ EkoFond	2008 onwards	0	A)	0	326
	Total transport 2011-2013				**899**	**277.55**	**2 291 502**	**2 144 144**

Notes: A) Energy savings cannot be quantified because the impact is indirect.

Table 10: Summary overview of measures planned in the transport sector in the 2014-2016 period

Measure No	Measure title	Financial mechanism	Responsible ministry	Measure to comply with Article 7 of Directive 2012/27/EU	Final energy consumption savings planned in 2014–2016	Financing [EUR thousands]					
					[TJ]	EU	Central government budget	Co-financing from the central government budget	HTUs, municipalities, towns	Private sources	Total
4.1.1a	Renewal and modernisation of the fleet – Rail transport	OP Transport 2007–2013	Ministry of Transport, Construction and Regional Development	x	78.24	251 623	0	151 993	0	0	403 615
4.1.1b		OP Integrated Infrastructure 2014–2020		x	12.71	78 174	0	13 244	552	0	91 969
4.1.2	Renewal and modernisation of the fleet – Bus/coach transport	OP Environment 2007–2013 IROP 2014-2020	Ministry of the Environment, Ministry of Transport, Construction and Regional Development, Ministry of Agriculture and Rural Development	x	6.01	11 400	0	516	84	0	12 000
4.2	Building and upgrading the transport infrastructure (contd.)	OP Transport 2007–2013, OP Integrated Infrastructure 2014–2020	Ministry of Transport, Construction and Regional Development	x	424.53	1 775 478	0	1 072 478	0	0	2 847 956
4.3	Support for the development and use of public passenger transport, including	OP Integrated Infrastructure	Ministry of Transport,	x	45.13	430 296	0	75 935	0	0	506 230

	support for the creation of integrated transport systems	2014–2020, IROP 2014-2020	Construction and Regional Development , Ministry of Agriculture and Rural Development								
4.4	Support for the development of non-motorised transport, especially cycling	IROP 2014-2020	Ministry of Transport, Construction and Regional Development	x	9.40	5 961	0	0	314	0	6,275
	Total transport 2014-2016				**576.02**	**2 301 308**	**0**	**1 314 165**	**950**	**0**	**3 464 430**

2.1.5 Energy efficiency measures in the appliances sector

2011–2013 period

The only measure which can be quantitatively evaluated and which also delivers major energy savings is the replacement of white goods. This measure can be evaluated from the perspective of energy savings by reference to the number of electrical appliances collected (the Envirodom scheme) and on the basis of statistics on numbers of white goods delivered (newly entering the market) (CECED). In the calculation of energy savings, purchases of new appliances and their energy class are taken into account (i.e. energy savings from the replacement of white goods do not include the energy consumption of the products newly entering the market). Consequently, energy savings only include the savings achieved purely by replacing the old appliance with the new one. Energy savings made by replacing white goods amounted to approximately 670 TJ in the 2011–2013 period. This saving only includes the energy savings made from replacing refrigerators and freezers because there are currently no detailed statistics on other white goods.

For other appliances (lighting, electric and electronic household equipment and office equipment), there is currently no database or mechanism to calculate energy savings made as a result of retailer/manufacturer special offers.

In the reference period, energy savings in the appliances sector were also encouraged by means of European Commission support measures comprising the creation and regular updating of minimum technical requirements for energy efficiency and the energy labelling of energy-consuming equipment. The Commission's requirements for the minimum energy efficiency of energy-related products (appliances) are established in Slovakia by the framework set out in Act No 529/2010 on eco-design,[23] and the energy-labelling requirements for these products are set out in Act No 182/2011 on labelling;[24] the Commission regulations for the various groups of manufacturers/appliances are fully binding and directly applicable in Slovakia.[25]

In addition to legislative changes, information campaigns organised by the CECED and consumer associations focusing on less energy intensive appliances are regularly held. Exact energy savings cannot be quantified in this case, but it would be fair to say that intensive information campaigning on energy labelling has contributed to the conscious purchasing of less energy demanding appliances. Energy labelling and the promotion thereof have made the energy parameters of products a more important factor than price for consumers.

For other appliances (lighting, electric and electronic household equipment and office equipment), there is currently no database or mechanism to calculate energy savings. The measure 'Introduction and operation of a system to monitor the replacement of white goods and other appliances and equipment on the market', in partnership with the Statistical Office of the Slovak Republic, the Slovak Innovation and Energy Agency, the CECED and consumer associations, has yet to be

[23] Act No 529/2010 of 14 December 2010 on the environmental design and use of products (the Eco-design Act).

[24] Act 182/2011 of 1 June 2011 on the labelling of energy-related products and amending certain laws

[25] EU regulations falling within the scope of the Eco-design Directive (transposed into national legislation by Act No 529/2010) and delegated EU regulations falling within the scope of the Labelling Directive (transposed into national legislation by Act No 182/2011) will enter into effect in Slovakia on the 20th day after their publication in the EU's Official Journal.

implemented. However, in the new period there are plans to introduce and operate the monitoring of the replacement of white goods and other appliances as part of the expansion of the monitoring system (Operational Programme Environmental Quality 2014–2020). This scheme would include a survey of energy consumption in 200 households based on a sample of appliances, as well as an analysis of the potential for energy savings.

Information campaigns focusing on the replacement of old appliances with more energy-efficient products, and on the purchase of such new products, are held every year by appliance manufacturers. However, neither the Ministry of Economy nor the CECED collect data on the campaigns that have been implemented.

Implementing Decree No 358/2013[26] made the smart metering of electricity in households with consumption in excess of 4 MWh mandatory. Approximately 22 per cent of households are subject to this obligation, which paves the way for electricity savings in the home. Likewise, approximately 1 000 heat and hot water smart metering systems have been installed, as have approximately 800 000 heat cost allocators with remote readers, as a requirement for the further development of the smart metering of energy consumption in households.

The 2014–2016 period, with an outlook up to 2020

The new period will see the continuation of the replacement of white goods and the tightening of minimum technical requirements by the Commission within the scope of established eco-design and labelling legislation. It is expected that a consumer information campaign will be held and that the monitoring of savings will be improved by the introduction of more efficient appliances among other appliance types.

[26] Implementing Decree of the Ministry of Economy No 358 of 28 October 2013 laying down the procedure and conditions for the introduction and operation of smart metering systems in the electricity sector.

Table 11: Summary overview of measures in the appliances sector in the 2011–2013 period

Measure No	Measure title	Financial mechanism	Responsible ministry	Final energy consumption savings planned in the 2AP	Final energy consumption savings achieved in 2011–2013	Investments planned in the 2AP	Actual investments in 2011–2013
				[TJ]	[TJ]	[EUR thousands]	[EUR thousands]
2.1	White goods replacement	Own funds, special offers from retailers and manufacturers	-	740	667.52	144,000	129,895
2.2	Energy-saving lighting	Own funds, special offers from retailers and manufacturers	-	200	0.00	15,750	0.00
2.3	Replacement of electric and electronic household equipment	Own funds, special offers from retailers and manufacturers	-	10	0.00	500	0.00
2.4	Replacement of office equipment	Own funds, special offers from retailers and manufacturers	-	35	0.00	500	0.00
2.5	Application of legislative measures	Energy labelling, Ecodesign	Ministry of Economy	A)	0.00	13	0.00
2.6	Information campaigns aimed at energy-saving appliances	CECED, consumer associations, retailers, Ministry of Economy, Slovak Innovation and Energy Agency	CECED, Ministry of Economy	A)	0.00	20	0.00
2.7	Introduction of transparent monitoring of the replacement of white goods and other appliances and equipment on the market	Statistical Office of the Slovak Republic, Slovak Innovation and Energy Agency, CECED, consumer associations	CECED, Ministry of Economy, Statistical Office of the Slovak Republic	A)	0.00	0	0.00
	Total appliances 2011-2013			**985**	**667.52**	**160 783**	**129 895**

Notes: A) Energy savings cannot be quantified because the impact is indirect.

Table 12: Summary overview of measures planned in the appliances sector in the 2014-2016 period

Measure No	Measure title	Financial mechanism	Responsible ministry	Measure to comply with Article 7 of Directive 2012/27/EU	Final energy consumption savings planned in 2014–2016	Financing [EUR thousands]					
					[TJ]	EU	Central government budget	Co-financing from the central government budget	HTUs, municipalities, towns	Private sources	Total
2.1	White goods replacement	Own funds, special offers from retailers and manufacturers	CECED	x	492.32	0	0	0	0	103 116	103 116
2.2	Energy-saving lighting	Own funds, special offers from retailers and manufacturers	CECED		200.00	0	0	0	0	15 750	15 750
2.3	Replacement of electric and electronic household equipment	Own funds, special offers from retailers and manufacturers	CECED		10.00	0	0	0	0	500	500
2.4	Replacement of office equipment	Own funds, special offers from retailers and manufacturers	CECED		35.00	0	0	0	0	500	500
2.5	Application of legislative measures	Energy labelling, Ecodesign	Ministry of Economy		A)	0	0	0	0	0	0
2.6	Information campaigns aimed at energy-saving appliances	CECED, consumer associations, retailers, Ministry of Economy, Slovak Innovation and Energy Agency	CECED, Ministry of Economy/Slovak Innovation and Energy Agency[27]		A)	0	0	0	0	20	20
2.7	Introduction and operation of a system to monitor the	Statistical Office of the Slovak Republic, Slovak Innovation and	CECED, Statistical		A)	0	0	0	0	0	0

[27] Financing reflected in the budget for the energy efficiency monitoring system (OP Environmental Quality 2014–2020), see 2.3 Horizontal measures.

	replacement of white goods and other appliances and equipment on the market	Energy Agency, CECED, consumer associations	Office of the Slovak Republic, Ministry of Economy/Slovak Innovation and Energy Agency[27]								
	Total appliances 2014-2016				**737.32**	**0**	**0**	**0**	**0**	**119 886**	**119 886**

Notes: A) Energy savings cannot be quantified because the impact is indirect.

2.2. Energy transformation, transmission and distribution measures

Because the 2AP focused primarily on consumption, the previous action plan did not include plans for any energy transformation, transmission and distribution measures in the 2011–2013 period. (In that period, the measures implemented were primarily of a legislative nature, including Implementing Decree of the Ministry of Economy No 282/2012 and Implementing Decree of the Ministry of Economy 337/2012; see Section 2.3 Horizontal energy efficiency measures.)

In line with the new Directive 2012/27/EU, the 3AP encompasses energy transformation, transmission and distribution; savings made in respect of such transformation, transmission and distribution may be partially counted towards the fulfilment of set energy savings targets. In light of this situation, the measures in this area in the 3AP are all new.

Energy savings are fuelled in particular by measures financed by the Operational Programme Environmental Quality (2014–2020) which focus on the construction, reconstruction and modernisation of electricity and heat production plants via high-performance combined production with a maximum thermal input of 20 MW. The aim is to adapt heat production and supply to the useful heat required, which is gradually contracting as measures to save energy on the consumption side are phased in. Optimising the production, distribution and consumption of heat, with a stress on employing high-performance combined heat and power generation, can help to reduce primary energy sources and develop efficient district heating systems.

Because the Operational Programme Environmental Quality is financed by the ERDF, these measures cannot be implemented in the Bratislava Region. Therefore, the Ministry of Economy is planning to grant subsidies for the reconstruction and modernisation of electricity and heat production plants and heat distribution systems in the Bratislava Region. However, budgetary constraints indicate that subsidy schemes within the purview of the Ministry of Economy will not start to be used until after 2016.

In addition, the reconstruction and modernisation of electricity and heat production plants and electricity, heat and gas distribution systems will also be carried out by energy infrastructure managers. Reductions in captive consumption in the transformation of energy and reductions in the energy intensity of the transmission and distribution of electricity and gas are being contemplated as a matter of priority. In this respect, attention should be drawn to the fact that investments in the implementation of energy transformation, transmission and distribution measures could pave the way for an increase in energy prices.

In accordance with Directive 2012/27/EU, Slovakia is drawing up a ‘heat map’ for the 2014–2016 period to the extent required by the Directive. This map will display and make available the existing and planned infrastructure of areas where there is a demand for useful heat or cold. The heat map is designed as an extension to the energy efficiency monitoring system operated by the Slovak Innovation and Energy Agency. The ‘Comprehensive assessment of national heating and cooling potential’, including a cost-benefit analysis to be conducted by the Ministry of Economy, will be one of the key documents for determining the potential for energy savings in the supply of heat and cold.

Table 13: Summary overview of measures planned in the energy sector in the 2014–2016 period

Measure No	Measure title	Financial mechanism	Responsible ministry	Primary energy consumption savings planned in 2014–2016	Financing [EUR thousands]						
				[TJ]	EU	Central government budget	Co-financing from the central government budget	HTUs, municipalities, towns	Private sources	Other	Total
6.1.	Construction, reconstruction and modernisation of heat distribution systems	OP Environmental Quality, Priority Axis 4, IP5 A.	Ministry of the Environment, Ministry of Economy	714.96	32 000	0	0	0	57 397	0	89,397
6.2.	Construction, reconstruction and modernisation of electricity and heat production plants via high-performance combined production with a maximum thermal input of 20 MW	OP Environmental Quality, Priority Axis 4, IP5 B.	Ministry of the Environment, Ministry of Economy	70.20	5 000	0	0	0	7 500	0	12,500
6.3.	Reconstruction and modernisation of electricity and heat production plants, electricity, heat, gas distribution systems	Energy infrastructure managers' own resources	Energy infrastructure managers	1 637.00	0	0	0	0	224 178	0	224,178
6.4.	Reconstruction and modernisation of electricity and heat production plants, heat distribution systems in the Bratislava Region	Subsidy scheme within the purview of the Ministry of Economy	Ministry of Economy	0.00	0	0 B)	0	0	0	0	0 B)
6.5	Heat map of Slovakia	Implementation of Directive 2012/27/EU	Ministry of Economy	A)	0	300	0	0	0	0	300
6.6	Comprehensive assessment of national heating and cooling potential	Implementation of Directive 2012/27/EU	Ministry of Economy	A)	0	200	0	0	0	0	200
	Total energy sector 2014-2016			**2 422.16**	**37 000**	**500**	**0**	**0**	**289 075**	**0**	**326 475**

Notes:
A) Energy savings cannot be quantified because the impact is indirect.

B) Budgetary constraints indicate that subsidy schemes within the purview of the Ministry of Economy will not start to be used until after 2016.

2.3. Horizontal energy efficiency measures

Horizontal measures are support measures impacting multiple sectors of the national economy. Therefore, they cannot be presented in individual sectors as support measures. Their impact on energy savings cannot be quantified on the basis of individual projects, as is the case with investment projects. This section presents an evaluation of the most important horizontal measures and future developments.

- **'Energy auditor' training course** – a measure based on Act No 476/2008 establishing the status and obligations of an energy auditor. Candidates wishing to be registered energy auditors must pass an examination of professional competence organised by the Slovak Innovation and Energy Agency. On average, 35 new auditors sit these examinations every year. Candidates may prepare for the examination individually or by attending a training course organised by the Slovak Innovation and Energy Agency. This course is attended by 80 % of candidates preparing to sit the examination of professional competence. Registered energy auditors are required to attend periodic training ('update training') once every three years. This training is attended by an average of 60 energy auditors every year. This is an ongoing measure.
- **Educating children on energy efficiency** – since 2010, the Slovak Innovation and Energy Agency has been responsible for raising energy-saving awareness among children and young people under the 'LIVING WITH ENERGY' national project (Measured 2.2 of the Operational Programme Competitiveness and Economic Growth). The 'Auntie Eta's Advice' information materials are used in more than 50 primary schools. Slovak Innovation and Energy Agency experts have visited more than 30 schools where, as part of an expert programme, they explain energy savings to the children. In addition to the annual 'Energy Efficiency Marathon', aimed at highlighting the principles of energy efficiency in the production and distribution of energy, the Slovak Innovation and Energy Agency also regularly organises lectures at the youth club hosted by the Agency's offices in Banská Bystrica. This measure is being continued under the Operational Programme Environmental Quality 2014–2020.

Children are also educated on energy and energy efficiency under the 'EkoFond for Schools' initiative, which is designed for the pupils and teachers of primary and secondary schools. The EkoFond encourages education in primary schools by means of the following:

i. an annual contest for pupils and teachers designed to encourage teachers to come up with creative energy efficiency projects.

ii. a multimedia educational site at www.platforma.ekofond.sk, which is both a source of information and instructions on how to conduct experiments for science teachers, and a platform for their e-learning.

iii. an interactive travelling exhibition on energy in the third millennium, which is intended mainly for pupils in the second stage of primary schools and for secondary schools. Between October 2011 and June 2013, the exhibition was visited by 19 855 pupils of primary and secondary schools and 976 teachers.

To improve the quality of education in secondary schools, the EkoFond created and introduced the new field of study 'Building Energy Facilities Engineer', a four-year study programme. This included the publication of new educational materials focusing on progressive energy efficient technologies.

The EkoFond also contributes to the training of teachers and supervisors of secondary vocational schools with a technical specialisation in the energy efficient technical equipment of buildings.

- **Energy efficiency information campaign** – since 2010, the Slovak Innovation and Energy Agency has also been responsible for providing public information and advisory activities (see Measure 6.8) under the 'LIVING WITH ENERGY' national project (Measured 2.2 of the Operational Programme Competitiveness and Economic Growth). Since May 2010, advice centres have been set up in Trenčín, Banská Bystrica and Košice to provide free individualised advisory services to the general public and professionals by means of toll-free telephone lines (3 320 consultations), email correspondence (2 360 consultations) and personal consultations (1 650 at the centres and 2 400 at exhibitions and trade fairs). The Slovak Innovation and Energy Agency has published more than 40 types of documents on energy savings and the use of RES with an overall print run of 2 780 350 copies, and has held more than 120 professional events for 5 650 participants. Consulting is also available via a website, which has attracted more than 2 200 000 hits. This measure is being continued under the Operational Programme Environmental Quality 2014–2020.
- **Draft energy efficiency legislative measures** – in line with the requirements of the European Parliament, the European Council and the Commission, and in keeping with practical needs, the following legislative regulations with a significant impact on energy efficiency were amended or prepared in the 2011–2013 period:
  - Act No 300/2012 on the energy performance of buildings,[28] which transposes the requirements of Directive 2010/31/EU of 19 May 2010 on the energy performance of buildings (by amending Act No 555/2005 on the energy performance of buildings);
  - Act No 310/2012 on the periodic inspection of space heating systems and air conditioning systems[29], which supersedes the original Act No 17/2007 on the periodic inspection of boilers, space heating systems and air conditioning systems, and which transposes the requirements of Directive 2010/31/EU on the energy performance of buildings;
  - Act No 69/2013 amending Act No 476/2008 on energy efficiency, as amended, based on the results of the previous practical implementation of the law, especially in connection with the obligation to provide heat and hot water distribution systems in buildings with appropriate thermal insulation and the obligation to monitor energy audit reports.
  - Act No 100/2014 amending Act No 657/2004 on the thermal energy sector, as amended, which transposes some of the requirements derived from Directive 2012/27/1 on energy efficiency in relation to district heating systems.
  - Implementing Decree of the Ministry of Transport, Construction and Regional Development No 364/2012 of 12 November 2012 implementing Act No 555/2005 on the energy performance of buildings and amending certain laws, as amended;
  - Implementing Decree of the Ministry of Economy No 337/2012 of 26 October 2012 establishing the energy efficiency of energy transformation in the operation, upgrading and building of electricity production facilities and heat production facilities;

[28] Act No 300/2012 of 18 September 2012 on the energy performance of buildings amending Act No 555/2005 on the energy performance of buildings and amending certain laws, as amended, and amending Act No 50/1976 on spatial planning and building rules (the Building And) as amended.

[29] Act No 314/2012 of 18 September 2012 on the periodic inspection of space heating systems and air conditioning systems and amending Act No 455/1991 on licensed trading (the Trading Act), as amended.

- Implementing Decree of the Ministry of Economy No 422/2012 of 13 December 2012 laying down the procedure for periodic inspections of space heating systems, expanded inspections of space heating systems and periodic inspections of air conditioning systems;
- Implementing Decree of the Ministry of Economy No 282/2012 of 18 July 2012 laying down technical requirements for the thermal insulation of heat and hot water distribution systems.

- **Energy efficiency monitoring system** – since 2010, the Slovak Innovation and Energy Agency has operated and continually supplemented an energy efficiency monitoring system to evaluate energy efficiency measures. Under Act No 476/2008 on energy efficiency, the obligation to engage in monitoring and to periodically send designated information applies to the following persons in particular:
  - consumers of energy in industry, consumers of energy in agriculture and producers of electricity after the performance of an energy audit;
  - commercial energy companies with energy sales in excess of 30 GWh per year;
  - central bodies of state administration and the organisations for which they are as the founder thereof;
  - municipalities and higher territorial units, etc.

The aim of the monitoring system is to collect data on energy consumption and on energy efficiency measures implemented. In this respect, it is designed as an instrument for the periodic evaluation of energy efficiency measures, selected energy efficiency support mechanisms and energy savings targets derived from European and national legislation. The monitoring system currently monitors energy consumption in the following areas: buildings in the residential sector, energy consumption in the buildings of municipalities and higher territorial units, central bodies of state administration, the collection of energy audit reports, etc. In 2013, the Slovak Innovation and Energy Agency started monitoring energy savings made under the State Housing Development Fund – JESSICA initiative (2013–2014). In the new period, it is assumed that the scope of data collection and functions of the monitoring system will gradually be expanded within the scope of the Operational Programme Environmental Quality 2014–2020 and other support schemes focusing on improvements in energy efficiency.

The results of the energy efficiency monitoring system will be used for a more detailed analysis of energy efficiency measures and support schemes in this area (see the 'Analysis of energy efficiency support schemes' below).If the energy efficiency monitoring system is to be able to fulfil its objectives and serve as an instrument for the evaluation of the effectiveness of individual energy efficiency measures under the projects implemented, the input data for the individual support mechanisms must be of a high quality, relevant and topical. Therefore, it is necessary to make arrangements for the following:

- the annual provision of input data for evaluations of energy savings and financial resources spent on energy efficiency measures, if possible broken down by project, to the energy efficiency monitoring system operator (the Slovak Innovation and Energy Agency). Support schemes under which energy savings cannot be quantified, e.g. in relation to subsidies for the elimination of systemic defects, will not be subject to mandatory monitoring.
- the annual verification of data under the previous paragraph, processed in an energy efficiency monitoring report.

- in cooperation with the energy efficiency monitoring system operator, the interlinking of the monitoring of support mechanisms with an impact on energy savings, within the purview of the Ministry, with the energy efficiency monitoring system;
- the strengthening of existing organisational structures with workers responsible for the monitoring, analysis, design and implementation of energy efficiency measures within the scope of limits approved for the individual budget headings;
- if there is a change in existing support schemes and mechanisms financed with public resources, or if new such schemes or mechanisms are proposed, compliance with energy efficiency policies and strategies.

It is assumed that input data for evaluations of implemented and draft planned measures will be collected by means of resources within the limits set for individual budget headings. The expansion of the energy efficiency monitoring system and the gradual interlinking thereof with the monitoring systems of support schemes will be financed by the ESIF 2014–2020.

- **Harmonisation of reporting systems in respect of the sources used to monitor air emissions** – In accordance with currently applicable legislation, some industrial enterprises in Slovakia are included in the European greenhouse gas emission allowance trading scheme (EU ETS) and have precisely specified reporting obligations. Other industrial enterprises are regulated by EU and national legislation on account of the emissions of basic pollutants they produce. In order to harmonise reporting obligations, the database of the electronic air monitoring system (NEIS) needs to be interconnected with the databases of reports used in the EU ETS. This should improve harmonisation and facilitate improved checks on the input data provided by establishments for the two different monitoring systems, and enhance the quality of inputs for the national emissions inventory.

The legal framework to support these activities is formed by Regulation (EU) No 525/2013 on a mechanism for monitoring and reporting greenhouse gas emissions and for reporting other information at national and Union level relevant to climate change, which significantly expands the scope of, and reduces the intervals for, official reporting to the European Commission.

- **Support for the development of energy services** – the development of energy services was supported primarily under the following European cooperation projects:
  - EESI[30] – the European Energy Service Initiative – a project designed to support the use of energy services, especially Energy Performance Contracting (EPC) methods in the implementation of energy efficiency measures. This project included the preparation of model documents facilitating the application of EPC – public procurement documents, model contracts, procedures for the monitoring and evaluation of the savings made.
  - CombinES[31] – Combining energy services with subsidy schemes to finance energy efficiency in Central Europe. The basic idea of the project is to maximise energy savings by defining and interconnecting the activities of public subsidy schemes with the implementation of energy services. The aim is to prepare general and specific recommendations for the granting of subsidies and to open up the energy services market in a manner that will facilitate the maximum possible energy savings while reducing public expenditure.

[30] EESI (European Energy Service Initiative) – this project was implemented between 2009 and 2012. It was financed by Intelligent Energy – Europe II (IEE II), and in Slovakia it was implemented by the Energy Centre Bratislava (ECB).

[31] CombinES (Combining energy services with subsidy schemes to finance energy efficiency in Central Europe) – the project is implemented in the 2011–2014 period via the Operational Programme Central Europe (ERDF 2007–2013); in Slovakia it is implemented by the Energy Centre Bratislava.

- Transparense[32] – Increasing the transparency of energy service markets – the aim of the project is to increase the transparency and credibility of energy service markets in Europe. One of the project's main outputs will be the Code of Ethics for the implementation of EPC projects and 20 versions thereof for the countries involved. The Code of Ethics will define the guiding principles for the preparation and implementation of EPC projects. Compliance with the Code of Ethics will serve as a guarantee of the quality of the EPC projects implemented.

- **Energy consulting** – under the 'LIVING WITH ENERGY' project, the Slovak Innovation and Energy Agency operates advice centres in Trenčín, Banská Bystrica and Košice, where it provides professional advice on energy efficiency and RES, and on the opportunities to finance sustainable energy measures (for the public, towns and municipalities, enterprises, etc.). Energy consulting is also provided through energy companies. This is an ongoing measure.

Besides the Slovak Innovation and Energy Agency, free consulting was also available in the 2011-2013 period from the Energy Centre Bratislava and EkoFond – via their expert consultants. The Energy Centre Bratislava provided advice to households and associations of unit owners in three of Slovakia's regional capitals (Bratislava, Nitra, and Trenčín). The themes were insulation, savings-related measures, space heating, renewable sources, and construction and reconstruction projects. The project financing this consulting service was terminated on 31 December 2013. EkoFond consultants provided energy consulting and energy efficiency project financing opportunities primarily to mayors, households and the representatives of primary and secondary schools who were eligible to apply for grants to make energy savings.

- **Support for research and development in energy savings** – the research projects listed in Annex 3 were addressed within the scope of this science and research programme. These projects included research assignments financed by the Scientific Grant Agency and the Slovak Research and Development Agency. Assignments focusing on research into new technology based on natural gas were financed by the EkoFond.

- **Cross-sectional introduction of the monitoring of savings** – the Ministry of Economy, under Slovakia's Energy Policy, promotes the monitoring of energy savings in all projects which have an influence on energy consumption reduction.

- **Analysis of the energy-saving potential in sectors of the national economy** – Because an up-to-date analysis of the potential for energy savings is required in order to prepare strategy and programming documents on energy efficiency, there are plans to conduct analyses of the energy-saving potential in the various sectors of the national economy in the new period. These analyses will be carried out by the ministries responsible for the given area, in cooperation with the Ministry of Economy, and with any relevant professional associations and institutions.

- **Analysis of energy efficiency support mechanisms in Slovakia** – Opportunities for energy efficiency support mechanisms in Slovakia were and will continue to be analysed as part of the transposition and implementation of Directive 2012/27/EU on energy efficiency. The opportunities analysed include: a compulsory energy efficiency scheme in accordance with Article 7 of the Directive, the Structural Funds, and existing support mechanisms. The possibility of the expanded

[32] Transparense (Increasing transparency of energy service markets) – the project is being implemented between 2013 and 2015. It is financed by the IEE II and implemented in Slovakia by the Energy Centre Bratislava.

provision of repayable aid and third-party financing via energy service companies are also being considered. The establishment of an energy efficiency support fund within the scope of the forthcoming Slovak Investment Holding is also being contemplated within the scope of repayable forms of aid.[33] The aim of the analysis will be to compare the performance indicators of the various support mechanisms, including an analysis and comparison of the investment intensity of the individual energy efficiency measures implemented or planned within the scope of support mechanisms in the individual sectors of the national economy. The analysis results will help in evaluations of the benefits of measures, in the creation and design of new support mechanisms, and in the decision-making of investors in the field of energy efficiency. One of the areas covered could be an analysis of the benefits of improvements in energy efficiency in the individual sectors of the national economy with a view to guiding aid from public resources into sectors delivering the greatest benefit.

- **Energy efficiency targets and their impact on energy prices** – investments in energy savings, particularly in connection with measures that are to be implemented by energy suppliers in pursuit of the objectives under Article 7, could influence prices of regulated entities. The analysis which is to be prepared by the Ministry of Economy in cooperation with the Regulatory Office for Network Industries will aim to quantify this influence.
- **Assistance for towns and municipalities in the preparation of Sustainable Energy Action Plans** – this was implemented primarily in connection with support for the broader involvement of Slovak towns and municipalities in the European-wide initiative 'Covenant of Mayors'.[34] One of the fundamental obligations of signatories of the Covenant is to prepare and implement a Sustainable Energy Action Plan (SEAP). This process is derived from energy management principles and enables signatories to apply this instrument when improving the efficiency of energy management in practice. Within the scope of the National Platform of the Covenant of Mayors, the Ministry of Economy and the Slovak Innovation and Energy Agency, along with other relevant ministries and agencies, are involved in the support of towns of municipalities which are planning or have committed to energy savings targets and reductions in the production of carbon dioxide emissions. The National Platform was created as part of the project NET-COM[35], which was financed by IEE II. So far, four Sustainable Energy Action Plans have been created in Slovakia (Nitra, Moldava nad Bodvou, Bratislava, Turčianske Teplice).

To support towns and municipalities in the preparation of their action plans, there are plans to earmark resources under the Operational Programme Environmental Quality (2014–2020), see Measure 3.16 Production, approval and implementation of plans for sustainable energy and reductions in greenhouse gas emissions (a support measure within the scope of the Public Sector, section 2.1.3).

[33] Procedure for the implementation of financial instruments by the Slovak Investment Holding in the 2014-2020 programming period, approved under Government Resolution No 736/2013 of 18 December 2013.
[34] www.covenantofmayors.eu
[35] Net-COM (Networking the Covenant of Mayors at National Level) – this project was implemented between 2011 and 2013. It was implemented in Slovakia by the CITENERGO interest grouping of towns and municipalities for sustainable energy.

Table 14: Summary overview of horizontal measures in the 2011-2013 period

Measure No	Measure title	Financial mechanism/ Measure specifications	Responsible ministry/ Organisation	Duration of the measure	Investments planned in the 2AP [EUR thousands]	Actual investments in 2011–2013 [EUR thousands]
6.1	'Energy Auditor' training course	Examination of professional competence in accordance with Act No 476/2008, including periodic training	Ministry of Economy	As of 2011	135	120
6.2.1	Educating children on energy efficiency	Living with Energy, 2007–2013 Structural Funds, OP Competitiveness and Economic Growth, Measure 2.2	Ministry of Economy	As of 2010	100	130
6.2.2		EkoFond for schools	SPP, a.s./ EkoFond	As of 2008	0	973
6.3	Energy efficiency information campaign	Living with Energy, 2007–2013 Structural Funds, OP Competitiveness and Economic Growth, Measure 2.2	Ministry of Economy	As of 2010	3 000	2 800
6.4	Draft legislative measures	Amendments to legislative regulations prompted by the European Parliament, Council and Commission and based on experience; clarification of the legislative framework for the use of energy services, particularly in relation to business in the thermal energy sector and public procurement	Ministry of Economy	Ongoing	200	B)
6.5	Monitoring and information system	SIEA operation, funded by the central government budget	Ministry of Economy	As of 2010	2 000	1 600
6.6	Harmonisation of reporting systems in respect of the sources used to monitor air emissions		Ministry of the Environment		-	B)
6.7	Energy service development support	IEE II, Central European Program (ERDF), private resources	Towns and municipalities	As of 2009	52	67
6.8	Energy consulting	Regional energy advice centres	Higher territorial units		0	B)
		Energy management support in towns and municipalities – IEE II project, own resources	Towns and municipalities, Energy Centre Bratislava	2011–2013	0	66
		Provision of information on energy efficiency and on the opportunities for project funding (Slovak Innovation and Energy Agency, Ministry of Economy consultancy)	Ministry of Economy/Slovak Innovation and Energy Agency		1 351	B)

Measure No	Measure title	Financial mechanism/ Measure specifications	Responsible ministry/ Organisation	Duration of the measure	Investments planned in the 2AP	Actual investments in 2011–2013
					[EUR thousands]	[EUR thousands]
		Consultancy services of energy companies	Energy companies		1 500	C)
		Energy savings – Energy Centre Bratislava project[36] (private resources)	Energy Centre Bratislava		45	29
6.9.1	Support for research and development in energy savings	Research assignments focusing on energy efficiency	Ministry of Education, Science, Research and Sport		0	1 136
6.9.2		Research into new technology based on natural gas	SPP, a.s./ Ekofond	2009–2013	0	396
6.10	Cross-sectional introduction of the monitoring of savings		Ministry of Economy and relevant central bodies of state administration		0	B)
6.11	Analyses of the potential energy savings in sectors of the national economy		Ministry of Economy, Ministry of Transport, Construction and Regional Development, CECED and other central bodies of state administration	-	0	B)
6.12	Analysis of energy efficiency support mechanisms in Slovakia		Ministry of Economy/Slovak Innovation and Energy Agency	-	0	B)
6.13	Assistance for towns and	Support activities within the scope of the Ministry of	Ministry of	As of 2011	3	B)

[36] ECB – Energy Centre Bratislava

Measure No	Measure title	Financial mechanism/ Measure specifications	Responsible ministry/ Organisation	Duration of the measure	Investments planned in the 2AP [EUR thousands]	Actual investments in 2011–2013 [EUR thousands]
	municipalities in the preparation of Sustainable Energy Action Plans	Economy/Slovak Innovation and Energy Agency	Economy/Slovak Innovation and Energy Agency			
		Support under the Net-COM project	CITENERGO	2011–2013		
	Total horizontal measures 2011–2013				**8 386**	**7 317**

Notes:

A) Energy savings cannot be quantified because the impact is indirect.

B) Expenditure cannot be quantified precisely at present; it lies within the scope of the budget approved for individual headings and relevant organisations.

C) Data required to quantify the expenditure are not currently available.

Table 15: Summary overview of horizontal measures planned in the 2014-2016 period

Measure No	Measure title	Financial mechanism/ Measure specifications	Responsible ministry/ organisation	Savings planned in 2014-2016	Financing [EUR thousands]					
				[TJ]	EU	Central government budget	Co-financing from the central government budget	HTUs, municipalities, towns	Private sources	Total
7.1	'Energy Auditor' training course	Examination of professional competence in accordance with Act No 476/2008, including periodic training	Ministry of Economy/ Slovak Innovation and Energy Agency	A)	0	30	0	0	90	120
7.2	Improvements in the energy efficiency awareness of children and young people	Living with Energy, 2007–2013 Structural Funds, OP Competitiveness and Economic Growth, Measure 2.2 2014-2020 ESIF , OP Environmental Quality	Ministry of Economy/ Slovak Innovation and Energy Agency	A)	3 214	0	567	0	0	3 782
7.3	Energy efficiency information campaign	Living with Energy, 2007–2013 Structural Funds, OP Competitiveness and Economic Growth, Measure 2.2 2014-2020 ESIF , OP Environmental Quality	Ministry of Economy/ Slovak Innovation and Energy Agency	A)	7 500	0	1 324	0	0	8 824
7.4	Monitoring and information system – interconnection with most energy efficiency support mechanisms	Operation of the Slovak Innovation and Energy Agency, financing by the 2014–2020 ESIF, OP Environmental Quality	Ministry of Economy/ Slovak Innovation and Energy Agency	A)	4 286	330	756	0	0	5 372
7.5	Draft legislative measures, amendments to legislative measures	Amendments to legislative regulations prompted by the European Parliament, Council and Commission and based on experience; clarification of the legislative framework for the use of energy services, particularly in relation to business in the thermal energy sector and public procurement	Ministry of Economy/ Slovak Innovation and Energy Agency	A)	0	B)	0	0	0	0

Measure No	Measure title	Financial mechanism/ Measure specifications	Responsible ministry/ organisation	Savings planned in 2014-2016	Financing [EUR thousands]					
				[TJ]	EU	Central government budget	Co-financing from the central governm ent budget	HTUs, municipal ities, towns	Private sources	Total
7.6	Energy Efficiency Act – Development of energy services (excluding energy suppliers)	Own funds	Energy service companies	20.00	0	0	0	0	2 739	2 739
7.7	Energy consulting	Provision of information on energy efficiency and on the opportunities for project funding (Slovak Innovation and Energy Agency, Ministry of Economy consultancy)	Ministry of Economy/ Slovak Innovation and Energy Agency	A)	0	1 300	0	0	0	1 300
7.8	Support for research and development in energy savings	Research assignments within the framework of the Scientific Grant Agency, the Slovak Research and Development Agency	Ministry of Economy, Ministry of Education, Science, Research and Sport	A)	0	C)	0	0	0	0
7.9	Close monitoring of energy savings in projects supported by 2014– 2020 ESIF	Technical assistance under individual OPs	Central coordination body, managing authorities for individual OPs	A)	632	0	0	0	0	632
7.10	Analyses of the potential energy savings in sectors of the national economy	In the sectors: industry, buildings, transport, appliances, energy transformation, transmission and distribution	Ministry of Economy, Ministry of Transport, Construction and Regional Development, Transport Research	A)	0	B)	0	0	0	1 000

Measure No	Measure title	Financial mechanism/ Measure specifications	Responsible ministry/ organisation	Savings planned in 2014-2016	Financing [EUR thousands]					
				[TJ]	EU	Central government budget	Co-financing from the central government budget	HTUs, municipalities, towns	Private sources	Total
			Institute, CECED, etc.							
7.11	Analysis of energy efficiency support mechanisms in Slovakia		Ministry of Economy, Ministry of Transport, Construction and Regional Development, Ministry of Finance, etc.	A)	0	B)	0	0	0	200
7.12	Energy consumption modelling tool for the preparation of energy- and transport-related strategy documents		Ministry of Economy, Ministry of the Environment	A)	0	0 D)	0	0	0	0
7.13	Energy efficiency targets and their influence on energy prices		Ministry of Economy, Regulatory Office for Network Industries	A)	0	B)	0	0	0	0
	Total horizontal measures 2014-2016			**20.00**	**15 632**	**1 660**	**2 647**	**0**	**2 829**	**22 768**

Note:

A) Energy savings cannot be quantified because the impact is indirect.

B) Expenditure cannot be quantified precisely; it lies within the scope of the budget approved for individual headings.

C) Cannot be quantified at present because the assignments approved in 2014 are not yet known.

D) The measure is being prepared. Financial arrangements for the implementation of the measure (anticipated to amount to approximately EUR 100 000 at present) will be addressed during 2014 by the Ministry of the Environment in collaboration with the Ministry of Finance.

2.4. Overall evaluation of energy efficiency measures in the 2011–2013 period

By reference to individual projects, energy savings were found to amount to 6 734 TJ of final energy consumption, equal to approximately 81 % of the overall energy savings target set in the second Action Plan for the 2011–2013 period (the target was 8 362 TJ; this is approximately 2.7 % of the average final energy consumption in 2001–2005). This target is the indicative energy savings target set in accordance with Directive 2006/32/EC on energy services (reduced from the set 3 % for three years due to the absence of a permanent financial mechanism to support energy efficiency).

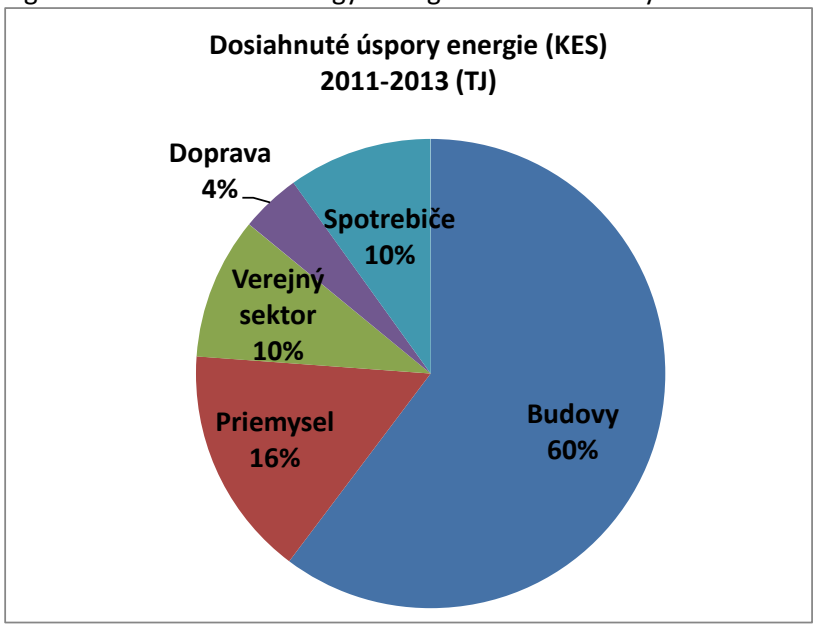
Table 16: Summary overview of the evaluation of energy savings in individual sectors in the 2011–2013 period

Sector	Energy savings (FEC) 2011–2013 [TJ]		Total investment cost 2011–2013 [EUR thousands]	
	Planned	Actual	Planned	Actual
Buildings	1 754	4 055	1 079 065	3 718 880
Industry	2 490	1 069	316 004	89 931
Public sector	2 234	659	675 624	373 613
Transport	899	278	2 291 502	2 144 144
Appliances	985	668	160 783	129 895
Horizontal measures	A)	A)	8 386	7 317
Total	**8 362**	**6 727**	**4 531 364**	**6 886 333**

Note: A) Energy savings cannot be quantified because the impact is indirect.

The biggest contributors to overall savings were buildings (60 % of the total energy savings evaluated in the 2011–2013 period) and industry (60 %). The public sector and appliances both contributed 10 %, while transport contributed only a minor 4 %.

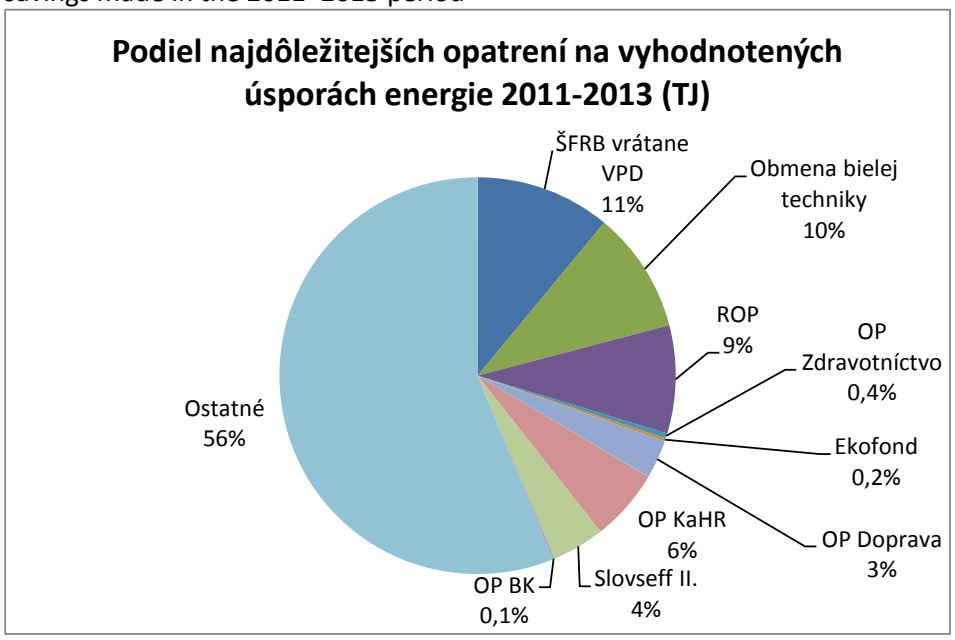
Figure 1: Evaluation of energy savings in 2011–2013 by sector



Energy savings made (FEC)
2011–2013 (TJ)
Transport 4 %
Appliances 10 %
Buildings 60 %
Industry 16 %
Public sector 10 %

The measures which made the largest contributions to the energy savings achieved include: white goods replacement, the State Housing Development Fund, the Government Insulation Scheme, Slovseff II, and individual operational programmes (2007–2013), see Figure 2.

Figure 2: Overview of the most significant measures and their contribution to the overall energy savings made in the 2011–2013 period



Share of the most significant measures and their contribution to the energy savings evaluated 2011-2013 (TJ)

State Housing Development Fund, including VPD 11 %
White goods replacement 10 %
ROP 9 %
OP Health 0.4 %
EkoFond 0.2 %
OP Transport 3 %
OP Competitiveness 6 %
Slovseff II 4 %
OP Bratislava Region 0.1 %
Other 56 %

Note: A) The State Housing Development Fund also includes the Government Insulation Scheme (3 % of the overall energy savings evaluated in the 2011-2013 period).
B) Slovseff II includes energy savings made in the buildings and industry sectors.

2.5. Summary proposal of ongoing and new energy efficiency measures for the 2014–2016 period, with an outlook up to 2020

On the basis of specific projects, measures were planned for 2014–2016 encompassing approximately 85 % of the overall three-year energy savings target for final energy consumption (10.25 PJ) and more than 100 % of the overall three-year energy savings target set for primary energy consumption (16.03 PJ); these are set in accordance with Articles 3 and 7 of Directive 2012/27/EU on energy efficiency (see Section 1.2).

Table 17: Summary overview of the energy savings planned in individual sectors in the 2014–2016 and 2017–2020 periods

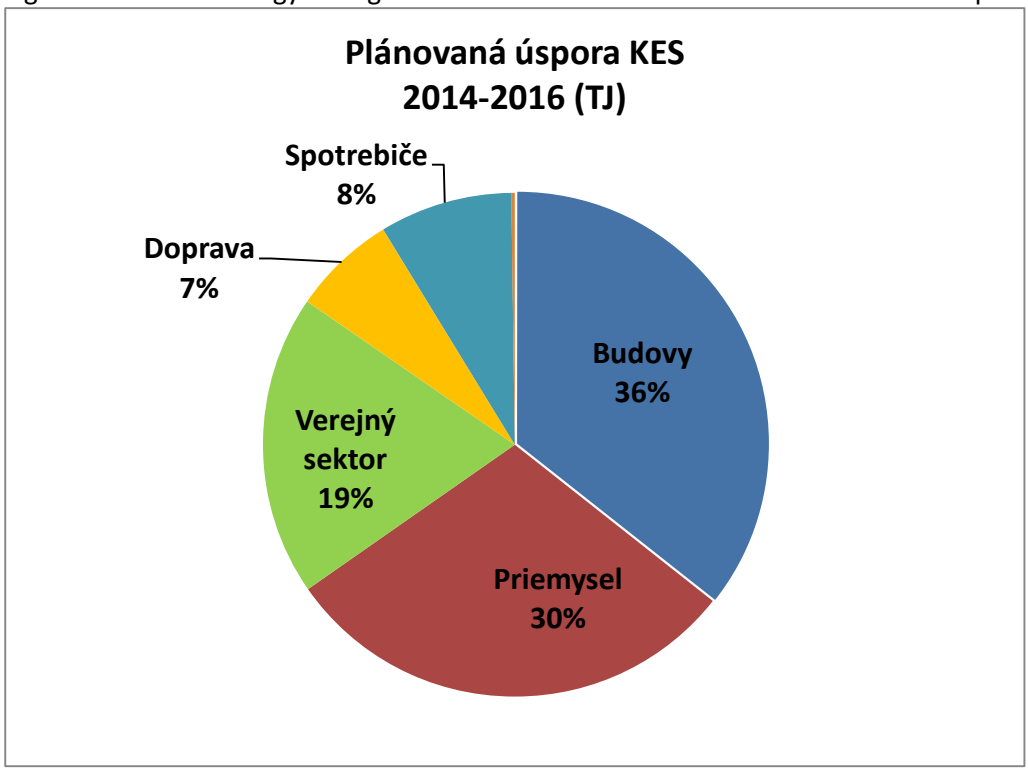
	2014-2016			2014-2020		
	Saving FEC	Reduction in the consumption of primary energy sources	Total investment cost	Saving FEC	Reduction in the consumption of primary energy sources	Total investment cost
	TJ	TJ	EUR thousands	TJ	TJ	EUR thousands
Buildings	3 087	4830	3 160 612	6 103	9 550	7 777 317
Industry	2 569	4020	873 674	6 275	9 821	2 023 019
Public sector	1 672	2616	390 834	3 577	5 598	827 504
Transport	576	901	3 868 046	2 346	3 672	7 795 499
Appliances	737	1154	119 886	1 764	2 760	287 897
Horizontal measures	20	31	22 768	72.00	113	54 711
Energy transformation, transmission and distribution	0	2 422	326 575	0	5 701	823 940
Total	8 661	15 975	8 762 395	20 137	37 214	19 589 886
Fulfilment of the savings target	**85 %**	**100 %**	**-**	**84 %**	**100 %**	**-**

Note: Tables with the measures proposed for the 2017–2020 period are set out in Annex 2.

On the basis of planned measures and programmes, it will be possible to meet the 2020 targets at a level of 84 % of the overall national indicative energy savings target for final energy consumption (23.91 PJ) and more than 100 % of the overall three-year savings target set for primary energy consumption (37.41 PJ).

Buildings, industry and the public sector will make the greatest contributions to the planned fulfilment of the energy savings target. They will be followed by transport and appliances (Figure 3). These savings can only be made if the planned horizontal and support measures, the influence of which on savings cannot be quantified, are also implemented.

Figure 3: Planned energy savings based on individual measures in the 2014–2016 period, by sector



Planned FEC savings 2014–2016 (TJ)

Appliances 8 %
Buildings 36 %
Industry 30 %
Public sector 19 %
Transport 7 %

3. Specific information on the implementation of Directive 2012/27/EU

3.1. Public bodies (Article 5)

National Energy Efficiency Action Plans include a list of public bodies which have drawn up an energy efficiency plan in accordance with Article 5(7) of the Directive.

The following towns and municipalities have drawn up an energy efficiency plan in accordance with Article 5(7) of the Directive within the scope of the Covenant of Mayors: Bratislava, Nitra, Moldava nad Bodvou, Trakovice, Malženice, Pobedim, Turčianske Teplice.

Under the Thermal Energy Sector Act (Section 31 of Act No 657/2004), a municipality with a population of more than 2 500 is required to draw up a municipal thermal energy development strategy and update it every five years. A strategy is drawn up only if heat is supplied to the municipality via a public heat distribution system. The municipality is not required to draw up a strategy if heat is generated directly in buildings within the municipality. Municipalities are not

required to notify preparation of such a strategy, and therefore there is no available list of the entities which have drawn up a strategy.

3.2. Energy efficiency obligations (Article 7)

In accordance with Article 7(1) of Directive 2012/27/EU, each Member State must establish an energy efficiency obligation scheme ensuring that energy suppliers achieve the cumulative end-use energy savings target by 31 December 2020. The cumulative target represents the accumulation of annual energy savings established at 1.5 % of the average annual energy sales to final customers of all energy suppliers. The sales of energy, by volume, used in transport may be excluded from this calculation. The exemptions laid down in Article 7(2) of the Directive may be applied in the calculation. Member States may also opt for an alternative approach (Article 7(9) of the Directive) and achieve the cumulative energy savings target (determined in accordance with Section 7(1)) by taking policy measures.

The application of Article 7 of Directive 2012/27/EU on energy efficiency in Slovakia entails the introduction of an energy efficiency obligation scheme (an 'obligation scheme') or the taking of policy measures aimed at achieving energy savings at least at the level which should be achieved by the obligation scheme. The amount of energy savings was set by reference to the average final energy consumption in 2010–2012; final energy consumption in transport was not included in this energy consumption. For the purposes of Article 7 of the Directive, the annual amount of the energy savings target was set as 1.5 % of this calculated value. The cumulative sum of planned energy savings, calculated in accordance with Commission methodology, was adjusted by applying paragraph (2); this adjustment was not allowed to exceed 25 % of the original value of the cumulative sum of planned energy savings.[37]

The resulting cumulative energy savings target for 2014–2020 was set at 26 565 GWh. Of this, the annual energy saving is 948.75 GWh per year.

[37] Information on the implementation of Article 7(2) of Directive 2012/27/EU on energy efficiency in Slovakia (Ministry of Economy, 2014).

Table 18: Establishment of the cumulative target for the purposes of Article 7 of Directive 2012/27/EU

	Accumulation of energy savings in 2014–2020 (GWh)							
GWh	2014	2015	2016	2017	2018	2019	2020	Total
2014	948.75							948.75
2015	948.75	948.75						1 897.50
2016	948.75	948.75	948.75					2 846.25
2017	948.75	948.75	948.75	948.75				3 795.00
2018	948.75	948.75	948.75	948.75	948.75			4 743.75
2019	948.75	948.75	948.75	948.75	948.75	948.75		5 692.50
2020	948.75	948.75	948.75	948.75	948.75	948.75	948.75	6 641.25
Σ	6 641.25	5 692.50	4 743.75	3 795.00	2 846.25	1 897.50	948.75	26 565.00

Source: Information on the implementation of Article 7(2) of Directive 2012/27/EU on energy efficiency in Slovakia (Ministry of Economy, 2014).

After considering all aspects, Slovakia decided to make energy savings in Slovakia by means of policy measures (i.e. by means of the alternative approach under Article 7(9) of Directive 2012/27/EU). The projected rise in end-use energy prices, which would ultimately have a negative impact on the business environment, consequently diminishing the competitiveness of the economy and potentially triggering a rise in unemployment, was the major factor in the decision-making process. This effect would have been manifested in a rise in energy poverty, which would have been in direct contravention of the objectives pursued by Directive 2012/27/EU itself.

The application of policy measures will be reviewed in 2017 on the basis of an assessment of the application of measures focusing on energy savings in the 2014–2016 period, i.e. an evaluation of measures under this Action Plan, and their contribution to the 2020 energy savings targets. The draft Energy Efficiency Act includes provisions on the calculation of the energy savings target in accordance with Article 7 of the Directive, the establishment of the two periods 2014–2016 and 2017–2020, periodic evaluations of measures and the fulfilment of targets in an annual energy efficiency report, alternative measures for energy savings, voluntary agreements, etc.

Energy efficiency measures that will be used in pursuit of the target derived from Article 7 of the Directive (alternative measures) are indicated for the individual sectors in the tables for 2014–2016 (Section 2) and 2017–2010 (Annex 2).

The most significant energy efficiency policy measures that will contribute to the target derived from Article 7 of Directive 2012/27/EU include:

- Operational Programme Competitiveness and Economic Growth, 2007–2013 Structural Funds
- Operational Programme Health, 2007–2013 Structural Funds
- Operational Programme Transport, 2007–2013 Structural Funds
- Regional Operational Programme, 2007–2013 Structural Funds
- Operational Programme Research and Development, 2007–2013 Structural Funds
- State Housing Development Fund – Residential Building Insulation

- Operational Programme Environmental Quality, 2014–2020 ESIF
- State Housing Development Fund – EU-funded Residential Building Insulation – Integrated Operational Programme, 2014–2020 ESIF
- Operational Programme Integrated Infrastructure, 2014-2020 ESIF
- Integrated Regional Operational Programme, 2014–2020 ESIF
- Slovseff III Green Programme
- Voluntary Agreements.

Table 19: Overview of the most significant policy measures for the fulfilment of the target under Article 7 of Directive 2012/27/EU

Source of financing	Measure to which the support applies
Operational Programme Competitiveness and Economic Growth, 2007–2013 Structural Funds	- Innovation and technology transfers at industrial enterprises; - Increased energy efficiency in industrial production;
Operational Programme Health, 2007–2013 Structural Funds	- Improvements in the thermal performance of buildings – Hospitals and healthcare facilities;
Operational Programme Transport, 2007–2013 Structural Funds	- Renewal and modernisation of the fleet; - Building and upgrading the transport infrastructure;
Regional Operational Programme, 2007–2013 Structural Funds	- Improvements in the thermal performance of public buildings – Schools and school facilities, social service facilities, cultural facilities, etc.;
Operational Programme Research and Development, 2007–2013 Structural Funds	- Improvements in the thermal performance of public buildings – Schools and school facilities;
State Housing Development Fund – Residential Building Insulation	- Improvements in the thermal performance of residential buildings;
State Housing Development Fund – EU-funded Residential Building Insulation – Integrated Operational Programme, 2014–2020 ESIF	- Improvements in the thermal performance of residential buildings;
Operational Programme Environmental Quality, 2014–2020 ESIF	- Energy auditing at SMEs and the implementation of measures derived from energy audits; - Reductions in the energy intensity of public buildings; - Production, approval and implementation of plans for sustainable energy and reductions in greenhouse gas emissions; - Introduction of energy management systems, including energy audits and environmental management; - Support for the development of energy services regionally and locally; - Construction, reconstruction and modernisation of heat distribution systems; - Construction, reconstruction and modernisation of electricity and heat production plants via high-performance combined production with a maximum thermal input of 20 MW; - Improvements in the energy efficiency awareness of children and young people; - Energy efficiency information campaign; - Monitoring and information system – interconnection with most energy efficiency support mechanisms;
Operational Programme Integrated Infrastructure, 2014-2020 ESIF	- Renewal and modernisation of the fleet; - Building and upgrading the transport infrastructure; - Support for the development and use of public passenger transport, including support for the creation of integrated transport systems;

Source of financing	Measure to which the support applies
Integrated Regional Operational Programme, 2014–2020 ESIF	- Support for the development of non-motorised transport, especially cycling; - State Housing Development Fund: EU-funded residential building insulation (see above);
Slovseff III Green Programme	- Improvements in the thermal performance of multi-family buildings; - Improvements in energy efficiency in industry;
Voluntary Agreement	- Provision of energy services in the public sector and in the buildings sector via gas, electricity and heat suppliers.

The lifetimes of measures that are to be considered in the evaluation of the target derived from Article 7 of the Directive are set out in Annex 4. National rates for the conversion of total energy consumption into the same physical unit, selected in accordance with Annex IV to the Directive, are presented in Annex 5.

3.3. Energy audits and energy management systems (Article 8)

The obligation to conduct energy audits was laid down in Section 8 of Act No 476/2008 on energy efficiency. This law established time limits for energy auditing at individual industrial enterprises and agricultural holdings based on their total annual energy consumption (see Section 8 of the Act and Annex 1 thereto). In the 2011–2013 reporting period, 210 energy audits were conducted in accordance with Act No 476/2008 on energy efficiency, as amended.

According to the new Directive 2012/27/EU, energy auditing is mandatory for large enterprises (Article 8). In order to transpose Article 8 of the Directive, the term 'large enterprise' was introduced into the draft Energy Efficiency Act. This means an enterprise which is not a small enterprise or a medium-sized enterprise defined under special legislation.[38] In 2012, there were 614 thus defined large enterprises in Slovakia. Because the size of enterprises in the energy efficiency monitoring system had not previously been monitored, it is impossible to quantify the number of audits conducted in the previous period at large enterprises in accordance with Article 8 of the Directive. The same applies to Article 8(5) of Directive 2012/27/EU, which cannot be applied until the transposing legislation enters into force.

Table 20: Overview of energy audits carried out

Energy audits carried out in the 2011–2013 period		
b) number of energy audits carried out in the 2011–2013 period	210 energy audits	In accordance with Section 8 of Act No 476/2008
b) number of energy audits carried out at large enterprises in the 2011–2013 period	-	Not monitored.
c.1) number of large enterprises in Slovakia:	2012: 614 large enterprises	In accordance with Article 8 of Directive 2012/27/EU
c.2) number of enterprises to which Article 8(5) of Directive 2012/27/EU applies.	-	Not monitored.

[38] Annex I to Commission Regulation (EU) No 651/2014 of 17 June 2014 declaring certain categories of aid compatible with the internal market in application of Articles 107 and 108 of the Treaty (Text with EEA relevance) (OJ L 187, 26.6.2014).

3.4. Promotion of efficient heating and cooling (Article 14)

National Energy Efficiency Action Plans include an assessment of the progress achieved in implementing the comprehensive assessment referred to in Article 14(1).

The comprehensive assessment referred to in Article 14(1) will be carried out for the first time in 2015. Therefore, it is currently impossible to assess any progress.

3.5. Energy transmission and distribution (Article 15)

The first National Energy Efficiency Action Plan and the subsequent reports due every 10 years thereafter shall include the assessment made, the measures and investments identified to utilise the energy efficiency potentials of gas and electricity infrastructure referred to in Article 15(2).

The assessment referred to in Article 15(2) should be carried out by 31 December 2015 according to the Directive.

3.6. Demand side management (DSM) measures

Member States shall report, as part of their National Energy Efficiency Action Plans, on the measures undertaken to enable and develop demand response as referred to in Article 15.

Demand response was previously handled at Slovenské elektrárne under the project 'Rationalisation of electricity consumption in the innovated DSM Slovakia project', based on which certain DSM measures were put into practice, in particular:

a) basic procedures for the application of DSM in the pursuit of energy savings – a reduction in electricity consumption during peak load, a general reduction in electricity consumption;
b) load management and off-peak electricity sales – a shift in electricity consumption over time with no change in the amount of consumption. Load management combined with off-peak electricity sales is one of the instruments used by energy suppliers to motivate consumers.
c) balancing of the load curve by increasing the basic load, for example by promoting the night load.

A prerequisite is sufficient information throughout the grid. Therefore, Act No 251/2012 establishes compulsory throughput meters at all levels of the grid and at large consumers. The gradual increase in IMS development in Slovakia will make it possible to expand demand side management to all consumers with annual consumption of 4 MWh, as stipulated by Implementing Decree No 358/2013. In this way, it is also possible to track information required to manage the load, thus facilitating adjustments to the daily load curve. Other measures are the HDO system, allowing for energy consumption to be managed remotely, the night tariff ('night current'), and the balancing responsible party (Section 15 of Act No 251/2012).

The Regulatory Office for Network Industries published Methodology Guideline No 01/12/2013, Article V(2) of which guides electricity undertakings to create and make available systemic services for the management of consumption, in particular:
a) by the shifting of the load from peak to off-peak times by final customers, taking into account the availability of renewable energy, energy from cogeneration and distributed generation;
b) by energy savings from demand management;
c) by demand reduction from energy efficiency measures undertaken by energy service providers, including energy service companies;
d) by the connection and dispatch of generation sources at lower voltage levels;
e) by the connection of generation sources closer to the consumption site;
f) by the storage of energy.

3.7. Availability of qualification, accreditation and certification schemes (Article 16)

National Energy Efficiency Action Plans shall include information on the available qualification, accreditation and certification schemes or equivalent qualification schemes for the providers of energy services, energy audits and energy efficiency improvement measures.

The following qualifications schemes have been introduced in the energy sector:

- Act No 251/2012 on energy, as amended – person professionally competent to engage in business in the energy sector
- Act No 657/2004 on the thermal energy sector, as amended – person professionally competent to engage in business in the thermal energy sector
- Act No 309/2009 on the support of renewable energy sources, as amended – installer of RES equipment in buildings
- Act No 476/2008 on energy efficiency – energy auditor
- Act No 555/2005 on the energy performance of buildings, as amended – person professionally competent to engage in the energy performance certification of buildings
- Act No 50/1976 on spatial planning and building rules (the Building Act), as amended – general provision on the need for a professional qualification in the performance of certain building works.
- Guild of Window Fitters
- Guild of Roofers
- BUSS project

The draft Energy Efficiency Act currently proposes the introduction of a new qualification scheme for providers of guaranteed energy services.

3.8.Energy Services (Article 18)

National Energy Efficiency Action Plans shall include an internet link to the website where the list or the interface of energy services providers referred to in point (c) of Article 18(1) can be accessible.

A list of support and guaranteed energy service providers will be published and maintained on a website of the Ministry of Economy. Other information on the support of energy services (including procedures in the provision of energy services, contracting procedures, model contracts, available support mechanisms in the field of energy efficiency, etc.) will also be published on the website of an organisation subordinate to the Ministry of Economy, as designated by the Ministry. Both websites will be set up after the Energy Efficiency Act enters into force.

Prior to the establishment of these websites, information from the European Energy Service Initiative (EESI) can be used – the position paper includes a brief list of EPC providers http://www.european-energy-service-initiative.net/fileadmin/user_upload/ecb/WP6_20111028_ECB_D6.3_NationalEPCpositionPaper_SK.pdf.

3.9. Other measures to promote energy efficiency (Article 19)

The first National Energy Efficiency Action Plan shall include a list of the measures referred to in Article 19(1). SK 14.11.2012 Official Journal L 315/51

In response to requirements to resolve issues related to an increase in a tenant's interest in energy prices and investments in savings-related measures, Slovakia has proposed – in the draft Energy Efficiency Act – the obligation of the separate charging for energy in the provision of a lease, if a

separate designated meter has been installed and if the premises have a floor area of more than 1 000 m².

Conclusion

The Third energy efficiency action plan combines the requirements of Directive 2002/36/EC on energy services and the new requirements under Directive 2012/27/EU on energy efficiency.

On the one hand, it assesses energy efficiency measures planned for 2011–2013 and the fulfilment of the three-year energy savings target in accordance with Directive 2002/36/EC, and on the other hand it lays down new and ongoing energy efficiency measures for the new 2014–2016 period, with an outlook up to 2020, incorporating the requirements of the new Directive 2012/27/EU. Compared to the Second Action Plan, it also includes specific information on the planned implementation of selected requirements under Directive 2012/27/EU. Compared to the Second Action Plan, a major emphasis is placed on bottom-up evaluations of energy efficiency measures by reference to specific projects, and on a detailed description of the evaluation methodology. In addition, the Third Action Plan, besides demand side measures, includes energy transformation, transmission and distribution measures.

By reference to individual projects, energy savings were found to amount to 6 734 TJ of final energy consumption, equal to approximately 81 % of the overall energy savings target set in the second Action Plan for the 2011–2013 period (the target was 8 362 TJ; this is approximately 2.7 % of the average final energy consumption in 2001–2005). This target is the indicative energy savings target set in accordance with Directive 2006/32/EC on energy services.

The biggest contributors to overall savings were buildings (60 % of the total energy savings evaluated in the 2011–2013 period) and industry (60 %). The public sector and appliances both contributed 10 %, while transport contributed only a minor 4 %.

When proposing new and ongoing measures for 2014–2016, specific projects and programmes also formed a basis; planned measures in the Third Action Plan encompass approximately 85 % of the overall three-year energy savings target for final energy consumption (10.25 PJ) and more than 100 % of the overall three-year energy savings target set for primary energy consumption (16.03 PJ).

In conclusion, the Third Action Plan confirms that energy efficiency measures are being implemented despite the lack of a permanent source of financing for such measures. Therefore, on the basis of planned measures and programmes, it will be possible to meet the 2020 energy savings targets only at a level of 84 % of the overall national indicative energy savings target for final energy consumption. Only the savings target set for primary energy consumption will be achieved, and only then if investments are made in energy efficiency measures relating to energy transformation, transmission and distribution, subject to considerable activity on the part of the private sector.

However, in the future it will be necessary to continue – more actively – to promote the use of existing and new financial mechanisms to achieve the highest possible energy savings and to make the monitoring and verification thereof more precise and automated. Ultimately, this can contribute not only to the fulfilment of Slovakia’s energy efficiency commitments, but also to a reduction in the

country’s energy dependence, a reduction in the level of energy poverty, a reduction in public expenditure, and an increase in competitiveness, productivity and employment in Slovakia.