

Annex 4: Methodology used to calculate each energy efficiency measure's energy savings in respect of new and ongoing measures in the 2014–2016 period, with an outlook up to 2020

## Buildings sector

Measure 1.1 3AP		Improvements in the thermal performance of buildings – Single-family buildings			
BUILDINGS sector		Source of financing: <b>Own funds</b>			
Reporting period		2014–2016			
Responsible ministry		Ministry of Transport, Construction and Regional Development			
Energy savings apply to:	Heat	Natural gas	Electricity	Fuels	Other: Wood
%	15 %	85 %			5 %
Planned	Energy savings – FEC (final energy consumption) <sup>1</sup>		Reduction in the consumption of primary energy sources		Financing
Year	TJ	GWh	TJ	GWh	EUR thousands
2014	70	19.45			
2015	70	19.45			
2016	65	18.06			
2014–2016	205	56.95			
2017	65	18.06			
2018	65	18.06			
2019	65	18.06			
2020	65	18.06			
2017-2020	260	72.23			
Characteristics of measure (description of the measure and method used to make savings)	Renovation of single-family buildings with a minimum 20 % heat requirement saving.				
Detailed description of the method to calculate energy savings (so that savings can subsequently be recalculated and verified)	The energy performance certificate database serves as a basis (source: INFOREG IS). The initial condition of a single-family building is considered to be the upper limit of energy class D. The energy saving is the difference between the energy supplied and the initial condition of the single-family building. The average floor area of a single-family building is considered to be the current average area under energy performance certificates.				
Assumptions and estimates in the calculation of energy savings	Expert estimates.				
Reason for the use of estimates (e.g. if there are gaps in information)					
Monitoring and verification of the energy savings made	Monitoring takes place via the INFOREG information system				
Overall evaluation and way forward (success of the measure, continuation or closure of the measure)	This change will entail a tightening of the minimum energy performance requirements for buildings (from 2016 onwards), based on which an expert estimate is drawn up further to the new Implementing Decree No 364/2012. Attainment of the upper limit of energy class A1 for the global indicator determining the ultra-low-energy standard from 2016 – buildings undergoing major renovation must comply with this requirement insofar as this is technically, functionally and economically feasible.				
- Overlapping anticipated with another measure - Duplicate counting of savings - Interaction with other measures (support and horizontal)	There is an overlap with the residential building insulation measure (Measure 1.2.1). Duplicate counting is precluded.				

<sup>1</sup> The following conversion rate is used to convert energy savings: 1 GWh = 3.6 TJ.

Measure 1.2.1 3AP		Improvements in the thermal performance of buildings – Multi-family buildings			
Sector		Source of financing: <b>State Housing Development Fund</b>			
Reporting period		<b>2014–2016</b>			
Duration of the measure (from – to)		<b>1996 onwards</b>			
Responsible ministry		<b>Ministry of Transport, Construction and Regional Development</b>			
Energy savings apply to:	<b>Heat</b>	<b>Natural gas</b>	<b>Electricity</b>	<b>Fuels</b>	<b>Other: .....</b>
%	<b>70 %</b>	<b>30 %</b>			
<b>Planned</b>	Energy savings – FEC (final energy consumption)		Reduction in the consumption of primary energy sources		Financing
<b>Year</b>	<b>TJ</b>	<b>GWh</b>	<b>TJ</b>	<b>GWh</b>	<b>EUR thousands</b>
<b>2014</b>	<b>145.91</b>	<b>40.53</b>			<b>67,726.67</b>
<b>2015</b>	<b>145.91</b>	<b>40.53</b>			<b>67,726.67</b>
<b>2016</b>	<b>145.91</b>	<b>40.53</b>			<b>67,726.67</b>
2014–2016	437.73	121.59			203,180.00
<b>2017</b>	<b>145.91</b>	<b>40.53</b>			<b>67,726.67</b>
<b>2018</b>	<b>145.91</b>	<b>40.53</b>			<b>67,726.67</b>
<b>2019</b>	<b>145.91</b>	<b>40.53</b>			<b>67,726.67</b>
<b>2020</b>	<b>145.91</b>	<b>40.53</b>			<b>67,726.67</b>
2017-2020	583.64	162.12			270,906.67
<b>Characteristics of measure (description of the measure and method used to make savings)</b>	Renovation of multi-family buildings. The State Housing Development Fund was established in 1997 under Act No 124/1996 on the State Housing Development Fund; it provides support for the expansion and modernisation of housing stock, particularly in the form of long-term soft loans.				
<b>Detailed description of the method to calculate energy savings (so that savings can subsequently be recalculated and verified)</b>	Finances: the same annual budget as in 2014 is projected for this activity (Source: State Housing Development Fund) Because information on the projected energy savings is not available on a project-by-project basis, these savings were determined by means of an expert estimate drawing on the investment intensity of similar Slovseff projects. The savings are indicated in the year planned for renovation.				
<b>Assumptions and estimates in the calculation of energy savings</b>	<ul style="list-style-type: none"> <li>- It is assumed that the investment intensity of State Housing Development Fund projects will be similar to that of Slovseff projects.</li> <li>- Estimate used in the calculation of savings: EUR 1671 per MWh (building renovation projects, Slovseff)</li> <li>- Financing – it is assumed that the future budget for 2014–2020 will be the same as in 2014 (EUR 50 795 000 per year, i.e. 75 % of the total investment costs) plus own resources (25%).</li> </ul>				
<b>Reason for the use of estimates (e.g. if there are gaps in relevant information)</b>	Information on the projected energy savings is not available on a project-by-project basis, there are no records of the energy savings achieved under the projects supported, and there is no obligation to monitor energy consumption in renovated residential buildings before or after renovation. There is no interaction between the register of buildings supported and energy performance certificates.				
<b>Monitoring and verification of the energy savings made</b>	See above. Verification – only on the basis of energy performance certificates; energy savings are not verified.				
<b>Overall evaluation and way forward (success of the measure, continuation or closure of the measure)</b>	While the State Housing Development Fund is a highly popular financial instrument for the renovation of residential buildings, it does not have the capacity to cover demand for soft loans. Savings are not the primary objective of the instrument; monitoring and verification are insufficient. This measure is to be continued in the new period; the monitoring and verification of energy savings need to be improved.				
<b>- Overlapping anticipated with another measure - Duplicate counting of savings - Interaction with other measures (support and horizontal)</b>	There is overlapping with the measure: Improvements in the thermal performance of buildings – Multi-family buildings (own funds). Duplicate counting of energy savings is prevented in the planning thereof.				

Measure 1.2.2 3AP		Improvements in the thermal performance of buildings – Multi-family buildings			
Sector		Source of financing: State Housing Development Fund – JESSICA 2013–2014			
Reporting period		2014–2016			
Duration of the measure (from – to)		2013-2014			
Responsible ministry		Ministry of Transport, Construction and Regional Development, Ministry of Agriculture and Rural Development			
Energy savings apply to:	Heat	Natural gas	Electricity	Fuels	Other: .....
%	70 %	30 %			
Planned	Energy savings – FEC		Reduction in the consumption of primary energy sources		Financing
Year	TJ	GWh	TJ	GWh	EUR thousands
2013		0.00	0.00		14,637
2014		24.35	7.30		736
2015		0.00	0.00		0
2016		0.00	0.00		0
2014–2016		24.35	7.30		736
Characteristics of measure (description of the measure and method used to make savings)	<p>Measure carried over from 2013 (i.e. savings will become apparent only in 2014). State Housing Development Fund – JESSICA was launched in 2013 as the "JESSICA Project – financial engineering instrument" on the basis of a financing contract concluded between the State Housing Development Fund and the Managing Authority, i.e. the Ministry of Agriculture and Rural Development (under the ROP and the Operational Programme Bratislava Region). Under the JESSICA project, the State Housing Development Fund grants soft loans to applicants seeking aid for the renovation of multi-family buildings. The State Housing Development Fund grants 15-year 0 % loans covering 80 % of the purchase price of the eligible costs. Owners of residential and non-residential premises, represented by facility managers or unit owner associations, in urban areas in all self-governing regions are eligible to apply. Different conditions are in place for 2014 (for drawing on the final resources carried over from 2013): loans will be granted at an interest rate of 1.5 %, will be repayable in 20 years, and will cover a maximum of 75 % of the eligible costs of renovating a residential building. Lending is contingent on the declaration of planned savings of at least 35 % compared to the initial condition (see Act No 150/2013 on the State Housing Development Fund). In 2013, under the JESSICA initiative the State Housing Development Fund accepted 69 applications (as at 31 December 2014) seeking approximately EUR 10 964 000. The remaining financial resources that were not disbursed, amounting to roughly EUR 565 000, were carried forward to 2014. <u>The energy savings are indicated in the year planned for renovation.</u></p>				
Detailed description of the method to calculate energy savings (so that savings can subsequently be recalculated and verified)	Bottom-up. The planned energy savings are calculated for each project. Energy savings are calculated by drawing on energy consumption figures for the previous two calendar years and the minimum energy performance requirements of buildings which are to be achieved as a result of major renovation in accordance with Act No 555/2005 on the energy performance of buildings, as amended, and the corresponding Implementing Declaration of the Ministry of Transport, Construction and Regional Development No 364/2012.				
Assumptions and estimates in the calculation of energy savings	It is assumed that each supported building which is renovated, following renovation, will attain the mean value of minimum energy consumption requirements for space heating under energy class B for multi-family buildings (i.e. 40.5 kWh/(m2.a)).				
Reason for the use of estimates (e.g. if there are gaps in relevant information)	In light of the fact that no projects have been implemented yet, for the time being it is necessary to rely on an expert estimate of the energy savings that will be achieved once they are implemented. As not all successful applicants disclose energy consumption information, the savings under those projects are not counted.				
Monitoring and verification of the energy savings made	<ul style="list-style-type: none"> <li>- Under the contract between the managing authority (the Ministry of Agriculture and Rural Development) and the State Housing Development Fund, it is compulsory to monitor the energy savings achieved. Monitoring is carried out by reference to State Housing Development Fund information and by means of the monitoring system operated by the Slovak Innovation and Energy Agency. The Slovak Innovation and Energy Agency is also responsible for verifying energy consumption information.</li> <li>- Successful applicants are required to provide information on actual energy consumption used for space heating during the five years after renovation.</li> </ul>				
Overall evaluation and way forward (success of the measure, continuation or closure of the measure)	The measure is currently financed by the 2007–2013 Structural Funds according to the n+2 principle, i.e. projects may run until 2015. Energy savings may then be counted towards the fulfilment of the energy savings target in the 2014–2016 period. The measure will continue in the forthcoming 2014–2020 period and will be financed by the IROP 2014–2020.				
- Overlapping anticipated with another measure - Duplicate counting of savings - Interaction with other measures	<p>There is overlapping with the measure: Improvements in the thermal performance of buildings – Multi-family buildings (own funds). Duplicate counting of energy savings is prevented in the planning thereof.</p>				

Measure 1.2.3 3AP		Improvements in the thermal performance of buildings – Multi-family buildings			
Sector		Source of financing: <b>State Housing Development Fund – EU 2014-2020</b> , EU-funded residential building insulation			
Reporting period		2014–2016			
Duration of the measure (from – to)		2014-2020			
Responsible ministry		Ministry of Transport, Construction and Regional Development, Ministry of Agriculture and Rural Development			
Energy savings apply to:	Heat	Natural gas	Electricity	Fuels	Other:.....
%	70 %	30 %			
Planned	Energy savings – FEC (final energy consumption)		Reduction in the consumption of primary energy sources		Financing
Year	TJ	GWh	TJ	GWh	EUR thousands
2014	0.00	0.00			30,944
2015	48.51	13.48			30,944
2016	48.51	13.48			30,944
2014–2016	97.03	26.95			92,833
2017	48.51	13.48			30,944
2018	48.51	13.48			30,944
2019	48.51	13.48			30,944
2020	48.51	13.48			0
2017-2020	194.06	53.90			92,833
Characteristics of measure (description of the measure and method used to make savings)	<p>This measure follows up on the initiative "JESSICA Project – financial engineering instrument", launched in 2013 on the basis of a financing contract concluded between the State Housing Development Fund and the Ministry of Agriculture and Rural Development (the managing authority for the ROP and the Operational Programme Bratislava Region).</p> <p>Under this measure, the State Housing Development Fund grants soft interest-incurring loans to applicants seeking aid for the renovation of residential buildings. Owners of residential and non-residential premises, represented by facility managers or unit owner associations, in urban areas in all self-governing regions are eligible to apply. Lending is contingent on the declaration of planned savings of at least 35 % compared to the initial condition (see Act No 150/2013 on the State Housing Development Fund). Approximately EUR 186 million has been earmarked for the 2014–2020 period under the JESSICA project.</p>				
Detailed description of the method to calculate energy savings	The planned savings are calculated as the difference between the anticipated baseline (current) energy requirement for space heating and the projected resultant such requirement. Financing depending on the allocation.				
Assumptions and estimates in the calculation of energy savings	<ul style="list-style-type: none"> <li>- Savings: Anticipated energy requirement for space heating (initial condition): 96.4 kWh/(m2.a); projected energy requirement for space heating after renovation: 35 % energy saving, i.e. approximately the mid-level of energy class C (60 kWh/m2a.)</li> <li>- Projected average total floor area of residential buildings: 2 820m2</li> <li>- Projected number of renovated buildings 2014–2020: 919</li> <li>- Financing: 75 % loan, 25 % applicant's own funds.</li> <li>- The energy savings are indicated in the year planned for renovation.</li> </ul>				
Reason for the use of estimates (e.g. if there are gaps in information)	-				
Monitoring and verification of the energy savings made	Monitoring via the ITMS under the IROP 2014–2020.				
Overall evaluation and way forward (success of the measure, continuation or closure)					
<ul style="list-style-type: none"> <li>- Overlapping anticipated with another measure</li> <li>- Duplicate counting of savings</li> <li>- Interaction with other measures</li> </ul>	<p>Potential overlapping with the measure "Improvements in the thermal performance of buildings – Multi-family buildings (own funds, commercial banks)". Duplicate counting of savings is prevented in the planning thereof.</p>				

Measure 1.2.4 3AP			Improvements in the thermal performance of buildings – Multi-family buildings		
BUILDINGS sector			Source of financing: <b>Own funds</b>		
Reporting period			2014–2016		
Duration of the measure (from – to)					
Responsible ministry			Ministry of Transport, Construction and Regional Development		
Energy savings apply to:	Heat	Natural gas	Electricity	Fuels	Other:.....
%	70 %	30 %			
<b>Planned</b>	Energy savings – FEC		Reduction in the consumption of primary energy sources		Financing
<b>Year</b>	<b>TJ</b>	<b>GWh</b>	<b>TJ</b>	<b>GWh</b>	<b>EUR thousands</b>
2014	15	4.17			
2015	15	4.17			
2016	15	4.17			
2014–2016	45	12.50			
2017	15	4.17			
2018	15	4.17			
2019	15	4.17			
2020	15	4.17			
2017-2020	60	16.67			
<b>Characteristics of measure (description of the measure and method used to make savings)</b>	Renovation of multi-family buildings with a minimum 20 % heat requirement saving				
<b>Detailed description of the method to calculate energy savings (so that savings can subsequently be recalculated and verified)</b>	The energy performance certificate database serves as a basis (source: INFOREG IS). The initial condition of a multi-family building is considered to be the upper limit of energy class D. The energy saving is the difference between the energy supplied and the initial condition of the multi-family building. The average number of housing units per multi-family building is assumed to be 48.				
<b>Assumptions and estimates in the calculation of energy savings</b>	Expert estimates				
<b>Reason for the use of estimates (e.g. if there are gaps in relevant information)</b>					
<b>Monitoring and verification of the energy savings made</b>	Monitoring takes place via the INFOREG information system				
<b>Overall evaluation and way forward (success of the measure, continuation or closure of the measure)</b>	This change will entail a tightening of the minimum energy performance requirements for buildings (from 2016 onwards), based on which an expert estimate is drawn up further to the new Implementing Decree No 364/2012. Attainment of the upper limit of energy class A1 for the global indicator determining the ultra-low-energy standard from 2016 – buildings undergoing major renovation must comply with this requirement insofar as this is technically, functionally and economically feasible.				
<b>- Overlapping anticipated with another measure - Duplicate counting of savings - Interaction with other measures (support and horizontal)</b>	There is an overlap with the residential building insulation measure (Measure 1.2.1) and with the State Housing Development Fund – JESSICA measure and EU-funded residential building insulation measure (Measures 1.2.2 and 1.2.3).				

Measure 1.2.5 3AP			Improvements in the thermal performance of buildings – Multi-family buildings		
Sector			Source of financing: <b>Slovseff II.</b>		
Reporting period			2014–2016		
Duration of the measure (from – to)			As of 2010		
Responsible ministry			Slovseff/ESG, Ministry of Economy		
Energy savings apply to:	Heat	Natural gas	Electricity	Fuels	Other:.....
%	x	x	x		
<b>Planned</b>	Energy savings – FEC		Reduction in the consumption of primary energy sources		Financing
<b>Year</b>	<b>TJ</b>	<b>GWh</b>	<b>TJ</b>	<b>GWh</b>	<b>EUR thousands</b>
2014	23.94	6.65			902
2015	1.91	0.53			0
2016	0.00	0.00			0
2014–2016	25.86	7.18			902
2017	0.00	0.00			0
2018	0.00	0.00			0
2019	0.00	0.00			0
2020	0.00	0.00			0
2017-2020	0.00	0.00			0
Characteristics of measure (description of the measure and method used to make savings)	Ongoing measure affecting savings in the 2014–2016 period. For a description, see the evaluation.				
Detailed description of the method to calculate energy savings (so that savings can subsequently be recalculated and verified)	See the evaluation				
Assumptions and estimates in the calculation of energy savings	Assumption: all projects are physically completed by the end of 2014.				
Reason for the use of estimates (e.g. if there are gaps in relevant information)	See the evaluation				
Monitoring and verification of the energy savings made	See the evaluation				
Overall evaluation and way forward (success of the measure, continuation or closure of the measure)	A measure continuing Slovseff II. Start of measure: 2010 End of measure: 2014 A measure in the same form ends in 2014. It is followed by Slovseff III, a similar programme (Ministry of the Environment).				
- Overlapping anticipated with another measure - Duplicate counting of savings - Interaction with other measures (support and horizontal)	- Potential overlapping with Measure 1.2.4 Improvements in the thermal performance of buildings – Multi-family buildings (own funds). - Duplicate counting of savings: prevented.				

Measure 1.2.5 3AP			Improvements in the thermal performance of buildings – Multi-family buildings		
Sector			Source of financing: <b>Slovseff III</b>		
Reporting period			2014–2016		
Duration of the measure (from – to)			2014–2016		
Responsible ministry			Ministry of the Environment		
Energy savings apply to:	Heat	Natural gas	Electricity	Fuels	Other:.....
%	65 %	35 %			
<b>Planned</b>	Energy savings – FEC		Reduction in the consumption of primary energy sources		Financing
<b>Year</b>	<b>TJ</b>	<b>GWh</b>	<b>TJ</b>	<b>GWh</b>	<b>EUR thousands</b>
2014	0.00	0.00			3,046
2015	8.48	2.35			3,046
2016	8.48	2.35			3,046
2014–2016	16.95	4.71			9,138
2017	8.48	2.35			0
2018	0.00	0.00			0
2019	0.00	0.00			0
2020	0.00	0.00			0
2017-2020	8.48	2.35			0
Characteristics of measure (description of the measure and method used to make savings)	<p>This measure follows on from Slovseff II (2010–2014) and Slovseff I (2007–2010), but incentive payments are covered with sales of greenhouse gas emission allowances by the Spanish government under a green investment scheme (Greening Programme). Under Slovseff III, the share of financing channelled into energy efficiency measures in the housing sector was contracted in favour of energy efficiency measures in industry and, in particular, RES:</p> <ul style="list-style-type: none"> <li>- Energy efficiency in residential buildings: up to 20%</li> <li>- Energy efficiency in industry: approximately 35 %</li> <li>- RES: approximately 45 %</li> </ul> <p>Financing takes place in much the same measure as under Slovseff I and II, i.e. applicants are granted loans and provided with incentive payments upon compliance with the set conditions. The EBRD provided EUR 40 million for the financing of loans. The Spanish government provided EUR 5 693 800 for incentive payments and another EUR 2 million for technical assistance (consulting, energy auditing arrangements, etc.). These funds are available for utilisation up to 31 July 2016.</p>				
Detailed description of the method to calculate energy savings (so that savings can subsequently be verified)	Planned energy savings are calculated on the basis of the allocation projected for energy efficiency measures in industry and the average investment intensity. Energy efficiency in industry is calculated on the basis of previous projects (Slovseff II) and projects contracted under the State Housing Development Fund – JESSICA initiative.				
Assumptions and estimates in the calculation of energy savings	<ul style="list-style-type: none"> <li>- Energy savings: the average investment intensity of energy efficiency measures in industry is taken to be EUR 1 294 per MWh (Slovseff II and projects contracted under the State Housing Development Fund – JESSICA initiative).</li> <li>- The savings are indicated a year after the planned project implementation.</li> <li>- Assumption: financing and implementation in 2014, energy savings in 2015 at the earliest</li> <li>- Finances are indicated in the expected year of project implementation.</li> </ul>				
Reason for the use of estimates	Specific projects have yet to be contracted.				
Monitoring and verification of the energy savings made	Monitoring and verification: project administrator and the Ministry of the Environment.				
Overall evaluation and way forward	Start of measure: 2014 End of measure: 2016 (n+1)				
- Overlapping anticipated with another measure - Duplicate counting of savings - Interaction with other measures (support and horizontal)	Overlapping anticipated with another measure: Improvements in the thermal performance of buildings – Multi-family buildings Duplicate counting of savings: prevented.				

Measure 1.3.1 3AP			Improvements in the thermal performance of buildings – Administrative buildings		
BUILDINGS sector			Source of financing: <b>Own funds, commercial banks</b>		
Reporting period			2014–2016		
Duration of the measure (from – to)					
Responsible ministry			Ministry of Transport, Construction and Regional Development		
Energy savings apply to:	Heat	Natural gas	Electricity	Fuels	Other:.....
%	x	x			
Planned	Energy savings – FEC		Reduction in the consumption of primary energy sources		Financing
Year	TJ	GWh	TJ	GWh	EUR thousands
2014	79.2		22		
2015	79.2		22		
2016	99		27.5		
2014–2016	257.4		71.5		
2017	80		22		
2018	80		22		
2019	80		22		
2020	80		22		
2017-2020	320		88		
Characteristics of measure (description of the measure and method used to make savings)	Renovation of administrative buildings with a minimum 20 % heat requirement saving.				
Detailed description of the method to calculate energy savings (so that savings can subsequently be recalculated and verified)	The energy performance certificate database serves as a basis (source: INFOREG IS). The initial condition of an administrative building is considered to be the upper limit of energy class D. The energy saving is the difference between the energy supplied and the initial condition of the administrative building. The average floor area of an administrative building is considered to be the current average floor area under energy performance certificates.				
Assumptions and estimates in the calculation of energy savings	Expert estimates				
Reason for the use of estimates (e.g. if there are gaps in relevant information)	Use of estimates is unavoidable because the initial condition of the administrative buildings which we are estimating would otherwise have to be looked up individually for each and every administrative building and the saving in GWh would have to be calculated separately for each administrative building. Considering the number of energy performance certificates in the database for the given year, the time and labour required make this infeasible.				
Monitoring and verification of the energy savings made	Monitoring takes place via the INFOREG information system				
Overall evaluation and way forward (success of the measure, continuation or closure of the measure)	This change will entail a tightening of the minimum energy performance requirements for buildings (from 2016 onwards), based on which an expert estimate is drawn up further to the new Implementing Decree No 364/2012. Attainment of the upper limit of energy class A1 for the global indicator determining the ultra-low-energy standard from 2016 – buildings undergoing major renovation must comply with this requirement insofar as this is technically, functionally and economically feasible.				
- Overlapping anticipated with another measure - Duplicate counting of savings - Interaction with other measures (support and horizontal)	There is overlapping with Measures 3.6 and 3.7 (Reduction in the energy intensity of public buildings under the Operational Programme Environmental Quality and Improvements in the thermal performance of public buildings – central bodies of state administration)				



Measure 1.3.4 3AP			Improvements in the thermal performance of buildings – Hotels, restaurants		
BUILDINGS sector			Source of financing: <b>Own funds</b>		
Reporting period			2014–2016		
Duration of the measure (from – to)					
Responsible ministry			Ministry of Transport, Construction and Regional Development		
Energy savings apply to:	Heat	Natural gas	Electricity	Fuels	Other:.....
%					
Planned	Energy savings – FEC		Reduction in the consumption of primary energy sources		Financing
Year	TJ	GWh	TJ	GWh	EUR thousands
2014		60		16.67	
2015		60		16.67	
2016		50		13.89	
2014–2016		170		47.23	
2017		45		12.50	
2018		45		12.50	
2019		45		12.50	
2020		45		12.50	
2017-2020		180		50.00	
Characteristics of measure (description of the measure and method used to make savings)	Renovation of wholesale and retail buildings with a minimum 20 % heat requirement saving				
Detailed description of the method to calculate energy savings (so that savings can subsequently be recalculated and verified)	The energy performance certificate database serves as a basis (source: INFOREG IS). The initial condition of hotel and restaurant buildings is considered to be the upper limit of energy class D. The energy saving is the difference between the energy supplied and the initial condition of the building. The average floor area of hotel and restaurant buildings is considered to be the current average floor area under energy performance certificates.				
Assumptions and estimates in the calculation of energy savings	Expert estimates				
Reason for the use of estimates (e.g. if there are gaps in relevant information)	Use of estimates is unavoidable because the initial condition of the administrative buildings which we are estimating would otherwise have to be looked up individually for each and every building and the saving in GWh would have to be calculated separately for each building. Considering the number of energy performance certificates in the database for the given year, the time and labour required make this infeasible.				
Monitoring and verification of the energy savings made	Monitoring takes place via the INFOREG information system				
Overall evaluation and way forward (success of the measure, continuation or closure of the measure)	This change will entail a tightening of the minimum energy performance requirements for buildings (from 2016 onwards), based on which an expert estimate is drawn up further to the new Implementing Decree No 364/2012. Attainment of the upper limit of energy class A1 for the global indicator determining the ultra-low-energy standard from 2016 – buildings undergoing major renovation must comply with this requirement insofar as this is technically, functionally and economically feasible.				
- Overlapping anticipated with another measure - Duplicate counting of savings - Interaction with other measures (support and horizontal)	Overlapping with the Operational Programme Rural Development, Operational Programme Competitiveness and Economic Growth, 3.1 tourism				

Measure 1.3.5 3AP			Improvements in the thermal performance of buildings – wholesale, retail		
BUILDINGS sector			Source of financing: <b>Own funds</b>		
Reporting period			2014–2016		
Duration of the measure (from – to)					
Responsible ministry			Ministry of Transport, Construction and Regional Development		
Energy savings apply to:	Heat	Natural gas	Electricity	Fuels	Other:.....
%					
Planned	Energy savings – FEC (final energy consumption) <sup>2</sup>		Reduction in the consumption of primary energy sources		Financing
Year	TJ	GWh	TJ	GWh	EUR thousands
2014	100	27.78			
2015	100	27.78			
2016	90	25.00			
2014–2016	290	80.56			
2017	85	23.61			
2018	75	20.84			
2019	75	20.84			
2020	75	20.84			
2017-2020	310	86.12			
Characteristics of measure (description of the measure and method used to make savings)	Renovation of wholesale and retail buildings with a minimum 20 % heat requirement saving				
Detailed description of the method to calculate energy savings (so that savings can subsequently be recalculated and verified)	The energy performance certificate database serves as a basis (source: INFOREG IS). The initial condition of wholesale and retail buildings is considered to be the upper limit of energy class D. The energy saving is the difference between the energy supplied and the initial condition of the wholesale or retail building. The average floor area of wholesale and retail buildings is considered to be the current average floor area under energy performance certificates.				
Assumptions and estimates in the calculation of energy savings	Expert estimates				
Reason for the use of estimates (e.g. if there are gaps in relevant information)	Use of estimates is unavoidable because the initial condition of the administrative buildings which we are estimating would otherwise have to be looked up individually for each and every building and the saving in GWh would have to be calculated separately for each building. Considering the number of energy performance certificates in the database for the given year, the time and labour required make this infeasible.				
Monitoring and verification of the energy savings made	Monitoring takes place via the INFOREG information system				
Overall evaluation and way forward (success of the measure, continuation or closure of the measure)	This change will entail a tightening of the minimum energy performance requirements for buildings (from 2016 onwards), based on which an expert estimate is drawn up further to the new Implementing Decree No 364/2012. Attainment of the upper limit of energy class A1 for the global indicator determining the ultra-low-energy standard from 2016 – buildings undergoing major renovation must comply with this requirement insofar as this is technically, functionally and economically feasible.				
- Overlapping anticipated with another measure - Duplicate counting of savings - Interaction with other measures (support and horizontal)					

<sup>2</sup> The following conversion rate is used to convert energy savings: 1 GWh = 3.6 TJ.

Measure 1.3.6. 3AP		Improvements in the thermal performance of buildings – sports halls and other buildings intended for support			
BUILDINGS sector		Source of financing: <b>Own funds</b>			
Reporting period		2014-2020			
Duration of the measure (from – to)		no limit			
Responsible ministry		Ministry of Transport, Construction and Regional Development			
Energy savings apply to:	Heat	Natural gas	Electricity	Fuels	Other:.....
%	35 %	65 %			
Planned	Energy savings – FEC (final energy consumption) <sup>3</sup>		Reduction in the consumption of primary energy sources		Financing
Year	TJ	GWh	TJ	GWh	EUR thousands
2014		3	0.83		
2015		2	0.56		
2016		2	0.56		
2014–2016		7	1.94		
2017		2	0.56		
2018		1.5	0.42		
2019		1.5	0.42		
2020		1.5	0.42		
2017-2020		6.5	1.81		
Characteristics of measure (description of the measure and method used to make savings)	Renovation of wholesale and retail buildings with a minimum 20 % heat requirement saving				
Detailed description of the method to calculate energy savings (so that savings can subsequently be recalculated and verified)	The energy performance certificate database serves as a basis (source: INFOREG IS). The initial condition of this category of building is considered to be the upper limit of energy class D. The energy saving is the difference between the energy supplied and the initial condition of the building. The average floor area of buildings intended for sport is considered to be the current average floor area under energy performance certificates.				
Assumptions and estimates in the calculation of energy savings	Expert estimates				
Reason for the use of estimates (e.g. if there are gaps in relevant information)	Use of estimates is unavoidable because the initial condition of the administrative buildings which we are estimating would otherwise have to be looked up individually for each and every building and the saving in GWh would have to be calculated separately for each building. Considering the number of energy performance certificates in the database for the given year, the time and labour required make this infeasible.				
Monitoring and verification of the energy savings made	Monitoring takes place via the INFOREG information system				
Overall evaluation and way forward (success of the measure, continuation or closure of the measure)	This change will entail a tightening of the minimum energy performance requirements for buildings (from 2016 onwards), based on which an expert estimate is drawn up further to the new Implementing Decree No 364/2012. Attainment of the upper limit of energy class A1 for the global indicator determining the ultra-low-energy standard from 2016 – buildings undergoing major renovation must comply with this requirement insofar as this is technically, functionally and economically feasible.				
- Overlapping anticipated with another measure - Duplicate counting of savings - Interaction with other measures (support and horizontal)	No overlapping is anticipated.				

<sup>3</sup> The following conversion rate is used to convert energy savings: 1 GWh = 3.6 TJ.

Measure 1.3.2. 3AP		Improvements in the thermal performance of buildings – Schools, school facilities			
BUILDINGS sector		Source of financing:			
Reporting period		2014–2016			
Duration of the measure (from – to)					
Responsible ministry		Ministry of Transport, Construction and Regional Development			
Energy savings apply to:	Heat	Natural gas	Electricity	Fuels	Other:.....
%	x	x			
Planned	Energy savings – FEC (final energy consumption) <sup>4</sup>		Reduction in the consumption of primary energy sources		Financing
Year	TJ	GWh	TJ	GWh	EUR thousands
2014		40		25	639,969
2015		40		25	639,969
2016		30		22.22	640,000
2014–2016		110		72.22	1,919,939
2017		30		22.22	640,000
2018		30		22.22	640,000
2019		30		22.22	640,000
2020		30		22.22	640,000
2017-2020		120		88.88	2,560,000
Characteristics of measure (description of the measure and method used to make savings)	Renovation of buildings with a minimum 20 % heat requirement saving.				
Detailed description of the method to calculate energy savings (so that savings can subsequently be recalculated and verified)	The energy performance certificate database serves as a basis (source: INFOREG IS). The initial condition of the building is considered to be the upper limit of energy class D. The energy saving is the difference between the energy supplied and the initial condition of the building.				
Assumptions and estimates in the calculation of energy savings	Expert estimates				
Reason for the use of estimates (e.g. if there are gaps in relevant information)	Use of estimates is unavoidable because the initial condition of the administrative buildings which we are estimating would otherwise have to be looked up individually for each and every building and the saving in GWh would have to be calculated separately for each building. Considering the number of energy performance certificates in the database for the given year, the time and labour required make this infeasible.				
Monitoring and verification of the energy savings made	Monitoring takes place via the INFOREG information system				
Overall evaluation and way forward (success of the measure, continuation or closure of the measure)	This change will entail a tightening of the minimum energy performance requirements for buildings (from 2016 onwards), based on which an expert estimate is drawn up further to the new Implementing Decree No 364/2012. Attainment of the upper limit of energy class A1 for the global indicator determining the ultra-low-energy standard from 2016 – buildings undergoing major renovation must comply with this requirement insofar as this is technically, functionally and economically feasible.				
- Overlapping anticipated with another measure - Duplicate counting of savings - Interaction with other measures (support and horizontal)	Measure evaluated by reference to all buildings in this category. Overlapping with Measures 3.2.1 and 3.2.2 Improvements in the thermal performance of public buildings – Schools and school facilities (Operational Programme Research and Development and ROP). Duplicate counting of savings: prevented.				

<sup>4</sup> The following conversion rate is used to convert energy savings: 1 GWh = 3.6 TJ.

Measure 1.3.3. 3AP		Improvements in the thermal performance of buildings – Hospitals			
BUILDINGS sector		Source of financing: <b>own funds</b>			
Reporting period		<b>2014–2016, with an outlook up to 2020</b>			
Duration of the measure (from – to)					
Responsible ministry		<b>Ministry of Transport, Construction and Regional Development</b>			
Energy savings apply to:	Heat	Natural gas	Electricity	Fuels	Other:.....
%	x	x			
Planned	Energy savings – FEC (final energy consumption) <sup>5</sup>		Reduction in the consumption of primary energy sources		Financing
Year	TJ	GWh	TJ	GWh	EUR thousands
2014		35	9.72		
2015		30	8.33		
2016		30	26.39		
2014–2016		95	32.5		
2017		25	6.95		
2018		25	6.95		
2019		25	6.95		
2020		25	6.95		
2017-2020		100	27.78		
Characteristics of measure (description of the measure and method used to make savings)	Renovation of hospitals with a minimum 20 % heat requirement saving.				
Detailed description of the method to calculate energy savings (so that savings can subsequently be recalculated and verified)	The energy performance certificate database serves as a basis (source: INFOREG IS). The initial condition of the hospital is considered to be the upper limit of energy class D. The energy saving is the difference between the energy supplied and the initial condition of the hospital.				
Assumptions and estimates in the calculation of energy savings	Expert estimates				
Reason for the use of estimates (e.g. if there are gaps in relevant information)	Use of estimates is unavoidable because the initial condition of the administrative buildings which we are estimating would otherwise have to be looked up individually for each and every building and the saving in GWh would have to be calculated separately for each building. Considering the number of energy performance certificates in the database for the given year, the time and labour required make this infeasible.				
Monitoring and verification of the energy savings made	Monitoring takes place via the INFOREG information system				
Overall evaluation and way forward (success of the measure, continuation or closure of the measure)	This change will entail a tightening of the minimum energy performance requirements for buildings (from 2016 onwards), based on which an expert estimate is drawn up further to the new Implementing Decree No 364/2012. Attainment of the upper limit of energy class A1 for the global indicator determining the ultra-low-energy standard from 2016 – buildings undergoing major renovation must comply with this requirement insofar as this is technically, functionally and economically feasible.				
- Overlapping anticipated with another measure - Duplicate counting of savings - Interaction with other measures (support and horizontal)	Measure evaluated by reference to all buildings in this category. Overlapping with Measure 3.1 Improvements in the thermal performance of public buildings – Healthcare facilities, 2007–2013 Structural Funds, Operational Programme Health. Duplicate counting of savings: prevented.				

<sup>5</sup> The following conversion rate is used to convert energy savings: 1 GWh = 3.6 TJ.

Measure 1.4.1. 3AP			New construction to a low-energy standard – single-family buildings		
BUILDINGS sector			Source of financing: <b>own funds, commercial banks</b>		
Reporting period			<b>2014–2016, with an outlook up to 2020</b>		
Duration of the measure (from – to)					
Responsible ministry			<b>Ministry of Transport, Construction and Regional Development</b>		
Energy savings apply to:	Heat	Natural gas	Electricity	Fuels	Other:.....
%					
Planned	Energy savings – FEC		Reduction in the consumption of primary energy sources		Financing
Year	TJ	GWh	TJ	GWh	EUR thousands
2014	60	16.67			
2015	60	16.67			
2016	55	15.28			
2014–2016	175	48.62			
2017					
2018					
2019					
2020					
2017-2020					
Characteristics of measure (description of the measure and method used to make savings)	Attainment of a low-energy standard, i.e. the upper limit of energy class B				
Detailed description of the method to calculate energy savings (so that savings can subsequently be recalculated and verified)	The energy performance certificate database serves as a basis (source: INFOREG IS). The anticipated condition of a single-family building is considered to be the upper limit of energy class B – new construction. The energy saving is the difference between the energy supplied and the upper limit of energy class B. The average floor area of a single-family building is considered to be the current average floor area under energy performance certificates.				
Assumptions and estimates in the calculation of energy savings	Expert estimates				
Reason for the use of estimates (e.g. if there are gaps in relevant information)	Use of estimates is unavoidable because the initial condition of the administrative buildings which we are estimating would otherwise have to be looked up individually for each and every building category and the saving in GWh would have to be calculated separately for each building. Considering the number of energy performance certificates in the database for the given year, the time and labour required make this infeasible.				
Monitoring and verification of the energy savings made	Monitoring takes place via the INFOREG information system				
Overall evaluation and way forward (success of the measure, continuation or closure of the measure)	This change will entail a tightening of the minimum energy performance requirements for buildings (from 2016 onwards), based on which an expert estimate is drawn up further to the new Implementing Decree No 364/2012 (note: the ongoing Measure 1.5 2016).				
- Overlapping anticipated with another measure - Duplicate counting of savings - Interaction with other measures (support and horizontal)					

Measure 1.2.4 3AP		New construction to a low-energy standard – multi-family buildings			
BUILDINGS sector		Source of financing:			
Reporting period		2014–2016, with an outlook up to 2020			
Duration of the measure (from – to)					
Responsible ministry		Ministry of Transport, Construction and Regional Development			
Energy savings apply to:	Heat	Natural gas	Electricity	Fuels	Other:.....
%					
Planned	Energy savings – FEC		Reduction in the consumption of primary energy sources		Financing
Year	TJ	GWh	TJ	GWh	EUR thousands
2014	0.5	0.14			
2015	0.5	0.14			
2016	0.5	0.14			
2014–2016	1.5	0.42			
2017					
2018					
2019					
2020					
2017-2020					
Characteristics of measure (description of the measure and method used to make savings)	Attainment of a low-energy standard, i.e. the upper limit of energy class B				
Detailed description of the method to calculate energy savings (so that savings can subsequently be recalculated and verified)	The energy performance certificate database serves as a basis (source: INFOREG IS). The anticipated condition of a multi-family building is considered to be the upper limit of energy class B – new construction. The energy saving is the difference between the energy supplied and the upper limit of energy class B. The average number of housing units per multi-family building is assumed to be 50.				
Assumptions and estimates in the calculation of energy savings	Expert estimates				
Reason for the use of estimates (e.g. if there are gaps in relevant information)	Use of estimates is unavoidable because the initial condition of the administrative buildings which we are estimating would otherwise have to be looked up individually for each and every building category and the saving in GWh would have to be calculated separately for each building. Considering the number of energy performance certificates in the database for the given year, the time and labour required make this infeasible.				
Monitoring and verification of the energy savings made	Monitoring takes place via the INFOREG information system				
Overall evaluation and way forward (success of the measure, continuation or closure of the measure)	This change will entail a tightening of the minimum energy performance requirements for buildings (from 2016 onwards), based on which an expert estimate is drawn up further to the new Implementing Decree No 364/2012 (note: the ongoing Measure 1.5 2016).				
- Overlapping anticipated with another measure - Duplicate counting of savings - Interaction with other measures (support and horizontal)					

Measure 1.5 3AP		New construction of single-family and multi-family buildings to an ultra-low-energy standard			
BUILDINGS sector		Source of financing: <b>own funds, commercial banks</b>			
Reporting period		2014–2016, with an outlook up to 2020			
Duration of the measure (from – to)		From 2016 to 2020			
Responsible ministry		Ministry of Transport, Construction and Regional Development			
Energy savings apply to:	Heat	Natural gas	Electricity	Fuels	Other:.....
%					
Planned	Energy savings – FEC (final energy consumption) <sup>6</sup>		Reduction in the consumption of primary energy sources		Financing
Year	TJ	GWh	TJ	GWh	EUR thousands
2014		5	1.39		
2015		5	1.39		
2016		5	1.39		
2014–2016		15	4.17		
2017		30	8.33		
2018		30	8.33		
2019		35	9.72		
2020		35	9.72		
2017-2020		130	36.11		
Characteristics of measure (description of the measure and method used to make savings)	Attainment of an ultra-low-energy standard of construction, i.e. the upper limit of energy class A1				
Detailed description of the method to calculate energy savings (so that savings can subsequently be recalculated and verified)	The energy performance certificate database serves as a basis (source: INFOREG IS). The anticipated condition of a multi-family or single-family building is considered to be the upper limit of energy class A1 – new construction. The energy saving is the difference between the energy supplied and the upper limit of energy class A1. The average number of housing units per multi-family building is assumed to be 50. The average floor area of a single-family building is considered to be the current average floor area under energy performance certificates.				
Assumptions and estimates in the calculation of energy savings	Expert estimates				
Reason for the use of estimates (e.g. if there are gaps in relevant information)	Use of estimates is unavoidable because the initial condition of the administrative buildings which we are estimating would otherwise have to be looked up individually for each and every building category and the saving in GWh would have to be calculated separately for each building. Considering the number of energy performance certificates in the database for the given year, the time and labour required make this infeasible.				
Monitoring and verification of the energy savings made	Monitoring takes place via the INFOREG information system				
Overall evaluation and way forward (success of the measure, continuation or closure of the measure)	-				
- Overlapping anticipated with another measure - Duplicate counting of savings - Interaction with other measures (support and horizontal)	Overlapping with Measures 1.4.1, 1.4.2 and 1.6.				

<sup>6</sup> The following conversion rate is used to convert energy savings: 1 GWh = 3.6 TJ.



Measure 1.7 3AP		New construction of nearly zero-energy single-family and multi-family buildings			
BUILDINGS sector		Source of financing: <b>own funds, commercial banks</b>			
Reporting period		<b>2014–2016, with an outlook up to 2020</b>			
Duration of the measure (from – to)					
Responsible ministry		<b>Ministry of Transport, Construction and Regional Development</b>			
Energy savings apply to:	Heat	Natural gas	Electricity	Fuels	Other:.....
%					
Planned	Energy savings – FEC (final energy consumption) <sup>7</sup>		Reduction in the consumption of primary energy sources		Financing
Year	TJ	GWh	TJ	GWh	EUR thousands
2014	0	0	0		
2015	0	0	0		
2016	0	0	0		
2014–2016	0	0	0		
2017	0	0	0		
2018	0.1	0.03			
2019	0.2	0.06			
2020	0.2	0.06			
2017-2020	0.5	0.14			
Characteristics of measure (description of the measure and method used to make savings)	Attainment of the level of the construction of nearly zero-energy buildings, i.e. the upper limit of energy class A0, with the condition of RES.				
Detailed description of the method to calculate energy savings (so that savings can subsequently be recalculated and verified)	The energy performance certificate database serves as a basis (source: INFOREG IS). The anticipated condition of a single-family or multi-family building is considered to be the upper limit of energy class A1 – new construction. The energy saving is the difference between the energy supplied and the upper limit of energy class A1 for a single-family or multi-family building. The average number of housing units per multi-family building is assumed to be 50. The average floor area of a single-family building is considered to be the current average floor area under energy performance certificates.				
Assumptions and estimates in the calculation of energy savings	Expert estimates				
Reason for the use of estimates (e.g. if there are gaps in relevant information)	Use of estimates is unavoidable because the initial condition of the administrative buildings which we are estimating would otherwise have to be looked up individually for each and every building category and the saving in GWh would have to be calculated separately for each building. Considering the number of energy performance certificates in the database for the given year, the time and labour required make this infeasible.				
Monitoring and verification of the energy savings made	Monitoring takes place via the INFOREG information system				
Overall evaluation and way forward (success of the measure, continuation or closure of the measure)					
- Overlapping anticipated with another measure - Duplicate counting of savings - Interaction with other measures (support and horizontal)	Overlapping with Measures 1.4.1, 1.4.2 and 1.5.				

<sup>7</sup> The following conversion rate is used to convert energy savings: 1 GWh = 3.6 TJ.

# Industry sector

Measures 5.1.1, 5.2.1 3AP		Measure 1.1, Operational Programme Competitiveness and Economic Growth 2007–2013 <b>Innovation and technology transfers at industrial enterprises</b>			
Industry sector		Measure 2.1, Operational Programme Competitiveness and Economic Growth 2007–2013 <b>Increased energy efficiency in industrial production</b>			
<b>Reporting period</b>		<b>2014–2016, with an outlook up to 2020</b>			
<b>Duration of the measure (from – to)</b>		<b>As of 2007</b>			
<b>Responsible ministry</b>		<b>Ministry of Economy, Slovak Innovation and Energy Agency</b>			
Energy savings apply to:	<b>Heat</b>	<b>Natural gas</b>	<b>Electricity</b>	<b>Fuels</b>	<b>Other:.....</b>
<b>% (forecast)</b>	<b>50 %</b>	<b>50 %</b>			
<b>Planned</b>	Energy savings – FEC (final energy consumption) <sup>8</sup>		Reduction in the consumption of primary energy sources		Financing
<b>Year</b>	<b>TJ</b>	<b>GWh</b>	<b>TJ</b>	<b>GWh</b>	<b>EUR thousands</b>
<b>2014</b>			<b>294.12</b>	<b>0.08</b>	<b>0.00</b>
<b>2015</b>			<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>2016</b>			<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
2014–2016			<b>294.12</b>	<b>0.08</b>	<b>0.00</b>
<b>2017</b>			<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>2018</b>			<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>2019</b>			<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>2020</b>			<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
2017-2020			<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>Characteristics of measure (description of the measure and method used to make savings)</b>	Measure nearing completion, for a description of the measure see the EVALUATION of Measures 5.1.1 and 5.2.1 2AP.				
<b>Detailed description of the method to calculate energy savings (so that savings can subsequently be recalculated and verified)</b>	<p><b>Bottom-up: Bottom-up, planned energy savings are calculated on a project-by-project basis. It is assumed that energy savings indicated as a measurable indicator (energy savings in GJ per year) will be achieved.</b></p> <p><b>Projects focusing solely on RES are excluded from the list of all projects under Measures 2.1 and 1.1.</b></p> <p><b>∨ With combined projects (energy efficiency and RES), the entire energy-saving declared in the form of a measurable impact indicator is counted. Of the investment costs, the part for RES is removed. This is calculated as the product of the installed capacity and the projected investment costs (Ni) per unit of installed capacity based on previous projects under the Operational Programme Competitiveness and Economic Growth and Sloveff I and II, depending on the type of RES.</b></p> <p><b>∨ Where uncertainties exist in energy-saving figures or in information on the installed capacity of RES, these projects are also excluded.</b></p> <p><b>∨ Where irregularities are identified in information, the savings are examined and revised on the basis of actual operating data from similar facilities.</b></p>				
<b>Assumptions and estimates in the calculation of energy savings</b>	<p><b>Estimates used:</b></p> <p><b>Investment costs to achieve the installed capacity:</b></p> <ul style="list-style-type: none"> <li>• Solar power at EUR 1 110 per kW (Sloveff I, II)</li> <li>• use of RES to generate heat: EUR 735 per kW (average under the Operational Programme Competitiveness and Economic Growth for biomass, heat pumps)</li> <li>• heat source reconstruction: EUR 300 per kW (based on specific projects under the Operational Programme Competitiveness and Economic Growth focusing on the reconstruction of biomass combustion sources)</li> </ul>				
<b>Reason for the use of estimates</b>					
<b>Monitoring and verification of the energy savings made</b>	Monitoring is carried out by the Slovak Innovation and Energy Agency, ITMS system. Verification by the employees of the Ministry of Economy/Slovak Innovation and Energy Agency for 3AP requirements.				
<b>Overall evaluation and way forward (success of the measure, continuation or closure of the measure)</b>	The measure will not be continued in the 2014–2020 period because it is only an ongoing measure in which final savings from measures implemented in 2013 are being made. It is to be followed up by a measure under the Operational Programme Environmental Quality 2014–2020, "Implementation of energy efficiency measures derived from energy audits".				

<sup>8</sup> The following conversion rate is used to convert energy savings: 1 GWh = 3.6 TJ.

Measure 5.1.2 3AP		Innovation and technology transfers at industrial enterprises			
Industry sector		Measure 2.1, Operational Programme Bratislava Region, 2007–2013 Structural Funds			
Reporting period		2014–2016, with an outlook up to 2020			
Duration of the measure (from – to)		2007–2013, n+2			
Responsible ministry		Ministry of Agriculture and Rural Development			
Energy savings apply to:	Heat	Natural gas	Electricity	Fuels	Other: .....
% (forecast)					
Planned	Energy savings – FEC (final energy consumption) <sup>9</sup>		Reduction in the consumption of primary energy sources		Financing
Year	TJ	GWh	TJ	GWh	EUR thousands
2014	1.32	0.66			0
2015	0.11	0.03			600
2016	0.00	0.00			0
2014–2016	1.43	0.69			600
2017	0.00	0.00			0
2018	0.00	0.00			0
2019	0.00	0.00			0
2020	0.00	0.00			0
2017-2020	0.00	0.00			0
Characteristics of measure (description of the measure and method used to make savings)	Measure nearing completion, for a description of the measure see the Evaluation of Measure 5.1.2 2AP.				
Detailed description of the method to calculate energy savings (so that savings can subsequently be recalculated and verified)	Bottom-up: Energy savings are calculated for each project. Energy savings under individual projects are defined as energy consumption prior to project implementation – energy consumption after project implementation. Energy savings are calculated on the basis of actually achieved measurable indicators referred to in the design documentation (for completed projects, this is the annually reported value; for projects in progress, this is the planned value of the measurable indicator).				
Assumptions and estimates in the calculation of energy savings	-				
Reason for the use of estimates (e.g. if there are gaps in relevant information)	-				
Monitoring and verification of the energy savings made	Monitoring is carried out by the Ministry of Agriculture and Rural Development via the ITMS system.				
Overall evaluation and way forward (success of the measure, continuation or closure of the measure)	The measure will continue in the 2014–2020 period. At present, seven projects are being implemented under this measure. The planned savings of these projects cannot currently be quantified.				
- Overlapping anticipated with another measure - Duplicate counting of savings - Interaction with other measures (support and horizontal)	None anticipated.				

<sup>9</sup> The following conversion rate is used to convert energy savings: 1 GWh = 3.6 TJ.

Measure 5.2.2. 3AP		Increased energy efficiency in industrial production			
INDUSTRY sector		Source of financing: <b>Slovseff II – industry</b>			
Reporting period		2014–2016, with an outlook up to 2020			
Duration of the measure (from – to)		As of 2010			
Responsible ministry		Ministry of Economy, ESG			
Energy savings apply to:	Heat	Natural gas	Electricity	Fuels	Other:.....
% (forecast)		98.5 %	1.5 %		
Planned	Energy savings – FEC (final energy consumption) <sup>10</sup>		Reduction in the consumption of primary energy sources		Financing
Year	TJ	GWh	TJ	GWh	EUR thousands
2014	85.39	23.72			1,380
2015	14.32	3.98			0
2016	0.00	0.00			0
2014–2016	99.71	27.70			1,380
2017	0.00	0.00			0
2018	0.00	0.00			0
2019	0.00	0.00			0
2020	0.00	0.00			0
2017-2020	0.00	0.00			0
Characteristics of measure (description of the measure and method used to make savings)	Measure nearing completion, for a description of the measure see the EVALUATION of Measure 5.2.2 2AP. The energy savings are indicated in the year after project implementation.				
Detailed description of the method to calculate energy savings (so that savings can subsequently be recalculated and verified)	Bottom-up: planned energy savings are calculated on a project-by-project basis. It is assumed that energy savings indicated as the planned savings, as stipulated by the project administrator (ESG), will be achieved.				
Assumptions and estimates in the calculation of energy savings	It is assumed that the entire heat saving is related to natural gas. It is assumed that all projects are to be completed by the end of 2014.				
Reason for the use of estimates (e.g. if there are gaps in relevant information)	-				
Monitoring and verification of the energy savings made	Monitoring is carried out by the project administrator (ESG). Verification by the employees of the Ministry of Economy/Slovak Innovation and Energy Agency for 3AP requirements.				
Overall evaluation and way forward (success of the measure, continuation or closure of the measure)	The measure will not be continued in the 2014–2020 period because it is only an ongoing measure in which final savings from measures implemented in 2013, 2014 and 2015 are being made. It is being followed up by a measure under Slovseff III (Measure 5.2.3 3AP)				
- Overlapping anticipated with another measure - Duplicate counting of savings - Interaction with other measures (support and horizontal)	None anticipated.				

<sup>10</sup> The following conversion rate is used to convert energy savings: 1 GWh = 3.6 TJ.

Measure 5.2.3. 3AP		Increased energy efficiency in industrial production			
INDUSTRY sector		Source of financing: <b>Slovseff III – industry</b>			
Reporting period		2014–2016, with an outlook up to 2020			
Duration of the measure (from – to)		From 2014 to 2016			
Responsible ministry		Ministry of the Environment			
Energy savings apply to:	Heat	Natural gas	Electricity	Fuels	Other:.....
% (forecast)	x	x	x		
Planned	Energy savings – FEC (final energy consumption) <sup>11</sup>		Reduction in the consumption of primary energy sources		Financing
Year	TJ	GWh	TJ	GWh	EUR thousands
2014	0.00	0.00			5,331
2015	45.91	12.75			5,331
2016	45.91	12.75			5,331
2014–2016	91.82	25.50			15,992
2017	45.91	12.75			0
2018	0.00	0.00			0
2019	0.00	0.00			0
2020	0.00	0.00			0
2017-2020	45.91	12.75			0
Characteristics of measure (description of the measure and method used to make savings)	<p>This measure follows on from Slovseff II (2010–2014) and Slovseff I (2007–2010), but incentive payments are covered with sales of greenhouse gas emission allowances by the Spanish government under a green investment scheme (Greening Programme). Under Slovseff III, the share of financing channelled into energy efficiency measures in the housing sector was contracted in favour of energy efficiency measures in industry and, in particular, RES:</p> <ul style="list-style-type: none"> <li>- energy efficiency in residential buildings: up to 20 %</li> <li>- energy efficiency in industry: approximately 35 %</li> <li>- RES: approximately 45 %</li> </ul> <p>Financing takes place in much the same measure as under Slovseff I and II, i.e. applicants are granted loans and provided with incentive payments upon compliance with the set conditions. The EBRD provided EUR 40 million for the financing of loans. The Spanish government provided EUR 5 693 800 for incentive payments and another EUR 2 million for technical assistance (consulting, energy auditing arrangements, etc.). These funds are available for utilisation up to 31 July 2016.</p>				
Detailed description of the method to calculate energy savings (so that savings can subsequently be recalculated and verified)	Planned energy savings are calculated on the basis of the allocation projected for energy efficiency measures in industry and the average investment intensity of energy efficiency in industry on the basis of previous projects (Slovseff II) and energy efficiency measures planned on the basis of energy auditing in 2013.				
Assumptions and estimates in the calculation of energy savings	<ul style="list-style-type: none"> <li>- Energy savings: the average investment intensity of energy efficiency measures in industry is considered to be EUR 418 per MWh (Slovseff II and planned energy efficiency measures based on energy auditing in 2013 – energy auditing within the meaning of Act No 476/2009).</li> <li>- The savings are indicated a year after the planned project implementation.</li> <li>- Assumption: financing and implementation in 2014, energy savings in 2015 at the earliest</li> <li>- Finances are indicated in the projected year of project implementation.</li> </ul>				
Reason for the use of estimates (e.g. if there are gaps in relevant information)	Specific projects have yet to be contracted.				
Monitoring and verification of the energy savings made					
Overall evaluation and way forward (success of the measure, continuation or closure of the measure)	Start of measure: 2014 End of measure: (+ until when projects can be implemented)				
- Overlapping anticipated with another measure - Duplicate counting of savings - Interaction with other measures (support and horizontal)	None anticipated.				

<sup>11</sup> The following conversion rate is used to convert energy savings: 1 GWh = 3.6 TJ.

Measure 5.3. 3AP		Implementation of energy efficiency measures derived from energy audits			
INDUSTRY sector		Source of financing: <b>OP Environmental Quality 2014–2020, Priority Axis 2. Promotion of energy efficiency and use of energy from renewable sources at undertakings (b)</b>			
Reporting period		2014–2016, with an outlook up to 2020			
Duration of the measure (from – to)		2014-2020, n+2			
Responsible ministry		Ministry of the Environment (MA), Ministry of Economy (intermediate body)			
Energy savings apply to:	Heat	Natural gas	Electricity	Fuels	Other:.....
% (forecast)					
Planned	Energy savings – FEC (final energy consumption) <sup>12</sup>		Reduction in the consumption of primary energy sources		Financing
Year	TJ	GWh	TJ	GWh	EUR thousands
2014			0.00	0.00	0
2015			0.00	0.00	0
2016			252.00	70.00	48,957
2014–2016			252.00	70.00	48,957
2017			252.00	70.00	73,435
2018			378.00	105.00	73,435
2019			378.00	105.00	48,957
2020			0.00	0.00	0
2017-2020			1,008.00	280.00	195,827
Characteristics of measure (description of the measure and method used to make savings)	<p>Support under the Operational Programme Environmental Quality will focus on:</p> <p>a) energy auditing at industrial enterprises – only SMEs, and</p> <p>b) the implementation of measures derived from energy audits (at all types of industrial enterprises)</p> <p>Activities derived from energy audits and focusing on the following will be eligible:</p> <ul style="list-style-type: none"> <li>the reconstruction and modernisation of structures in industry and related services in order to reduce the energy intensity thereof;</li> <li>the reconstruction and modernisation of existing energy facilities to increase energy efficiency or to reduce greenhouse gas emissions;</li> <li>the reconstruction and modernisation of compressed air production and distribution systems;</li> <li>the introduction of measurement and management systems, including energy and environmental management systems, especially EMAS, in the field of energy production and consumption in order to reduce energy consumption and greenhouse gas emissions;</li> <li>the construction, modernisation and reconstruction of energy distribution systems or energy-medium distribution systems, including systems for the external lighting of industrial complexes;</li> <li>other measures helping to reduce the consumption of primary energy sources.</li> </ul>				
Detailed description of the method to calculate energy savings (so that savings can subsequently be recalculated and verified)	For the purposes of the measure entailing the reconstruction and modernisation of existing energy facilities to increase energy efficiency or to reduce greenhouse gas emissions, the energy-saving indicator was set on the basis of an expert estimate factoring in experience from the implementation of measures under the Operational Programme Competitiveness and Economic Growth and other support mechanisms, including experience from exchanges of information with the business community and mandatory energy auditing in Slovakia.				
Assumptions and estimates in the calculation of energy savings	Energy savings are broken down into individual years to reflect the gradual implementation of the Operational Programme Environmental Quality in Slovakia following the approval thereof. Experience of implementation from the 2007–2013 period (the Operational Programme Competitiveness and Economic Growth) was incorporated into this breakdown.				
Reason for the use of estimates (e.g. if there are gaps in relevant information)	Planning of a new measure.				
Monitoring and verification of the energy savings made	Monitoring and verification of the energy savings made will be the responsibility of the Slovak Innovation and Energy Agency.				
Overall evaluation and way forward (success of the measure, continuation or closure of the measure)	At present, the Operational Programme Environmental Quality is undergoing approval by the European Commission. Therefore, only the planned energy savings and financial requirements are presented.				
- Overlapping anticipated with another measure - Duplicate counting of savings - Interaction with other measures (support and horizontal)	None anticipated.				

<sup>12</sup> The following conversion rate is used to convert energy savings: 1 GWh = 3.6 TJ.

Measure 5.4. 3AP		Application of legislative measures			
INDUSTRY sector		Energy audits at industrial undertakings pursuant to Act No 476/2008 (as amended)			
Reporting period		2014–2016, with an outlook up to 2020			
Duration of the measure (from – to)					
Responsible ministry		Ministry of Economy			
Energy savings apply to:	Heat	Natural gas	Electricity	Fuels	Other:.....
% (forecast)					
Planned	Energy savings – FEC (final energy consumption) <sup>513</sup>		Reduction in the consumption of primary energy sources		Financing
Year	TJ	GWh	TJ	GWh	EUR thousands
2014					
2015					
2016					
2014–2016					
2017					
2018					
2019					
2020					
2017-2020					
Characteristics of measure (description of the measure and method used to make savings)					
Detailed description of the method to calculate energy savings (so that savings can subsequently be recalculated and verified)	The savings are indicated a year after the planned project implementation.				
Assumptions and estimates in the calculation of energy savings					
Reason for the use of estimates (e.g. if there are gaps in relevant information)					
Monitoring and verification of the energy savings made	Monitoring within the scope of the monitoring system (operated by the Slovak Innovation and Energy Agency). Verification by the employees of the Slovak Innovation and Energy Agency on the basis of energy audit reports.				
Overall evaluation and way forward (success of the measure, continuation or closure of the measure)					
- Overlapping anticipated with another measure - Duplicate counting of savings - Interaction with other measures (support and horizontal)	There may be overlapping with previous measures financed under Sloveff II, III, the Operational Programme Competitiveness and Economic Growth 2007–2013, and the Operational Programme Environmental Quality 2014–2020. Duplicate counting: prevented. Interaction: with the measures – monitoring system, consulting, energy service support (in industry).				

<sup>13</sup> The following conversion rate is used to convert energy savings: 1 GWh = 3.6 TJ.

## Public sector – all measures

Measure 3.1. 3AP		Improvements in the thermal performance of buildings – Healthcare facilities			
Public sector		Source of financing: <b>2007–2013 Structural Funds, OP Health</b>			
Reporting period		2014–2016, with an outlook up to 2020			
Duration of the measure (from – to)					
Responsible ministry		Ministry of Health			
Energy savings apply to:	Heat	Natural gas	Electricity	Fuels	Other:.....
% (forecast)					
Planned	Energy savings – FEC (final energy consumption) <sup>14</sup>		Reduction in the consumption of primary energy sources		Financing
Year	TJ	GWh	TJ	GWh	EUR thousands
2014	15.52	4.31			1,707
2015	1.17	0.32			16,240
2016	7.91	2.20			0
2014–2016	24.60	6.83			17,947
2017					
2018					
2019					
2020					
2017-2020					
Characteristics of measure (description of the measure and method used to make savings)	This is a measure from the 2007–2013 period that is being wound up. Types of healthcare facilities: Hospitals combined with clinics, clinics, blood transfusion stations, health centres (district and municipal). In general, the project focused on building works and the purchase of technical equipment and ICT.				
Detailed description of the method to calculate energy savings (so that savings can subsequently be recalculated and verified)	<ul style="list-style-type: none"> <li>- The savings are indicated in the year following the year of renovation.</li> <li>- Financing: the stated grants, funds for ICT and similar technical equipment are not separated.</li> </ul>				
Assumptions and estimates in the calculation of energy savings					
Reason for the use of estimates (e.g. if there are gaps in relevant information)					
Monitoring and verification of the energy savings made	Monitoring is carried out by the Ministry of Health based on the measurable indicator "Energy-saving (GJ per year)" stated in the ITMS. Verification for 3AP requirements: MINISTRY OF ECONOMY/SLOVAK INNOVATION AND ENERGY AGENCY				
Overall evaluation and way forward (success of the measure, continuation or closure of the measure)					
<ul style="list-style-type: none"> <li>- Overlapping anticipated with another measure</li> <li>- Duplicate counting of savings</li> <li>- Interaction with other measures (support and horizontal)</li> </ul>	None anticipated.				

<sup>14</sup> The following conversion rate is used to convert energy savings: 1 GWh = 3.6 TJ.



Measure 1.2.3 3AP		Improvements in the thermal performance of buildings – Schools and school facilities				
Public sector		Source of financing: 2007–2013 Structural Funds, OP Research and Development				
Reporting period		2014–2016, with an outlook up to 2020				
Duration of the measure (from – to)		2007–2013, n+2				
Responsible ministry		Ministry of Education, Science, Research and Sport				
Energy savings apply to:		Heat	Natural gas	Electricity	Fuels	Other: .....
% (forecast)						
Planned		Energy savings – FEC (final energy consumption) <sup>15</sup>		Reduction in the consumption of primary energy sources		Financing
Year	TJ	GWh	TJ	GWh	EUR thousands	
2014	1.77	0.49			0	
2015	0.00	0.00			1,979	
2016	0.002	0.00			0	
2014–2016	1.77	0.49			1,979	
Characteristics of measure (description of the measure and method used to make savings)		Improvements in the thermal performance of buildings – this is a "subset" of Measure 5.1, focusing on the infrastructure of higher-education institutions within the scope of the Operational Programme Research and Development, the aim of which is to enhance the quality of education at higher-education institutions by investment in tangible infrastructure. Eligible applicants are public and state higher-education institutions and the Slovak Academy of Sciences. Besides investment activity focusing on the reconstruction of higher-education institutions, eligible activities also include the construction of new buildings, the extension of structures, the modernisation and reconstruction of the accommodation capacities, gymnasiums, canteens and sports facilities of higher-education institutions, and the modernisation of the indoor equipment and facilities of higher-education institutions used in the education process. Improvements in the thermal performance of buildings will take place until the end of 2015. Information on energy savings will be submitted to the Agency for the Structural Funds of the EU up to 2020 (i.e. for five years after completion of the final projects). Overall, EUR 315 million has been allocated for the infrastructure of higher-education institutions. Part of this is/will be used to improve the thermal performance of buildings.				
Detailed description of the method to calculate energy savings (so that savings can subsequently be recalculated and verified)		Bottom-up. Energy savings are calculated for each project. Energy savings are calculated on the basis of measurable indicators referred to in the design documentation (for completed projects, this is the annually reported value; for projects in progress, this is the planned value of the measurable indicator). Calculations of energy savings draw on expert estimates of savings achieved compared to the initial condition.				
Assumptions and estimates in the calculation of energy savings		In the calculation of savings in 2012 and 2013, so far three beneficiaries have reported energy savings. One beneficiary, the Alexander Dubček University of Trenčín, compared its consumption of natural gas in 2009 (prior to the start of the project) and in 2012 (the year following the year in which the project activities were completed). The difference was divided by the natural gas combustion efficiency coefficient (1 GJ = 30.92 m <sup>3</sup> ). Another two beneficiaries, Comenius University in Bratislava and the University of Trnava, proceeded in the same way.				
Reason for the use of estimates (e.g. if there are gaps in relevant information)						
Monitoring and verification of the energy savings made		Monitoring is carried out by the managing authority (the Ministry of Education, Science Research and Sport) and the intermediate body (the Agency for the Structural Funds of the EU) via the ITMS, where a measurable indicator is provided. As the "Energy savings" indicator is an impact indicator, information is monitored by way of ex-post monitoring reports, which beneficiaries are required to submit once a year for the five years following the end of the project. If energy savings are reported, beneficiaries also send the method they used to calculate the energy savings in the period in question.				
Overall evaluation and way forward (success of the measure, continuation or closure of the measure)		We do not currently have sufficient quantities of data to draw conclusions. In view of the fact that information on energy savings under the projects is insufficient at this time, only data for the first three projects are currently available. Each project presents only the energy savings made in the first year after the completion of the project. Two of the three entities achieved the energy savings planned in the first year. As information on energy savings will be sent for five years and most projects have not yet been financially or physically wound up, a longer period is required to monitor this indicator.				
- Overlapping anticipated with another measure - Duplicate counting of savings - Interaction with other measures (support and horizontal)		No overlapping of this measure with other measures is anticipated.				

<sup>15</sup> The following conversion rate is used to convert energy savings: 1 GWh = 3.6 TJ.

Measure 3.2.2 3AP			Improvements in the thermal performance of buildings – Schools and school facilities			
Public sector			Source of financing: 2007–2013 Structural Funds, ROP, Measure 1.1 Education infrastructure			
Reporting period			2014–2016, with an outlook up to 2020			
Duration of the measure (from – to)			2007–2013, n+2			
Responsible ministry			Ministry of Agriculture and Rural Development			
Energy savings apply to:		Heat	Natural gas	Electricity	Fuels	Other: .....
% (forecast)						
Planned		Energy savings – FEC		Reduction in the consumption of primary energy sources		Financing
Year		TJ	GWh	TJ	GWh	EUR thousands
2014		45.75	12.71			9,667
2015		24	6.67			0
2016		0	0			0
2014–2016		69.75	19.38			9,667
2017						
2018						
2019						
2020						
2017-2020						
Characteristics of measure (description of the measure and method used to make savings)		There are projects in progress under the ROP 2007–2013 which will be wound up in the 2014–2016 period. See Annex 3.				
Detailed description of the method to calculate energy savings (so that savings can subsequently be recalculated and verified)		<ul style="list-style-type: none"> <li>- Energy savings are calculated on the basis of data under energy performance certificates for the schools and school facilities category (total floor area of renovated buildings in the given year, the resultant space heating energy requirement) and the number of buildings renovated under ROP 1.1 in the given year.</li> <li>- Finances are calculated on the basis of the investment intensity of similar projects for the renovation of schools and school facilities under the Munseff programme, where funds are spent only on the financing of energy efficiency measures (i.e. excluding the cost of the completion of works, extensions, technical equipment, etc.).</li> </ul>				
Assumptions and estimates in the calculation of energy savings		<ul style="list-style-type: none"> <li>- Energy savings: assumptions: <ul style="list-style-type: none"> <li>initial condition: upper limit of F (168 kWh/(m2.a)),</li> <li>post-renovation: upper limit of C (84 kWh/(m2.a)) (based on the energy performance certificate in 2011)</li> </ul> </li> <li>- i.e. the average saving is approximately 84.00 kWh/(m2.a). That equates to approximately 208 MWh per building.</li> <li>- Finances are quantified on the basis of investment intensity assumed to be EUR 1 450 per MWh (source: average investment intensity, schools, Munseff). These are the total investment costs, which are split at a ratio of 85%, 10 % and 5 % into the ERDF, the central government budget, and the budgets of municipalities and higher territorial units.</li> <li>- The savings are indicated in the year following the year of renovation.</li> <li>- Finances are indicated in the year of project completion.</li> </ul>				
Reason for the use of estimates (e.g. if there are gaps in relevant information)		<ul style="list-style-type: none"> <li>- Verification procedure showed that the information stated as the measurable indicator "Energy savings" (GJ per year) was the cumulative value for five years in multiple cases, as a result of which energy savings were overestimated. Therefore, the average energy saving per building under the programme verifying energy savings was used.</li> <li>- Information on financing includes investment costs and items not used to make savings in the course of building renovation (technical equipment, vertical and horizontal extensions), and therefore these figures are counted via the investment intensity of projects focusing solely on energy efficiency (Munseff).</li> </ul>				
Monitoring and verification of the energy savings made		<p>Monitoring is carried out by the managing authority (the Ministry of Agriculture and Rural Development) and the intermediate body via the ITMS, where a measurable indicator is provided. Verification procedure by the Ministry of Economy/the Slovak Innovation and Energy Agency, however, found that this indicator is not always correctly presented (errors in units, cumulative savings for five years presented instead of annual savings, etc.). Therefore, savings were determined on the basis of energy performance certificates.</p> <p>In the future, with similar projects it will be necessary to place a greater emphasis on measurable indicators and to check them periodically against the actually measured energy consumption before and after renovation.</p>				
Overall evaluation and way forward (success of the measure, continuation or closure of the measure)		The Operational Programme Environmental Quality 2014–2020, which will be used to finance the renovation of public buildings, is the follow-up programme to the ROP 2007–2013.				
- Overlapping anticipated with another measure - Duplicate counting of savings - Interaction with other measures						

(support and horizontal)	
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Measure 3.3 3AP		Improvements in the thermal performance of buildings – <b>Social services</b>			
Public sector		Source of financing: <b>2007–2013 Structural Funds, ROP, Measure 2.1 Infrastructure of social services, social protection and social care</b>			
<b>Reporting period</b>		<b>2014–2016, with an outlook up to 2020</b>			
<b>Duration of the measure (from – to)</b>		<b>2007–2013, n+2</b>			
<b>Responsible ministry</b>		<b>Ministry of Agriculture and Rural Development</b>			
Energy savings apply to:	<b>Heat</b>	<b>Natural gas</b>	<b>Electricity</b>	<b>Fuels</b>	<b>Other: .....</b>
% (forecast)					
<b>Planned</b>	Energy savings – FEC		Reduction in the consumption of primary energy sources		Financing
<b>Year</b>	<b>TJ</b>	<b>GWh</b>	<b>TJ</b>	<b>GWh</b>	<b>EUR thousands</b>
<b>2014</b>	76.75	49.89			4,701
<b>2015</b>	12.79	8.31			89,907
<b>2016</b>	244.64	159.02			0
<b>2014–2016</b>	<b>334.19</b>	<b>217.22</b>			94,608
<b>2017</b>					
<b>2018</b>					
<b>2019</b>					
<b>2020</b>					
<b>2017-2020</b>					
<b>Characteristics of the measure</b>	There are projects in progress under the ROP 2007–2013 which will be wound up in the 2014–2016 period.				
<b>Detailed description of the method to calculate energy savings (so that savings can subsequently be recalculated and verified)</b>	<ul style="list-style-type: none"> <li>- Energy savings: the basis is the number of buildings renovated under ROP 2.1 in a given year and the projected baseline and resultant space heating energy requirement.</li> <li>- Finances are calculated on the basis of the investment intensity of projects focusing on the renovation of multi-family buildings under the Sloveff and State Housing Development Fund – JESSICA programmes, where funds are spent only on the financing of energy efficiency measures (i.e. excluding the cost of the completion of works, extensions, technical equipment, etc.).</li> </ul>				
<b>Assumptions and estimates in the calculation of energy savings</b>	<ul style="list-style-type: none"> <li>- Energy savings: assumptions:</li> <li>- initial condition: the energy performance of buildings based on average space heating energy consumption under the national project "Support of instruments to introduce and optimise measures in the energy efficiency of public buildings", within the scope of the Operational Programme Competitiveness and Economic Growth, for social facilities (206 kWh/(m2.a));</li> <li>- the average energy requirement for space heating following the renovation of social facilities was determined, by a qualified estimate, to be the upper limit of C for multi-family buildings (80 kWh/(m2.a)), because, judging by their method of use, these are generally accommodation facilities.</li> <li>- In other words, the average saving is approximately 126.00 kWh/(m2.a)</li> <li>- Finances are quantified on the basis of investment intensity assumed to be EUR 1 323 per MWh (source: average investment intensity of residential buildings based on projects under Sloveff and the State Housing Development Fund – JESSICA programme). These are the total investment costs, which are split at a ratio of 85 %, 10 % and 5 % into the ERDF, the central government budget, and the budgets of municipalities and higher territorial units.</li> <li>- The savings are indicated in the year following the year of renovation.</li> <li>- Finances are indicated in the year of project completion.</li> </ul>				
<b>Reason for the use of estimates (e.g. if there are gaps in relevant information)</b>	<ul style="list-style-type: none"> <li>- Verification procedure showed that the information stated as the measurable indicator "Energy savings" (GJ per year) was the cumulative value for five years in multiple cases, as a result of which energy savings were overestimated. Therefore, the average energy saving per building under the programme verifying energy savings was used.</li> <li>- Information on financing includes investment costs and items not used to make savings in the course of building renovation (technical equipment, vertical and horizontal extensions), and therefore these figures are counted via the investment intensity of projects focusing solely on energy efficiency (Munseff).</li> </ul>				
<b>Monitoring and verification of the energy savings made</b>	<p>Monitoring is carried out by the managing authority (the Ministry of Agriculture and Rural Development) and the intermediate body (...) via the ITMS, where a measurable indicator is provided. Verification procedure by the Ministry of Economy/the Slovak Innovation and Energy Agency, however, found that this indicator is not always correctly presented (errors in units, cumulative savings for five years presented instead of annual savings, etc.). Therefore, savings were determined on the basis of energy performance certificates.</p> <p>In the future, with similar projects it will be necessary to place a greater emphasis on measurable indicators and to check them periodically against the actually measured energy consumption before and after renovation.</p>				
<b>Overall evaluation and way forward (success of the measure, continuation or closure of the measure)</b>	The IROP 2014–2020, which will be used to finance the renovation of public buildings, is the follow-up programme to the ROP 2007–2013, in particular ...				

Measure 3.4 3AP		Improvements in the thermal performance of buildings – <b>Cultural facilities</b>			
Public sector		Source of financing: <b>2007-2013 Structural Funds, ROP, Measure 3.1 Strengthening the cultural potential of the regions</b>			
Reporting period		2014–2016, with an outlook up to 2020			
Duration of the measure (from – to)		2007–2013, n+2			
Responsible ministry		Ministry of Agriculture and Rural Development			
Energy savings apply to:	Heat	Natural gas	Electricity	Fuels	Other: .....
% (forecast)					
Planned	Energy savings – FEC (final energy consumption) <sup>16</sup>		Reduction in the consumption of primary energy sources		Financing
Year	TJ	GWh	TJ	GWh	EUR thousands
2014	0.67	0.18			569
2015	0.89	0.25			2,194
2016	3.42	0.95			0
2014–2016	4.98	1.38			2,763
Characteristics of the measure		There are projects in progress under the ROP 2007–2013 which will be wound up in the 2014–2016 period.			
Detailed description of the method to calculate energy savings (so that savings can subsequently be recalculated and verified)		<ul style="list-style-type: none"> <li>- Energy savings: based on the measurable indicator "Energy-saving" in GJ per year in the given year under ROP 3.1. In many projects, the measurable indicator is equal to 0.</li> <li>- Finances are calculated on the basis of the investment intensity of projects focusing on the renovation of cultural facilities under the Energy Efficiency in Public Buildings pilot project, where funds are spent only on the financing of energy efficiency measures (i.e. excluding the cost of the completion of works, extensions, technical equipment, etc.).</li> </ul>			
Assumptions and estimates in the calculation of energy savings		<ul style="list-style-type: none"> <li>- Finances are quantified on the basis of investment intensity assumed to be EUR 2 307 per MWh (source: average investment intensity, cultural buildings, schools, Energy Efficiency in Public Buildings pilot project). These are the total investment costs, which are split at a ratio of 85 %, 10 % and 5 % into the ERDF, the central government budget, and the budgets of municipalities and higher territorial units.</li> <li>- The savings are indicated in the year following the year of renovation.</li> <li>- Finances are indicated in the year of project completion.</li> </ul>			
Reason for the use of estimates (e.g. if there are gaps in relevant information)		- Information on financing includes investment costs and items not used to make savings in the course of building renovation (technical equipment, vertical extensions, completion of construction work), and therefore these figures are counted via the investment intensity of projects focusing solely on energy efficiency.			
Monitoring and verification of the energy savings made		Monitoring is carried out by the managing authority (the Ministry of Agriculture and Rural Development) and the intermediate body via the ITMS, where a measurable indicator is provided. Verification procedure by the Ministry of Economy/the Slovak Innovation and Energy Agency, however, found that this indicator is not always correctly presented (errors in units, cumulative savings for five years presented instead of annual savings, etc.). Therefore, savings were determined on the basis of energy performance certificates. In the future, with similar projects it will be necessary to place a greater emphasis on measurable indicators and to check them periodically against the actually measured energy consumption before and after renovation.			
Overall evaluation and way forward		The IROP 2014–2020, which will be used to finance the renovation of public buildings, in particular ..., is the follow-up programme to the ROP 2007–2013.			
- Overlapping anticipated with another measure - Duplicate counting of savings - Interaction with other measures					

<sup>16</sup> The following conversion rate is used to convert energy savings: 1 GWh = 3.6 TJ.

Measure 3.5 3AP		Improvements in the thermal performance of public buildings – <b>Fire stations</b>			
Public sector		Source of financing: <b>2007–2013 Structural Funds, ROP, Measure 4.2 Infrastructure of non-commercial rescue services</b>			
Reporting period		2014–2016, with an outlook up to 2020			
Duration of the measure (from – to)		2007–2013, n+2			
Responsible ministry		Ministry of Agriculture and Rural Development			
Energy savings apply to:	Heat	Natural gas	Electricity	Fuels	Other:.....
% (forecast)	35 %	65 %			
Planned	Energy savings – FEC (final energy consumption) <sup>17</sup>		Reduction in the consumption of primary energy sources		Financing
Year	TJ	GWh	TJ	GWh	EUR thousands
2014		9.04	2.51		263
2015		0.87	0.24		0
2016		17.762	4.93		0
2014–2016		27.67	7.69		263
Characteristics of measure (description of the measure and method used to make savings)	This is a measure from the ROP 2007–2013 that is being wound up.				
Detailed description of the method to calculate energy savings (so that savings can subsequently be recalculated and verified)	Based on the measurable indicator "Energy-saving" (GJ per year) stated in the contract. Savings are based on a measurable indicator because actual savings derived from energy consumption values measured in the wake of renovation are not available. Finances are calculated on the basis of the investment intensity for production halls at industrial enterprises financed under the Operational Programme Competitiveness and Economic Growth.				
Assumptions and estimates in the calculation of energy savings	Assumptions: ances: qualified estimate: the investment intensity for fire stations is assumed to be the same as for production halls at industrial enterprises: EUR 1 090 per MWh (Operational Programme Competitiveness and Economic Growth).				
Reason for the use of estimates (e.g. if there are gaps in relevant information)	A qualified estimate was used to due to the high investment intensity of fire stations, as the total investment costs covered by grants also encompass the costs of equipment that does not contribute to energy savings.				
Monitoring and verification of the energy savings made	Monitoring is carried out by the managing authority (the Ministry of Agriculture and Rural Development) and the intermediate body via the ITMS, where a measurable indicator is provided. Potential error rate in the measurable indicator values stated. In the future, with similar projects it will be necessary to conduct improved checks on measurable indicators and to inspect these values periodically against the actually measured energy consumption before and after renovation.				
Overall evaluation and way forward (success of the measure, continuation or closure of the measure)	The ROP 2007–2013 will be wound up upon completion of the projects. It will be followed by the IROP 2014–2020, which will be used to finance the renovation of public buildings, in particular ...				
- Overlapping anticipated with another measure - Duplicate counting of savings - Interaction with other measures (support and horizontal)	Overlapping: none anticipated. Duplicate counting: none.				

<sup>17</sup> The following conversion rate is used to convert energy savings: 1 GWh = 3.6 TJ.

Measure 3.6 3AP		Reduction in the energy intensity of public buildings – administrative buildings, buildings of schools and school facilities, healthcare facilities			
Public sector		Source of financing: <b>Operational Programme Environmental Quality 2014–2020</b>			
Reporting period		2014–2016, with an outlook up to 2020			
Duration of the measure (from – to)		2014-2020, n+2			
Responsible ministry		Ministry of the Environment, Ministry of Economy, Slovak Innovation and Energy Agency			
Energy savings apply to:	Heat	Natural gas	Electricity	Fuels	Other:.....
% (forecast)					
Planned	Energy savings – FEC (final energy consumption) <sup>18</sup>		Reduction in the consumption of primary energy sources		Financing
Year	TJ	GWh	TJ	GWh	EUR thousands
2014	0.00	0.00			0
2015	0.00	0.00			0
2016	464.40	129.00			129,489
2014–2016	464.40	129.00			129,489
2017	464.40	129.00			129,489
2018	309.60	86.00			86,326
2019	309.60	86.00			86,326
2020	0.00	0.00			0
2017-2020	1,083.60	301.00			302,142
Characteristics of measure (description of the measure and method used to make savings)	<p>The measures will focus in particular on:</p> <p>a) improvements in the thermal performance of structures;</p> <p>b) modernisation of space heating/air conditioning systems, hot water systems, lighting and lifts to reduce energy consumption;</p> <p>c) installation of measurement and management systems;</p> <p>d) change in the heat supply method to exploit efficient district heating systems;</p> <p>e) installation of equipment to draw on RES for energy consumption in a building.</p> <p>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.</p> <p>Conditions:</p> <ul style="list-style-type: none"> <li>- the improved energy performance of buildings – by reducing the design energy requirement – beyond the level of minimum requirements;<sup>19</sup></li> <li>- assess the actually achievable (measurable) reduction in energy consumption compared to the current situation, taking into account the annual climatic conditions based on an energy audit (the use of energy auditing, within the scope of the Operational Programme Competitiveness and Economic Growth, drawn up for public buildings).</li> </ul>				
Detailed description of the method to calculate energy savings (so that savings can subsequently be recalculated and verified)	The values of indicators in individual years were determined by an expert estimate taking account of experience in the implementation of similar projects in Slovakia (the "Energy efficiency in public buildings" pilot project – Bohunice International Decommissioning Support Fund, the experience of project managers in the renovation of public buildings – for example MUNSEFF – and the results of the JASPERS project), including the projected allocation, as stated.				
Assumptions and estimates in the calculation of energy savings	Energy savings are broken down into individual years to reflect the gradual implementation of the Operational Programme Environmental Quality in Slovakia following the approval thereof. Experience of implementation from the 2007–2013 period (the Operational Programme Competitiveness and Economic Growth) was incorporated into this breakdown.				
Reason for the use of estimates (e.g. if there are gaps in relevant information)	Planning of a new measure.				
Monitoring and verification of the energy savings made	Monitoring and verification of the energy savings made will be the responsibility of the Slovak Innovation and Energy Agency.				
Overall evaluation and way forward (success of the measure, continuation or closure of the measure)	At present, the Operational Programme Environmental Quality is undergoing approval by the European Commission. Therefore, only the planned energy savings and financial requirements are presented.				
- Overlapping anticipated with another measure - Duplicate counting of savings - Interaction with other measures	None anticipated.				

<sup>18</sup> The following conversion rate is used to convert energy savings: 1 GWh = 3.6 TJ.

<sup>19</sup> The minimum requirements for the global indicator – the upper limit of energy class B (Act No 555/2005 on the energy performance of buildings, as amended by Act No 300/2012 and Implementing Decree of the Ministry of Transport, Construction and Regional Development No 364/2012)

Measure 3.11 3AP		Upgrading of public street lighting				
Public sector		Source of financing: <b>2007–2013 Structural Funds, Operational Programme Competitiveness and Economic Growth, Measure 2.2</b>				
Reporting period		2014–2016, with an outlook up to 2020				
Duration of the measure (from – to)		2007–2013, n+2				
Responsible ministry		Ministry of Economy/Slovak Innovation and Energy Agency				
Energy savings apply to:		Heat	Natural gas	Electricity	Fuels	Other:.....
% (forecast)				100 %		
Planned		Energy savings – FEC (final energy consumption) <sup>20</sup>		Reduction in the consumption of primary energy sources		Financing
Year	TJ	GWh	TJ	GWh	EUR thousands	
2014	0.21	0.06			24,346	
2015	67.30	18.69			12,996	
2016	39.47	10.96			0	
2014–2016	106.98	29.72			37,342	
2017	0.00	0.00			0.00	
2018	0.00	0.00			0.00	
2019	0.00	0.00			0.00	
2020	0.00	0.00			0.00	
2017-2020	0.00	0.00			0.00	
Characteristics of measure (description of the measure and method used to make savings)		Subsidies to municipalities to upgrade public lighting, including the replacement of light fixtures and, in a few cases, the installation of new light fixtures. Form of support – grants. A detailed description of the merger has been provided in the programming document and programme manual of the Operational Programme Competitiveness and Economic Growth.				
Detailed description of the method to calculate energy savings (so that savings can subsequently be recalculated and verified)		Bottom-up. Energy savings are calculated for each project. Energy savings are calculated on the basis of measurable indicators referred to in the design documentation (for completed projects, this is the annually reported value; for projects in progress, this is the planned value of the measurable indicator). Calculations of energy savings draw on expert estimates of savings achieved compared to the initial condition.				
Assumptions and estimates in the calculation of energy savings		Estimates used: 30% electricity savings in the operation of public lighting have been estimated.				
Reason for the use of estimates (e.g. if there are gaps in relevant information)		-				
Monitoring and verification of the energy savings made		30 % electricity savings in the operation of public lighting have been estimated.				
Overall evaluation and way forward (success of the measure, continuation or closure of the measure)		The energy savings achieved are monitored by the managing authority (the Ministry of Economy) in conjunction with the intermediate body (the Slovak Innovation and Energy Agency) within the scope of the ITMS. A year after financial completion, beneficiaries send the measurable indicator achieved, calculated on the basis of energy auditing or a procedure confirmed by the statutory representative.				
- Overlapping anticipated with another measure - Duplicate counting of savings - Interaction with other measures (support and horizontal)		There is no overlapping. Duplicate counting of savings: none. Interaction with other measures: energy consulting for municipalities.				

<sup>20</sup> The following conversion rate is used to convert energy savings: 1 GWh = 3.6 TJ.

<sup>20</sup> The following conversion rate is used to convert energy savings: 1 GWh = 3.6 TJ.



# Transport sector

Measure 4.1.1a 3AP		Fleet renewal <b>Renewal and modernisation of the fleet – rail transport</b>			
Transport sector		Source of financing: Operational Programme Transport 2007–2013			
Reporting period		2014–2016, with an outlook up to 2020			
Duration of the measure (from – to)					
Responsible ministry		Ministry of Transport, Construction and Regional Development			
Energy savings apply to:	Heat	Natural gas	Electricity	Fuels	Other: .....
%	x	x	43.9 %	56.1 %	
<b>Planned</b>	Energy savings – FEC (final energy consumption) <sup>21</sup>		Reduction in the consumption of primary energy sources		Financing [EUR thousands]
<b>Year</b>	<b>TJ</b>	<b>GWh</b>	<b>TJ</b>	<b>GWh</b>	<b>Operational Programme Transport</b>
2014		39.12	10.86		193,673
2015		39.12	10.86		209,942.6
2016		-	-		-
2014–2016		78.24	21.72		403,615.6
2017					
2018					
2019					
2020					
2017-2020		-	-		-
Characteristics of measure (description of the measure and method used to make savings)	<p>The "Fleet renewal" measure is an ongoing measure following on seamlessly from the measure "Fleet modernisation – public rail transport", defined in the Energy Efficiency Action Plan for 2011–2013. Eligible project applicants are public rail passenger transport carriers in Slovakia, such as ZSSK and municipal transport enterprises, as well as towns operating public rail transport. This measure will be financed with funds from the Operational Programme Transport 2007–2013. This measure is implemented on the basis of the Operational Programme Transport 2007–2013 and comprises the implementation of the following specific projects: "Mobile resources for suburban and regional passenger rail transport in the integrated transport system" (20 diesel multiple units, 9 electric double-decker multiple units), "DPB, tram fleet renewal in Bratislava" (15 unidirectional 32m, 15 bidirectional 32m), "Tram fleet renewal in Košice" (23). This is a continuous measure of no fixed duration. The principle pursued by the measure is the purchase of new electric and diesel train units for deployment in regional transport and the replacement of the obsolete fleets of carriers responsible for urban public rail transportation in the public interest in Bratislava, Košice, Prešov and Žilina. Energy savings will be made by reducing the consumption of fuel and electricity (if electric traction units are used) by new more efficient fleet units replacing the current outdated units/vehicles.</p>				
Detailed description of the method to calculate energy savings (so that savings can subsequently be recalculated and verified)	<p>The methodology used to calculate the estimated energy savings is based on a comparison of fuel consumption in past annual traffic by more energy-efficient vehicles with consumption in annual traffic reported for the existing outdated fleet. The specific energy saving is expressed as a reduction in the consumption of the fuel (diesel) and electric traction of new vehicles/units compared to the original outdated fleet. The calculation is tied to specific towns and territories where new vehicles and transport units are deployed and is derived from the average volume of traffic reported per vehicle/unit used annually in the analysed territory.</p>				
Assumptions and estimates in the calculation of energy savings	<p>A prerequisite applied in the calculation is the percentage-based saving in electricity and fuel among newly acquired vehicles compared to the original vehicles in use. These savings, expressed as a percentage, are presented by manufacturers and verified by means of comparative projects at undertakings where the new vehicles are in routine use. If new electric double-decker multiple units are deployed, a unit saving of 0.004017 kWh per urban km is anticipated.<sup>22</sup> With the new diesel units, the assumption is that they will have 10 %<sup>2</sup> lower consumption compared to the original train units. It is estimated that these sets will be in daily circulation for 250 km (approximately 8 hours), with the passenger load of the units defined by the manufacturer. If new trolleybuses are deployed, the calculation of savings is based on a projection derived from a comparative before-and-after project in such a manner that the new trolleybus reports annual electricity consumption which is 164 MWh (30 %) lower.<sup>23</sup> With new trams, a 25 % reduction in consumption is under consideration.<sup>24</sup> In the financing of the investment costs of projects under the measure, 85 % coverage from EU sources (the Operational Programme Transport 2007–2013) is anticipated.</p>				

<sup>21</sup> The following conversion rate is used to convert energy savings: 1 GWh = 3.6 TJ.

<sup>22</sup> Project to renew railway rolling stock, available online at: <http://www.slovakrail.sk/sk/o-spolocnosti/projekty-eu/projekt-obnovy-zkv.html?no-graphics=0&print&print&print>.

<sup>23</sup> Available online at: [http://www.zilina.sk/dokumenty/DokumentyProgramyMZ\\_20130619103328.pdf](http://www.zilina.sk/dokumenty/DokumentyProgramyMZ_20130619103328.pdf)

<sup>24</sup> Expert estimate by the Transport Research Institute.

<b>Reason for the use of estimates (e.g. if there are gaps in relevant information)</b>	In cases where the necessary figures were not forthcoming directly from public passenger transport operators or if they could not be determined by means of statistical methods, in the setting of [...]
<b>Monitoring and verification of the energy savings made</b>	Periodic evaluations of compliance with the energy-saving values planned under this measure will be carried out by means of the calculation described above, taking into account projects under the measure which have actually been implemented and the energy savings which have actually been measured. Information on energy consumption or energy savings will be monitored by means of a series of measurements in the field, taken to compare electricity and fuel consumption before and after the implementation of the measure.
<b>Overall evaluation and way forward (success of the measure, continuation or closure of the measure)</b>	This measure will continue as long as the public passenger transport projects defined under the Operational Programme Integrated Infrastructure 2014–2020 are implemented and the co-financing of measures/projects is provided by the EU.
- Overlapping anticipated with another measure - Duplicate counting of savings - Interaction with other measures (support and horizontal)	Overlapping with another measure and the duplicate counting of savings are not anticipated.

Measure 4.1.1 b 3AP			Fleet renewal <b>Renewal and modernisation of the fleet – rail transport</b>		
Transport sector			Source of financing: <b>Operational Programme Integrated Infrastructure 2014–2020</b>		
Reporting period			2014–2016, with an outlook up to 2020		
Duration of the measure (from – to)					
Responsible ministry			Ministry of Transport, Construction and Regional Development		
Energy savings apply to:	Heat	Natural gas	Electricity	Fuels	Other: .....
%	x	x	43.9 %	56.1 %	
<b>Planned</b>	Energy savings – FEC (final energy consumption) <sup>25</sup>		Reduction in the consumption of primary energy sources		Financing [EUR thousands]
<b>Year</b>	<b>TJ</b>	<b>GWh</b>	<b>TJ</b>	<b>GWh</b>	<b>Operational Programme Integrated Infrastructure</b>
2014	3.19	0.87			11900
2015	3.19	0.87			16900
2016	6.33	1.75			63169
2014–2016	12.71	3.53			91969
2017	27.28	7.57			154950
2018	30.34	8.43			205375
2019	2.65	0.74			35,613
2020	3.97	1.10			56,131
2017-2020	64.24	17.84			425069
Characteristics of measure (description of the measure and method used to make savings)	<p>The "Fleet renewal" measure is an ongoing measure following on seamlessly from the measure "Fleet modernisation – public rail transport", defined in the Energy Efficiency Action Plan for 2011–2013. Eligible project applicants are public rail passenger transport carriers in Slovakia, such as ZSSK and municipal transport enterprises, as well as towns operating public rail transport. This measure will be financed with funds from the Operational Programme Integrated Infrastructure 2014–2020. Implementation of the measure is derived from the Slovak Public Passenger and Non-motorised Transport Development Strategy up to 2020 and contains all "green" fleet renewal projects identified by the strategy document. This measure comprises the implementation of the following specific projects: "Project to purchase electric units in the integrated transport system" (25 units in the vicinity of Žilina), "Project to purchase diesel units in the integrated transport system" (10 units in the vicinity of Banská Bystrica and Zvolen), "Renewal of the tram fleet in Bratislava" (90 units), "Renewal of the trolley bus fleet in Bratislava" (66 units), "Low-floor and energy efficient trolleybuses and power assisted trolleybuses for Žilina" (27 units), "Renewal of the tram fleet in Košice" (23 units) and "Purchase of double-deckers for Prešov" (18 units). This is a continuous measure of no fixed duration. The principle pursued by the measure is the purchase of new electric and diesel train units for deployment in regional transport and the replacement of the obsolete fleets of carriers responsible for urban public rail transportation in the public interest in Bratislava, Košice, Prešov and Žilina. Energy savings will be made by reducing the consumption of fuel and electricity (if electric traction units are used) by new more efficient fleet units replacing the current outdated units/vehicles.</p>				
Detailed description of the method to calculate energy savings (so that savings can subsequently be recalculated and verified)	<p>The methodology used to calculate the estimated energy savings is based on a comparison of fuel consumption in past annual traffic by more energy-efficient vehicles with consumption in annual traffic reported for the existing outdated fleet. The specific energy saving is expressed as a reduction in the consumption of the fuel (diesel) and electric traction of new vehicles/units compared to the original outdated fleet. The calculation is tied to specific towns and territories where new vehicles and transport units are deployed and is derived from the average volume of traffic reported per vehicle/unit used annually in the analysed territory.</p>				
Assumptions and estimates in the calculation of energy savings	<p>A prerequisite applied in the calculation is the percentage-based saving in electricity and fuel among newly acquired vehicles compared to the original vehicles in use. These savings, expressed as a percentage, are presented by manufacturers and verified by means of comparative projects at undertakings where the new vehicles are in routine use. If new electric double-decker multiple units are deployed, a unit saving of 0.004017 kWh per urban km is anticipated.<sup>26</sup> With the new diesel units, the assumption is that they will have</p>				
	<p>10 %<sup>6</sup> lower consumption compared to the original train units. It is estimated that these sets will be in daily circulation for 250 km (approximately 8 hours), with the passenger load of the units defined by the manufacturer. If new trolleybuses are deployed, the calculation of savings is based on a projection derived from a comparative before-and-after project in such a manner that the new trolleybus reports annual electricity consumption which is 164 MWh (30 %) lower.<sup>27</sup> New buses with hybrid engines have 39 % lower consumption<sup>28</sup> than ordinary buses. With new trams, a 25 % reduction in consumption is under consideration.<sup>29</sup> In the financing of the investment costs of</p>				

<sup>25</sup> The following conversion rate is used to convert energy savings: 1 GWh = 3.6 TJ.

<sup>26</sup> Project to renew railway rolling stock, available online at: [http://www.slovakrail.sk/sk/o-spolocnosti/proiekt-y\\_eu/proiekt-obnovy-zkv.html?no-graphics=0&print&print&print](http://www.slovakrail.sk/sk/o-spolocnosti/proiekt-y_eu/proiekt-obnovy-zkv.html?no-graphics=0&print&print&print).

<sup>27</sup> Available online at: <[http://www.zilina.sk/dokumenty/DokumentyProgramyMZ\\_20130619103328.pdf](http://www.zilina.sk/dokumenty/DokumentyProgramyMZ_20130619103328.pdf)>

<sup>28</sup> Available online at: <<http://www.busportal.sk/modules.php?name=article&sid=9384>>

<sup>29</sup> Expert estimate by the Transport Research Institute.

	projects under the measure, 85 % coverage from EU sources (the Operational Programme Transport 2007–2013 and the Operational Programme Integrated Infrastructure 2014–2020) is anticipated.
Reason for the use of estimates (e.g. if there are gaps in relevant information)	The expert estimate by the Transport Research Institute was used in calculations only in cases where the necessary figures were not forthcoming directly from public passenger transport operators or if they could not be determined by means of statistical methods.
Monitoring and verification of the energy savings made	Periodic evaluations of compliance with the energy-saving values planned under this measure will be carried out by means of the calculation described above, taking into account projects under the measure which have actually been implemented and the energy savings which have actually been measured. Information on energy consumption or energy savings will be monitored by means of a series of measurements in the field, taken to compare electricity and fuel consumption before and after the implementation of the measure.
Overall evaluation and way forward (success of the measure, continuation or closure of the measure)	This measure will continue as long as the public passenger transport projects defined under the Operational Programme Integrated Infrastructure 2014–2020 are implemented and the co-financing of measures/projects is provided by the EU.
- Overlapping anticipated with another measure - Duplicate counting of savings - Interaction with other measures (support and horizontal)	Overlapping with another measure and the duplicate counting of savings are not anticipated.

Measure 4.1. 2 3AP		Fleet renewal Renewal and modernisation of the fleet – Bus/coach transport			
Transport sector		Source of financing: IROP 2014–2020			
Reporting period		2014–2016, with an outlook up to 2020			
Duration of the measure (from – to)					
Responsible ministry		Ministry of Transport, Construction and Regional Development			
Energy savings apply to:	Heat	Natural gas	Electricity	Fuels	Other: .....
%	x	x	43.9 %	56.1 %	
Planned	Energy savings – FEC (final energy consumption) <sup>30</sup>		Reduction in the consumption of primary energy sources		Financing [EUR thousands]
Year	TJ	GWh	TJ	GWh	IROP
2014		4.00	1.11		8000
2015		2.00	0.56		4000
2016		0.00	0.00		0.00
2014–2016		6.0	1.67		12,000
Characteristics of measure (description of the measure and method used to make savings)	The "Fleet renewal" measure is an ongoing measure following on seamlessly from the measure "Bus and passenger rail transport policy – restriction on vehicle age", defined in the Energy Efficiency Action Plan for 2011–2013. Eligible project applicants are public passenger transport carriers in Slovakia, higher territorial units, towns, public passenger transport organisers, etc. This measure will be financed with funds from the IROP 2014-2020. Implementation of the measure is derived from the Slovak Public Passenger Transport Development Strategy up to 2020 and contains all "green" fleet renewal projects identified by the strategy document. This measure comprises the implementation of the following project: "Purchase of low-floor hybrid buses for Žilina (30 units)". This is a continuous measure of no fixed duration. The principle pursued by the measure is the purchase of new low-floor hybrid buses to replace the outdated fleet of a carrier providing mass transportation in the public interest in Žilina. Energy savings will be made by reducing the consumption of fuel by means of new more efficient fleet units replacing the current outdated vehicles.				
Detailed description of the method to calculate energy savings (so that savings can subsequently be recalculated and verified)	The methodology used to calculate the estimated energy savings is based on a comparison of fuel consumption in past annual traffic by more energy-efficient vehicles with consumption in annual traffic reported for the existing outdated fleet. The specific energy saving is expressed as a reduction in the consumption of the fuel (diesel) of new vehicles compared to the original outdated fleet. The calculation is tied to a specific territory where new vehicles will be deployed and is derived from the average volume of traffic reported per vehicle used annually in the analysed territory (the area served is the city of Žilina).				
Assumptions and estimates in the calculation of energy savings	A prerequisite applied in the calculation is the percentage-based saving in fuel among newly acquired vehicles compared to the original vehicles in use. These savings, expressed as a percentage, are presented by manufacturers and verified by means of comparative projects at undertakings where the new vehicles are in routine use. If new buses with hybrid engines are deployed, the calculation of savings draws on the assumption that the new vehicles will have 39 % lower consumption than ordinary buses. In the financing of the investment costs of projects under the measure, 85 % coverage for projects implemented under the IROP 2014–2020 is anticipated.				
Reason for the use of estimates (e.g. if there are gaps in relevant information)	The expert estimate by the Transport Research Institute was used in calculations only in cases where the necessary figures were not forthcoming directly from public passenger transport operators or if they could not be determined by means of statistical methods.				
Monitoring and verification of the energy savings made	Periodic evaluations of compliance with the energy-saving values planned under this measure will be carried out by means of the calculation described above, taking into account projects under the measure which have actually been implemented. Information on energy consumption or energy savings will be monitored by means of a series of measurements in the field, taken to compare fuel consumption before and after the implementation of the measure. Control measurements will be taken by the public transport operators and carriers who are beneficiaries of aid.				
Overall evaluation and way forward (success of the measure, continuation or closure of the measure)	This measure will continue as long as the public passenger transport projects defined under the Integrated Regional Operational Programme 2014–2020 are implemented and the co-financing of measures/projects is provided by the EU.				
- Overlapping anticipated with another measure - Duplicate counting of savings - Interaction with other measures (support and horizontal)	Overlapping with another measure and the duplicate counting of savings are not anticipated.				

<sup>30</sup> The following conversion rate is used to convert energy savings: 1 GWh = 3.6 TJ.

Measure 4.2. 3AP		Building and upgrading the transport infrastructure				
Transport sector		Source of financing: <b>Operational Programme Transport 2007-2013, Operational Programme Integrated Infrastructure 2014-2020</b>				
Reporting period		2014-2016, with an outlook up to 2020				
Duration of the measure (from – to)						
Responsible ministry		Ministry of Transport, Construction and Regional Development				
Energy savings apply to:	Heat	Natural gas	Electricity	Fuels	Other: .....	
%	x	x	x	100 %		
<b>Planned</b>	Energy savings – FEC (final energy consumption) <sup>31</sup>		Reduction in the consumption of primary energy sources		Financing	
Year	TJ	GWh	TJ	GWh	EUR thousand	
2014	52.09	14.47			644,984	
2015	168.68	46.85			950,967	
2016	203.76	56.60			1,252,005	
2014-2016	424.53	117.93			2,847,956	
2017	271.62	75.45			1,205,002	
2018	203.68	56.58			1,143,726	
2019	467.88	129.97			859,152	
2020	713.58	198.22			170,323	
2017-2020	1656.76	460.21			3,378,203	
Characteristics of measure (description of the measure and method used to make savings)	The "Building and upgrading the transport infrastructure" measure is an ongoing measure following on seamlessly from a measure defined in the Energy Efficiency Action Plan for 2011-2013. Eligible project applicants are transport infrastructure managers in Slovakia, i.e. NDS, a.s., the Slovak Road Administration (SSC) and Railways of the Slovak Republic (ŽSR). Implementation of the measure is derived from the Operational Programme Integrated Infrastructure 2014-2020, the Transport Infrastructure Development Strategy Plan up to 2020, and projects financed under the Operational Programme Transport 2007-2013 which will not be put into operation until the 2014-2016 reporting period. This is a continuous measure of no fixed duration. The principle pursued by the measure is the building of new large-capacity sections of road infrastructure, the removal of defects in class I roads and the upgrading of the railway infrastructure. Energy savings are made by reducing the fuel consumption of road infrastructure users on new technically more refined infrastructure compared to the original technically outdated road infrastructure. In rail transport, energy savings are generated by reducing the number of bursts of speed on the transport infrastructure, made possible by the upgrading of the track, and by enhancing comfort, winning over passengers from private car use.					
Detailed description of the method to calculate energy savings (so that savings can subsequently be recalculated and verified)	The reduction in specific energy consumption after the completion and upgrading of transport infrastructure is derived from the transfer of motorised vehicles to motorways and expressways from class I roads running parallel to the newly completed sections. The calculation draws on information about the length of the sections of newly built road, information on the traffic intensity on the roads in question, and the vehicle fuel consumption and price. Unit prices per litre of fuel in the reference period were taken from the Statistical Office of the Slovak Republic. Intensity on newly built sections was determined on the basis of the projected percentage of traffic distribution (class I roads, motorways and expressways) after the sections of motorway and expressway are put into operation; no traffic induction period is anticipated. The annual fuel savings in litres and the annual savings in the cost of fuel (in EUR) were determined for the reference period by means of a table-based calculation. The fuel saving in litres was subsequently converted into TJ. With railway infrastructure, the saving is expressed as a direct saving and as the fuel saving generated by the switching of passengers and cargoes from private car use and road freight vehicles.					
Assumptions and estimates in the calculation of energy savings	The basic assumption used in the calculation is the unit consumption of vehicle fuel on the new and original infrastructure, as measured on a trial section: The average fuel consumption of a 3.5 t - 7.5 t vehicle on a class I road is 18 l/100km, the average fuel consumption of a 3.5 t - 7.5 t vehicle on a motorway/expressway is 15 l/100km, the average fuel consumption of a 7.5 t - 12 t vehicle on a class I road is 23 l/100km, the average fuel consumption of a 7.5 t - 12 t vehicle on a motorway/expressway is 19 l/100km, the average fuel consumption of a vehicle over 12 t on a class I road is 45 l/100km, the average fuel consumption of a vehicle over 12 t on a motorway/expressway is 40 l/100km, the average fuel consumption of a petrol-driven passenger car on a class I road is 8.5 l/100km, the average fuel consumption of a petrol-driven passenger car on a motorway/expressway is 7.5 l/100km, the average fuel consumption of a diesel-driven passenger car on a class I road is 5.5 l/100km, and the average fuel consumption of a diesel-driven passenger car on a motorway/expressway is 5 l/100km. The weighted proportion of diesel-powered vehicles in traffic flow is considered to be 67 %, with petrol-driven vehicles accounting for 33 %. In the financing of the investment costs of projects under the measure, approximately 62.3 % coverage from EU resources is anticipated.					

<sup>31</sup> The following conversion rate is used to convert energy savings: 1 GWh = 3.6 TJ.

Reason for the use of estimates (e.g. if there are gaps in relevant information)	The information used in the calculation of energy savings is based on the results of measurements taken in the performance of a research assignment by the Transport Research Institute., i.e. "Comparison of the cost of travelling through tunnels and on detour routes, 2007".
Monitoring and verification of the energy savings made	Periodic evaluations of compliance with the energy-saving values planned under this measure will be carried out by means of the calculation described above, taking into account projects under the measure which have actually been implemented. Information on energy consumption or energy savings will be monitored by means of periodic five-year nationwide traffic surveys and the subsequent recalculation of the savings based on the actually determined intensity on the new infrastructure. In rail transport, the quantified planned savings will be verified by monitoring the actual energy consumption of rail passenger and freight carriers, quantified per unit of capacity.
Overall evaluation and way forward (success of the measure, continuation or closure of the measure)	This measure will continue as long as the projects defined under the Operational Programme Integrated Infrastructure 2014–2020 are implemented and the co-financing of measures/projects is provided by the EU.
- Overlapping anticipated with another measure - Duplicate counting of savings - Interaction with other measures (support and horizontal)	Overlapping with another measure and the duplicate counting of savings are not anticipated.

Measure 4.3. 3AP		Support for the development and use of public passenger transport, including support for the creation of integrated transport systems			
Transport sector		Source of financing: Operational Programme Transport 2007-2013, Operational Programme Integrated Infrastructure 2014-2020			
Reporting period		2014-2016, with an outlook up to 2020			
Duration of the measure (from – to)					
Responsible ministry		Ministry of Transport, Construction and Regional Development			
Energy savings apply to:	Heat	Natural gas	Electricity	Fuels	Other:.....
%	x	x	x	100 %	
Planned	Energy savings – FEC (final energy consumption) <sup>32</sup>		Reduction in the consumption of primary energy sources		Financing
Year	TJ	GWh	TJ	GWh	EUR thousands
2014	0	0			90964.1
2015	0	0			117,733
2016	45.13	12.53			297533
2014-2016	45.13	12.53			506230
2017	19.21	5.34			216,833
2018	26.52	7.37			5,500
2019	0	0.00			0
2020	0	0.00			0
2017-2020	45.73	12.7			122,333
Characteristics of measure (description of the measure and method used to make savings)	<p>The "Support for the development and use of public passenger transport, including support for the creation of integrated transport systems" measure is an ongoing measure following on seamlessly from the measure "Support for the development and use of public passenger transport", defined in the Energy Efficiency Action Plan for 2011-2013. Eligible project applicants are Slovak towns, transport enterprises and the railway infrastructure manager, i.e. ŽSR. This measure will be financed with funds from the Operational Programme Transport 2007-2013 and the Operational Programme Integrated Infrastructure 2014-2020. Implementation of the measure is derived from the Slovak Public Passenger and Non-motorised Transport Development Strategy up to 2020 and contains all "green" projects supporting the development of public passenger transport and the development of integrated transport systems, as identified by the strategy document. This measure comprises the implementation of the following specific projects: "Pivotal urban public transport system, traffic section: Janíkov dvor - Šafárikovo nám., Part 1: Šafárikovo nám. - Bosákova ulica", "Dúbravka Tramway in the Hanulova - Pri kríži section", "Pivotal urban public transport system, Stage 1, Hlavná stanica - Janíkov dvor, traffic section: Bosákova ulica - Janíkov dvor, Part 2: Bosákova - Janíkov dvor", "Tramway upgrade: Karloveská, Vajnorská and Račianska Radial Road", "ŽSR, Integrated Passenger Transport Terminals (TIOP) in Bratislava, Section: Bratislava hlavná stanica - Podunajské Biskupice (implementation)", "ŽSR, Integrated Passenger Transport Terminals (TIOP) in Bratislava, Section: Bratislava hlavná stanica - Devínska Nová Ves (implementation)", "Pivotal urban public transport system, Stage 1: Hlavná stanica - Janíkov dvor, traffic section: Hlavná stanica - Šafárikovo námestie", "ŽSR, Integrated Passenger Transport Terminals (TIOP) in Košice Self-governing Region, Stage I: (DESIGN + documentation)", "Tramway upgrade in Košice, Stage 2". The contribution of other "smaller" projects defined by the Slovak Public Passenger and Non-motorised Transport Development Strategy up to 2020 is not taken into account in the quantification of the measure's planned benefit. This is a continuous measure of no fixed duration. The principle pursued by the measure is the implementation of new and the upgrading of outdated public passenger transport infrastructure required to give passengers the incentive to switch from motorised transport (especially private car use) to less energy intensive modes of public passenger transport. Energy savings will be made by reducing fuel consumption. This will take the form of a reduction in the share of private car use and the replacement thereof with public bus transport employing low-energy trolley buses and trams.</p>				
Detailed description of the method to calculate energy savings (so that savings can subsequently be recalculated and verified)	<p>The methodology for the calculation of energy savings is based on the quantification of a projected reduction in fossil fuel consumption, i.e. fuel currently consumed in the transportation of passengers travelling within Slovakia by means of private road vehicle use or public bus transport and, after implementation of this measure's projects, making use of trams, trolleybuses and the integrated transport systems. This methodology does not anticipate an increase in electricity consumption associated with the expansion of the tram and trolley bus transport system.</p>				
Assumptions and estimates in the calculation of energy savings	<p>The calculation is based on the methodological approach prepared by the Transport Research Institute in its handling of the assignment "Analysis of an assessment of the impacts of proposed activities funded by the EU for the 2014-2020 programming period in terms of the contribution to a low-carbon economy". Basic assumptions in the calculation of planned energy savings are:</p> <ul style="list-style-type: none"> <li>The proportion of private car use in traffic is taken to be an average of 70 % for petrol-driven cars and 30 % for diesel vehicles.</li> </ul>				

<sup>32</sup> The following conversion rate is used to convert energy savings: 1 GWh = 3.6 TJ.



	<ul style="list-style-type: none"> <li>• The average consumption for an urban public transport bus is taken to be 30 l/100 km, while the average consumption for passenger cars is 8.5 l/100 km (petrol) or 5.5 l/100 km (diesel)</li> <li>• The average occupancy of the replaced urban public transport buses is 34 passengers and the average occupancy of replaced PRIVATE CAR USE is 1.8 persons.</li> <li>• In the project to implement the Bratislava pivotal urban public transport system (the construction of a tramway), it is expected that the new tram system will take over 90 % of passengers from the current urban public bus transport system and 10 % of private car users. Given these switches, the average vehicle occupancy considered, and the journey length (8 km) that will be replaced by the new tramway, annual fossil fuel savings associated with the need for approximately 1.5 million vehicle kilometres in the urban public bus transport system and 3.1 million vehicle kilometres in private car use can be anticipated.</li> <li>• In the projects to construct integrated transport system terminals in Bratislava, it is estimated that the entire urban public transport system in Bratislava carried 252 million passengers in 2012. It is projected that the construction of new terminals and the expansion of the integrated transport systems in Bratislava will attract a number of passengers from private car use to the extent that the annual fossil fuel consumption associated with the need for approximately 17.75 million vehicle kilometres currently travelled by private car users will be saved.</li> <li>• In the projects to construct integrated transport system terminals in Košice, it is estimated that the entire urban public transport system in Košice carried 86.8 million passengers in 2012. It is projected that the construction of new terminals and the commissioning of the integrated transport systems in Košice will attract a number of passengers from private car use to the extent that the annual fossil fuel consumption associated with the need for approximately 7 million vehicle kilometres currently travelled by private car users will be saved.</li> <li>• In the financing of the investment costs of projects under the measure, 85 % coverage from EU resources is anticipated.</li> </ul>
Reason for the use of estimates (e.g. if there are gaps in relevant information)	The expert estimate was used in calculations only in cases where the necessary figures were not forthcoming or could not be determined by means of statistical methods.
Monitoring and verification of the energy savings made	Periodic evaluations of compliance with the energy-saving values planned under this measure will be carried out by means of the calculation described above, taking into account projects under the measure which have actually been implemented.
Overall evaluation and way forward (success of the measure, continuation or closure of the measure)	This measure will continue as long as the projects defined under the Slovak Public Passenger Development Strategy Plan are implemented and are incorporated into the forthcoming Operational Programme Integrated Infrastructure 2014–2020 and the co-financing of measures/projects is provided by the EU.
- Overlapping anticipated with another measure - Duplicate counting of savings - Interaction with other measures (support and horizontal)	Overlapping with another measure and the duplicate counting of savings are not anticipated.

Measure 4.4 3AP		Support for the development of non-motorised transport, especially cycling			
Transport sector		Source of financing: IROP 2014-2020			
Reporting period		2014–2016, with an outlook up to 2020			
Duration of the measure (from – to)					
Responsible ministry		Ministry of Transport, Construction and Regional Development			
Energy savings apply to:	Heat	Natural gas	Electricity	Fuels	Other:.....
%					
Planned	Energy savings – FEC (final energy consumption) <sup>33</sup>		Reduction in the consumption of primary energy sources		Financing
Year	TJ	GWh	TJ	GWh	EUR thousands
2014	9.4	2.61			6,185
2015	0	0			90
2016	0	0			0
2014–2016	9.4	2.61			6,275
2017	1.57	0.44			80
2018	0	0			500
2019	0	0			1,068
2020	1.93	0.54			200
2017-2020	3.5	0.97			1,848
Characteristics of measure (description of the measure and method used to make savings)	<p>The "Support for the development of non-motorised transport, especially cycling" measure is an ongoing measure following on seamlessly from the measure "Improvements in support for non-motorised modes of transport (cycling)", defined in the Energy Efficiency Action Plan for 2011–2013. Eligible project applicants are Slovak towns and higher territorial units. This measure will be financed with funds from the IROP 2014–2020. Implementation of the measure is derived from the Slovak Public Passenger and Non-motorised Transport Development Strategy up to 2020 and the National Strategy for the Development of Cycling in the Slovak Republic and contains all "green" cycling and non-motorised infrastructure projects identified by the strategy document. This measure comprises the implementation of the following specific projects: "Construction of the cycle path Eurovelo 13, Devínska cesta (Karlova Ves - Devín)", "Construction of the H2 cycle road in Žilina (Solinky - centre)", "Construction of the V6 cycle road in Žilina (Veľký Diel - Vlčince, trolley bus final stop)", "Construction of the V9 cycle road in Žilina V9 (Vlčince - Vodné dielo)" and "Cycle path Podlavice - Hušták - Bus station and railway station - City of Banská Bystrica". This is a continuous measure of no fixed duration. The principle pursued by the measure is the construction of new cycle paths and roads in order to provide suitable infrastructure to give passengers the incentive to switch from motorised transport (especially private car use) to energy non-intensive modes of non-motorised transport, especially cycling. Energy savings will be made by reducing fuel consumption. This will take the form of a reduction in the share of private car use in the overall breakdown of transport within the city.</p>				
Detailed description of the method to calculate energy savings (so that savings can subsequently be recalculated and verified)	<p>The methodology for the calculation of energy savings is based on the quantification of a projected reduction in fossil fuel consumption, i.e. fuel currently consumed in the transportation of passengers travelling within the city by means of private road vehicle use or public bus transport who, on completion of quality cycling infrastructure, will switch to non-motorised cycling. This will reduce the share of private car use in the breakdown of transportation in the cities concerned.</p>				
Assumptions and estimates in the calculation of energy savings	<p>The calculation is based on the conclusions of a mobility survey conducted in 2011 in selected Slovak cities – Žilina and Prešov. The basic assumption of the calculation is that in other Slovak cities where a mobility survey has not been conducted, the mobility of the local population is represented in much the same way as in these selected cities. The assumptions under consideration are as follows: the number of journeys regularly taken in the city per head of population is 2.45 per day; the current modal split in the city is 3 % cycling and 33 % private car use; the average length of a cycling trip in the city is 2.8 km and, on average, a bicycle can be used for transportation approximately 150 days per year. In keeping with the fundamental vision of the National Strategy for the Development of Cycling in the Slovak Republic, the aim is to ensure that, by implementing all of the defined measures, the share of cycling in the overall breakdown of transportation in cities in Slovakia will be 10 % by 2020. Another key measure is to build sufficient, safe cycling infrastructure. By implementing this measure, it would be possible, according to an expert estimate, to increase the current modal split in the relevant Slovak cities from the current level of 3 % to 4 % – 5 %. In the financing of the investment costs of projects under the measure, 85 % coverage from EU resources is anticipated in accordance with IROP rules.</p>				
Reason for the use of estimates (e.g. if there are gaps in relevant information)	<p>Because there is insufficient relevant data on developments in cycling in individual Slovak cities, the share of cycling in these cities was determined on the basis of an ability survey conducted in Žilina and Prešov. Due to the insufficient quantity of input data to make a prediction, an expert estimate was used to determine the future level of cycling.</p>				
Monitoring and verification of the energy savings made	<p>Periodic evaluations of compliance with the energy-saving values planned under this measure will be carried out by means of the calculation described above, taking into account projects under the measure which have actually been implemented. Data on</p>				

<sup>33</sup> The following conversion rate is used to convert energy savings: 1 GWh = 3.6 TJ.

	energy consumption and energy savings will have to be monitored by means of transport surveys on cycling traffic using the infrastructure constructed under the non-motorised transport projects, and by subsequent verification of the projected increase in the proportion of cycling in the breakdown of city transportation, with a parallel contraction in private car use.
Overall evaluation and way forward (success of the measure, continuation or closure of the measure)	This measure will continue as long as the projects of non-motorised transport infrastructure defined under the Slovak Public Passenger Development Strategy Plan up to 2020 are implemented and are incorporated into the forthcoming Operational Programme Integrated Infrastructure 2014–2020 and the co-financing of measures/projects is provided by the EU.
- Overlapping anticipated with another measure - Duplicate counting of savings - Interaction with other measures (support and horizontal)	Overlapping with another measure and the duplicate counting of savings are not anticipated.

## Energy transformation, transmission and distribution

Measure 6.1 3AP		Construction, reconstruction and modernisation of heat distribution systems			
INDUSTRY sector		Source of financing: OPERATIONAL PROGRAMME ENVIRONMENTAL QUALITY 2014-2020, Priority Axis4, IP5 A. (Construction, reconstruction and modernisation of heat distribution systems)			
Reporting period		2014–2016, with an outlook up to 2020			
Duration of the measure (from – to)		2014-2020, n+2			
Responsible ministry		Ministry of the Environment (MA), Ministry of Economy (intermediate body)			
Energy savings apply to:	Heat	Natural gas	Electricity	Fuels	Other:.....
% (forecast)					
Planned	Energy savings – FEC <sup>34</sup>		Reduction in the consumption of primary energy sources		Financing
Year	TJ	GWh	TJ	GWh	EUR thousands
2014			0.00	0.00	0
2015			0.00	0.00	0
2016			714.96	198	89,397
2014–2016			714.96	198	89,397
2017			1072.44	298	134,095
2018			1072.44	298	134,095
2019			714.96	198	89,397
2020			0.00	0	0
2017-2020			2,859.84	794	357,587
Characteristics of measure (description of the measure and method used to make savings)	Most heat distribution systems are between 20 and 30 years old, and their technical condition reflects this. In view of the significant reduction in heat consumption over the last 10 years, part of the heat distribution systems is oversized, resulting in an increase in relative losses during the distribution of heat. Activities will focus on the gradual reconstruction of technically and economically obsolete heat distribution systems and, where necessary, there will be a change in the heat supply method from four-tube systems to two-tube systems with compact domestic heat transfer stations.				
Detailed description of the method to calculate energy savings (so that savings can subsequently be recalculated and verified)	Savings in primary energy sources in district heating systems are estimated at 992 MWh per year. This expert estimate was based on the projected allocation, the individual topology of the district heating networks, the various unit investment costs (in view of the network topology, the specific geographical conditions and town planning factors) and the possibility of implementing projects (depending on the length of the distribution systems, the project will be implemented in stages).				
Assumptions and estimates in the calculation of energy savings	Energy savings are broken down into individual years to reflect the gradual implementation of the Operational Programme Environmental Quality in Slovakia following the approval thereof. Experience of implementation from the 2007–2013 period (the Operational Programme Competitiveness and Economic Growth) was incorporated into this breakdown.				
Reason for the use of estimates (e.g. if there are gaps in information)	Planning of a new measure.				
Monitoring and verification of the energy savings made	Monitoring and verification of the energy savings made will be the responsibility of the Slovak Innovation and Energy Agency.				
Overall evaluation and way forward (success of the measure, continuation or closure of the measure)	At present, the Operational Programme Environmental Quality is undergoing approval by the European Commission. Therefore, only the planned energy savings and financial requirements are presented.				
- Overlapping anticipated with another measure - Duplicate counting of savings - Interaction with other measures (support and horizontal)	None anticipated.				

<sup>34</sup> The following conversion rate is used to convert energy savings: 1 GWh = 3.6 TJ.

Measure 6.2. 3AP		Construction, reconstruction and modernisation of electricity and heat production plants via high-performance combined production with a maximum thermal input of 20 MW			
INDUSTRY sector		Source of financing: OPERATIONAL PROGRAMME ENVIRONMENTAL QUALITY 2014-2020, Priority Axis 4, IP5 B. (Construction, reconstruction and modernisation of electricity and heat production plants via high-performance combined production with a maximum thermal input of 20 MW )			
Reporting period		2014–2016, with an outlook up to 2020			
Duration of the measure (from – to)		2014-2020, n+2			
Responsible ministry		Ministry of the Environment (MA), Ministry of Economy (intermediate body)			
Energy savings apply to:	Heat	Natural gas	Electricity	Fuels	Other: .....
% (forecast)					
Planned	Energy savings – FEC <sup>35</sup>		Reduction in the consumption of primary energy sources		Financing
Year	TJ	GWh	TJ	GWh	EUR thousands
2014					
2015					
2016			70.20	19.50	12,500
2014–2016			70.20	19.50	12,500
2017			104.40	29.00	18,750
2018			104.40	29.00	18,750
2019			70.20	19.50	12,500
2020			0.00	0.00	0
2017-2020			279.00	77.50	50,000
Characteristics of measure (description of the measure and method used to make savings)	Under this measure, support will focus on combined heat and power generating technology, based on demand for useful heat, with a view to reducing the consumption of primary energy sources; the construction of coal-fired facilities will not be supported				
Detailed description of the method to calculate energy savings (so that savings can subsequently be recalculated and verified)	When determining the indicator related to the reduction in the consumption of primary energy sources, the basis was the projected saving in the production of heat and power in combined form as opposed to the separate production of power and the separate production of heat.				
Assumptions and estimates in the calculation of energy savings	Energy savings are broken down into individual years to reflect the gradual implementation of the Operational Programme Environmental Quality in Slovakia following the approval thereof. Experience of implementation from the 2007–2013 period (the Operational Programme Competitiveness and Economic Growth) was incorporated into this breakdown.				
Reason for the use of estimates (e.g. if there are gaps in relevant information)	Planning of a new measure.				
Monitoring and verification of the energy savings made	Monitoring and verification of the energy savings made will be the responsibility of the Slovak Innovation and Energy Agency.				
Overall evaluation and way forward (success of the measure, continuation or closure of the measure)	At present, the Operational Programme Environmental Quality is undergoing approval by the European Commission. Therefore, only the planned energy savings and financial requirements are presented.				
- Overlapping anticipated with another measure - Duplicate counting of savings - Interaction with other measures (support and horizontal)	None anticipated.				

<sup>35</sup> The following conversion rate is used to convert energy savings: 1 GWh = 3.6 TJ.