Annex 5: Methodology tables for energy efficiency measures (by sector)

Buildings sector

Measure	1.1.1.					Improvements in the thermal	
MSEE ID:			Titl	Title of measure:		performance of buildings – Single-family buildings (SFB)	
Sector:	Buildings		Financial mechanism:			own funds, commercial banks, government premiums	
Measure lasting from: (year)	2014		to:	(year)		2020	
Responsible:	Minietry of Transpor		Art	asure to comp icle 7 of Direc 2/27/EU:		Yes	
	Construction			icy measure cl		Article 7(9)(b) Article 7(9)(c) Article 7(9)(f)	
Lifetime of measure (years):	>7	1	Cor	mpliance with A	/	Yes	
Form of energy:	Natural gas	Electricity		Heat	Other:		
Breakdown (%) by form of energy	46 %	11 %		0 %	43 %	2016 survey by the Slovak Innovation and Energy Agency	
	Major renovation	on of single	-fami	ly buildings.			
Characteristics of the measure (including eligible activities)	(b) fiscal stimul(c) legislativebuildings undefor new building	Nature of measure: (b) fiscal stimuli – government premiums as part of building society saving schemes; (c) legislative regulations – (energy performance of buildings – minimum requiremen buildings undergoing major renovation are established on a par with minimum requirer for new buildings); (f) training, education – consulting, seminars, conferences and information campaigns.					
	Supported/eligible activities are mainly focused on: (a) improvements in the thermal performance of buildings; (b) improvements in the technical properties of building technical systems.						
Evaluation of the measure	Bottom-up, via individual projects						
Methods for the calculation of savings (in accordance with Annex V(1) to the EED¹ and Implementing Decree No 327/2015)	Methods for the calculation of energy savings: (a) ex ante - projected savings - the original and new condition of a building is determined on the basis of a project evaluation of the energy required for space heating, drawn up by a professionally competent person (designer) according to technical standards (in particular STN EN ISO 13790/NA, STN EN 15603, STN 730540) by reference to the existing and proposed thermal performance of the building;						
Detailed description of the method to calculate energy savings	Savings are determined by reference to the energy certificates database (source: INFOREG IS) as the difference in the building's energy requirements in its original condition and after renovation, according to the energy performance certificate.						
Application of expert estimates and assumptions in the calculation of energy savings	Yes In the calculation of energy savings, the average energy requirements applicable to the building in its original condition (based on the year of construction and the technical standards applicable to the given building category at the time) will be used. The average figure for the original condition of the building is a value corresponding to the upper limit of energy class D (Implementing Decree of the Ministry of Transport and Construction No 364/2012). Estimates need to be used as no data on the original condition of renovated buildings is available and additional surveying of energy consumption data is demanding and unreasonably costly. In the calculation of energy requirements, the average degree days applicable to the whole of Slovakia and other technical coefficients specified in the relevant technical standards (in particular STN EN ISO 13790/NA, STN EN 15603, and STN 730540) are used.						
Monitoring, control and verification of the energy savings made	Monitoring – v by profession INFOREG auto	ia the INFC ally compe matically (s mance cert	OREC etent syste ificat	information s persons res mically) check es) is exported	system. Data is ponsible for e s the data enter d, data formatte	entered in the INFOREG system energy performance certificates. ed. Data on energy requirements d, from the INFOREG system to	

¹ EED – Directive 2012/27/EU on energy efficiency

	Checks are then also conducted as part of the preparation of action plans and the annual report. As measures are checked on a project-by-project basis, there was no need to establish a statistically significant share of measures to be checked.						
Overall evaluation and way forward	The measure will continue in the coming period. This change will tighten energy classes used for expert estimates under Act No 555/2005 and Implementing Decree No 364/2012.						
Projected overlapping with another measure – duplication	There is a potential overlap with measures 1.1.2.						
Method to avoid duplication	The duplication of the energy savings made by overlapping measures is prevented by excluding energy savings indicated for the Single-family Building Insulation Support Programme (Measure 1.1.2.) from Measure 1.1.1. The duplication of the energy savings made by overlapping measures is prevented by processing energy savings identified for individual buildings on a project-by-project basis, i.e. for each single-family building. Savings are included in only one of the measures, according to the above-mentioned priorities.						
Information for the purp	oses of Article 7 of Directive 2012/27/EU						
	Project implementation contributes to savings for the final customer.						
	Under the Act on Building Society Savings Schemes (Act No 310/1992), Slovakia grants government premiums for building society savings schemes, with funding earmarked annually in the central government budget. Compliance with the conditions of building society savings schemes is supervised by the Ministry of Finance.						
Materiality of the measure (Annex V, point 2(c), to the EED)	In implementing measures of the Energy Efficiency Policy (adopted under Government Resolution No 576 of 4 July 2007), Slovakia introduced a coherent system to raise awareness of energy efficiency, which includes the provision of free consulting by the Slovak Innovation and Energy Agency financed annually by the budget heading of the Ministry of Economy and the EU Structural Funds (mainly via the national 'Living with Energy' project). In addition to individual and group consulting on how to reduce energy requirements in single-family buildings, publications have been issued and disseminated, such as 'Insulation and Window Replacement in Single-family Buildings' and 'How to Reduce Household Electricity Consumption'.						
	It is only through these State-initiated synergic support measures that investment activities the renovation and construction of buildings and in the modernisation and reconstruction building technical systems have been significantly accelerated. Complementarity is not applicable in the buildings sector.						
	The savings made by this measure are only included if a major renovation is performed under an issued energy performance certificate that the owners would not have carried out had the State not intervened, i.e. they would only have dealt with any serious disrepair and energy-saving measures with a reasonable payback period (e.g. window replacement).						
Complementarity of the measure	The measure takes into account total energy savings, representing the difference between the original and the new condition of the building, because the minimum requirements for buildings undergoing major renovation are set at the level of the minimum requirements for new buildings, which in the case of renovated buildings is not always technically, functionally and economically feasible.						
	Any savings made by replacing existing light sources are not included among energy savings based on energy performance certificate data because the point of lighting consumption is not assessed in single-family buildings. Potential savings that can be achieved by replacing an existing heat source with a new, more modern one to which the Ecodesign Directive might apply are not individually identifiable from available energy performance certificate data and, according to expert estimates, are negligible compared with the energy savings achievable by means of insulation.						
Compliance with legislation and principles of support mechanisms (including quality control and sanctions), if relevant	If a building undergoes major renovation, minimum energy performance requirements should be achieved if technically, functionally and economically feasible. This is checked in the final approval procedure. If the fulfilment of requirements is not technically, functionally and economically feasible, this is already evident when the project for the issuance of a building permit is submitted, and the competent building authority decides whether non-compliance with the minimum requirements is justified. If it is not justified, no building permit is issued.						
Compliance with criteria (under Article 7(10) of the Directive)	 (a) Act No 321/2014 established two transitional periods. The 4AP will evaluate the contribution made by policy measures in the first transitional period (2014-2016) and compliance with the trajectory for the energy savings target under Article 7 by 2020. (b) Ministry responsible for the measure: Ministry of Transport and Construction. (c) Savings are determined transparently according to method (a) – ex ante. (d) Energy savings are shown in final energy consumption. (e) Savings are determined further to point 1(a) of Annex V, in accordance with point 2 of Annex V. (f) Not applicable; these are not policy measures under Article 7(9)(a), second subparagraph. (g) Not applicable, these are not voluntary agreements. (h) The results of the measure are continuously monitored and, if they are not sufficient, corrective measures will be taken. (i) The control system is implemented at INFOREG IS level and as part of the 						

	preparation of action plans and annual reports. As measures are checked on a project-by-project basis, no statistically significant share of measures for checking
	was established.
(j)	Trends in savings will be set out in the annual reports on progress achieved towards
	national energy efficiency targets.

Formula to calculate energy savings						
Measure MSEE ID:	1.1.1	Title of measure:	Improvements in the thermal performance of buildings – Single-family buildings			
Sector:	Buildings	Financial mechanism:	own funds, commercial banks, government premiums			
$ÚS_{i_pl\acute{a}n} = (P_{pred} - P_{po}) \bullet CPP$						

 $ÚS_{\text{Lplán}}$ – planned energy saving (final energy consumption) in the year of building renovation [kWh/a];

 P_{pred} – energy requirement for the building prior to renovation – average energy requirement for the original condition of the building [kWh/(m².a)];

 P_{po} – energy requirement for the building after renovation, by reference to energy performance certificate data [kWh/(m².a)];

CPP – total floor area of the building, as per the energy performance certificate [m²].

Measure	1.1.2					Improvements in the thermal	
MSEE ID:			Title	Title of measure:		performance of buildings -	
0	Duildings			Financial mechanism:		Single-family buildings (SFB) Single-family Building Insulation	
Sector:	Buildings		Fina	anciai mechan	ism:	Support Programme	
Measure lasting from: (year)	2016			(year)		2020	
Responsible:	Ministry of Trar	nsport and	Arti	asure to compicle 7 of Direct 2/27/EU:		Yes	
	Construction		Poli	cy measure cl	assification:	Article 7(9)(b)	
Lifetime of measure (years):	>7		Cor	npliance with	Article 7(10)	Yes	
Form of energy:	Natural gas	Electricity		Heat	Other:		
Breakdown (%) by form of energy	46 %	11 %		0 %	43 %	2016 survey by the Slovak Innovation and Energy Agency	
	Renovation of	single-famil	y bui	ldings.			
Characteristics of the measure (including eligible activities)	Nature of measure: (b) funding schemes – grant from the Single-family Building Insulation Support Programme via the Ministry of Transport, Construction and Regional Development. A grant is awarded for up to 30 % of the eligible costs of thermal insulation, up to a maximum of EUR 6 000 per single-family building. An allowance of up to EUR 500 is also granted for the production of design documentation and an energy performance certificate. The programme budget is EUR 30 million. Supported/eligible activities are mainly focused on:						
	(a) impr	ovements ir	n the	thermal perfor	mance of buildi	ngs.	
Evaluation of the measure		Bottom-up, via individual projects					
Methods for the calculation of savings (in accordance with Annex V(1) to the EED ² and Implementing Decree No 327/2015)	Methods for the calculation of energy savings: (a) ex ante – projected savings – the original and new condition of a building is determined on the basis of a project evaluation of the energy required for space heating, drawn up by a professionally competent person (designer) according to technical standards (in particular STN EN ISO 13790/NA, STN EN 15603, STN 730540) by reference to the existing and proposed thermal performance of the building:						
Detailed description of the method to calculate energy savings	The energy saving is the difference between the heat required for space heating in the original condition of the building and the heat required for space heating after its renovation, as set out in the renovation project (improvement in the building's thermal performance). Data on heat required for space heating annually prior to the implementation of the renovation project and the planned heat required for space heating after renovation is included in the grant application. The credibility of the data is confirmed by professional evaluators in the evaluation of the application.						
Application of expert estimates and assumptions in the calculation of energy savings	Yes In the calculation of energy requirements, the average degree days applicable to the whole of Slovakia and other technical coefficients specified in the relevant technical standards (in particular STN EN ISO 13790/NA, STN EN 15603, and STN 730540) are used.						
Monitoring, control and verification of the energy savings made	Monitoring is carried out by the provider of the allowance and via the INFOREG information system after the energy performance certificate has been issued. Data is entered in the INFOREG system by professionally competent persons responsible for energy performance certificates. INFOREG automatically (systemically) checks the data entered. Data on energy requirements (energy performance certificates) is exported, data formatted, from the INFOREG system to the energy efficiency monitoring system (MSEE). Checks are then also conducted as part of the preparation of action plans and the annual report. As measures are checked on a project-by-project basis, there was no need to establish a statistically significant share of measures to be checked.						
Overall evaluation and way forward						e will tighten energy classes used ag Decree No 364/2012.	
Projected overlapping with another measure – duplication	None foreseen				•		
Method to avoid duplication	Not applicable.						
Information for the purp	oses of Articl	e 7 of Dir	ectiv	/e 2012/27/E	U		
Materiality of the measure	Project implem	entation co	ntribu	utes to savings	for the final cus	stomer.	
(Annex V, point 2(c), to the EED)	Programme (th	e Ministry	of Tra	ansport and C	onstruction) is c	amily Building Insulation Support lemonstrably material, particularly the process for the use of those	

 $^{^{2}}$ EED – Directive 2012/27/EU on energy efficiency

	funds.						
	Complementarity is not applicable in the buildings sector.						
	Not applicable.						
Complementarity of the measure	The measure would not be implemented without a funding scheme. Were it not for State intervention, projects would not be implemented to the existing extent. They would only deal with any serious disrepair and energy-saving measures with a reasonable payback period (e.g. window replacement).						
Compliance with legislation and principles of support mechanisms (including quality control and sanctions), if relevant	The programme complies with the relevant provisions of Act No 555/2005 on the energy performance of buildings and amending certain laws, as amended, and Implementing Decree of the Ministry of Transport, Construction and Regional Development of the Slovak Republic No 342/2015 on details of the amount of the allowance for the insulation of a single-family building and on the requirements of an application for an allowance for the insulation of a single-family building.						
Compliance with criteria (under Article 7(10) of the Directive)	 (a) Act No 321/2014 established two transitional periods. The 4AP will evaluate the contribution made by policy measures in the first transitional period (2014-2016) and compliance with the trajectory for the energy savings target under Article 7 by 2020. (b) Ministry responsible for the measure: Ministry of Transport and Construction. (c) Savings are determined transparently according to method (a) – ex ante. (d) They are shown in final energy consumption. (e) Savings are determined further to point 1(a) of Annex V, in accordance with point 2 of Annex V. (f) Not applicable; these are not policy measures under Article 7(9)(a), second subparagraph. (g) Not applicable, these are not voluntary agreements. (h) The results of the measure are continuously monitored and, if they are not sufficient, corrective measures will be taken. (i) The control system is implemented at INFOREG IS level and as part of the preparation of action plans and annual reports. As measures are checked on a project-by-project basis, no statistically significant share of measures for checking was established. (j) Trends in savings will be set out in the annual reports on progress achieved towards national energy efficiency targets. 						

Formula to calculate energy savings						
Measure MSEE ID:	1.1.2	Title of measure:	Improvements in the thermal performance of buildings – Single-family buildings			
Sector:	Buildings	Financial mechanism:	own funds, commercial banks, government premiums			
$ÚS_{i_plán} = (P_{pred} - P_{po}) \cdot CPP$						

ÚS ∟plán – planned energy saving (final energy consumption) in the year of building renovation [kWh/a];

 P_{pred} – heat required for the space heating of a building prior to renovation – standardised heat requirement for the original condition of the building [kWh/(m².a)];

 P_{po} – energy required for a building after renovation – standardised heat requirement for space heating in light of the post-renovation condition of the building [kWh/(m².a)];

CPP - total floor area of the building, as per the energy performance certificate [m²].

Note: If the energy saving is provided by the programme administrator as a resultant value in GJ or %, that value is used, after conversion to a unified physical unit, in the pursuit of the target under Article 7 of the Directive.

Measure	1.2.1					Improvements in the thermal
MSEE ID:	State Housing Development		Title	e of measure:		performance of buildings – Apartment buildings
Sector:	Buildings		Fina	ancial mechan	ism:	SHDF
Measure lasting from:	2014		to: ((year)		2020
(year) Responsible:	Ministry of Transport and Construction			asure to comp icle 7 of Direc 2/27/EU:		Yes
	Conocidon		Poli	cy measure cl		Article 7(9)(b)
Lifetime of measure (years):	>7		Cor	npliance with A		Yes
Form of energy:	Natural gas	Electricity		Heat	Other:	
Breakdown (%) by form of energy	53.13 %	21.66 %	%	21.91 %	3.30 %	Statistical Office – Energy Sector 2014
	Major renovation space heating.	on of aparti	ment	buildings with	a minimum 35	% saving in the heat required for
	Development F required for spa Supported/eligi	cheme – stund for the ace heating ble activities	e rer com s are	novation of but pared to the or mainly focuse	ildings resulting riginal condition	
Characteristics of the measure (including eligible activities)	The State Housing Development Fund. It provides support for the expansion and modernisation of housing stock, particularly in the form of long-term loans with lower interest rates than commercial banks. It provides support for the renovation of apartment buildings in accordance with Act No 150/2013 on the State Housing Development Fund, as amended by Act No 276/2015 and Implementing Decree of the Ministry of Transport and Construction No 284/2013 on details of the amount of support granted from the State Housing Development Fund, the general terms and conditions for the granting of support, and the content of an application, as amended by Implementing Decree No 341/2015, in the form of a loan covering up to 75 % of the eligible expenditure on the insulation of a building's external structures, where appropriate in combination with the modernisation of the building's communal technical systems. The maximum interest rate is 2 %. It is reduced when multiple renovation activities are combined for a building. Loans are repayable over 20 years. Financial resources are provided from Slovakia's central government budget. If the prescribed conditions are met, it is possible to forgo repayment of up to 10 % of the loan principal if the heat required for the space heating of an apartment building or multipurpose building is lower than or equal to 28.0 kWh/(m².a). The State Housing Development Fund also grants other soft loans that are not included in this					
Evaluation of the measure Methods for the calculation of savings (in accordance with Annex V(1) to the EED³ and Implementing Decree No 327/2015)	Bottom-up, via individual projects Methods for the calculation of energy savings: (a) ex ante – projected savings – the original and new condition of a building is determined on the basis of a project evaluation of the energy required for space heating, drawn up by a professionally competent person (designer) according to technical standards (in particular STN EN ISO 13790/NA, STN EN 15603, STN 730540) by reference to the existing and proposed thermal performance of the building; (b) ex post – savings measured after project implementation, taking into account the extent to which the building is used plus climate impacts:					
Detailed description of the method to calculate energy savings	extent to which the building is used, plus climate impacts; The energy saving is the difference between the heat required for space heating in the original condition of the apartment building and the heat required for space heating after its renovation as set out in the renovation project. Only apartment buildings that have actually undergon and completed insulation in a given year are counted towards the savings target for the calendar year. Buildings that have signed a loan agreement or draw on a loan during renovation but do not complete renovation are not counted.					
Use of expert estimates and assumptions in the calculation of energy savings	Yes In the calculation of energy requirements and for activity (a), the average day degrapplicable to the whole of Slovakia and other technical coefficients specified in the relev technical standards (in particular STN EN ISO 13790/NA, STN EN 15603, and STN 7305 are used.					
Monitoring, control and verification of the energy savings made	the Slovak Inn- link between the Agency, or by the	ovation and ne State H the Agency	d Ene ousir 's sp	ergy Agency). ng Developme ecialist staff. T	Data is entered ont Fund and the quality of da	cy monitoring system operated by d in the MSEE system via a data to Slovak Innovation and Energy ta on energy requirements before a competent persons who drew up

³ EED – Directive 2012/27/EU on energy efficiency

	the renovation project. The Slovak Innovation and Energy Agency also runs checks further to							
	its mandate under an agreement on cooperation between the Agency and the State Housing Development Fund and under the loan agreement between the Fund and the support applicant.							
	Checks are also conducted as part of the preparation of action plans and the annual report. As measures are checked on a project-by-project basis, there was no need to establish a statistically significant share of measures to be checked.							
Overall evaluation and way forward	This measure includes the monitoring of the actual saving achieved and comparisons with the savings planned, covering the three years after the thermal insulation has been installed. The measure will continue in the coming period. The State Housing Development Fund is preparing not only new soft loans and procedures but also an expansion in the monitoring of energy consumption, e.g. to include renta apartments.							
Projected overlapping with another measure – duplication	None foreseen.							
Method to avoid duplication	The duplication of energy savings is generally prevented by processing energy savings identified for individual apartment buildings on a project-by-project basis, i.e. for each apartment building. Savings are included in only one of the relevant measures.							
Information for the purp	oses of Article 7 of Directive 2012/27/EU							
	Project implementation contributes to savings for the final customer.							
Materiality of the measure (Annex V, point 2(c), to the EED)	The activities of the State Housing Development Fund, as an institution established by the State (which contributes to its activities) are demonstrably material, particularly in the provision of financial resources and the management of the process for the use of those funds.							
	Complementarity is not applicable.							
Complementarity of the measure	The measure would not be implemented without a funding scheme. Were it not for State intervention, projects would not be implemented to the existing extent. They would only deal with any serious disrepair and energy-saving measures with a reasonable payback period (e.g. window replacement).							
Compliance with legislation and principles of support mechanisms (including quality control and sanctions), if relevant	The use of support follows the procedure laid down in Act No 150/2013 on the State Housing Development Fund, as amended by Act No 276/2015 and Implementing Decree of the Ministry of Transport, Construction and Regional Development No 284/2013 on details of the amount of support granted from the State Housing Development Fund, the general terms and conditions for the granting of support, and the content of an application, as amended by Implementing Decree No 341/2015. When renovating a building, it is necessary to demonstrate minimum energy savings of 35 % for space heating. If renovation is carried out on the basis of a building permit, the applicant must submit ar energy performance certificate after the actual completion of insulation as part of the final							
Compliance with criteria (under Article 7(10) of the Directive)	 (a) Act No 321/2014 established two transitional periods. The 4AP will evaluate the contribution made by policy measures in the first transitional period (2014-2016) and compliance with the trajectory for the energy savings target under Article 7 by 2020. (b) Ministry responsible for the measure: Ministry of Transport and Construction. (c) Savings are determined transparently according to method (a) – ex ante and method (b) ex post. (d) Energy savings are shown in final energy consumption. (e) Savings are determined further to point 1(a) of Annex V, in accordance with point 2 of Annex V. (f) Not applicable; these are not policy measures under Article 7(9)(a), second subparagraph. (g) Not applicable, these are not voluntary agreements. (h) The results of the measure are continuously monitored and, if they are not sufficient, corrective measures will be taken. (i) The control system is implemented at MSEE IS level and as part of the preparation of action plans and annual reports. As measures are checked on a project-by-project basis, no statistically significant share of measures for checking was established. (j) Trends in savings will be set out in the annual reports on progress achieved towards national energy efficiency targets. 							

Formula to calculate energy savings						
Measure	1.2.1		Improvements in the thermal			
MSEE ID:	State Housing	Title of measure:	performance of buildings –			
WISEE ID.	Development Fund		Apartment buildings			
Sector:	Buildings	Financial mechanism:	SHDF			

$$ÚS_{i_pl\acute{a}n} = (P_{pred} - P_{po}) \bullet CPP$$

Where:

ÚS i_plán - planned energy saving (final energy consumption) in the year of building renovation [kWh/a];

 P_{pred} – energy requirement for the building prior to renovation – standardised energy requirement for the original condition of the building [kWh/(m².a)];

 P_{po} - energy required for a building after renovation - standardised heat requirement for the post-renovation condition [kWh/(m².a)];

CPP - total floor area of the building [m²].

Measure	1.2.2					Improvements in the thermal	
MSEE ID:	JESSICAI, JES	SSICAII,	Titl	e of measure	:	performance of buildings – Apartment buildings	
Sector:	Buildings		Fina	ancial mechan	ism:	State Housing Development Fund – JESSICA I, II, III,	
Measure lasting from: (year)	2013			(year)		2017 (2015+2)	
Responsible:	Ministry of Trai	nsport and	Art 201	asure to compicle 7 of Direct 12/27/EU:	tive	Yes	
Lifetime of measure (years):	>7		Pol	icy measure cl mpliance with	assification:	Article 7(9)(b) Yes	
Form of energy:	Natural gas	Electricity	COI	Heat	Other:	1 65	
Breakdown (%) by form of		·				Statistical Office – Energy	
energy	53.13 %	21.66 9		21.91 %	3.30 %	Sector 2014 0 %, or 35 %, saving in the heat	
Characteristics of the measure (including eligible activities)	Nature of measure: (b) funding scheme — soft loans with reduced interest, granted by the State House Development Fund for the renovation of buildings resulting in a 20 %, or 35 %, reduction in heat required for space heating compared to the original condition. Supported/eligible activities are mainly focused on: (a) improvements in the thermal performance of buildings The State Housing Development Fund was established in 1996 under Act No 124/1996 on State Housing Development Fund. It provides support for the expansion and modernisation housing stock, particularly in the form of long-term loans with lower interest rates to commercial banks. This measure only includes apartment buildings that are granted insulation-related losourced from EU funds in the 2007-2013 programming period, i.e. they are resources plan in the Regional Operational Programme (ROP) and the Operational Programme Bratisl Region (OPBK), as well as additional resources from the transfer of unspent funds under operational programmes ROP, OPBK, and the Operational Programme Competitiveness Economic Growth (OP KaHR). These financial resources are provided for this purpose via innovative JESSICA financial instrument, with a separate block of finance being set up for implementation of this instrument under the State Housing Development Fund. The S Housing Development Fund may grant a loan of up to 75 % of the total cost of the renova of apartment buildings. If the prescribed conditions are met, it is possible to forgo repayment of up to 10 % of the I principal if the heat required for the space heating of an apartment building or multipurp building is lower than or equal to 28.0 kWh/(m².a). These financial resources are proview exclusively from the central government budget.					and 20 %, or 35 %, reduction in the dition. Ings 196 under Act No 124/1996 on the expansion and modernisation of swith lower interest rates than granted insulation-related loans d, i.e. they are resources planned perational Programme Bratislava ansfer of unspent funds under the Programme Competitiveness and exprovided for this purpose via the exc of finance being set up for the g Development Fund. The State of the total cost of the renovation payment of up to 10 % of the loan partment building or multipurpose	
Evaluation of the measure	measure. Bottom-up, via individual projects						
Methods for the calculation of savings (in accordance with Annex V(1) to the EED ⁴ and Implementing Decree No 327/2015)	Methods for the calculation of energy savings: (a) ex ante – projected savings – the original and new condition of a building is determined on the basis of a project evaluation of the energy required for space heating, drawn up by a professionally competent person (designer) according to technical standards (in particular STN EN ISO 13790/NA, STN EN 15603, STN 730540) by reference to the existing and proposed thermal performance of the building; (b) ex post – savings measured after project implementation, taking into account the extent to which the building is used, plus climate impacts;						
Detailed description of the method to calculate energy savings	The energy saving is the difference between the heat required for space heating in the original condition of the apartment building and the heat required for space heating after its renovation as set out in the renovation project. Only apartment buildings that have actually undergone and completed insulation in a given year are counted towards the savings target for the calendar year. Buildings that have signed a loan agreement or draw on a loan during renovation but do not complete renovation are not counted.					space heating after its renovation, ags that have actually undergone vards the savings target for that	
Use of expert estimates and assumptions in the calculation of energy savings	Yes In the calculation of energy requirements and for activity (a), the average degree days applicable to the whole of Slovakia and other technical coefficients specified in the relevant technical standards (in particular STN EN ISO 13790/NA, STN EN 15603, and STN 730540 are used.						
Monitoring, control and verification of the energy savings made	the Slovak Inn link between t	ovation and he State H	d Endousir	ergy Agency). ng Developme	Data is enteredent Fund and the	cy monitoring system operated by d in the MSEE system via a data le Slovak Innovation and Energy ta on energy requirements before	

⁴ EED – Directive 2012/27/EU on energy efficiency

	and after renovation is the responsibility of the professionally competent persons who drew up the renovation project. The Slovak Innovation and Energy Agency also runs checks further to						
	its mandate under an agreement on cooperation between the Agency and the State Housing Development Fund and under the loan agreement between the Fund and the support applicant.						
	Checks are also conducted as part of the preparation of action plans and the annual report. As measures are checked on a project-by-project basis, there was no need to establish a statistically significant share of measures to be checked.						
Overall evaluation and way forward	This measure is tied to the 2007-2013 programming period, but additional resources from the Operational Programme Competitiveness and Economic Growth and the Operational Programme Bratislava Region were allocated under the JESSICA III project that can be used up in a future period. This measure is continued after 2014 in the form of Measure 1.2.3.						
Projected overlapping with another measure – duplication	None foreseen.						
Method to avoid duplication	The duplication of energy savings is generally prevented by processing energy savings identified for individual apartment buildings on a project-by-project basis, i.e. for each apartment building. Savings are included in only one of the relevant measures.						
Information for the purp	oses of Article 7 of Directive 2012/27/EU						
	Project implementation contributes to savings for the final customer.						
Materiality of the measure (Annex V, point 2(c), to the EED)	The activities of the State Housing Development Fund, as an institution established by the State (which contributes to its activities) are demonstrably material, particularly in the provision of financial resources and the management of the process for the use of those funds.						
	Complementarity is not applicable.						
Complementarity of the measure	The measure would not be implemented without a funding scheme. Were it not for State intervention, projects would not be implemented to the existing extent. They would only deal with any serious disrepair and energy-saving measures with a reasonable payback period (e.g. window replacement).						
Compliance with legislation and principles of support mechanisms (including quality control and sanctions), if relevant	The use of support follows the procedure laid down in legislation of general application on the use of the European Structural Funds in the 2007-2013 programming period, in particular the European Regional Development Fund, the rules of the JESSICA financial mechanism and State aid rules. Quality control and sanctions are set out in specific loan agreements. If renovation is carried out on the basis of a building permit, the applicant must submit an energy performance certificate after the actual completion of insulation as part of the final approval process.						
Compliance with criteria (under Article 7(10) of the Directive)	 (a) Act No 321/2014 established two transitional periods. The 4AP will evaluate the contribution made by policy measures in the first transitional period (2014-2016) and compliance with the trajectory for the energy savings target under Article 7 by 2020. (b) Ministry responsible for the measure: Ministry of Transport and Construction. (c) Savings are determined transparently according to method (a) – ex ante and method (b) ex post. (d) Energy savings are shown in final energy consumption. (e) Savings are determined further to point 1(a) of Annex V, in accordance with point 2 of Annex V. (f) Not applicable; these are not policy measures under Article 7(9)(a), second subparagraph. (g) Not applicable, these are not voluntary agreements. (h) The results of the measure are continuously monitored and, if they are not sufficient, corrective measures will be taken. (i) The control system is implemented at MSEE IS level and as part of the preparation of action plans and annual reports. As measures are checked on a project-by-project basis, no statistically significant share of measures for checking was established. (j) Trends in savings will be set out in the annual reports on progress achieved towards national energy efficiency targets. 						

MSEE ID:	JESSICAI, JESSICAII, JESSICAIII	Title of measure:	Improvements in the thermal performance of buildings – Apartment buildings
Sector:	Buildings	Financial mechanism:	State Housing Development Fund – JESSICA I, II, III

ÚS _{i_plán} – planned energy saving (final energy consumption) in the year of building renovation [kWh/a];

 P_{pred} – energy requirement for the building prior to renovation – standardised energy requirement for the original condition of the building [kWh/(m².a)];

 P_{po} - energy required for a building after renovation - standardised heat requirement for the post-renovation condition [kWh/(m².a)];

CPP - total floor area of the building [m²].

Measure	1.2.3					Improvements in the thermal		
MSEE ID:	ŠFRB2017, ŠFRB2018, ŠFRB2019, ŠFRB2020			e of measure:		performance of buildings – Apartment buildings		
Sector:	Buildings		Fina	ancial mechan	ism:	IROP 2014-2020		
Measure lasting from:	2014		to:	to: (year)		2020		
(year) Responsible:	Ministry of Agriculture			asure to comp icle 7 of Direc 2/27/EU:		Yes		
responsible.	and Rural Deve	elopment		icy measure cl	assification:	Article 7(9)(b)		
Lifetime of measure (years):	>7		Cor	mpliance with A	Article 7(10)	Yes		
Form of energy:	Natural gas	Electricity		Heat Other:				
Breakdown (%) by form of energy	53.13 %	21.66 9	%	21.91 %	3.30 %	Statistical Office – Energy Sector 2014		
Characteristics of the	space heating. Nature of meas (b) funding so Development I required for spi Supported/eligi (a) impre	sure: cheme – s Fund for th ace heating ble activitie ovements in	soft I e rer g com es are n the	oans with recovation of but apared to the oremainly focused thermal performation of the control	duced interest, ildings resulting riginal condition ed on: mance of buildir stablished in 19			
measure (including eligible activities)	housing stock, particularly in the form of long-term loans with lower interest rates to commercial banks. This measure only includes apartment buildings that are granted insulation-related losourced from EU funds in the 2007-2013 programming period, i.e. they are resources plan in the Integrated Regional Operational Programme (IROP). The State Housing Developm Fund may grant a loan of up to 75 % of the total cost of the renovation of apartment building If the prescribed conditions are met, it is possible to forgo repayment of up to 10 % of the I principal if the heat required for the space heating of an apartment building or multipurp building is lower than or equal to 28.0 kWh/(m².a). These financial resources are proviexclusively from the central government budget. The State Housing Development Fund also grants other soft loans that are not included in measure.					granted insulation-related loans d, i.e. they are resources planned The State Housing Development enovation of apartment buildings. Deayment of up to 10 % of the loan partment building or multipurpose financial resources are provided		
Evaluation of the measure	Bottom-up, via individual projects							
Methods for the calculation of savings (in accordance with Annex V(1) to the EED ⁵ and Implementing Decree No 327/2015)	Methods for the calculation of energy savings: (a) ex ante – projected savings – the original and new condition of a building is determined on the basis of a project evaluation of the energy required for space heating, drawn up by a professionally competent person (designer) according to technical standards (in particular STN EN ISO 13790/NA, STN EN 15603, STN 730540) by reference to the existing and proposed thermal performance of the building; (b) ex post – savings measured after project implementation, taking into account the							
Detailed description of the method to calculate energy savings	extent to which the building is used, plus climate impacts; The energy saving is the difference between the heat required for space heating in the original condition of the apartment building and the heat required for space heating after its renovation, as set out in the renovation project. Only apartment buildings that have actually undergone and completed insulation in a given year are counted towards the savings target for that calendar year. Buildings that have signed a loan agreement or draw on a loan during renovation but do not complete renovation are not counted.							
Use of expert estimates and assumptions in the calculation of energy savings	applicable to the	he whole o	f Slo	vakia and oth	er technical coe	(a), the average degree days efficients specified in the relevant TN EN 15603, and STN 730540)		
Monitoring, control and verification of the energy savings made	the Slovak Inn link between the Agency, or by and after renovation its mandate undevelopment applicant. Checks are als	ovation and he State Hathe Agency vation is the project. The der an agricular and conducte	d End lousir's sp e resp e Slo eeme unde	ergy Agency). ng Developme ecialist staff. T consibility of th ovak Innovation ent on coopera er the loan a part of the pre	Data is entered nt Fund and the quality of date professionally and Energy Attion between the greement between artion of action and Energy Attion of action of action of action and Energy Attion of action of action of action and Energy Attion of action of action of action and Energy Attion of action and Energy Attionation of action and Energy Attionation of action and Energy Attionation and Energy	cy monitoring system operated by in the MSEE system via a data e Slovak Innovation and Energy ta on energy requirements before competent persons who drew up gency also runs checks further to be Agency and the State Housing een the Fund and the support on plans and the annual report. As the was no need to establish a		

⁵ EED – Directive 2012/27/EU on energy efficiency

	statistically significant share of measures to be checked.						
Overall evaluation and way forward	By the end of 2016, no projects had been implemented under this measure. The signing of the first loan agreements and project implementation are expected in 2017.						
Projected overlapping with another measure – duplication	None foreseen.						
Method to avoid duplication	The duplication of energy savings is generally prevented by processing energy savings identified for individual apartment buildings on a project-by-project basis, i.e. for each apartment building. Savings are included in only one of the relevant measures.						
Information for the purp	oses of Article 7 of Directive 2012/27/EU						
	Complementarity is not applicable.						
Materiality of the measure (Annex V, point 2(c), to the EED)	The measure would not be implemented without a funding scheme. Were it not for State intervention, projects would not be implemented to the existing extent. They would only deal with any serious disrepair and energy-saving measures with a reasonable payback period (e.g. window replacement).						
	Complementarity is not applicable.						
Complementarity of the measure	The measure would not be implemented without a funding scheme. Were it not for State intervention, projects would not be implemented to the existing extent. They would only deal with any serious disrepair and energy-saving measures with a reasonable payback period (e.g. window replacement).						
Compliance with legislation and principles of support mechanisms (including quality control and sanctions), if relevant	The use of support follows the procedure laid down in legislation of general application on the use of the European Structural Funds in the 2014-2020 programming period, in particular the European Regional Development Fund and State aid rules. Quality control and sanctions are set out in specific loan agreements. If renovation is carried out on the basis of a building permit, the applicant must submit an energy performance certificate after the actual completion of insulation as part of the final						
Compliance with criteria (under Article 7(10) of the Directive)	 approval process. (a) Act No 321/2014 established two transitional periods. The 4AP will evaluate the contribution made by policy measures and compliance with the trajectory for the energy savings target under Article 7 up to 2020. (b) Ministry responsible for the measure: Ministry of Agriculture and Rural Development. (c) Savings are determined transparently according to method (a) – ex ante and method (b) ex post. (d) Energy savings are shown in final energy consumption. (e) Savings are determined further to point 1(a) of Annex V, in accordance with point 2 of Annex V. (f) Not applicable; these are not policy measures under Article 7(9)(a), second subparagraph. (g) Not applicable, these are not voluntary agreements. (h) The results of the measure are continuously monitored and, if they are not sufficient, corrective measures will be taken. (i) The control system is implemented at MSEE IS level and as part of the preparation of action plans and annual reports. As measures are checked on a project-by-project basis, no statistically significant share of measures for checking was established. (j) Trends in savings will be set out in the annual reports on progress achieved towards national energy efficiency targets. 						

Formula to calculate energy savings							
Measure MSEE ID:	1.2.3 ŠFRB2017, ŠFRB2018,	Title of measure:	Improvements in the thermal performance of buildings –				
WISEE ID.	ŠFRB2019, ŠFRB2020		Apartment buildings				
Sector: Buildings Financial mechanism: - IROP 2014-2020							
$ÚS_{i\ pl\acute{a}n} = (P_{pred} - P_{po}) \bullet CPP$							

 $ÚS_{i,plan}$ – planned energy saving (final energy consumption) in the year of building renovation [kWh/a];

 P_{pred} – energy requirement for the building prior to renovation – standardised energy requirement for the original condition of the building [kWh/(m².a)];

 P_{po} - energy required for a building after renovation - standardised heat requirement for the post-renovation condition [kWh/(m².a)];

CPP - total floor area of the building [m²].

Measure	1.2.4					Improvements in the thermal		
MSEE ID:				e of measure:		performance of buildings – Apartment buildings		
Sector:	Buildings			ncial mechan	ism:	own funds, government premiums, commercial banks		
Measure lasting from: (year)	2014			year)		2020		
Responsible:	Ministry of Transport and Construction			sure to comp cle 7 of Direc 2/27/EU:		Yes		
·				cy measure cl	assification:	Article 7(9)(b) Article 7(9)(c) Article 7(9)(f)		
Lifetime of measure (years):				npliance with A	Article 7(10)	Yes		
Form of energy: Breakdown (%) by form of energy	Natural gas 53.13 %	Electricity 21.66 %		Heat 21.91 %	Other: 3.30 %	Statistical Office – Energy Sector 2014		
Characteristics of the measure (including eligible activities)	other energy exith the renoval Nature of meas (b) fiscal stimul (c) legislative buildings unde buildings, the highest distribution system (b) training, edu. The activities exit (a) improduction (b) hydron (c) hydron (d) measure comply	officiency mator's own fusure: ii – governmoregulations regulations regulations and in thermal experience over the control of	at required for space heating and achnical systems, financed mainly schemes. society saving schemes; angs — minimum requirements for of minimum requirements for new ibution, the insulation of hot water ative heat consumption under Act is supplied with district heating); and information campaigns. buildings (energy performance district valves; aution systems; connection with the obligation to ed building systems supplied with					
Evaluation of the measure	district heating. Bottom-up, via individual projects							
Methods for the calculation of savings (in accordance with Annex V(1) to the EED ⁶ and Implementing Decree No 327/2015)	Methods for the calculation of energy savings for activities under point (a): (a) ex ante – projected savings – the original and new condition of a building is determined on the basis of a project evaluation of the energy required for space heating, drawn up by a professionally competent person (designer) according to technical standards (in particular STN EN ISO 13790/NA, STN EN 15603, STN 730540) by reference to the existing and proposed thermal performance of the building; Methods for the calculation of energy savings for activities under points (a) to (d):							
	(c) ex po extent	ost – saving to which the	gs m e buil	easured after ding is used, p	project implem olus climate imp	nentation, taking into account the acts;		
Detailed description of the method to calculate energy savings	insurance) is dits original cond Energy saving previous poin measurements Energy consun accordance we calculated as to the implement following the ir least 5 % and Article 7 of the account via deachieved by under the properties. Energy of a building ar	etermined a dition and a s from oth t, are de before an option data ith Section he different emplementat not more Directive. egree days ser behaving gy savings and, in order	as the fter refer actermind after is properly after the electron of the cour a of months as to as	e difference in enovation, acceptivities, such ned by the er the implemovided by apa 2) of Act Notween average efficience 20 %, the fue calculation cargy savings and are not core than 20 % void duplication.	a the apartment cording to the er as a major re actual energy mentation of the treent building a 321/2014 on the energy consucy measure and the energy saving of less than 5 bunted towards are generally an with savings of the energy saving an with savings of the energy saving of the	mance of buildings (activity (a) – building's energy requirements in nergy performance certificate. novation of a building under the y consumption, established by e energy efficiency EE measure. owners/managers to the MSEE in energy efficiency. Savings are umption over the three years prior d energy consumption in the year ings calculated in this way are at ounted towards the target under gs, climate impacts are taken into % are considered to be savings the target under Article 7 of the ichievable by the major renovation determined by energy certification, of the Directive.		

⁶ EED – Directive 2012/27/EU on energy efficiency

	Yes				
Use of expert estimates and assumptions in the calculation of energy savings	In the calculation of energy savings, the average energy requirements applicable to the building in its original condition (based on the year of construction and the technical standards applicable to the given building category at the time) will be used. The average figure for the original condition of the building is a value corresponding to the upper limit of energy class D (Implementing Decree of the Ministry of Transport and Construction No 364/2012). Estimates need to be used as no data on the original condition of renovated buildings is available and additional surveying of energy consumption data is demanding and unreasonably costly. In the calculation of energy requirements and for activity (a), the average degree days applicable to the whole of Slovakia and other technical coefficients specified in the relevant technical standards (in particular STN EN ISO 13790/NA, STN EN 15603, and STN 730540) are used. In the calculation of energy savings according to actual consumption (activities (b) to (d)), the value of degree days for the district to which the building specifically belongs is used.				
Monitoring, control and verification of the energy savings made	Monitoring – carried out via the MSEE IS (the energy efficiency monitoring system operated by the Slovak Innovation and Energy Agency). Actual energy consumption data is entered in the MSEE by the apartment building owner/manager. Data is entered in the INFOREG system by professionally competent persons responsible for energy performance certificates. INFOREG automatically (systemically) checks the data entered. Data on energy requirements (energy performance certificates) is exported, data formatted, from the INFOREG system to the energy efficiency monitoring system (MSEE). Checks are then also conducted as part of the preparation of action plans and the annual report. As measures are checked on a project-by-project basis, there was no need to establish a statistically significant share of measures to be checked.				
Overall evaluation and way forward	The measure will continue in the coming period. This change will tighten minimum requirements for buildings undergoing renovation further to Act No 555/2005 and Implementing Decree No 364/2012.				
Projected overlapping with another measure – duplication	There is a potential overlap with measures 1.2.1 to 1.2.3.				
Method to avoid duplication	This measure (1.2.4) also takes into account the results for measures 1.8, 1.9, 1.10 and 1.11, taken together, which are not quantified separately in order to avoid duplication. In the identification of savings for apartment buildings with an allowance from the State Housing Development Fund, the relevant saving is included in measures 1.2.1 to 1.2.3 due to the quite specific source of funding. The duplication of the energy savings made by overlapping measures is prevented by processing energy savings identified for individual apartment buildings on a project-by-project basis, i.e. for each apartment building. Savings are included in only one of the measures, according to the above-mentioned priorities				
montos to avois duplication	The duplication of the energy savings made by overlapping measures is prevented by processing energy savings identified for individual apartment buildings on a project-by-project basis, i.e. for each apartment building. Savings are included in only one of the measures,				
	The duplication of the energy savings made by overlapping measures is prevented by processing energy savings identified for individual apartment buildings on a project-by-project basis, i.e. for each apartment building. Savings are included in only one of the measures, according to the above-mentioned priorities.				
	The duplication of the energy savings made by overlapping measures is prevented by processing energy savings identified for individual apartment buildings on a project-by-project basis, i.e. for each apartment building. Savings are included in only one of the measures,				
	The duplication of the energy savings made by overlapping measures is prevented by processing energy savings identified for individual apartment buildings on a project-by-project basis, i.e. for each apartment building. Savings are included in only one of the measures, according to the above-mentioned priorities. oses of Article 7 of Directive 2012/27/EU				
	The duplication of the energy savings made by overlapping measures is prevented by processing energy savings identified for individual apartment buildings on a project-by-project basis, i.e. for each apartment building. Savings are included in only one of the measures, according to the above-mentioned priorities. OSES OF Article 7 of Directive 2012/27/EU Project implementation contributes to savings for the final customer. Under the Act on Building Society Savings Schemes (Act No 310/1992), Slovakia grants government premiums for building society savings schemes, with funding earmarked annually in the central government budget. Compliance with the conditions of building society savings				
Information for the purp Materiality of the measure (Annex V, point 2(c), to the	The duplication of the energy savings made by overlapping measures is prevented by processing energy savings identified for individual apartment buildings on a project-by-project basis, i.e. for each apartment building. Savings are included in only one of the measures, according to the above-mentioned priorities. OSES OF Article 7 OF Directive 2012/27/EU Project implementation contributes to savings for the final customer. Under the Act on Building Society Savings Schemes (Act No 310/1992), Slovakia grants government premiums for building society savings schemes, with funding earmarked annually in the central government budget. Compliance with the conditions of building society savings schemes is supervised by the Ministry of Finance. The hydronic balancing of space heating and hot water distribution systems and the installation of appropriate thermal insulation for heat and hot water distribution systems are obligations laid down by Act No 321/2014 on energy efficiency for buildings with a total floor				
Information for the purp	The duplication of the energy savings made by overlapping measures is prevented by processing energy savings identified for individual apartment buildings on a project-by-project basis, i.e. for each apartment building. Savings are included in only one of the measures, according to the above-mentioned priorities. OSES OF Article 7 of Directive 2012/27/EU Project implementation contributes to savings for the final customer. Under the Act on Building Society Savings Schemes (Act No 310/1992), Slovakia grants government premiums for building society savings schemes, with funding earmarked annually in the central government budget. Compliance with the conditions of building society savings schemes is supervised by the Ministry of Finance. The hydronic balancing of space heating and hot water distribution systems and the installation of appropriate thermal insulation for heat and hot water distribution systems are obligations laid down by Act No 321/2014 on energy efficiency for buildings with a total floor area of more than 1 000 m², to be fulfilled by the end of 2015 and 2017, respectively. Act No 657/2004 on thermal energy (Article 25(1)) establishes the obligation for the final heat customer to comply with normative heat consumption values according to a special regulation (Annex 2 to the Implementing Decree of the Regulatory Office for Network Industries				
Information for the purp Materiality of the measure (Annex V, point 2(c), to the	The duplication of the energy savings made by overlapping measures is prevented by processing energy savings identified for individual apartment buildings on a project-by-project basis, i.e. for each apartment building. Savings are included in only one of the measures, according to the above-mentioned priorities. OSES OF Article 7 of Directive 2012/27/EU Project implementation contributes to savings for the final customer. Under the Act on Building Society Savings Schemes (Act No 310/1992), Slovakia grants government premiums for building society savings schemes, with funding earmarked annually in the central government budget. Compliance with the conditions of building society savings schemes is supervised by the Ministry of Finance. The hydronic balancing of space heating and hot water distribution systems and the installation of appropriate thermal insulation for heat and hot water distribution systems are obligations laid down by Act No 321/2014 on energy efficiency for buildings with a total floor area of more than 1 000 m², to be fulfiilled by the end of 2015 and 2017, respectively. Act No 657/2004 on thermal energy (Article 25(1)) establishes the obligation for the final heat customer to comply with normative heat consumption values according to a special regulation (Annex 2 to the Implementing Decree of the Regulatory Office for Network Industries No 328/2005). To implement measures of the Energy Efficiency Policy (adopted under Government Resolution No 576 of 4 July 2007), Slovakia introduced a coherent system to raise awareness of energy efficiency, which includes the provision of free consulting by the Slovak Innovation and Energy Agency financed annually by the budget heading of the Ministry of Economy and the EU Structural Funds (mainly via the national 'Living with Energy' project). In addition to individual and group consulting on how to reduce energy requirements in single-family buildings, publications have been issued and disseminated, such as 'Insulation and Window Replacement in Single				
Information for the purp Materiality of the measure (Annex V, point 2(c), to the	The duplication of the energy savings made by overlapping measures is prevented by processing energy savings identified for individual apartment buildings on a project-by-project basis, i.e. for each apartment building. Savings are included in only one of the measures, according to the above-mentioned priorities. OSES OF Article 7 of Directive 2012/27/EU Project implementation contributes to savings for the final customer. Under the Act on Building Society Savings Schemes (Act No 310/1992), Slovakia grants government premiums for building society savings schemes, with funding earmarked annually in the central government budget. Compliance with the conditions of building society savings schemes is supervised by the Ministry of Finance. The hydronic balancing of space heating and hot water distribution systems and the installation of appropriate thermal insulation for heat and hot water distribution systems are obligations laid down by Act No 321/2014 on energy efficiency for buildings with a total floor area of more than 1 000 m², to be fulfilled by the end of 2015 and 2017, respectively. Act No 657/2004 on thermal energy (Article 25(1)) establishes the obligation for the final heat customer to comply with normative heat consumption values according to a special regulation (Annex 2 to the Implementing Decree of the Regulatory Office for Network Industries No 328/2005). To implement measures of the Energy Efficiency Policy (adopted under Government Resolution No 576 of 4 July 2007), Slovakia introduced a coherent system to raise awareness of energy efficiency, which includes the provision of free consulting by the Slovak Innovation and Energy Agency financed annually by the budget heading of the Ministry of Economy and the EU Structural Funds (mainly via the national 'Living with Energy' project). In addition to individual and group consulting on how to reduce energy requirements in single-family buildings, publications have been issued and disseminated, such as 'Insulation and Window Replacement in Single-				

State not intervened, i.e. they would only have dealt with any serious disrepair and energysaving measures with a reasonable payback period (e.g. window replacement). The measure takes into account total energy savings, representing the difference between the original and the new condition of the building, because the minimum requirements for buildings undergoing major renovation are set at the level of the minimum requirements for new buildings, which in the case of renovated buildings is not always technically, functionally and economically feasible. Any savings made by replacing existing light sources are not included among energy savings based on energy performance certificate data because the point of lighting consumption is not assessed in apartment buildings. Potential savings that can be achieved by replacing an existing heat source with a more modern new one to which the Ecodesign Directive might apply are not individually identifiable from available energy performance certificate data and, according to expert estimates, are negligible compared with the energy savings achievable by means of insulation. If the renovation of an apartment building is carried out on the basis of a building permit, the applicant must submit an energy performance certificate after the actual completion of insulation as part of the final approval process. If a building undergoes major renovation, minimum energy performance requirements should be achieved if technically, functionally and economically feasible. This is checked in the final Compliance with legislation approval procedure. If the fulfilment of requirements is not technically, functionally and and principles of support economically feasible, this is already evident when the project for the issuance of a building mechanisms (including permit is submitted, and the competent building authority decides whether non-compliance quality control and with the minimum requirements is justified. If it is not justified, no building permit is issued. sanctions), if relevant The implementation of energy efficiency measures by means of the hydronic balancing of space heating and hot water distribution systems, and by fitting heat and hot water distribution systems with appropriate thermal insulation in accordance with Act No 321/2014 on energy efficiency is checked by the Slovak Trade Inspectorate, which imposes the sanctions provided for by this Act if the obligation is not fulfilled. Act No 321/2014 established two transitional periods. The 4AP will evaluate the contribution made by policy measures in the first transitional period (2014-2016) and compliance with the trajectory for the energy savings target under Article 7 by 2020. Ministry responsible for the measure: Ministry of Transport and Construction. Savings are determined transparently according to method (a) ex ante and method (b) ex post. Energy savings are shown in final energy consumption. Savings are determined further to point 1(a) and (b) of Annex V, in accordance with point 2 of Annex V. Compliance with criteria Not applicable; these are not policy measures under Article 7(9)(a), second (under Article 7(10) of the subparagraph. Directive) Not applicable, these are not voluntary agreements. The results of the measure are continuously monitored and, if they are not sufficient, (h) corrective measures will be taken. The control system is implemented at MSEE IS and INFOREG IS level and as part of the preparation of action plans and annual reports. As measures are checked on a project-by-project basis, no statistically significant share of measures for checking was established. Trends in savings will be set out in the annual reports on progress achieved towards national energy efficiency targets.

Formula to calculate energy savings						
Measure MSEE ID:	1.2.4	Title of measure:	Improvements in the thermal performance of buildings – Apartment buildings			
Sector:	Buildings	Financial mechanism:	own funds, government premiums, commercial banks			
$ÚS_{i_pl\acute{a}n} = (P_{pred} - P_{po}) \bullet CPP$						

where, for the calculation of savings under activities referred to in point (a) (thermal insulation – energy performance certificates):

ÚS i plán – planned energy saving (final energy consumption) in the year of building renovation [kWh/a];

 P_{pred} – energy requirement for the building prior to renovation – standardised energy requirement for the original condition of the building [kWh/(m².a)];

 P_{po} – energy required for a building after renovation – standardised heat requirement for the post-renovation condition [kWh/(m².a)];

CPP - total floor area of the building [m2].

	$ \acute{\text{U}}S_{i_\text{skut}} = \left(S_{pred} - S_{po}\right) $					
where, for	where, for the calculation of savings under activities referred to in points (b) to (d):					
ÚS _{i_skut} –	actual energy saving (final energy consumption) after a year of implementation of the energy efficiency measure [kWh/a];					
S _{pred} -	average annual energy consumption (typically over three years) for the building before the implementation of energy efficiency measures – energy consumption measured for the original condition [kWh/a];					
S _{po} -	annual energy consumption for the building after the implementation of energy efficiency measures – energy consumption measured for the condition after the implementation of energy efficiency measures, corrected for degree days, typically for at least one year after the implementation of the energy efficiency measures [kWh/a]					

Measure	1.2.5					Improvements in the thermal		
MSEE ID:				le of measure	:	performance of buildings – Apartment buildings		
Sector:	Buildings		Fin	ancial mechan	ism:	SlovSEFF II		
Measure lasting from: (year)	2010			to: (year)		2016		
Responsible:	Ministry of Eco	nomy	Art 201	asure to complicte 7 of Direct 12/27/EU:	tive	Yes Article 7(9)(b)		
Lifetime of measure (years):	>7			icy measure cl mpliance with		Yes		
Form of energy:	Natural gas	Electricity	_	Heat Other:		100		
Breakdown (%) by form of	53.13 %	21.66		21.91 %	3.30 %	Statistical Office – Energy		
energy						Sector 2014		
	and after the rethe total energy Nature of meas	enovation (y supplied p sure:	reco	nstruction) of t to renovation	he building, that	n the total energy supplied before needs to be achieved is 15 % of soft starting sustainable energy		
Characteristics of the measure (including eligible activities)	projects, has been developed by the European Bank for Reconstruction a Development (EBRD). SlovSEFF was launched with a value of EUR 60 million a was extended in 2010 with additional funding sources of EUR 90 million from t EBRD, intended for local banks. The funding source for grants and technic assistance was the Bohunice International Decommissioning Support Fund (BIDSI The contribution takes the form of a loan via contracted commercial banks. If t required level of energy savings is achieved, the grant is 10 %. If the level of ener savings achieved is 15 %, the grant is up to 25 %. If the level of energy savin achieved is more than 25 %, the grant is up to 15 %. Supported/eligible activities are mainly focused on: — improvement in the thermal insulating properties of building cladding, investments building boiler rooms, exchanger stations or microcogeneration, the regulation of cent and local heating systems, secondary heat measurement, insulation of energy distribution systems in the building, efficient heating bodies, energy efficient hot water production buildings, the use of alternative energy sources in buildings							
Evaluation of the measure	Bottom-up, via individual projects							
Methods for the calculation of savings (in accordance with Annex V(1) to the EED ⁷ and Implementing Decree No 327/2015)	Methods for the calculation of energy savings: (a) ex ante – projected savings – the original and new condition of a building is determined on the basis of a project evaluation of the energy required for space heating, drawn up by a professionally competent person (designer) according to technical standards (in particular STN EN ISO 13790/NA, STN EN 15603, STN 730540) by reference to the existing and proposed thermal performance of the building; (b) ex post – savings measured after project implementation, taking into account the							
Detailed description of the method to calculate energy savings	extent to which the building is used, plus climate impacts; The energy saving is the difference between the heat required for space heating in the original condition of the apartment building and the heat required for space heating after its renovation, as set out in the renovation project. Only apartment buildings that have actually undergone and completed insulation in a given year are counted towards the savings target for that calendar year. Buildings that have signed a loan agreement or draw on a loan during renovation but do not complete renovation are not counted.							
Use of expert estimates and assumptions in the calculation of energy savings	applicable to t technical standare used.	he whole o dards (in pa	f Slo articu	ovakia and oth lar STN EN IS	er technical coe SO 13790/NA, S	/ (a), the average degree days efficients specified in the relevant TN EN 15603, and STN 730540)		
Monitoring, control and verification of the energy savings made	the Slovak Inn operator with e Checks are als measures are statistically sign	ovation and energy cons so conducte checked on ificant sha	d Engling description and the description of the description and t	ergy Agency). tion data for five part of the preed project-by-preed measures to be	The building may be years. eparation of action oject basis, the be checked.	cy monitoring system operated by anager/owner provides the MSEE on plans and the annual report. As are was no need to establish a		
Overall evaluation and way forward	energy audit by	y the desigr	n cor	sultant.		ce, including the production of an		
Projected overlapping with	The SlovSEFF None foreseen		will	be replaced by	a very similar m	neasure, SlovSEFF III (1.2.6).		
another measure –	NOTE TOTESEED	•						

⁷ EED – Directive 2012/27/EU on energy efficiency

duplication							
Method to avoid duplication	The duplication of energy savings is generally prevented by processing energy savings identified for individual apartment buildings on a project-by-project basis, i.e. for each apartment building. Savings are included in only one of the relevant measures.						
Information for the purp	oses of Article 7 of Directive 2012/27/EU						
	Project implementation contributes to savings for the final customer.						
Materiality of the measure (Annex V, point 2(c), to the EED)	Activity carried out by the Ministry of Economy, as the BIDSF administrator, is demonstrably material, particularly the provision of financial resources and the control of the process for the use of those funds.						
	Complementarity is not applicable.						
Complementarity of the measure	The measure would not be implemented without a funding scheme. Were it not for State intervention, projects would not be implemented to the existing extent. They would only deal with any serious disrepair and energy-saving measures with a reasonable payback period (e.g. window replacement).						
Compliance with legislation and principles of support mechanisms (including quality control and sanctions), if relevant	Projects are implemented in accordance with SlovSEFF II conditions. The minimum energy saving that needs to be achieved is 15 % of the total energy supplied, established prior to renovation; this is determined as the difference in the total energy supplied before and after the renovation (reconstruction) of the building. If energy savings of 15-20 are achieved, a grant of 10 % of the loan can be claimed. If energy savings of 25 % a achieved, a grant of 15 % of the loan can be claimed. Eligibility for a grant is confirmed by the design consultant.						
Compliance with criteria (under Article 7(10) of the Directive)	 (a) Act No 321/2014 established two transitional periods. The 4AP will evaluate the contribution made by policy measures in the first transitional period (2014-2016) and compliance with the trajectory for the energy savings target under Article 7 by 2020. (b) Ministry responsible for the measure: Ministry of Economy. (c) Savings are determined transparently according to the <i>ex ante</i> and <i>ex post</i> methods. (d) Energy savings are shown in final energy consumption. (e) Savings are determined further to point 1(a) and (b) of Annex V, in accordance with point 2 of Annex V to the EED. (f) Not applicable; these are not policy measures under Article 7(9)(a), second subparagraph. (g) Not applicable, these are not voluntary agreements. (h) The results of the measure are continuously monitored and, if they are not sufficient, corrective measures will be taken. (i) The control system is implemented at programme level (design and verification consultant) and as part of the preparation of action plans and annual reports. As measures are checked on a project-by-project basis, no statistically significant share of measures for checking was established. (j) Trends in savings will be set out in the annual reports on progress achieved towards national energy efficiency targets. 						

Formula to calculate energy savings						
Measure MSEE ID:	1.2.5	Title of measure:	Improvements in the thermal performance of buildings – Apartment buildings			
Sector:	Buildings	Financial mechanism:	SlovSEFF II			
$ÚS_{i_pl\acute{a}n} = P_{pred} - P_{po}$						

 $\acute{\text{US}}_{\, \tiny{\text{Lplán}}}$ – planned energy saving (final energy consumption) in the year of building reconstruction [kWh/a];

 P_{pred} - energy requirement for the building prior to reconstruction - standardised energy requirement for the original condition of the building [kWh/a];

 P_{po} – energy requirement for the building prior to reconstruction – standardised energy requirement for the new condition of the building [kWh/a];

Note: If the energy saving is provided by the programme consultant as a resultant value in GJ or %, that value is used, after conversion to a unified physical unit, in the pursuit of the target under Article 7 of the Directive.

Measure	1.2.6					Improvements in the thermal	
MSEE ID:			Title	e of measure:		performance of buildings – Apartment buildings	
Sector:	Buildings		Fina	ancial mechani	ism:	SlovSEFF III	
Measure lasting from: (year)	2014		to: (year)			2020	
Responsible:	Ministry of the Environment			asure to comp icle 7 of Direc 2/27/EU:	tive	Yes	
1.0.0	<u> </u>			cy measure cl		Article 7(9)(b)	
Lifetime of measure (years): Form of energy:	>7 Natural gas	Electricity	Cor	npliance with A	Other:	Yes	
Breakdown (%) by form of			,			Statistical Office – Energy	
energy	53.13 %	21.66 %	6	21.91 %	3.30 %	Sector 2014	
Characteristics of the measure (including eligible activities)	sustainable energy projects develop and Development (EBRD) in coopers Slovak Republic and the Ministry of A which finance programme grants and The EBRD provided EUR 40 millior provided EUR 5 693 800 for grant assistance (consulting, energy audit intended for apartment buildings. The loan is granted by contracted of a grant upon reaching the required the profits of innovative emission Spanish governments. Under the term of the sale of permits to projects emissions in Slovakia. Only private sector entities, including eligible applicants. Supported/eligible activities are mainly focused improvements in the thermal performar thermal insulation of the external skin measures such as: highly efficient ventila cogeneration, heat transfer stations are				is a loan-based instrument for the financing of eloped by the European Bank for Reconstruction teration with the Ministry of the Environment of the of Agriculture, Food and the Environment of Spain, and technical assistance. Ition for loan financing. The Spanish government ants and another EUR 2 million for technical diting arrangements, etc.). Of this, about 20 % is commercial banks and the applicant is entitled to d level of energy savings. Grants are funded from on credit transactions between the Slovak and terms of the contract, Slovakia allocated profits ets aimed at reducing additional greenhouse gas adding housing companies and cooperatives, are		
	heating, th —	e insulation	n of h	neat and hot w	ater distribution	systems	
Evaluation of the measure	Bottom-up, via individual projects						
Methods for the calculation of savings (in accordance with Annex V(1) to the EED ⁸ and Implementing Decree No 327/2015)	Methods for the calculation of energy savings: (a) ex ante – projected savings – the original and new condition of a building is determined on the basis of a project evaluation of the energy required for space heating, drawn up by a professionally competent person (designer) according to technical standards (in particular STN EN ISO 13790/NA, STN EN 15603, STN 730540) by reference to the existing and proposed thermal performance of the building; (b) ex post – savings measured after project implementation, taking into account the						
Detailed description of the method to calculate energy savings	extent to which the building is used, plus climate impacts; The energy saving is the difference between the heat required for space heating in the origin condition of the apartment building and the heat required for space heating after its renovation as set out in the renovation project. Only apartment buildings that have actually undergo and completed insulation in a given year are counted towards the savings target for the calendar year. Buildings that have signed a loan agreement or draw on a loan durit renovation but do not complete renovation are not counted.						
Use of expert estimates and assumptions in the calculation of energy savings	applicable to the technical standare used.	ne whole o ards (in pa	f Slo	vakia and othe ar STN EN IS	er technical coe O 13790/NA, S	(a), the average degree days efficients specified in the relevant TN EN 15603, and STN 730540)	
Monitoring, control and verification of the energy savings made	the Slovak Inno operator with e	ovation and nergy cons	l Ene umpt	ergy Agency). ion data for fiv	The building ma e years.	n plans and the annual report. As	

⁸ EED – Directive 2012/27/EU on energy efficiency

	measures are checked on a project-by-project basis, there was no need to establish a statistically significant share of measures to be checked.			
Overall evaluation and way forward	The measure will continue in the coming period.			
Projected overlapping with another measure – duplication	None foreseen.			
Method to avoid duplication	The duplication of energy savings is generally prevented by processing energy savings identified for individual apartment buildings on a project-by-project basis, i.e. for each apartment building. Savings are included in only one of the relevant measures.			
Information for the purp	oses of Article 7 of Directive 2012/27/EU			
	Project implementation contributes to savings for the final customer.			
Materiality of the measure (Annex V, point 2(c), to the EED)	The activity of the Ministry of the Environment, as the ministry responsible for the sale of emission permits, from the proceeds of which grants are financed under the funding scheme in question, is demonstrably material, in particular by securing financial resources and controlling the process for the use of those funds.			
	Complementarity is not applicable.			
Complementarity of the measure	The measure would not be implemented without a funding scheme. Were it not for State intervention, projects would not be implemented to the existing extent. They would only deal with any serious disrepair and energy-saving measures with a reasonable payback period (e.g. window replacement).			
Compliance with legislation and principles of support mechanisms (including quality control and sanctions), if relevant	Projects are implemented in accordance with SlovSEFF III conditions. The minimum energy saving that needs to be achieved is 30 % of the total energy supplied, as established prior to renovation; this is determined as the difference in the total energy supplied before and after the renovation (reconstruction) of the building. If energy savings of 30-40 % are achieved, a grant of 10 % of the loan can be claimed. If energy savings of 40 % are achieved, a grant of 15 % of the loan can be claimed. Eligibility for a grant is confirmed by the verification consultant (ALLPLAN).			
Compliance with criteria (under Article 7(10) of the Directive)	 (a) Act No 321/2014 established two transitional periods. The 4AP will evaluate the contribution made by policy measures in the first transitional period (2014-2016) and compliance with the trajectory for the energy savings target under Article 7 by 2020. (b) Ministry responsible for the measure: Ministry of the Environment. (c) Savings are determined transparently according to method (a) ex ante and method (b) ex post. (d) Energy savings are shown in final energy consumption. (e) Savings are determined further to point 1(a) of Annex V, in accordance with point 2 of Annex V. (f) Not applicable; these are not policy measures under Article 7(9)(a), second subparagraph. (g) Not applicable, these are not voluntary agreements. (h) The results of the measure are continuously monitored and, if they are not sufficient, corrective measures will be taken. (i) The control system is implemented at programme level (design and verification consultant) and as part of the preparation of action plans and annual reports. As measures are checked on a project-by-project basis, no statistically significant share of measures for checking was established. (j) Trends in savings will be set out in the annual reports on progress achieved towards national energy efficiency targets. 			

Formula to calculat	e energy savings				
Measure	1.2.6		Improvements in the thermal		
MSEE ID:		Title of measure:	performance of buildings – Apartment buildings		
Sector:	Buildings	Financial mechanism:	SlovSEFF III		
	$US_{i nlin} = P_{nred} - P_{ne}$				

ÚS i_plán - planned energy saving (final energy consumption) in the year of building reconstruction [kWh/a];

 P_{pred} - energy requirement for the building prior to reconstruction - standardised energy requirement for the original condition of the building [kWh/a];

 P_{po} – energy requirement for the building prior to reconstruction – standardised energy requirement for the new condition of the building [kWh/a];

Note: If the energy saving is provided by the programme consultant as a resultant value in GJ or %, that value is used, after conversion to a unified physical unit, in the pursuit of the target under Article 7 of the Directive.

Measure	1.2.7					Improvements in the thermal
MSEE ID:			Title	e of measure	:	performance of buildings (apartment buildings)
Sector:	Buildings		Fina	ancial mechan	ism:	MunSEFF
Measure lasting from:	2011		to: (year)		2015
(year) Responsible:	Ministry of Transport and		Mea Arti 201	asure to com cle 7 of Direc 2/27/EU:	tive	Yes
Lifetime of measure (years):	>7			cy measure cl npliance with		Article 7(9)(b) Yes
Form of energy:	Natural gas	Electricity	COI	Heat	Other:	163
Breakdown (%) by form of energy	53.13 %	21.66 %	6	21.91 %	3.30 %	Statistical Office – Energy Sector 2014
Characteristics of the		structure, e buildings se	speci			he energy-efficient renovation of nigh potential to achieve savings in
Characteristics of the measure (including eligible activities)	and renewable Supported/eligi	e energy so ble activitie	urces s are	among towns mainly focus	s and municipal ed on:	ent of energy efficiency lities in Slovakia;
Fuglishing of the groups	buildings - and transp	 heat prod parent parts 	uctio of th	n for space he ne building env	eating and water	r efficiency projects for apartment in heating, replacement of windows insulation of the external skin
Evaluation of the measure	Bottom-up, via Methods for the				\·	
Methods for the calculation of savings (in accordance with Annex V(1) to the EED ⁹ and Implementing Decree No 327/2015)	acco time, requi (desi STN the b (b) ex p exter	according to the year of construction and the technical standards applicable at the time, and the new condition of the building, using a project evaluation of the energy required for space heating, drawn up by a professionally competent person (designer) according to technical standards (in particular STN EN ISO 13790/NA, STN EN 15603, STN 730540) by reference to the existing thermal performance of the building				
Detailed description of the method to calculate energy savings	implementation the measure. D depends on mi	implementation of the measure and energy consumption planned after the implementation of the measure. Data on energy consumption is part of the grant application. Grant eligibility depends on minimum energy savings of 30 % compared to the original energy consumption. Yes				
Use of expert estimates and assumptions in the calculation of energy savings	In the calculation of energy savings for projects where measured energy consumption data is still not available after the implementation of the measure, expert estimates will be used in the preparation of the project by professionally competent persons (energy auditors or designers) according to the type of project by determining the energy consumption after the implementation of the measure, by reference to knowledge on the current state of the art and the projected developments in science and technology.					
Monitoring, control and verification of the energy savings made	The verification consultant (ALLPLAN) monitors the achievement of the planned energy consumption. Data for the energy efficiency monitoring system operator is provided by the design consultant (ENVIROS/ESG). Checks are also conducted as part of the preparation of action plans and the annual report. As measures are checked on a project-by-project basis, there was no need to establish a statistically significant share of measures to be checked.					
Overall evaluation and way forward						ovSEFF III is relevant to apartment
Projected overlapping with another measure – duplication	None foreseen					
Method to avoid duplication	identified for apartment build	individual a ding. Saving	apart gs are	ment building e included in c	s on a project only one of the r	d by processing energy savings ct-by-project basis, i.e. for each elevant measures.
Information for the purp						
Materiality of the measure (Annex V, point 2(c), to the EED)	The MunSEFF support providers are the European Bank for Reconstruction and Development and the European Commission. The programme implementers are Slovenská sporiteľňa a.s. and Všeobecná úverová banka a.s. For projects to improve the energy efficiency of apartment buildings, the design consultant (ESG/ENVIROS) conducts an energy audit. If the client already has a clearly defined project					ters are Slovenská sporiteľňa a.s. t buildings, the design consultant

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 $^{^{9}}$ EED – Directive 2012/27/EU on energy efficiency

	scope presented in the appropriate form, the design consultant proceeds directly to the production of a Rational Energy Utilisation Plan (REUP), which includes the results of the energy audit, and describes the financing plan and timetable for implementation. It also incorporates proposed measures related to the investor's plan, as well as compliance with environmental standards. If required, the design consultant assists the client when applying for a loan. The activities of these entities are demonstrably material to the achievement of the planned energy savings.
Complementarity of the measure	Complementarity is not applicable. The measure would not be implemented without a funding scheme. Were it not for intervention by the EBRD and the Commission, projects would not be implemented to the existing extent. They would only deal with any serious disrepair and energy-saving measures with a reasonable payback period (e.g. window replacement).
Compliance with legislation and principles of support mechanisms (including quality control and sanctions), if relevant	Grant levels relative to the loan principal are set according to the components of each project: component 2 – the grant level ranges from 10 % to 15 % of the loan principal
Compliance with criteria (under Article 7(10) of the Directive)	 (a) Act No 321/2014 established two transitional periods. The 4AP will evaluate the contribution made by policy measures in the first transitional period (2014-2016) and compliance with the trajectory for the energy savings target under Article 7 by 2020. (b) Ministry responsible for the measure: Ministry of Transport and Construction. (c) Savings are determined transparently according to method (a) – ex ante and method (b) ex post. (d) Energy savings are shown in final energy consumption. (e) Savings are determined further to point 1(a) of Annex V, in accordance with point 2 of Annex V. (f) Not applicable; these are not policy measures under Article 7(9)(a), second subparagraph. (g) Not applicable, these are not voluntary agreements. (h) The results of the measure are continuously monitored and, if they are not sufficient, corrective measures will be taken. (i) The control system is implemented at programme level (design and verification consultant) and as part of the preparation of action plans and annual reports. As measures are checked on a project-by-project basis, no statistically significant share of measures for checking was established. (j) Trends in savings will be set out in the annual reports on progress achieved towards national energy efficiency targets.

Formula to calcula	te energy savings			
Measure MSEE ID:	1.2.7	Title of measure:	Improvements in the thermal performance of buildings (apartment buildings)	
Sector:	Buildings	Financial mechanism:	MunSEFF	
$ÚS_{i pl\acute{a}n} = P_{pred} - P_{po}$				

 $ÚS_{i_plán}$ – planned energy saving (final energy consumption) in the year in which improvements are made to the energy efficiency of an apartment building [GJ/a];

 $P_{\text{pred}} - \text{energy requirement for the project prior to renovation} - \text{for the original condition [GJ/a];} \\$

 P_{po} – energy requirement for the project after renovation – for the new condition [GJ/a];

Note: The energy saving is provided by the programme consultant as a resultant value in GJ. After conversion to a unified physical unit, that value is used in the pursuit of the target under Article 7 of the Directive

Measure	1.3.1					Improvements in the thermal
MSEE ID:			Titl	e of measure	:	performance of buildings – Office buildings (OB)
Sector:	Buildings		Fina	ancial mechan	ism:	own funds, commercial banks
Measure lasting from: (year)	2014			(year)		2020
Responsible:	Ministry of Trai	nsport and	Art	asure to com icle 7 of Direc 2/27/EU:		Yes
	Conouración		Poli	icy measure c	assification:	Article 7(9)(c) Article 7(9)(f)
Lifetime of measure (years):	>7		Cor	mpliance with	Article 7(10)	Yes
Form of energy:	Natural gas	Electricity		Heat	Other:	
Breakdown (%) by form of energy	54.35 %	17.50 %	%	27.46 %	0.69 %	Analysis of energy-saving potential in the public sector – December 2015
Characteristics of the		sure: regulations	- (6			ngs – minimum requirements for a par with minimum requirements
measure (including eligible activities)	The activities	valuated fo	cuse	d primarily on:		nd information campaigns.
Evaluation of the measure	Bottom-up, via	individual r	roie	cts		
Methods for the calculation of savings (in accordance with Annex V(1) to the EED ¹⁰ and Implementing Decree No 327/2015)	Methods for the calculation of energy savings: (a) ex ante – projected savings – the original and new condition of a building is determined on the basis of a project evaluation of the heat required for space heating, drawn up by a professionally competent person (designer) according to technical standards (in particular STN EN ISO 13790/NA, STN EN 15603, STN 730540) by reference to the existing and proposed thermal performance of the building;					
Detailed description of the method to calculate energy savings	The energy sa the difference after renovatio by the Ministr	The energy saving for improvements in the thermal performance of buildings is determined as the difference in the heat required for space heating in the building's original condition and after renovation, according to the energy performance certificate. The INFOREG IS operated by the Ministry of Transport, Construction and Regional Development is used as a data source.				
Application of expert estimates and assumptions in the calculation of energy savings	In the calculation of energy savings, the average heat requirements for space heating applicable to the building in its original condition (based on the year of construction and the technical standards applicable to the given building category at the time) will be used. The average figure for the original condition of the office building is a value corresponding to the upper limit of energy class D (Implementing Decree of the Ministry of Transport and Construction No 364/2012). Estimates need to be used as no data on the original condition of renovated office buildings is available and additional surveying of energy consumption data is demanding and unreasonably costly. In the calculation of heat required for space heating, the average degree days applicable to the whole of Slovakia and other technical coefficients specified in the relevant technical standards (in particular STN EN ISO 13790/NA, STN EN 15603, and STN 730540) are used.					
Monitoring, control and verification of the energy savings made	Monitoring – carried out via the INFOREG and MSEE IS (the energy efficiency monitoring system operated by the Slovak Innovation and Energy Agency). Data is entered in the INFOREG system by professionally competent persons responsible for energy performance certificates. INFOREG automatically (systemically) checks the data entered. Data on energy requirements (energy performance certificates) is exported, data formatted, from INFOREG to MSEE. Under Section 11(2) of Act No 321/2014 on energy efficiency, the MSEE operator may ask the owner/manager of a building with a total floor area of more than 1 000 m² to provide energy consumption data for the previous calendar year. Checks are then also conducted as part of the preparation of action plans and the annual report. As measures are checked on a project-by-project basis, there was no need to establish a statistically significant share of measures to be checked.					
Overall evaluation and way forward	requirements Implementing I	for buildir Decree No	ngs 364/2	undergoing 2012.	renovation furt	s change will tighten minimum her to Act No 555/2005 and
Projected overlapping with	There is a potential overlap with measures funded from the 2007-2013 Structural Funds, the					

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 $^{^{10}}$ EED – Directive 2012/27/EU on energy efficiency

another measure – duplication	2014-2020 ESIF and EPC for public sector office buildings.				
Method to avoid duplication	The duplication of the energy savings made by overlapping measures is prevented by the fact that energy savings presented for identifiable financial mechanisms (public sector measures) and related to office buildings are deducted in full from the savings determined for this measure (1.3.1).				
Information for the purp	oses of Article 7 of Directive 2012/27/EU				
	Project implementation contributes to savings for the final customer.				
	The introduction of the obligation to renovate buildings to the energy efficiency level of new buildings means that owners are forced to carry out renovation beyond the average measures they would take for a reasonable economic return.				
Materiality of the measure (Annex V, point 2(c), to the EED)	To implement measures of the Energy Efficiency Policy (adopted under Government Resolution No 576 of 4 July 2007), Slovakia introduced a coherent system to raise awareness of energy efficiency, which includes the provision of free consulting by the Slovak Innovation and Energy Agency financed annually by the budget heading of the Ministry of Economy and the EU Structural Funds (mainly via the national 'Living with Energy' project). In addition to individual and group consulting on how to reduce energy requirements in buildings, publications have been issued and disseminated, such as Insulation and Window Replacement in Office Buildings.				
	It is only through these State-initiated synergic support measures that investment activities in the renovation and construction of office buildings and in the modernisation and reconstruction of building technical systems have been significantly accelerated.				
	Complementarity is not applicable in the buildings sector.				
	The savings made by improvements in the thermal performance of buildings are only included if a major renovation is performed under an issued energy performance certificate that the owners would not have carried out to the required extent had the State not intervened, i.e. they would only have dealt with energy-saving measures with a short payback period (e.g. window replacement).				
Complementarity of the measure	The measure takes into account energy savings, representing the difference in the heat required for space heating between the original and the new condition of the building, because the minimum requirements for buildings undergoing major renovation are set at the level of the minimum requirements for new buildings, which in the case of renovated buildings is not always technically, functionally and economically feasible.				
	Potential savings that can be achieved by replacing an existing heat source with a more modern new one to which the Ecodesign Directive might apply, as well as potential savings from the modernisation and reconstruction of lighting, do not count towards energy savings.				
Compliance with legislation and principles of support mechanisms (including quality control and sanctions), if relevant	If a building undergoes major renovation, minimum energy performance requirements should be achieved if technically, functionally and economically feasible. This is checked in the final approval procedure. If the fulfilment of requirements is not technically, functionally and economically feasible, this is already evident when the project for the issuance of a building permit is submitted, and the competent building authority decides whether non-compliance with the minimum requirements is justified. If it is not justified, no building permit is issued.				
Compliance with criteria (under Article 7(10) of the Directive)	 (a) Act No 321/2014 established two transitional periods. The 4AP will evaluate the contribution made by policy measures in the first transitional period (2014-2016) and compliance with the trajectory for the energy savings target under Article 7 by 2020. (b) Ministry responsible for the measure: Ministry of Transport and Construction. (c) Savings are determined transparently according to method (a) – ex ante. (d) Energy savings are shown in final energy consumption. (e) Savings are determined further to point 1(a) of Annex V, in accordance with point 2 of Annex V. (f) Not applicable; these are not policy measures under Article 7(9)(a), second subparagraph. (g) Not applicable, these are not voluntary agreements. (h) The results of the measure are continuously monitored and, if they are not sufficient, corrective measures will be taken. (i) The control system is implemented at MSEE IS and INFOREG IS level and as part of the preparation of action plans and annual reports. As measures are checked on 				
	 a project-by-project basis, no statistically significant share of measures for checking was established. (j) Trends in savings will be set out in the annual reports on progress achieved towards national energy efficiency targets. 				

Formula to calculate energy savings				
Measure	1.3.1		Improvements in the thermal	
MSEE ID:		Title of measure:	performance of buildings – Office buildings	

Sector:	Buildings	Financial mechanism:	own funds, commercial banks
	$\acute{\mathrm{U}}S_{i_pl\acute{\mathrm{a}}n} =$	$(P_{pred} - P_{po}) \bullet CPP$	

where $ÚS_{i_plán}$ – planned energy saving (final energy consumption) in the year of building renovation [kWh/a]; P_{pred} – heat required for the space heating of a building prior to renovation – average heat required for space heating in the original condition condition [kWh/(m².a)]; P_{po} – heat required for space heating in the building after renovation, by reference to energy performance certificate data [kWh/(m².a)]; CPP – total floor area of the building, as per the energy performance certificate [m²].

Measure	1.3.4a		Title of managers			Improvements in the thermal	
MSEE ID:				e of measure:		performance of buildings – Hotels and restaurants	
Sector:	Buildings		Fina	ancial mechan	ism:	own funds, commercial banks	
Measure lasting from: (year)	2014			to: (year)		2020	
Responsible:	Ministry of Trai	nsport and	Arti	asure to comp icle 7 of Direc 2/27/EU:		Yes	
				cy measure cl		Article 7(9)(c) Article 7(9)(f)	
Lifetime of measure (years):	>7	1	Cor	npliance with /		Yes	
Form of energy:	Natural gas	Electricity		Heat	Other:		
Breakdown (%) by form of energy	40.02 %	42.84 %		4.91 %	12.22 %	Statistical Office, Slovstat	
Characteristics of the measure (including eligible activities)	Renovation of hotels and restaurants. Nature of measure: (c) legislative regulations – (energy performance of buildings – minimum requirements for buildings undergoing major renovation are established on a par with minimum requirements for new buildings); (f) training, education – consulting, seminars, conferences and information campaigns. The activities evaluated focused primarily on: (a) improvements in the thermal performance of buildings.						
Evaluation of the measure		Bottom-up, via individual projects					
Methods for the calculation of savings (in accordance with Annex V(1) to the EED ¹¹ and Implementing Decree No 327/2015)	Methods for the calculation of energy savings: (a) ex ante – projected savings – the original and new condition of a building is determined on the basis of a project evaluation of the heat required for space heating, drawn up by a professionally competent person (designer) according to technical standards (in particular STN EN ISO 13790/NA, STN EN 15603, STN 730540) by reference to the existing and proposed thermal performance of the building;						
Detailed description of the method to calculate energy savings	The energy saving for improvements in the thermal performance of buildings is determined as the difference in the heat required for space heating in the building's original condition and after renovation, according to the energy performance certificate. The INFOREG IS operated by the Ministry of Transport, Construction and Regional Development is used as a data source.						
Application of expert estimates and assumptions in the calculation of energy savings	In the calculation of energy savings, the average heat requirements for space heating applicable to the building in its original condition (based on the year of construction and the technical standards applicable to the given building category at the time) will be used. The average figure for the original condition of hotels and restaurants is a value corresponding to the upper limit of energy class D (Implementing Decree of the Ministry of Transport and Construction No 364/2012). Estimates need to be used as no data on the original condition of renovated hotels and restaurants is available and additional surveying of energy consumption data is demanding and unreasonably costly. In the calculation of heat required for space heating, the average degree days applicable to the whole of Slovakia and other technical coefficients specified in the relevant technical standards (in particular STN EN ISO 13790/NA, STN EN 15603, and STN 730540) are used. Monitoring – carried out via the INFOREG and MSEE IS (the energy efficiency monitoring						
Monitoring, control and verification of the energy savings made	Monitoring – carried out via the INFOREG and MSEE IS (the energy efficiency monitoring system operated by the Slovak Innovation and Energy Agency). Data is entered in the INFOREG system by professionally competent persons responsible for energy performance certificates. INFOREG automatically (systemically) checks the data entered. Data on energy requirements (energy performance certificates) is exported, data formatted, from INFOREG to						

¹¹ EED – Directive 2012/27/EU on energy efficiency

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	MSEE. Under Section 11(2) of Act No 321/2014 on energy efficiency, the MSEE operator may ask the owner/manager of a building with a total floor area of more than 1 000 m² to provide energy consumption data for the previous calendar year.				
	Checks are then also conducted as part of the preparation of action plans and the annual report. As measures are checked on a project-by-project basis, there was no need to establish a statistically significant share of measures to be checked.				
Overall evaluation and way forward	The measure will continue in the coming period. This change will tighten minimum requirements for buildings undergoing renovation further to Act No 555/2005 and Implementing Decree No 364/2012.				
Projected overlapping with another measure – duplication	There is a potential overlap with measures 3.9 to 3.14.				
Method to avoid duplication	The duplication of the energy savings made by overlapping measures is prevented by the fact that energy savings presented for individual financial mechanisms (in particular public sector measures financed via the Environmental Fund, EkoFond, MunSEFF and the EBRD) and relating to hotels and restaurants are calculated separately on the basis of data from the individual administrators of relevant funds, and are deducted in full from savings identified in the INFOREG database by the procedure specified in this method sheet.				
Information for the purp	oses of Article 7 of Directive 2012/27/EU				
	Project implementation contributes to savings for the final customer.				
	The introduction of the obligation to renovate buildings to the energy efficiency level of new buildings means that owners are forced to carry out renovation beyond the average measures they would take for a reasonable economic return.				
Materiality of the measure (Annex V, point 2(c), to the EED)	To implement measures of the Energy Efficiency Policy (adopted under Government Resolution No 576 of 4 July 2007), Slovakia introduced a coherent system to raise awareness of energy efficiency, which includes the provision of free consulting by the Slovak Innovation and Energy Agency financed annually by the budget heading of the Ministry of Economy and the EU Structural Funds (mainly via the national 'Living with Energy' project).				
	It is only through these State-initiated synergic support measures that investment activities in the renovation and construction of hotels and restaurants and in the modernisation and reconstruction of building technical systems have been significantly accelerated. Complementarity is not applicable in the buildings sector.				
	The savings made by improvements in the thermal performance of buildings are only included if a major renovation is performed under an issued energy performance certificate that the owners would not have carried out to the required extent had the State not intervened, i.e. they would only have dealt with energy-saving measures with a short payback period (e.g. window replacement).				
Complementarity of the measure	The measure takes into account energy savings, representing the difference in the heat required for space heating between the original and the new condition of the building, because the minimum requirements for buildings undergoing major renovation are set at the level of the minimum requirements for new buildings, which in the case of renovated buildings is not always technically, functionally and economically feasible.				
	Potential savings that can be achieved by replacing an existing heat source with a more modern new one to which the Ecodesign Directive might apply, as well as potential savings from the modernisation and reconstruction of lighting, do not count towards energy savings.				
Compliance with legislation and principles of support mechanisms (including quality control and sanctions), if relevant	If a building undergoes major renovation, minimum energy performance requirements should be achieved if technically, functionally and economically feasible. This is checked in the final approval procedure. If the fulfilment of requirements is not technically, functionally and economically feasible, this is already evident when the project for the issuance of a building permit is submitted, and the competent building authority decides whether non-compliance with the minimum requirements is justified. If it is not justified, no building permit is issued.				
Compliance with criteria (under Article 7(10) of the Directive)	 (a) Act No 321/2014 established two transitional periods. The 4AP will evaluate the contribution made by policy measures in the first transitional period (2014-2016) and compliance with the trajectory for the energy savings target under Article 7 by 2020. (b) Ministry responsible for the measure: Ministry of Transport and Construction. (c) Savings are determined transparently according to method (a) – ex ante. (d) Energy savings are shown in final energy consumption. (e) Savings are determined further to point 1(a) of Annex V, in accordance with point 2 of Annex V. (f) Not applicable; these are not policy measures under Article 7(9)(a), second subparagraph. (g) Not applicable, these are not voluntary agreements. (h) The results of the measure are continuously monitored and, if they are not sufficient, corrective measures will be taken. (i) The control system is implemented at MSEE IS and INFOREG IS level and as part of the preparation of action plans and annual reports. As measures are checked on a project-by-project basis, no statistically significant share of measures for checking 				

(j)	was established. Trends in savings will be set out in the annual reports on progress achieved towards national energy efficiency targets.
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Formula to calcula	te energy savings		
Measure MSEE ID:	1.3.4a	Title of measure:	Improvements in the thermal performance of buildings – Hotels and restaurants
Sector:	Buildings	Financial mechanism:	own funds, commercial banks
	ÚS _{i_p}	$p_{plan} = (P_{pred} - P_{po}) \cdot CPP$	

ÚS $_{\text{i_plán}}$ – planned energy saving (final energy consumption) in the year of building renovation [kWh/a]; P_{pred} – heat required for the space heating of a building prior to renovation – average heat required for space heating for the original condition of the building [kWh/(m².a)];

 P_{po} - heat required for space heating in the building after renovation, by reference to energy performance certificate data [kWh/(m².a)]; CPP – total floor area of the building, as per the energy performance certificate [m²].

Measure	1.3.5					Improvements in the thermal	
MSEE ID:			Titl	e of measure:		performance of buildings – Retail and wholesale	
Sector:	Buildings		Financial mechanism:		ism:	own funds, commercial banks	
Measure lasting from:	2014		to:	(year)		2020	
(year) Responsible:	Ministry of Transport and Construction		Me	Measure to comply with Article 7 of Directive 2012/27/EU:		Yes	
			Pol	icy measure cl	assification:	Article 7(9)(c) Article 7(9)(f)	
Lifetime of measure (years):	>7			mpliance with A	Article 7(10)	Yes	
Form of energy:	Natural gas	Electricity		Heat	Other:		
Breakdown (%) by form of energy	40.02 %	42.84 %		4.91 %	12.22 %	Statistical Office, Slovstat	
	Renovation of	etail and w	hole	sale buildings.			
Characteristics of the measure (including eligible activities)	buildings unde for new building	regulations rgoing majogs);	or re	novation are e	established on a	ngs – minimum requirements for a par with minimum requirements and information campaigns.	
	The activities evaluated focused primarily on: (a) improvements in the thermal performance of buildings.						
Evaluation of the measure	Bottom-up, via	individual r	roie	cts			
Methods for the calculation of savings (in accordance with Annex V(1) to the EED ¹² and Implementing Decree No 327/2015)	 (a) ex ante – projected savings – the original and new condition of a building is determine the basis of a project evaluation of the heat required for space heating, drawn up professionally competent person (designer) according to technical standards (in particula EN ISO 13790/NA, STN EN 15603, STN 730540) by reference to the existing and prothermal performance of the building The energy saving for improvements in the thermal performance of buildings is determined. 					r space heating, drawn up by a hnical standards (in particular STN ence to the existing and proposed	
Detailed description of the method to calculate energy savings	the difference after renovation by the Ministry source.	in the heat	required	uired for space the energy pe	e heating in the rformance certi	e building's original condition and ficate. The INFOREG IS operated Development is used as a data	
Application of expert estimates and assumptions in the calculation of energy savings	applicable to the technical standards figure corresponding Transport and Estimates nee wholesale buildemanding and In the calculation whole of standards (in p	ne building lards applid for the to the upp Construction dings is and unreasonation of heat Slovakia an articular ST	in its cable origin no No sed a vailal ably or requesting the control of the cont	s original cond to the given nal condition mit of energy of 364/2012). as no data on ble and additi- costly. iired for space ther technical N ISO 13790/N	lition (based or building catego of retail and class D (Impler in the original onal surveying heating, the a coefficients sp IA, STN EN 156	requirements for space heating in the year of construction and the bry at the time) will be used. The wholesale buildings is a value menting Decree of the Ministry of condition of renovated retail and of energy consumption data is verage degree days applicable to pecified in the relevant technical 303, and STN 730540) are used.	
Monitoring, control and verification of the energy savings made	system operat INFOREG syst certificates. INI requirements (MSEE. Under Section owner/manage consumption do Checks are the	ed by the tem by pro FOREG au energy performal 11(2) of Ac or of a build ata for the pen also consures are c	Slove fessing formation t Noting value ing value induction heck	vak Innovation on ally competitically (system ance certificate 321/2014 on ewith a total flood ous calendar yeted as part of ted on a project	and Energy ent persons resically) checks is is exported, energy efficiency area of more ear. the preparatio they-project base	(the energy efficiency monitoring Agency). Data is entered in the sponsible for energy performance the data entered. Data on energy data formatted, from INFOREG to y, the MSEE operator may ask the e than 1 000 m² to provide energy n of action plans and the annual sis, there was no need to establish	
Overall evaluation and way forward	The measure v	vill continue	in t	he coming per	iod. This chang	e will tighten energy classes used ng Decree No 364/2012.	
Projected overlapping with another measure – duplication	There is a pote						
Method to avoid duplication						measures is prevented by the fact anisms (in particular public sector	

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¹² EED – Directive 2012/27/EU on energy efficiency

	measures financed via the Environmental Fund, EkoFond, MunSEFF and the EBRD) and relating to retail and wholesale buildings are calculated separately on the basis of data from the individual administrators of relevant funds, and are deducted in full from savings identified in the INFOREG database by the procedure specified in this method sheet.				
Information for the purp	oses of Article 7 of Directive 2012/27/EU				
	Project implementation contributes to savings for the final customer.				
	The introduction of the obligation to renovate buildings to the energy efficiency level of new buildings means that owners are forced to carry out renovation beyond the average measures they would take for a reasonable economic return.				
Materiality of the measure (Annex V, point 2(c), to the EED)	To implement measures of the Energy Efficiency Policy (adopted under Government Resolution No 576 of 4 July 2007), Slovakia introduced a coherent system to raise awareness of energy efficiency, which includes the provision of free consulting by the Slovak Innovation and Energy Agency financed annually by the budget heading of the Ministry of Economy and the EU Structural Funds (mainly via the national 'Living with Energy' project).				
	It is only through these State-initiated synergic support measures that investment activities in the renovation and construction of retail and wholesale buildings and in the modernisation and reconstruction of building technical systems have been significantly accelerated. Complementarity is not applicable in the buildings sector.				
	The savings made by improvements in the thermal performance of buildings are only included if a major renovation is performed under an issued energy performance certificate that the owners would not have carried out to the required extent had the State not intervened, i.e. they would only have dealt with energy-saving measures with a short payback period (e.g. window replacement).				
Complementarity of the measure	The measure takes into account energy savings, representing the difference in the heat required for space heating between the original and the new condition of the building, because the minimum requirements for buildings undergoing major renovation are set at the level of the minimum requirements for new buildings, which in the case of renovated buildings is not always technically, functionally and economically feasible.				
	Potential savings that can be achieved by replacing an existing heat source with a more modern new one to which the Ecodesign Directive might apply, as well as potential savings from the modernisation and reconstruction of lighting, do not count towards energy savings.				
Compliance with legislation and principles of support mechanisms (including quality control and sanctions), if relevant	If a building undergoes major renovation, minimum energy performance requirements should be achieved if technically, functionally and economically feasible. This is checked in the final approval procedure. If the fulfilment of requirements is not technically, functionally and economically feasible, this is already evident when the project for the issuance of a building permit is submitted, and the competent building authority decides whether non-compliance with the minimum requirements is justified. If it is not justified, no building permit is issued.				
Compliance with criteria (under Article 7(10) of the Directive)	 (a) Act No 321/2014 established two transitional periods. The 4AP will evaluate the contribution made by policy measures in the first transitional period (2014-2016) and compliance with the trajectory for the energy savings target under Article 7 by 2020. (b) Ministry responsible for the measure: Ministry of Transport and Construction. (c) Savings are determined transparently according to method (a) – ex ante. (d) Energy savings are shown in final energy consumption. (e) Savings are determined further to point 1(a) of Annex V, in accordance with point 2 of Annex V. (f) Not applicable; these are not policy measures under Article 7(9)(a), second subparagraph. (g) Not applicable, these are not voluntary agreements. (h) The results of the measure are continuously monitored and, if they are not sufficient, corrective measures will be taken. (i) The control system is implemented at INFOREG IS level and as part of the preparation of action plans and annual reports. As measures are checked on a project-by-project basis, no statistically significant share of measures for checking was established. (j) Trends in savings will be set out in the annual reports on progress achieved towards national energy efficiency targets. 				

Formula to calcula	te energy savings		
Measure MSEE ID:	1.3.5	Title of measure:	Improvements in the thermal performance of buildings – Retail and wholesale
Sector:	Buildings	Financial mechanism:	own funds, commercial banks
	$\acute{U} S_{i_pl}$	$I_{dan} = (P_{pred} - P_{po}) \cdot CPP$	

 $US_{i_plán}$ – planned energy saving (final energy consumption) in the year of building renovation [kWh/a];

P_{pred} – heat required for the space heating of a building prior to renovation – average heat required for space heating for the original condition of the building [kWh/(m^2 .a)]; P_{po} - heat required for space heating in the building after renovation, by reference to energy performance certificate data

[kWh/(m².a)];

CPP – total floor area of the building, as per the energy performance certificate [m²].

Measure	1.3.6					Improvements in the thermal	
MSEE ID:			Titl	e of measure:	:	performance of buildings – Sports halls and other buildings intended for sport	
Sector:	Buildings		Fina	Financial mechanism:		own funds, commercial banks	
Measure lasting from: (year)	2014			(year)		2020	
Responsible:	Ministry of Transport and Construction		Art	Measure to comply with Article 7 of Directive 2012/27/EU:		Yes	
			Policy measure classification:		assification:	Article 7(9)(c) Article 7(9)(f)	
Lifetime of measure (years):	>7		Cor	mpliance with /	Article 7(10)	Yes	
Form of energy:	Natural gas	Electricity		Heat Other:			
Breakdown (%) by fuel	57.37 %	7.28 %	ó	35.05 %	0.31 %	Analysis of energy-saving potential in the public sector – December 2015	
Characteristics of the measure (including eligible activities)	Renovation of sports halls and other buildings intended for sport. Nature of measure: (c) legislative regulations – (energy performance of buildings – minimum requirements for buildings undergoing major renovation are established on a par with minimum requirements for new buildings); (f) training, education – consulting, seminars, conferences and information campaigns.						
	The activities evaluated focused primarily on: (a) improvements in the thermal performance of buildings.						
Evaluation of the measure	Bottom-up, via individual projects						
Methods for the calculation of savings (in accordance with Annex V(1) to the EED ¹³ and Implementing Decree No 327/2015)	Methods for the calculation of energy savings: (a) ex ante – projected savings – the original and new condition of a building is determined on the basis of a project evaluation of the heat required for space heating, drawn up by a professionally competent person (designer) according to technical standards (in particular STN EN ISO 13790/NA, STN EN 15603, STN 730540) by reference to the existing and proposed thermal performance of the building The energy saving for improvements in the thermal performance of buildings is determined as						
Detailed description of the method to calculate energy savings	the difference after renovatio	in the heat n, accordin	reque	uired for spac the energy pe	e heating in the rformance certif	ance of buildings is determined as building's original condition and icate. The INFOREG IS operated Development is used as a data	
Application of expert estimates and assumptions in the calculation of energy savings	Yes In the calculation of energy savings, the average heat requirements for space heating applicable to the building in its original condition (based on the year of construction and the technical standards applicable to the given building category at the time) will be used. The average figure for the original condition of sports halls and other buildings intended for sport is a value corresponding to the upper limit of energy class D (Implementing Decree of the Ministry of Transport and Construction No 364/2012). Estimates need to be used as no data on the original condition of renovated sports halls and other buildings intended for sport is available and additional surveying of energy consumption data is demanding and unreasonably costly. In the calculation of heat required for space heating, the average degree days applicable to the whole of Slovakia and other technical coefficients specified in the relevant technical standards (in particular STN EN ISO 13790/NA, STN EN 15603, and STN 730540) are used.						
Monitoring, control and verification of the energy savings made Overall evaluation and way	system operat INFOREG system certificates. IN requirements (MSEE. Under Section owner/manage consumption d Checks are the report. As mea a statistically significantly sig	ed by the tem by pro FOREG au energy perf 11(2) of Ac r of a build ata for the pen also consures are conficant sh	Slove fession formation for a formation formation for a fo	vak Innovation onally compet tically (system ance certificate 321/2014 on evith a total flood ous calendar y ted as part of ted on a project of measures to	ent persons respically) checks the sylvant persons respically) checks the sylvant persons responsible to the preparation of the	(the energy efficiency monitoring Agency). Data is entered in the iponsible for energy performance he data entered. Data on energy data formatted, from INFOREG to the MSEE operator may ask the than 1 000 m² to provide energy in of action plans and the annual is, there was no need to establish e will tighten energy classes used	
forward Projected overlapping with another measure – duplication	for expert esting	nates under ential overla	Act ap w	No 555/2005 a ith measures t	and Implementing	g Decree No 364/2012. 2007-2013 Structural Funds, the ther buildings intended for sport.	

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 $^{^{13}}$ EED – Directive 2012/27/EU on energy efficiency

Method to avoid duplication	The duplication of the energy savings made by overlapping measures is prevented by the fact that energy savings presented for identifiable financial mechanisms (public sector measures) and related to sports halls and other buildings intended for sport are deducted in full from the			
Information for the nurn	savings determined for this measure (1.3.6). oses of Article 7 of Directive 2012/27/EU			
information for the purp	Project implementation contributes to savings for the final customer.			
	The introduction of the obligation to renovate buildings to the energy efficiency level of new buildings means that owners are forced to carry out renovation beyond the average measures they would take for a reasonable economic return.			
Materiality of the measure (Annex V, point 2(c), to the EED)	To implement measures of the Energy Efficiency Policy (adopted under Government Resolution No 576 of 4 July 2007), Slovakia introduced a coherent system to raise awareness of energy efficiency, which includes the provision of free consulting by the Slovak Innovation and Energy Agency financed annually by the budget heading of the Ministry of Economy and the EU Structural Funds (mainly via the national 'Living with Energy' project).			
	It is only through these State-initiated synergic support measures that investment activities in the renovation and construction of sports halls and other buildings intended for sport and in the modernisation and reconstruction of building technical systems have been significantly accelerated.			
	Complementarity is not applicable in the buildings sector.			
	The savings made by improvements in the thermal performance of buildings are only included if a major renovation is performed under an issued energy performance certificate that the owners would not have carried out to the required extent had the State not intervened, i.e. they would only have dealt with energy-saving measures with a short payback period (e.g. window replacement).			
Complementarity of the measure	The measure takes into account energy savings, representing the difference in the heat required for space heating between the original and the new condition of the building, because the minimum requirements for buildings undergoing major renovation are set at the level of the minimum requirements for new buildings, which in the case of renovated buildings is not always technically, functionally and economically feasible.			
	Potential savings that can be achieved by replacing an existing heat source with a more modern new one to which the Ecodesign Directive might apply, as well as potential savings from the modernisation and reconstruction of lighting, do not count towards energy savings.			
Compliance with legislation and principles of support mechanisms (including quality control and sanctions), if relevant	If a building undergoes major renovation, minimum energy performance requirements shoul be achieved if technically, functionally and economically feasible. This is checked in the fina approval procedure. If the fulfilment of requirements is not technically, functionally an economically feasible, this is already evident when the project for the issuance of a building permit is submitted, and the competent building authority decides whether non-compliance with the minimum requirements is justified. If it is not justified, no building permit is issued.			
Compliance with criteria (under Article 7(10) of the Directive)	 (a) Act No 321/2014 established two transitional periods. The 4AP will evaluate the contribution made by policy measures in the first transitional period (2014-2016) and compliance with the trajectory for the energy savings target under Article 7 by 2020. (b) Ministry responsible for the measure: Ministry of Transport and Construction. (c) Savings are determined transparently according to method (a) – ex ante. (d) Energy savings are shown in final energy consumption. (e) Savings are determined further to point 1(a) of Annex V, in accordance with point 2 of Annex V. (f) Not applicable; these are not policy measures under Article 7(9)(a), second subparagraph. (g) Not applicable, these are not voluntary agreements. (h) The results of the measure are continuously monitored and, if they are not sufficient, corrective measures will be taken. (i) The control system is implemented at INFOREG IS level and as part of the preparation of action plans and annual reports. As measures are checked on a project-by-project basis, no statistically significant share of measures for checking was established. (j) Trends in savings will be set out in the annual reports on progress achieved towards national energy efficiency targets. 			

Formula to calculate ener	gy savings		
Measure MSEE ID:	1.3.6	Title of measure:	Improvements in the thermal performance of buildings – Sports halls and other buildings intended for sport
Sector:	Buildings	Financial mechanism:	own funds, commercial banks

$ÚS_{i_pl\acute{a}n} = (P_{pred} - P_{po}) \cdot CPP$

where

ÚS i_plán - planned energy saving (final energy consumption) in the year of building renovation [kWh/a];

 P_{pred} – heat required for the space heating of a building prior to renovation – average heat required for space heating for the original condition of the building [kWh/(m².a)];

 P_{po} – heat required for space heating in the building after renovation, by reference to energy performance certificate data [kWh/(m².a)];

CPP – total floor area of the building, as per the energy performance certificate [m²].

Measure	1.4.1					New construction to a low-
MSEE ID:			Title of measure:			energy standard – Single- family buildings (RD-B)
Sector:	Buildings		Fina	Financial mechanism:		own funds, commercial banks, government premiums
Measure lasting from: (year)	2014		to: (to: (year)		2020
Responsible:	Ministry of Transport and Construction		Arti	Measure to comply with Article 7 of Directive 2012/27/EU:		Yes
				icy measure cl		Article 7(9)(b) Article 7(9)(c) Article 7(9)(f)
Lifetime of measure (years):			Compliance with Article 7(10)			Yes
Form of energy:	Natural gas	Electricity	Heat Other:		Other:	5 , , , , , , , , , , ,
Breakdown (%) by form of energy	48 %	21 %		0 %	27 %	Expert estimate by the Slovak Innovation and Energy Agency 2016
	Construction of	new single	e-fam	ily buildings to	a low-energy s	tandard
Characteristics of the measure (including eligible activities)	(c) legislative regulations buildings);		asure: uli – government premiums as part of building society saving schemes; regulations – (energy performance of buildings – minimum requirements for new lucation – consulting, seminars, conferences and information campaigns.			
	The activities evaluated focused on: (a) the achievement of better energy performance than the minimum requirements for new single-family buildings under legislation of general application.					
Evaluation of the measure	Bottom-up, via		_			
Methods for the calculation of savings (in accordance with Annex V(1) to the EED ¹⁴ and Implementing Decree No 327/2015)	Methods for the calculation of energy savings: (a) ex ante – projected savings – the new condition of a building is determined on the basis of a project evaluation of the overall energy required by the building, drawn up by a professionally competent person (designer) according to technical standards (in particular STN EN ISO 13790/NA, STN EN 15603, STN 730540) by reference to the proposed thermal performance of the building.					
Detailed description of the method to calculate energy savings						
Application of expert estimates and assumptions in the calculation of energy savings	Slovakia and	other techr	nical	coefficients s	pecified in the	ee days applicable to the whole of relevant technical standards (in 730540) are used.
Monitoring, control and verification of the energy savings made	Monitoring – professionally automatically (performance of efficiency monitorial Checks are the professional content of the con	via the IN competent systemicall ertificates) i toring system also consures are consumers	IFOR perso y) ch s exp em (M nduct	EG informations responsiblecks the data ported, data for MSEE). Ited as part of ed on a project	on system. Da le for energy pe a entered. Data rmatted, from th the preparation ct-by-project bas	ata is entered in INFOREG by erformance certificates. INFOREG on energy requirements (energy e INFOREG system to the energy of action plans and the annual is, there was no need to establish
Overall evaluation and way	The measure	will conti	nue	in the comir	ng period. This	s change will tighten minimum

¹⁴ EED – Directive 2012/27/EU on energy efficiency

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forward	requirements for buildings undergoing renovation further to Act No 555/2005 and Implementing Decree No 364/2012.			
Projected overlapping with another measure – duplication	Potential overlaps are only possible when evaluating the new construction of a single-family building under this measure and under measures 1.5 and 1.6.			
Method to avoid duplication	The duplication of the energy savings made by overlapping measures is prevented by processing energy savings identified for individual single-family buildings on a project-by-project basis, i.e. for each building. Savings are only counted towards one of the possible measures (1.4, 1.5 or 1.6) according to the level of energy class achieved, which establishes a low energy, ultra-low energy or nearly zero-energy level of construction.			
Information for the purp	oses of Article 7 of Directive 2012/27/EU			
	Project implementation contributes to savings for the final customer.			
	Under the Act on Building Society Savings Schemes (Act No 310/1992), Slovakia grants government premiums for building society savings schemes, with funding earmarked annually in the central government budget. Compliance with the conditions of building society savings schemes is supervised by the Ministry of Finance.			
Materiality of the measure (Annex V, point 2(c), to the EED)	To implement measures of the Energy Efficiency Policy (adopted under Government Resolution No 576 of 4 July 2007), Slovakia introduced a coherent system to raise awareness of energy efficiency, which includes the provision of free consulting by the Slovak Innovation and Energy Agency financed annually by the budget heading of the Ministry of Economy and the EU Structural Funds (mainly via the national 'Living with Energy' project).			
	It is only through these State-initiated synergic support measures that investment activities in the construction of buildings have also focused considerably on the energy efficiency of buildings.			
	Complementarity is relevant.			
Complementarity of the measure	For the purposes of Article 7 of the Directive, only energy savings that are achieved beyond the minimum requirements of Directive 2010/31/EU on the energy performance of buildings and Act No 555/2005 on the energy efficiency of buildings are counted.			
Compliance with legislation and principles of support mechanisms (including quality control and sanctions), if relevant	In the construction of a new building, at least the minimum energy performance requirements in accordance with Act No 555/2005 on the energy performance of buildings and Implementing Decree of the Ministry of Transport and Construction No 364/2012 must be attained. This is checked as part of the building permit and final approval procedure by the competent building authority.			
Compliance with criteria (under Article 7(10) of the Directive)	 (a) Act No 321/2014 established two transitional periods. The 4AP will evaluate the contribution made by policy measures in the first transitional period (2014-2016) and compliance with the trajectory for the energy savings target under Article 7 by 2020. (b) Ministry responsible for the measure: Ministry of Transport and Construction. (c) Savings are determined transparently according to method (a) – ex ante. (d) Energy savings are shown in final energy consumption. (e) Savings are determined further to point 1(a) of Annex V, in accordance with point 2 of Annex V. (f) Not applicable; these are not policy measures under Article 7(9)(a), second subparagraph. (g) Not applicable, these are not voluntary agreements. (h) The results of the measure are continuously monitored and, if they are not sufficient, corrective measures will be taken. (i) The control system is implemented at INFOREG IS level and as part of the preparation of action plans and annual reports. As measures are checked on a project-by-project basis, no statistically significant share of measures for checking was established. (j) Trends in savings will be set out in the annual reports on progress achieved towards national energy efficiency targets. 			

Measure	1.4.1		New construction to a low-
MSEE ID:		Title of measure:	energy standard – Single- family buildings
Sector:	Buildings	Financial mechanism:	own funds, commercial banks government premiums
	ÚS _{i_p}	$p_{plán} = (P_{norm} - P_{po}) \cdot CPP$	
where:			

 P_{norm} – energy required for a building according to the minimum requirement for a newbuild (the limit for a building permit to be issued in the given year) [kWh/(m².a)];

 P_{po} – energy required for a building on completion of a newbuild, by reference to energy performance certificate data [kWh/(m².a)];

CPP – total floor area of the building, as per the energy performance certificate [m²].

Measure	1.4.2					New construction to a low-	
MSEE ID:			Titl	Title of measure:		energy standard – Apartment buildings (BD-B)	
Sector:	Buildings		Fina	Financial mechanism:		own funds, commercial banks, government premiums	
Measure lasting from: (year)	2014		to:	to: (year)		2020	
Responsible:	Ministry of Transport and		Art	Measure to comply with Article 7 of Directive 2012/27/EU:		Yes	
·	Construction				classification:	Article 7(9)(b) Article 7(9)(b) Article 7(9)(f)	
Lifetime of measure (years):					Article 7(10)	Yes	
Form of energy:	Natural gas Electricity			Heat	Other:		
Breakdown (%) by form of energy	53.13 %	53.13 % 21.66 %		21.91 %	3.30 %	Statistical Office – Energy Sector 2014	
	Construction of new apartment buildings to a low-energy standard					andard	
Characteristics of the measure (including eligible activities)	Nature of measure: (b) fiscal stimuli – government premiums as part of building society saving schemes; (c) legislative regulations – (energy performance of buildings – minimum requirements for buildings); (f) training, education – consulting, seminars, conferences and information campaigns. The activities evaluated focused on: (a) the achievement of better energy performance than the minimum requirement new apartment buildings under legislation of general application.					gs – minimum requirements for new and information campaigns.	
Evaluation of the measure	Bottom-up, via	Bottom-up, via individual projects					
Methods for the calculation of savings (in accordance with Annex V(1) to the EED ¹⁵ and Implementing Decree No 327/2015)	Methods for the calculation of energy savings: (a) ex ante – projected savings – the new condition of a building is determined on the basis of a project evaluation of the overall energy required by the building, drawn up by a professionally competent person (designer) according to technical standards (in particular STN EN ISO 13790/NA, STN EN 15603, STN 730540) by reference to the proposed thermal performance of the building.						
Detailed description of the method to calculate energy savings	The basic data is from the energy performance certificates of new single-family buildings collected in the INFOREG information system operated by the Ministry of Transport, Construction and Regional Development. The energy saving is determined as the difference between the total energy requirement for an apartment building according to the minimum requirements at the time the building permit was issued and the actual energy requirement according to the energy performance certificate issued for final building approval. Note: For building permits issued up to 31 December 2015, the minimum requirements are at the level of the upper limit of energy class B.						
Application of expert estimates and assumptions in the calculation of energy savings	Yes. In the calculation of energy requirements, the average degree days applicable to the whole of Slovakia and other technical coefficients specified in the relevant technical standards (in particular STN EN ISO 13790/NA, STN EN 15603, and STN 730540) are used.						
Monitoring, control and verification of the energy savings made	Monitoring – professionally automatically performance of efficiency mon Checks are the report. As mea	via the IN competent (systemicall ertificates) i itoring systemen also consures are consures are consumer to the IN consumer to	IFOR perse y) ch s exp em (N nduc theck	REG informations responsioned the date of	tion system. If ble for energy place to the content of the preparation of the preparation of the preparation.	Data is entered in INFOREG by performance certificates. INFOREG as on energy requirements (energy the INFOREG system to the energy on of action plans and the annual asis, there was no need to establish	
Overall evaluation and way forward	requirements Implementing	for buildir Decree No	ngs 364/2	undergoing 2012.	renovation fu	nis change will tighten minimum urther to Act No 555/2005 and	
Projected overlapping with another measure – duplication	building under	this measu	re an	d under mea	sures 1.5 and 1		
Method to avoid duplication	The duplication of the energy savings made by overlapping measures is prevented by processing energy savings identified for individual apartment buildings on a project-by-project basis, i.e. for each building. Savings are only counted towards one of the possible measures (1.4, 1.5 or 1.6) according to the level of energy class achieved, which establishes a low energy, ultra-low energy or nearly zero-energy level of construction.						
Information for the purp	ses of Article 7 of Directive 2012/27/EU						

 $^{^{15}}$ EED – Directive 2012/27/EU on energy efficiency

	Project implementation contributes to savings for the final customer.					
	Under the Act on Building Society Savings Schemes (Act No 310/1992), Slovakia grants government premiums for building society savings schemes, with funding earmarked annually in the central government budget. Compliance with the conditions of building society savings schemes is supervised by the Ministry of Finance.					
Materiality of the measure (Annex V, point 2(c), to the EED)	To implement measures of the Energy Efficiency Policy (adopted under Government Resolution No 576 of 4 July 2007), Slovakia introduced a coherent system to raise awareness of energy efficiency, which includes the provision of free consulting by the Slovak Innovation and Energy Agency financed annually by the budget heading of the Ministry of Economy and the EU Structural Funds (mainly via the national 'Living with Energy' project).					
	It is only through these State-initiated synergic support measures that investment activities in the construction of buildings have also focused considerably on the energy efficiency of buildings.					
	Complementarity is relevant.					
Complementarity of the measure	For the purposes of Article 7 of the Directive, only energy savings that are achieved beyond the minimum requirements of Directive 2010/31/EU on the energy performance of buildings and Act No 555/2005 on the energy efficiency of buildings are counted.					
Compliance with legislation and principles of support mechanisms (including quality control and sanctions), if relevant	In the construction of a new building, at least the minimum energy performance requirements in accordance with Act No 555/2005 on the energy performance of buildings and Implementing Decree of the Ministry of Transport and Construction No 364/2012 must be attained. This is checked as part of the building permit and final approval procedure by the competent building authority.					
Compliance with criteria (under Article 7(10) of the Directive)	 (a) Act No 321/2014 established two transitional periods. The 4AP will evaluate the contribution made by policy measures in the first transitional period (2014-2016) and compliance with the trajectory for the energy savings target under Article 7 by 2020. (b) Ministry responsible for the measure: Ministry of Transport and Construction. (c) Savings are determined transparently according to method (a) – ex ante. (d) Energy savings are shown in final energy consumption. (e) Savings are determined further to point 1(a) of Annex V, in accordance with point 2 of Annex V. (f) Not applicable; these are not policy measures under Article 7(9)(a), second subparagraph. (g) Not applicable, these are not voluntary agreements. (h) The results of the measure are continuously monitored and, if they are not sufficient, corrective measures will be taken. (i) The control system is implemented at INFOREG IS level and as part of the 					
	preparation of action plans and annual reports. As measures are checked on a project-by-project basis, no statistically significant share of measures for checking was established. (j) Trends in savings will be set out in the annual reports on progress achieved towards national energy efficiency targets.					

Measure	1.4.2		New construction to a low-
MSEE ID:		Title of measure:	energy standard – Apartment buildings (RD-B)
Sector:	Buildings	Financial mechanism:	own funds, commercial banks, government premiums

 $ÚS_{i_plan}$ – planned energy saving (final energy consumption) in the year of building construction [kWh/a];

 P_{norm} – energy required for a building according to the minimum requirement for a newbuild (the limit for a building permit to be issued in the given year) [kWh/(m².a)];

 P_{po} - energy required for a building on completion of a newbuild, by reference to energy performance certificate data [kWh/(m².a)];

CPP - total floor area of the building, as per the energy performance certificate [m²].

Measure	1.5					New construction to an ultra-
MSEE ID:			Title	Title of measure:		low-energy standard – Single- family and apartment buildings (RDBD-A1)
Sector:	Buildings		Fina	Financial mechanism:		own funds, commercial banks, government premiums
Measure lasting from: (year)	2014		to: (to: (year)		2020
Responsible:	Ministry of Transport and		Measure to comply with Article 7 of Directive 2012/27/EU:			Yes
Responsible.	Construction			Policy measure classification:		Article 7(9)(b) Article 7(9)(c) Article 7(9)(f)
Lifetime of measure (years):	>7		Com	pliance with I	Article 7(10)	Yes
Form of energy:	Natural gas	Electricity		Heat	Other:	
Breakdown (%) by form of energy	43 %	30 %		1 %	26 %	Expert estimate by the Slovak Innovation and Energy Agency 2016
Characteristics of the measure (including eligible activities)	Construction of new single-family and apartment buildings to an ultra-low-energy standard Nature of measure: (b) fiscal stimuli – government premiums as part of building society saving schemes; (c) legislative regulations – (energy performance of buildings – minimum requirements for ne buildings);					ociety saving schemes; – minimum requirements for new
,	(f) training, education – consulting, seminars, conferences and information campaigns. The activities evaluated focused on: (a) the achievement of better energy performance than the minimum requirements new single-family/apartment buildings under legislation of general application.					an the minimum requirements for
Evaluation of the measure	Bottom-up, via	individual p	rojec	ts		
Methods for the calculation of savings (in accordance with Annex V(1) to the EED ¹⁶ and Implementing Decree No 327/2015)	Methods for the calculation of energy savings: (a) ex ante – projected savings – the new condition of a building is determined on the basis of a project evaluation of the overall energy required by the building, drawn up by a professionally competent person (designer) according to technical standards (in particular STN EN ISO 13790/NA, STN EN 15603, STN 730540) by reference to the proposed thermal performance of the building.					
Detailed description of the method to calculate energy savings	The basic data is from the energy performance certificates of new single-family/apartment buildings collected in the INFOREG information system operated by the Ministry of Transport, Construction and Regional Development. The energy saving is determined as the difference between the total energy requirement for a single-family/apartment building according to the minimum requirements at the time the building permit was issued and the actual energy requirement according to the energy performance certificate issued for final building approval. Note: For building permits issued up to 1 January 2016, the minimum requirements are at the level of the upper limit of energy class A1.					
Application of export	Yes.					
Application of expert estimates and assumptions in the calculation of energy savings	In the calculation of energy requirements, the average degree days applicable to the whole of Slovakia and other technical coefficients specified in the relevant technical standards (in particular STN EN ISO 13790/NA, STN EN 15603, and STN 730540) are used.					
Monitoring, control and verification of the energy savings made	professionally automatically (performance c efficiency mon Checks are th report. As mea a statistically s	competent systemically ertificates) in toring system also consures are conguired and systems.	perso y) che s exp em (M nducte hecke nare o	ons responsiblecks the data orted, data for (ISEE). ed as part of ed on a project freezers to the contract of	le for energy pe the entered. Data rmatted, from the the preparation t-by-project bas to be checked.	ta is entered in INFOREG by informance certificates. INFOREG on energy requirements (energy e INFOREG system to the energy of action plans and the annual is, there was no need to establish
Overall evaluation and way forward	The measure	will continue for building	nue i	in the comir undergoing	ng period. This	s change will tighten minimum her to Act No 555/2005 and
Projected overlapping with another measure – duplication	family/apartme	nt building	under	this measure	and under mea	e new construction of a single- sures 1.4 and 1.6.
Method to avoid duplication	processing en project-by-projects possible meas	ergy saving ect basis, i. ures (1.4,	gs ide .e. for 1.5 or	entified for ir r each buildin r 1.6) accordi	ndividual single- g. Savings are ng to the level	ping measures is prevented by family/apartment buildings on a only counted towards one of the of energy class achieved, which trgy level of construction.

 $^{^{16}}$ EED - Directive 2012/27/EU on energy efficiency

Information for the purp	oses of Article 7 of Directive 2012/27/EU				
	Project implementation contributes to savings for the final customer.				
	Under the Act on Building Society Savings Schemes (Act No 310/1992), Slovakia grants government premiums for building society savings schemes, with funding earmarked annually in the central government budget. Compliance with the conditions of building society savings schemes is supervised by the Ministry of Finance.				
Materiality of the measure (Annex V, point 2(c), to the EED)	To implement measures of the Energy Efficiency Policy (adopted under Government Resolution No 576 of 4 July 2007), Slovakia introduced a coherent system to raise awareness of energy efficiency, which includes the provision of free consulting by the Slovak Innovation and Energy Agency financed annually by the budget heading of the Ministry of Economy and the EU Structural Funds (mainly via the national 'Living with Energy' project).				
	It is only through these State-initiated synergic support measures that investment activities in the construction of buildings have also focused considerably on the energy efficiency of buildings.				
	Complementarity is relevant.				
Complementarity of the measure	For the purposes of Article 7 of the Directive, only energy savings that are achieved beyond the minimum requirements of Directive 2010/31/EU on the energy performance of buildings and Act No 555/2005 on the energy efficiency of buildings are counted.				
Compliance with legislation and principles of support mechanisms (including quality control and sanctions), if relevant	In the construction of a new building, at least the minimum energy performance requirements in accordance with Act No 555/2005 on the energy performance of buildings and Implementing Decree of the Ministry of Transport and Construction No 364/2012 must be attained. This is checked as part of the building permit and final approval procedure by the competent building authority.				
Compliance with criteria (under Article 7(10) of the Directive)	 (a) Act No 321/2014 established two transitional periods. The 4AP will evaluate the contribution made by policy measures in the first transitional period (2014-2016) and compliance with the trajectory for the energy savings target under Article 7 by 2020. (b) Ministry responsible for the measure: Ministry of Transport and Construction. (c) Savings are determined transparently according to method (a) – ex ante. (d) Energy savings are shown in final energy consumption. (e) Savings are determined further to point 1(a) of Annex V, in accordance with point 2 of Annex V. (f) Not applicable; these are not policy measures under Article 7(9)(a), second subparagraph. (g) Not applicable, these are not voluntary agreements. (h) The results of the measure are continuously monitored and, if they are not sufficient, corrective measures will be taken. (i) The control system is implemented at INFOREG IS level and as part of the preparation of action plans and annual reports. As measures are checked on a project-by-project basis, no statistically significant share of measures for checking was established. (j) Trends in savings will be set out in the annual reports on progress achieved towards national energy efficiency targets. 				

Formula to calculate en	ergy savings		
Measure MSEE ID:	1.5	Title of measure:	New construction to an ultra- low-energy standard – Single- family and apartment buildings (RDBD-A1)
Sector:	Buildings	Financial mechanism:	own funds, commercial banks, government premiums
	ÚS _{i_p}	$p_{plán} = (P_{norm} - P_{po}) \cdot CPP$	

 $ÚS_{\text{Lplán}}$ – planned energy saving (final energy consumption) in the year of building construction [kWh/a];

 P_{norm} – energy required for a building according to the minimum requirement for a newbuild (the limit for a building permit to be issued in the given year) [kWh/(m².a)];

 P_{po} – energy required for a building on completion of a newbuild, by reference to energy performance certificate data [kWh/(m².a)];

CPP - total floor area of the building, as per the energy performance certificate [m²].

Measure	1.6					New construction to a nearly
MSEE ID:			Title	Title of measure:		zero-energy – Single-family and apartment buildings (RDBD-A0)
Sector:	Buildings		Fina	Financial mechanism:		own funds, commercial banks, government premiums
Measure lasting from: (year)	2014		to: (to: (year)		2020
Responsible:	Ministry of Transport and Construction		Arti	Measure to comply with Article 7 of Directive 2012/27/EU:		Yes
				cy measure c		Article 7(9)(b) Article 7(9)(f)
Lifetime of measure (years):				npliance with		Yes
Form of energy:	Natural gas	Electricity		Heat	Other:	Export actimate by the Clayel
Breakdown (%) by form of energy	34 %	39 %		2 %	25 %	Expert estimate by the Slovak Innovation and Energy Agency 2016
	Construction of mew nearly zero-energy single-family and apartment buildings					partment buildings
Characteristics of the measure (including eligible activities)	Nature of measure: (b) fiscal stimuli – government premiums as part of building society saving schemes; (c) legislative regulations – (energy performance of buildings – minimum requirements for buildings); (f) training, education – consulting, seminars, conferences and information campaigns.					s – minimum requirements for new
	The activities evaluated focused on: (a) the achievement of better energy performance than the minimum requirements for new single-family/apartment buildings under legislation of general application.					
Evaluation of the measure	Bottom-up, via	Bottom-up, via individual projects				
Methods for the calculation of savings (in accordance with Annex V(1) to the EED ¹⁷ and Implementing Decree No 327/2015)	Methods for the calculation of energy savings: (a) ex ante – projected savings – the new condition of a building is determined on the basis of a project evaluation of the overall energy required by the building, drawn up by a professionally competent person (designer) according to technical standards (in particular STN EN ISO 13790/NA, STN EN 15603, STN 730540) by reference to the proposed thermal performance of the building.					
Detailed description of the method to calculate energy savings	The basic data is from the energy performance certificates of new single-family/apartment buildings collected in the INFOREG information system operated by the Ministry of Transport, Construction and Regional Development. The energy saving is determined as the difference between the total energy requirement for a single-family/apartment building according to the minimum requirements at the time the building permit was issued and the actual energy requirement according to the energy performance certificate issued for final building approval. Note: For building permits issued up to 1 January 2016, the minimum requirements are at the level of the upper limit of energy class A1.					
Application of expert estimates and assumptions in the calculation of energy	Yes. In the calculation of energy requirements, the average degree days applicable to the whole of Slovakia and other technical coefficients specified in the relevant technical standards (in					
Monitoring, control and verification of the energy savings made	Slovakia and other technical coefficients specified in the relevant technical standards (in particular STN EN ISO 13790/NA, STN EN 15603, and STN 730540) are used. Monitoring – via the INFOREG information system. Data is entered in INFOREG by professionally competent persons responsible for energy performance certificates. INFOREG automatically (systemically) checks the data entered. Data on energy requirements (energy performance certificates) is exported, data formatted, from the INFOREG system to the energy efficiency monitoring system (MSEE). Checks are then also conducted as part of the preparation of action plans and the annual report. As measures are checked on a project-by-project basis, there was no need to establish a statistically significant share of measures to be checked.					
Overall evaluation and way forward		for building	ngs	undergoing		is change will tighten minimum rther to Act No 555/2005 and
Projected overlapping with another measure – duplication						ne new construction of a single-asures 1.4 and 1.5.
Method to avoid duplication	processing en project-by-projects possible meas	ergy saving ect basis, i. sures (1.4,	gs id e. fo 1.5 o	lentified for i r each buildir r 1.6) accord	ndividual singleng. Savings are ling to the leve	pping measures is prevented by e-family/apartment buildings on a e only counted towards one of the of energy class achieved, which vergy level of construction.

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 $^{^{17}}$ EED – Directive 2012/27/EU on energy efficiency

Information for the purp	oses of Article 7 of Directive 2012/27/EU				
	Project implementation contributes to savings for the final customer.				
	Under the Act on Building Society Savings Schemes (Act No 310/1992), Slovakia grants government premiums for building society savings schemes, with funding earmarked annually in the central government budget. Compliance with the conditions of building society savings schemes is supervised by the Ministry of Finance.				
Materiality of the measure (Annex V, point 2(c), to the EED)	To implement measures of the Energy Efficiency Policy (adopted under Government Resolution No 576 of 4 July 2007), Slovakia introduced a coherent system to raise awareness of energy efficiency, which includes the provision of free consulting by the Slovak Innovation and Energy Agency financed annually by the budget heading of the Ministry of Economy and the EU Structural Funds (mainly via the national 'Living with Energy' project).				
	It is only through these State-initiated synergic support measures that investment activities in the construction of buildings have also focused considerably on the energy efficiency of buildings.				
	Complementarity is relevant.				
Complementarity of the measure	For the purposes of Article 7 of the Directive, only energy savings that are achieved beyond the minimum requirements of Directive 2010/31/EU on the energy performance of buildings and Act No 555/2005 on the energy efficiency of buildings are counted.				
Compliance with legislation and principles of support mechanisms (including quality control and sanctions), if relevant	In the construction of a new building, at least the minimum energy performance requirements in accordance with Act No 555/2005 on the energy performance of buildings and Implementing Decree of the Ministry of Transport and Construction No 364/2012 must be attained. This is checked as part of the building permit and final approval procedure by the competent building authority.				
Compliance with criteria (under Article 7(10) of the Directive)	 (a) Act No 321/2014 established two transitional periods. The 4AP will evaluate the contribution made by policy measures in the first transitional period (2014-2016) and compliance with the trajectory for the energy savings target under Article 7 by 2020. (b) Ministry responsible for the measure: Ministry of Transport and Construction. (c) Savings are determined transparently according to method (a) – ex ante. (d) Energy savings are shown in final energy consumption. (e) Savings are determined further to point 1(a) of Annex V, in accordance with point 2 of Annex V. (f) Not applicable; these are not policy measures under Article 7(9)(a), second subparagraph. (g) Not applicable, these are not voluntary agreements. (h) The results of the measure are continuously monitored and, if they are not sufficient, corrective measures will be taken. (i) The control system is implemented at INFOREG IS level and as part of the preparation of action plans and annual reports. As measures are checked on a project-by-project basis, no statistically significant share of measures for checking was established. (j) Trends in savings will be set out in the annual reports on progress achieved towards 				
	national energy efficiency targets.				

Formula to calcula	te energy savings		
Measure MSEE ID:	1.6	Title of measure:	New construction to a nearly zero-energy – Single-family and apartment buildings (RDBD-A0)
Sector:	Buildings	Financial mechanism:	own funds, commercial banks, government premiums
	ÚS _{i_p}	$P_{olán} = (P_{norm} - P_{po}) \cdot CPP$	

 $ÚS_{\text{Lplán}}$ – planned energy saving (final energy consumption) in the year of building construction [kWh/a];

 P_{norm} – energy required for a building according to the minimum requirement for a newbuild (the limit for a building permit to be issued in the given year) [kWh/(m².a)];

 P_{po} – energy required for a building on completion of a newbuild, by reference to energy performance certificate data [kWh/(m².a)];

CPP – total floor area of the building, as per the energy performance certificate [m²].

Measure	1.7	T'11 6		Provision of energy services		
MSEE ID:	GES	Title of measure:		in buildings		
Sector:	Buildings	Source of financing:		Providers of guaranteed energy services (GES), recipients of GES		
Measure lasting from: (year)	2014	to: (year)		2020		
Responsible:	Ministry of Economy	Measure to comply with Article 7 of Directive 2012/27/EU:		Yes		
Lifetime of measure (years):	Indicate in accordance with Implementing Decree No 327/2015.	Policy measure classification: Compliance with Article 7(10)		Article 7(9)(a) to (f) Yes		
Type of fuel:	Natural gas Electricity	Heat	Other fuels:			
Breakdown (%) by fuel	53.13 % 21.66 %	6 21.91 % 3.30 %		Statistical Office – Energy Sector 2014		
Characteristics of the measure (including eligible activities)	service provider (ESCO) under an energy efficiency contract with guaranteed energy s The investment is expected to be repaid from sources that the GES beneficiary would is cover the cost of energy in the future. Nature of measure: (c) legislative regulations – Act No 321/2014 on energy efficiency (framework for provision of guaranteed energy services); (f) training and education – professional competence required for provided guaranteed energy services (test followed by mandatory participation in refit training courses arranged by the Ministry of Economy via the Slovak Innovation Energy Agency) Eligible activities are: - measures to reduce final energy consumption, e.g. in apartment buildings buildings for the provision of commercial services, in particular: o reconstruction and modernisation of the space heating system, incoming boiler replacement or the installation of a compact heat transfer station the reconstruction and modernisation of lighting; the hydronic balancing of hot water distribution systems, including provision of suitable thermal insulation for hot water distribution systems.					
Evaluation of the measure		ımption ndividual projects				
Methods for the calculation of savings (in accordance with Annex V(1) to the EED ¹⁸ and Implementing Decree No 327/2015)	Methods for the calculation of energy savings: (a) ex ante — expected savings on the basis of previous independently monitored energy efficiency measures by an energy service provider or by the operator of the Energy Efficiency Monitoring System (MSEE), i.e. the Slovak Innovation and Energy Agency; (b) ex post — energy savings achieved annually are verified by the GES provider in the form of measurements					
Detailed description of the method to calculate energy savings						
Application of expert estimates and assumptions in the calculation of energy savings		in the GES provis		gy saving calculation depends on part of the methodology for the		
Monitoring, control and verification of the energy savings made	mandatory under Sections contains the sum of ene calendar year, which evalua package of projects. The	s 16 and 19 of Act ergy savings from uates the savings of e provision of data	: No 321/20104 each energy s on a project-by-p on a project-by-p			
Overall evaluation and way	ine provision of energy	services is a m	echanism that	represents an effective way of		

 $^{^{18}}$ EED – Directive 2012/27/EU on energy efficiency

forward	designing, implementing and, in particular, evaluating energy efficiency measures. With significant support in raising the awareness of potential energy service recipients, it may be one of the most significant alternative measures to meet the target under Article 7 of the Energy Efficiency Directive.				
Projected overlapping with another measure – duplication	Overlapping would be possible in the year following the implementation of energy efficiency measures if the building owner/manager provided information on energy consumption at the request of the MSEE operator and did not indicate that the measures were implemented via GES.				
Method to avoid duplication	 If, in MSEE, energy savings are identified further to a decrease in energy consumption in a building without reference to the measure implemented, the MSEE operator will email and, where appropriate, telephone the data provider to identify the specific instrument behind the energy savings ascertained. If savings are identified as part of GES from a particular provider, building energy savings determined according to the data of the owner/manager of the building will not be counted. 				
Information for the purp	oses of Article 7 of Directive 2012/27/EU				
Materiality of the measure (Annex V, point 2(c), to the EED)	The Ministry of Economy of the Slovak Republic, which maintains and updates the list of energy service providers (http://www.mhsr.sk/poskytovanie-energetickej-sluzby/145697s) is responsible for registering and issuing permits for energy service providers' activities. The Slovak Innovation and Energy Agency provides professional competence for providers of guaranteed energy services, as well as up-to-date training, from the resources of the central government budget. The Slovak Innovation and Energy Agency evaluates datasets from energy service providers.				
Complementarity of the measure	Not applicable: (a) the measure would not be implemented without a supportive legislative framework;				
Compliance with legislation and principles of support mechanisms (including quality control and sanctions), if relevant	The measure is in accordance with Act No 321/2014 on energy efficiency. Supervision of compliance with the provisions of the Act is carried out by the Slovak Trade Inspectorate.				
Compliance with criteria (under Article 7(10) of the Directive)	 (a) Act No 321/2014 established two transitional periods. The 4AP will evaluate the contribution made by policy measures in the first transitional period (2014-2016) and compliance with the trajectory for the energy savings target under Article 7 by 2020. (b) Ministry responsible for the measure: Ministry of Economy. (c) Savings are determined transparently according to the <i>ex ante</i> and <i>ex post</i> methods. (d) Energy savings are shown in final energy consumption (if energy savings are only listed in primary energy consumption, they are not counted towards compliance with Article 7 of the Directive); (e) Savings are determined further to point 1(a) and (b) of Annex V, in accordance with point 2 of Annex V to the EED; (f) Not applicable; these are not policy measures under Article 7(9)(a), second subparagraph. (g) Not applicable, these are not voluntary agreements. (h) The results of the measure are continuously monitored and, if they are not sufficient, corrective measures will be taken. (i) The control system is run at the MSEE operator. All summary datasets from each GES provider are checked. (j) Trends in savings will be set out in the annual reports on progress achieved towards national energy efficiency targets. 				

Measure	1.7	Title of measure:	Provision of energy services		
MSEE ID:	GES	Title of measure:	in buildings		
Sector:	Buildings	Source of financing:	Providers of guaranteed energy services (GES), recipients of GES		
$ÚS_{l_{GFS}} = (P_{pred} - P_{po})$					

 $\acute{\text{USi}}_{\text{GES}} - \text{planned/guaranteed annual energy savings (final energy consumption) after a year of implementation of energy efficiency measures [kWh];$

P_{pred} – energy consumption for the building prior to the implementation of energy efficiency measures (typically the average

energy consumption for the original condition over the past 3 years) [kWh];

P_{po} – building energy consumption after the implementation of energy efficiency measures [kWh];

Note: The calculation of ÚSi_GES is only indicative. Energy savings are announced to the GES operator for all projects in the previous calendar year.

Industry sector

Measure	5.1.1					Innovation and technology	
MSEE ID:			Title	Title of measure:		transfers at industrial enterprises	
Sector:	Industry		Fina	Financial mechanism:		2007-2013 Structural Funds, Operational Programme Competitiveness and Economic Growth, Measure 1.1	
Measure lasting from: (year)	2007		to: ((year)		2015 (2013+2)	
Responsible:	Ministry of Economy,		Arti	Measure to comply with Article 7 of Directive 2012/27/EU:		Yes	
			Poli	icy measure cl	assification:	Article 7(9)(b)	
Lifetime of measure (years):	>15		Cor	mpliance with	Article 7(10)	Yes	
Form of energy:	Natural gas	Electricity		Heat	Other:		
Breakdown (%) by form of energy	37.63 %	3.80 %		32.67 %	25.90 %	Statistical Office – Energy Sector 2014	
Characteristics of the measure (including eligible activities)	Prog proje unde	sure: ng scheme ramme Co ects outside ertakings is	s – a mpe the l	a grant from the titiveness and Bratislava Self	e 2007-2013 Sti I Economic Gr -governing Reg	ructural Funds via the Operational owth for the implementation of ion; the maximum aid intensity for Central and Eastern Slovakia) of	
	eligible expenditure; Supported/eligible activities are mainly focused on: (a) the modernisation of machinery, appliances and equipment to incre competitiveness by reducing the energy intensity of the production process.						
Evaluation of the measure	Bottom-up, via individual projects						
Methods for the calculation of savings (in accordance with Annex V(1) to the EED ¹⁹ and Implementing Decree No 327/2015)	Methods for the calculation of savings (choice of options): (a) ex ante – projected savings (standard savings for each measure); (b) ex post – measured savings (measurement before and after implementation of the measure); (c) relative savings drawing on technical estimates of savings.						
Detailed description of the method to calculate energy savings	 Savings are determined on the basis of annual energy consumption data prior to the implementation of the measure and energy consumption planned after the implementation of the measure. Data on energy consumption is included in the grant application. The credibility of the data is confirmed by professional evaluators in the evaluation of the application. The actual savings achieved are monitored by the intermediate body for five years after the completion of project implementation. Projects focusing exclusively on the installation of facilities for the use of renewable sources of energy are not included in this measure because, in this case, there is no reduction in final energy consumption, only the replacement of one form of energy with another. No potential reduction in losses during energy distribution is applied. 						
	Yes						
Use of expert estimates and assumptions in the calculation of energy savings	In the calculation of energy savings for projects where measured energy consumption data is still not available after the implementation of the measure, expert estimates will be used in the preparation of the project by professionally competent persons (energy auditors or designers) according to the type of project by determining the energy consumption after the implementation of the measure, by applying relative energy savings further to knowledge of current and projected developments in science and technology.						
Monitoring, control and verification of the energy savings made	Monitoring is arranged in accordance with rules on the use of financial resources from Structural Funds for the 2007-2013 programming period. This entails the provision of data or the fulfilment of the impact indicator (the annual energy saving) five years after projec implementation. Beneficiaries provide data via the ITMS monitoring system. The beneficiary is responsible for the data provided. The intermediate body (the Slovak Innovation and Energy Agency) monitors the fulfilment of the indicator (energy savings) and, if it is not being met applies the sanction mechanisms specified in the grant agreement.						

 $^{^{19}}$ EED – Directive 2012/27/EU on energy efficiency

Overall evaluation and way forward	 The final deadline for the receipt of grant applications was 13 June 2013. Primplementation may take as long as 24 months, with a possible extension, but must completed no later than 31 December 2015. The overall evaluation of the effectiveness of the measure also includes the final resources used to achieve energy savings. In this measure, it is impossible to separate financial resources directly linked to a reduction in the energy intensity of production processes from the total resources used to increase the competitiveness of undertaking. The investment intensity per unit of energy savings may therefore representation from other energy efficiency measures in industry. 						
Projected overlapping with another measure – duplication	None foreseen.						
Method to avoid duplication	Not applicable.						
Information for the purp	oses of Article 7 of Directive 2012/27/EU						
Materiality of the measure (Annex V, point 2(c), to the EED)	The responsible entity, the Ministry of Economy, is the managing authority of the Operational Programme Competitiveness and Economic Growth, which announces calls for grant applications. Project administration is carried out by the intermediate body, i.e. the Slovak Innovation and Energy Agency. The activities of these entities are demonstrably material to the achievement of the energy savings reported.						
Complementarity of the measure	Complementarity is not applicable: The measure would not be implemented to the scope indicated without a funding scheme. Undertakings would only take the measures necessary to run their businesses.						
Compliance with legislation and principles of support mechanisms (including quality control and sanctions), if relevant	This measure is consistent with the procedure laid down in legislation of general application of the use of the European Structural Funds in the 2007-2013 programming period, in particular the European Regional Development Fund and State aid rules. Quality control and sanction are set out in specific grant agreements.						
Compliance with criteria (under Article 7(10) of the Directive)	 (a) Act No 321/2014 established two transitional periods. The 4AP will evaluate the contribution made by policy measures in the first transitional period (2014-2016) and compliance with the trajectory for the energy savings target under Article 7 by 2020. (b) Ministry responsible for the measure: Ministry of Economy. (c) Savings are determined transparently according to the ex ante and ex post methods and by means of relative savings; (d) Energy savings are shown in final energy consumption. (e) Savings are determined further to point 1(a), (b) and (c) of Annex V, in accordance with point 2 of Annex V to the EED; (f) Not applicable; these are not policy measures under Article 7(9)(a), second subparagraph. (g) Not applicable, these are not voluntary agreements. (h) The results of the measure are continuously monitored and, if they are not sufficient, corrective measures will be taken. (i) The control system is implemented at ITMS level and as part of the preparation of action plans and annual reports. As measures are checked on a project-by-project basis, no statistically significant share of measures for checking was established. (j) Trends in savings will be set out in the annual reports on progress achieved towards national energy efficiency targets. 						

Formula to calculate energy savings						
Measure MSEE ID:	5.1.1	Title of measure:	Innovation and technology transfers at industrial enterprises			
Sector:	Industry	Financial mechanism:	2007-2013 Structural Funds, Operational Programme Competitiveness and Economic Growth, Measure 1.1			
$\acute{U} S_i = \left(S_{pred} - S_{po}\right)$						

where: US_i – energy saving (final energy consumption) in the year of project implementation [MWh/year];

 S_{pred} - energy consumption before project implementation - value from the grant application in [GJ/year] converted to [MWh/year];

 S_{po} - energy consumption after project implementation - value from the grant application in [GJ/year] converted to [MWh/year];

Note: If the energy saving is provided by the managing authority as a resultant value in GJ or %, that value is used, after conversion to a unified physical unit, in the pursuit of the target under Article 7 of the Directive.

Measure	5.1.2					Innovation and technology	
MSEE ID:			Title	Title of measure:		transfers at industrial enterprises	
Sector:	Industry		Fina	Financial mechanism:		Operational Programme Bratislava Region 2007-2013	
Measure lasting from: (year)	2007			(year)		2015 (2013+2)	
Responsible:	Ministry of Agric and Rural Deve		Arti 201	asure to comp icle 7 of Direc 2/27/EU:	tive	Yes	
Lifetime of measure (years):	>15			icy measure cla npliance with A		Article 7(9)(b) Yes	
Form of energy:	Natural gas	Electricity	Coi	Heat	Other:	165	
Breakdown (%) by form of	37.63 %	3.80 %		32.67 %	25.90 %	Statistical Office – Energy	
energy	37.03 %	3.00 %)	32.07 %	25.90 %	Sector 2014	
	Support for the	deploymer	nt and	d use of progre	ssive technolog	ies in SMEs	
	Progr exper Regio	ng scheme amme Br nditure for on, with a r	atisla the naxir	ava Region, implementation num amount o	maximum aid on of projects	ictural Funds, via the Operational intensity of 95 % of eligible in the Bratislava Self-governing ciary not exceeding EUR 200 000 ule)	
Characteristics of the measure (including eligible activities)	Supported/eligible activities are mainly focused on: (a) the reconstruction and modernisation of existing energy sources based on foss fuels, i.e. an increase in the efficiency of installations, an increase in the annua utilisation rate, a reduction in the captive consumption of energy and utilities, etc.; (b) support for investment in the construction of new more fuel-efficient installations for electricity or heat generation; (c) the reconstruction of existing thermal energy distribution systems (e.g. improvements in the insulation of distribution pipes, the reconstruction of heat transfer stations, etc.); (d) the reconstruction and modernisation of compressed air production and distribution systems; (e) the reconstruction and modernisation of energy intensive technology, or the replacement thereof with new less energy intensive technology.						
Evaluation of the measure	Bottom-up, via i	ndividual p	rojec	cts			
Methods for the calculation of savings (in accordance with Annex V(1) to the EED ²⁰ and Implementing Decree No 327/2015)	Methods for the calculation of savings (choice of options): (a) ex ante – projected savings (standard savings for each measure); (b) ex post – measured savings (measurement before and after); (c) relative savings drawing on technical estimates of savings.						
Detailed description of the method to calculate energy savings	 Savings are determined on the basis of annual energy consumption data prior to the implementation of the measure and energy consumption planned after the implementation of the measure. Data on energy consumption is included in the grar application. The credibility of the data is confirmed by professional evaluators in the evaluation of the application. The actual savings achieved are monitored by the intermediate body for five years after the completion of project implementation. In projects focusing exclusively on energy savings, the total energy savings referred to inpoint 1 and the total cost of project implementation are counted. Projects focusing exclusively on the installation of facilities for the use of renewable sources of energy are not included in this measure because, in this case, there is not reduction in final energy consumption, only the replacement of one form of energy with another. No potential reduction in losses during energy distribution is applied. With combined projects focusing on the use of renewable sources of energy (RES) and on energy savings (EE), the total energy savings according to point 1, declared in the form of a measurable impact indicator, are counted. Of the investment costs, the part form of a measurable impact indicator, are counted. Of the investment costs, the part form of a measurable impact indicator, are counted. Of the investment costs, the part form of a measurable investment costs (Ni) per unit of installed capacity, determine according to previous projects, especially those under the Operational Programm Competitiveness and Economic Growth and SlovSEFF I and II, depending on the type of RES. The accuracy of the data is then verified by comparing the investment intensity of each project with the average investment intensity of projects with a similar focus. If the difference is significant, the Slovak Innovation and Energy Agency contacts the beneficiaries, unless the credibility of the data is prov					consumption planned after the sumption is included in the grant by professional evaluators in the achieved are monitored by the project implementation. It is total energy savings referred to insounted. It is case, there is no ement of one form of energy with distribution is applied. It is sources of energy (RES) and ording to point 1, declared in the the investment costs, the part for acity of an installation for RES use of installed capacity, determined the the Operational Programme I and II, depending on the type of the investment intensity of each ects with a similar focus. If the defence of the context is included the context in the the investment intensity of each ects with a similar focus. If the	

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 $^{^{20}}$ EED – Directive 2012/27/EU on energy efficiency

Use of expert estimates and assumptions in the calculation of energy savings	 In the calculation of energy savings for projects where measured energy consumption data is still not available after the implementation of the measure, expert estimates will be used in the preparation of the project by professionally competent persons (energy auditors or designers) according to the type of project by determining the energy consumption after the implementation of the measure, by applying relative energy savings further to knowledge of the state of the art and projected developments in science and technology. In combined RES/EE projects, the average investment costs per unit of installed capacity are used to divide financial resources between RES and energy savings, for example as follows: a. photovoltaic generation at EUR 1 110 per kW (figure based on an analysis of SlovSEFF I and II projects) b. utilisation of RES for heat generation at EUR 735 per kW (figure based on an analysis of Operational Programme Competitiveness and Economic Growth projects for biomass and heat pumps) c. reconstruction of a heat source at EUR 300 per kW (figure based on an analysis of Operational Programme Competitiveness and Economic Growth projects focusing on the reconstruction of biomass combustion sources). The average investment cost per unit of installed capacity may be changed and supplemented further to analyses of other implemented projects. 						
Monitoring, control and verification of the energy savings made	 Monitoring is arranged in accordance with rules on the use of financial resources from Structural Funds for the 2007-2013 programming period. This entails the provision of data on the fulfilment of the impact indicator (the annual energy saving) five years after project implementation. Beneficiaries provide data via the ITMS monitoring system. The beneficiary is responsible for the data provided. The intermediate body (the Bratislava Region) monitors the fulfilment of the indicator (energy savings) and, if it is not being met, applies the sanction mechanisms specified in the grant agreement. Checks are also conducted as part of the preparation of action plans and the annual report, based on the investment intensity of the individual projects. 						
Overall evaluation and way forward	The final deadline for the receipt of grant applications was 25 September 2015. Project implementation may last up to 31 December 2015.						
Projected overlapping with another measure – duplication	None foreseen.						
Method to avoid duplication	Not applicable.						
Information for the purp	oses of Article 7 of Directive 2012/27/EU						
Materiality of the measure (Annex V, point 2(c), to the EED)	The responsible entity, the Ministry of Agriculture and Rural Development, is the managing authority of the Operational Programme Bratislava Region, which announces calls for grant applications. Project administration is carried out by the intermediate body, i.e. the Bratislava Self-governing Region. The activities of these entities are demonstrably material to the achievement of the energy savings reported.						
Complementarity of the measure	Complementarity is not applicable: The measure would not be implemented to the scope indicated without a funding scheme. Undertakings would only take the measures necessary to run their businesses.						
Compliance with legislation and principles of support	This measure is consistent with the procedure laid down in legislation of general application on						
mechanisms (including quality control and sanctions), if relevant	the use of the European Structural Funds in the 2007-2013 programming period, in particular the European Regional Development Fund and State aid rules (<i>de minimis</i> aid). Quality control and sanctions are set out in specific grant agreements. (a) Act No 321/2014 established two transitional periods. The 4AP will evaluate the						

Formula to calculate energy savings						
Measure MSEE ID:	5.1.2	Title of measure:	Innovation and technology transfers at industrial enterprises			
Sector:	Industry	Financial mechanism:	2007-2013 Structural Funds, Operational Programme Bratislava Region			
$\acute{\text{U}}S_i = \left(S_{pred} - S_{po}\right)$						

 $ÚS_i$ – energy saving (final energy consumption) in the year of project implementation [MWh/year];

 S_{pred} - energy consumption before project implementation - value from the grant application in [GJ/year] converted to [MWh/year];

 S_{po} - energy consumption after project implementation - value from the grant application in [GJ/year] converted to [MWh/year].

Note: If the energy saving is provided by the managing authority as a resultant value in GJ or %, that value is used, after conversion to a unified physical unit, in the pursuit of the target under Article 7 of the Directive.

Measure	5.1.3					Innovation and technology		
MSEE ID:			Title	e of measure	:	transfers at industrial enterprises		
Sector:	Industry		Fina	Financial mechanism:		Operational Programme Research and Innovation 2014- 2020		
Measure lasting from: (year)	2014		to: ((year)		2020		
Responsible:	Ministry of Economy		Arti 201	Measure to comply with Article 7 of Directive 2012/27/EU:		Yes Article 7(9)(b)		
Lifetime of measure (years):	>15			icy measure cl npliance with <i>i</i>		Yes		
Form of energy:	Natural gas	Electricity		Heat	Other:			
Breakdown (%) by form of energy	37.63 %	3.80 %	, D	32.67 %	25.90 %	Statistical Office – Energy Sector 2014		
Characteristics of the measure (including eligible activities)	Support to increase the efficiency and performance of the research, development a innovation system. Nature of measure: (a) funding scheme – grant from the 2014-220 ESIF via the Operational Programme Research and Innovation, a common programming document of the Ministry of Education, Science, Research and Sport of the Slovak Republic and the Ministry of Economy of the Slovak Republic encompassing the creation of a stable environme conducive to innovation for all relevant entities, and support for an increase in the efficiency and performance of the research, development and innovation system, a key pillar for increasing competitiveness, sustainable economic growth and employment. Eligible activities: (a) Support for innovation and technology transfer (b) Support for technological and applied research outside the Bratislava Region							
Evaluation of the measure	., , , ,	(c) Support for technological and applied research in the Bratislava Region Bottom-up, via individual projects						
Methods for the calculation of savings (in accordance with Annex V(1) to the EED ²¹ and Implementing Decree No 327/2015)	Methods for the calculation of savings (choice of options): (a) ex ante – projected savings (standard savings for each measure); (b) ex post – measured savings (measurement before and after implementation of the measure); (c) relative savings drawing on technical estimates of savings. (d)							
Detailed description of the method to calculate energy savings	 Savings are determined on the basis of annual energy consumption data prior to the implementation of the measure and energy consumption planned after the implementation of the measure. Data on energy consumption is included in the grant application. The credibility of the data is confirmed by professional evaluators in the evaluation of the application. The actual savings achieved are monitored by the intermediate body for five years after the completion of project implementation. Projects focusing exclusively on the installation of facilities for the use of renewable sources of energy are not included in this measure because, in this case, there is no reduction in final energy consumption, only the replacement of one form of energy with another. 							
Use of expert estimates and assumptions in the calculation of energy savings	Yes In the calculation of energy savings for projects where measured energy consumption data is still not available after the implementation of the measure, expert estimates will be used in the preparation of the project by professionally competent persons (energy auditors or designers) according to the type of project by determining the energy consumption after the implementation of the measure, by applying relative energy savings further to knowledge of current and projected developments in science and technology.							
Monitoring, control and verification of the energy savings made Overall evaluation and way forward	Monitoring is arranged in accordance with rules on the use of financial resources from the ESIF for the 2014-2020 programming period. This entails the provision of data on the fulfilmen of the indicator (the annual energy saving) five years after project implementation Beneficiaries provide data via the ITMS 2014+ monitoring system. The beneficiary is responsible for the data provided. The intermediate body (the Ministry of Economy and the Slovak Innovation and Energy Agency) monitors the fulfilment of the indicator (energy savings) and, if it is not being met, applies the sanction mechanisms specified in the grant agreement. On 2 August 2016, the Ministry of Economy, as the intermediate body for the Operationa Programme Research and Innovation, announced a call for grant applications (call code							

 $^{^{21}}$ EED - Directive 2012/27/EU on energy efficiency

	OPVal-MH/DP/2016/1.2.2-02). The total indicative allocation for the grant call is EUR 175 million. Grant applications are accepted until the allocation is exhausted.							
Projected overlapping with another measure – duplication	None foreseen.							
Method to avoid duplication	Not applicable.							
Information for the purp	oses of Article 7 of Directive 2012/27/EU							
Materiality of the measure (Annex V, point 2(c), to the EED)	The responsible entity, the Ministry of Education, Science, Research and Sport, is the managing authority of the Operational Program Research and Innovation. The Ministry of Economy, as the intermediary body, announces calls for grant applications. Project administration is carried out by the Slovak Innovation and Energy Agency. The activities of these entities are demonstrably material to the achievement of the energy savings reported.							
	Complementarity is not applicable:							
Complementarity of the measure	The measure would not be implemented to the scope indicated without a funding scheme. Undertakings would only take the measures necessary to run their businesses.							
Compliance with legislation and principles of support mechanisms (including quality control and sanctions), if relevant	This measure is consistent with the procedure laid down in legislation of general application on the use of the European Structural and Investment Funds in the 2014-2020 programming period, in particular the European Regional Development Fund and State aid rules. Quality control and sanctions are set out in specific grant agreements.							
Compliance with criteria (under Article 7(10) of the Directive)	 (a) Act No 321/2014 established two transitional periods. The 4AP will evaluate the contribution made by policy measures in the first transitional period (2014-2016) and compliance with the trajectory for the energy savings target under Article 7 by 2020. (b) Ministry responsible for the measure: Ministry of Economy. (c) Savings are determined transparently according to the ex ante and ex post methods and by means of relative savings; (d) Energy savings are shown in final energy consumption. (e) Savings are determined further to point 1(a), (b) and (c) of Annex V, in accordance with point 2 of Annex V to the EED; (f) Not applicable; these are not policy measures under Article 7(9)(a), second subparagraph. (g) Not applicable, these are not voluntary agreements. (h) The results of the measure are continuously monitored and, if they are not sufficient, corrective measures will be taken. (i) The control system is implemented at ITMS 2014+ level and as part of the preparation of action plans and annual reports. As measures are checked on a project-by-project basis, no statistically significant share of measures for checking was established. (j) Trends in savings will be set out in the annual reports on progress achieved towards national energy efficiency targets. 							

Formula to calculate energy savings						
Measure MSEE ID:	5.1.3	Title of measure:	Innovation and technology transfers at industrial enterprises			
Sector:	Industry	Financial mechanism:	Operational Programme Research and Innovation 2014-2020			
$\acute{U} S_i = \left(S_{pred} - S_{po}\right)$						

 $ÚS_i$ – energy saving (final energy consumption) in the year of project implementation [MWh/year];

 S_{pred} - energy consumption before project implementation - value from the grant application in [GJ/year] converted to [MWh/year];

 S_{po} - energy consumption after project implementation - value from the grant application in [GJ/year] converted to [MWh/year];

Note: If the energy saving is provided by the managing authority as a resultant value in GJ or %, that value is used, after conversion to a unified physical unit, in the pursuit of the target under Article 7 of the Directive.

Measure	5.2.1 Increas					Increased energy efficiency in		
MSEE ID:	0.2		Title of measure:			industrial production		
Sector:	Industry		Fina	Financial mechanism:		Operational Programme Competitiveness and Economic Growth 2007-2013, Measure 2.1		
Measure lasting from: (year)	2007		to: (year)		2015 (2013+2)		
Responsible:	Ministry of Eco	nomy	Arti	Measure to comply with Article 7 of Directive 2012/27/EU:		Yes		
			Poli	cy measure cla	assification:	Article 7(9)(b)		
Lifetime of measure (years):			Con	npliance with A		Yes		
Form of energy:	Natural gas	Electricity		Heat	Other:	Statistical Office France		
Breakdown (%) by form of energy	37.63 %	3.80 %	D	32.67 %	25.90 %	Statistical Office – Energy Sector 2014		
	progressive ted Nature of meas (a) fund Prog	chnologies i sure: ing scheme ramme Co	n the s – a mpet	grant from the	e 2007-2013 Str Economic Gr	ructural Funds via the Operational owth for the implementation of ion; the maximum aid intensity for		
Characteristics of the measure (including eligible	projects outside the Bratislava Self-governing Region; the maximum aid intens undertakings is 40 % (West Slovakia) or 50 % (Central and Eastern Slovakia) eligible expenditure; Supported/eligible activities are mainly focused on: (a) the reconstruction and modernisation of structures in industry and related servi order to reduce the energy intensity thereof;					Central and Eastern Slovakia) of in industry and related services in		
activities)	effici (c) the r	•						
	systems; (d) the introduction of measurement and management systems for energy producti and consumption to reduce energy consumption (not including the purchase of more energy-efficient production technologies); (e) the construction, modernisation and reconstruction of energy distribution systems utility distribution systems, including systems for the external lighting of industribution complexes.							
Evaluation of the measure	Bottom-up, via	individual p	roiec	ets				
Methods for the calculation of savings (in accordance with Annex V(1) to the EED ²² and Implementing Decree No 327/2015)	Methods for the calculation of savings (choice of options): (a) ex ante – projected savings (standard savings for each measure); (b) ex post – measured savings (measurement before and after implementation of the measure); (c) relative savings drawing on technical estimates of savings.							
Detailed description of the method to calculate energy savings	 Savings are determined on the basis of annual energy consumption data prior to the implementation of the measure and energy consumption planned after the implementation of the measure. Data on energy consumption is included in the grant application. The credibility of the data is confirmed by professional evaluators in the evaluation of the application. The actual savings achieved are monitored by the intermediate body for five years after the completion of project implementation. In projects focusing exclusively on energy savings, the total energy savings referred to in point 1 and the total cost of project implementation are counted. Projects focusing exclusively on the installation of facilities for the use of renewable sources of energy are not included in this measure because, in this case, there is no reduction in final energy consumption, only the replacement of one form of energy with another. No potential reduction in losses during energy distribution is applied. With combined projects focusing on the use of renewable sources of energy (RES) and on energy savings (EE), the total energy savings according to point 1, declared in the form of a measurable impact indicator, are counted. Of the investment costs, the part for RES is removed. This is calculated as the installed capacity of an installation for RES use multiplied by the average investment costs (Ni) per unit of installed capacity, determined according to previous projects, especially those under the Operational Programme Competitiveness and Economic Growth and SlovSEFF I and II, depending on the type of RES. The accuracy of the data is then verified by comparing the investment intensity of each project with the average investment intensity of projects with a similar focus. If the difference is significant, the Slovak Innovation and Energy Agency contacts the beneficiaries, unless the credibility of the data is proven, the project is excluded, and the savings generated by it are not							

²² EED – Directive 2012/27/EU on energy efficiency

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Use of expert estimates and assumptions in the calculation of energy savings	1. In the calculation of energy savings for projects where measured energy consumption data is still not available after the implementation of the measure, expert estimates will be used in the preparation of the project by professionally competent persons (energy auditors or designers) according to the type of project by determining the energy consumption after the implementation of the measure, by applying relative energy savings further to knowledge of the state of the art and projected developments in science and technology. 2. In combined RES/EE projects, the average investment costs per unit of installed capacity are used to divide financial resources between RES and energy savings, for example as follows: a. photovoltaic generation at EUR 1 110 per kW (figure based on an analysis of SlovSEFF I and II projects) b. utilisation of RES for heat generation at EUR 735 per kW (figure based on an analysis of Operational Programme Competitiveness and Economic Growth projects for biomass and heat pumps) c. reconstruction of a heat source at EUR 300 per kW (figure based on an analysis of Operational Programme Competitiveness and Economic
	Growth projects focusing on the reconstruction of biomass combustion sources). The average investment cost per unit of installed capacity may be changed and supplemented further to analyses of other implemented projects.
Monitoring, control and verification of the energy savings made	 Monitoring is arranged in accordance with rules on the use of financial resources from Structural Funds for the 2007-2013 programming period. This entails the provision of data on the fulfilment of the impact indicator (the annual energy saving) five years after project implementation. Beneficiaries provide data via the ITMS monitoring system. The beneficiary is responsible for the data provided. The intermediate body (the Slovak Innovation and Energy Agency) monitors the fulfilment of the indicator (energy savings) and, if it is not being met, applies the sanction mechanisms specified in the grant agreement. Checks are also conducted as part of the preparation of action plans and the annual report, based on the investment intensity of the individual projects.
Overall evaluation and way forward	The final deadline for the receipt of grant applications was 13 January 2015. Project implementation may last up to 31 December 2015.
Projected overlapping with another measure – duplication	None foreseen.
Method to avoid duplication	Not applicable.

Information for the purp	oses of Article 7 of Directive 2012/27/EU						
Materiality of the measure (Annex V, point 2(c), to the EED)	The responsible entity, the Ministry of Economy, is the managing authority of the Operational Programme Competitiveness and Economic Growth, which announces calls for grant applications. Project administration is carried out by the intermediate body, i.e. the Slovak Innovation and Energy Agency. The activities of these entities are demonstrably material to the achievement of the energy savings reported.						
Complementarity of the measure	Complementarity is not applicable: The measure would not be implemented to the scope indicated without a funding scheme. Undertakings would only take the measures necessary to run their businesses.						
Compliance with legislation and principles of support mechanisms (including quality control and sanctions), if relevant	This measure is consistent with the procedure laid down in legislation of general application on the use of the European Structural Funds in the 2007-2013 programming period, in particular the European Regional Development Fund and State aid rules. Quality control and sanctions are set out in specific grant agreements.						
Compliance with criteria (under Article 7(10) of the Directive)	 (a) Act No 321/2014 established two transitional periods. The 4AP will evaluate the contribution made by policy measures in the first transitional period (2014-2016) and compliance with the trajectory for the energy savings target under Article 7 by 2020. (b) Ministry responsible for the measure: Ministry of Economy. (c) Savings are determined transparently according to the <i>ex ante</i> and <i>ex post</i> methods and by means of relative savings; (d) Energy savings are shown in final energy consumption. (e) Savings are determined further to point 1(a), (b) and (c) of Annex V, in accordance with point 2 of Annex V to the EED; (f) Not applicable; these are not policy measures under Article 7(9)(a), second subparagraph. (g) Not applicable, these are not voluntary agreements. (h) The results of the measure are continuously monitored and, if they are not sufficient, corrective measures will be taken. (i) The control system is implemented at ITMS level and as part of the preparation of action plans and annual reports. As measures are checked on a project-by-project basis, no 						

Ī	statistically significant share of measures for checking was established.					
(j)	(j) Trends in savings will be set out in the annual reports on progress achieved towards					
<u> </u>	national energy efficiency targets.					

Formula to calculate energy savings					
Measure MSEE ID:	5.2.1	Title of measure:	Increased energy efficiency in industrial production		
Sector:	Industry	Financial mechanism:	Operational Programme Competitiveness and Economic Growth 2007-2013, Measure 2.1		
$ÚS_i = (S_{nred} - S_{no})$					

Spred

where:

 $ÚS_i$ – energy saving (final energy consumption) in the year of project implementation [MWh/year];

S_{pred} - energy consumption before project implementation - value from the grant application in [GJ/year] converted to [MWh/year];

 S_{po} - energy consumption after project implementation - value from the grant application in [GJ/year] converted to [MWh/year].

Note: If the energy saving is provided by the managing authority as a resultant value in GJ or %, that value is used, after conversion to a unified physical unit, in the pursuit of the target under Article 7 of the Directive.

Measure	5.2.2			e of measure:		Increased energy efficiency in	
MSEE ID: Sector:	Industry		Fin	Financial mechanism:		industrial production SlovSEFF II – industry	
Measure lasting from:	2013			to: (year)		2020	
(year) Responsible:	Ministry of Economy			Measure to comply with Article 7 of Directive 2012/27/EU:		Yes	
	4.5			icy measure cl		Article 7(9)(b)	
Lifetime of measure (years): Form of energy:	>15 Natural gas	Electricity	Coi	mpliance with /	Article 7(10) Other:	Yes	
Breakdown (%) by form of energy	37.63 %	3.80 %		32.67 %	25.90 %	Statistical Office – Energy Sector 2014	
Characteristics of the measure (including eligible activities)	projects, h Developme extended i intended fo Bohunice I the form of	es;					
E-physical (the control of the contr	— measurem	ent and ma	anag	ement;	San Dation Talemale		
Methods for the calculation of savings (in accordance with Annex V(1))	Bottom-up, via individual projects Methods for the calculation of savings: (a) ex ante – projected savings (standard savings for each measure); (b) ex post – measured savings (measurement of energy consumption before and after implementation of the measure); (c) relative savings based on the planned energy requirement (further to similar)						
Detailed description of the method to calculate energy savings	measures implemented at other facilities with different capacity); Energy savings in individual projects are calculated as the difference between the average energy consumption before the energy efficiency measure and the planned energy requirement after the implementation of the project referred to in the energy audit/design documentation.						
Use of expert estimates and assumptions in the calculation of energy savings	Expert estimates have been used to determine the total cost of implementing energy efficiency measures because data on total investment costs (including ineligible costs) is not available and therefore it was assumed that ineligible own-funded costs account for 20 % of the total investment costs. According to data from the programme consultant (ESG), eligible costs amount to EUR 110 577 000, for which loan coverage of EUR 89 810 000 was provided (approximately 81.22 %).						
Monitoring, control and verification of the energy savings made	Energy savings monitoring – data on energy consumption and savings was provided by the consultancy firm responsible for project implementation coordination and programme monitoring (ESG). In all industrial projects, an energy audit (EA) and/or a Rational Energy Utilisation Plan (REUP) was drawn up. All projects were verified after the implementation of the measures. Verification was carried out to check the physical implementation of the energy efficiency measures taken, and to check the functionality and operability, and where appropriate the use, of the subject of the project. An additional benefit for applicants is free technical assistance , including the production of						
Overall evaluation and way forward	an energy audit by the design consultant. The monitoring and verification of energy savings is hampered by the limited amount of information (in industry, for example, the enterprise size indicator, the total energy consumption, the number of employees, the total floor area of the modernised industrial building, a detailed list of implemented measures, etc.). SlovSEFF II will be followed by SlovSEFF III, part of the Green Investment Scheme.						
Projected overlapping with another measure – duplication	None foreseen.						
Method to avoid duplication	Not applicable.						
Information for the purp	oses of Article	7 of Dire	ecti	ve 2012/27/E	U		
Materiality of the measure (Annex V, point 2(c))	Project implementation contributes to savings for the final customer.						

	Activity carried out by the Ministry of Economy, as the BIDSF administrator, is demonstrably material, particularly the provision of financial resources and the control of the process for the use of those funds.					
Complementarity of the measure	Complementarity is not applicable: The measure would not be implemented to the scope indicated without a funding scheme. Undertakings would only take the measures necessary to run their businesses.					
Compliance with legislation and principles of support mechanisms (including quality control and sanctions), if relevant	Projects are implemented in accordance with SlovSEFF II conditions. Eligibility for a grant is confirmed by the design consultant.					
Compliance with criteria (under Article 7(10) of the Directive)	 (a) Act No 321/2014 established two transitional periods. The 4AP will evaluate the contribution made by policy measures in the first transitional period (2014-2016) and compliance with the trajectory for the energy savings target under Article 7 by 2020. (b) Ministry responsible for the measure: Ministry of Economy. (c) Savings are determined transparently according to the <i>ex ante</i> and <i>ex post</i> methods and by means of relative savings; (d) Energy savings are shown in final energy consumption. (e) Savings are determined further to point 1(a), (b) and (c) of Annex V, in accordance with point 2 of Annex V to the EED; (f) Not applicable; these are not policy measures under Article 7(9)(a), second subparagraph. (g) Not applicable, these are not voluntary agreements. (h) The results of the measure are continuously monitored and, if they are not sufficient, corrective measures will be taken. (i) The control system is implemented at programme level (design and verification consultant) and as part of the preparation of action plans and annual reports. As measures are checked on a project-by-project basis, no statistically significant share of measures for checking was established. (j) Trends in savings will be set out in the annual reports on progress achieved towards national energy efficiency targets. 					

Formula to calculate energy savings					
Measure MSEE ID:	5.2.2, further to RS2015	Title of measure:	Increased energy efficiency in industrial production		
Sector:	Industry	Financial mechanism:	SlovSEFF II – industry		

 $\acute{\text{US}}_{i}$ – energy saving (final energy consumption) in the year of project implementation [MWh/year];

 S_{pred} - energy consumption before project implementation - value from the loan application in [GJ/year] converted to [MWh/year];

 S_{po} – energy consumption after project implementation – value from the loan application in [GJ/year] converted to [MWh/year].

Note: The energy saving is provided by the programme consultant as a resultant value in GJ. After conversion to a unified physical unit, that value is used in the pursuit of the target under Article 7 of the Directive

Measure MSEE ID:	5.2.3, further to RS2015		Title of measure:			Increased energy efficiency in industrial production
Sector:	Industry			ancial mechani	ism:	SlovSEFF III – industry
Measure lasting from:	2014			to: (year)		2020
(year) Responsible:	Ministry of the Environment			Measure to comply with Article 7 of Directive 2012/27/EU: Policy measure classification:		Yes Article 7(9)(b)
1 'f - t' f ()	45					
Lifetime of measure (years): Form of energy:	>15 Natural gas	Electricity	Cor	npliance with <i>F</i> Heat	Other:	Yes
Breakdown (%) by form of	Ŭ					Statistical Office – Energy
energy	37.63 %	3.80 %		32.67 %	25.90 %	Sector 2014
Characteristics of the measure (including eligible activities)	Energy efficiency in industry. Nature of measure: — funding schemes — SlovSEFF III is a loan-based sustainable energy projects developed by the Eu and Development (EBRD) in cooperation with the N Slovak Republic and the Ministry of Agriculture, For which finance programme grants and technical assistance (Development (EBRD) for grants and anoth assistance (consulting, energy auditing arrangemer Financial resources for energy efficiency mea approximately 35 % of the total resources allocate granted by contracted commercial banks and the upon reaching the required level of energy savings. Grants are funded from the profits of innovati between the Slovak and Spanish governments. Using Slovakia allocated profits from the sale of permit additional greenhouse gas emissions in Slovakia. The maximum loan amount is EUR 5 million. The (IRR) required is 8 %, excluding the grant awarded. Eligible activities are, in particular: — cogeneration facilities;					uropean Bank for Reconstruction Ministry of the Environment of the od and the Environment of Spain, istance. Incing. The Spanish government er EUR 2 million for technical nts, etc.). Issures in industry account for the tothe programme. The loan is applicant is entitled to a grant over emission credit transactions. Under the terms of the contract, the toprojects aimed at reducing the minimum internal rate of return the contract of the contract.
Evaluation of the measure Methods for the calculation	 improvements in the thermal performance of industrial structures; reconstruction of heat production and distribution facilities; reconstruction of cold production and distribution facilities; measurement and management; Bottom-up, via individual projects Methods for the calculation of savings: (a) ex ante – projected savings (standard savings for each measure); (b) ex post – measured savings (measurement of energy consumption before and after 					
of savings (in accordance with Annex V(1))	 (b) ex post – measured savings (measurement of energy consumption before and after implementation of the measure); (c) relative savings based on the planned energy requirement (further to similar measures implemented at other facilities with different capacity); 					
Detailed description of the method to calculate energy savings	Energy savings achieved in individual projects are calculated as the difference between the average energy consumption before the energy efficiency measure and the planned energy requirement after the implementation of the project referred to in the energy audit/design documentation.					
Use of expert estimates and assumptions in the calculation of energy savings	Projected savings for the entire funding scheme are calculated on the basis of the allocation planned for energy efficiency measures in industry and the average investment intensity in industry on the basis of previous programmes (e.g. SlovSEFF II – EUR 418 per MWh).					
Monitoring, control and verification of the energy savings made Overall evaluation and way	consultancy firm responsible monitoring (ESG). In all industri Utilisation Plan (REUP) will be dr All projects will be verified after the out to check the physical imple			for project trial projects, drawn up. the implemen lementation o	implementation an energy audi tation of the me f the energy ef	and savings is provided by the coordination and programme t (EA) and/or a Rational Energy asures. Verification will be carried ficiency measures taken, and to atte the use, of the subject of the
forward						

Projected overlapping with another measure – duplication	None foreseen.							
Method to avoid duplication	Not applicable.							
Information for the purp	Information for the purposes of Article 7 of Directive 2012/27/EU							
Materiality of the measure (Annex V, point 2(c))	Project implementation contributes to savings for the final customer. The activity of the Ministry of the Environment, as the ministry responsible for the sale of emission permits, from the proceeds of which grants are financed under the funding scheme in question, is demonstrably material, in particular by securing financial resources and controlling the process for the use of those funds.							
Complementarity of the measure	Complementarity is not applicable: The measure would not be implemented to the scope indicated without a funding scheme. Undertakings would only take the measures necessary to run their businesses.							
Compliance with legislation and principles of support mechanisms (including quality control and sanctions), if relevant	Projects are implemented in accordance with SlovSEFF III conditions. The minimum internal rate of return (IRR) required is 8 %, excluding the grant awarded. Eligibility for a grant is confirmed by the verification consultant (ALLPLAN).							
Compliance with criteria (under Article 7(10) of the Directive)	 (a) Act No 321/2014 established two transitional periods. The 4AP will evaluate the contribution made by policy measures in the first transitional period (2014-2016) and compliance with the trajectory for the energy savings target under Article 7 by 2020. (b) Ministry responsible for the measure: Ministry of the Environment. (c) Savings are determined transparently according to the ex ante and ex post methods and by means of relative savings; (d) Energy savings are shown in final energy consumption. (e) Savings are determined further to point 1(a), (b) and (c) of Annex V, in accordance with point 2 of Annex V to the EED; (f) Not applicable; these are not policy measures under Article 7(9)(a), second subparagraph. (g) Not applicable, these are not voluntary agreements. (h) The results of the measure are continuously monitored and, if they are not sufficient, corrective measures will be taken. (i) The control system is implemented at programme level (design and verification consultant) and as part of the preparation of action plans and annual reports. As measures are checked on a project-by-project basis, no statistically significant share of measures for checking was established. (j) Trends in savings will be set out in the annual reports on progress achieved towards national energy efficiency targets. 							

Formula to calculate energy savings					
Measure	5.2.3, further to RS2015	Title of measure:	Increased energy efficiency in		
MSEE ID:			industrial production		
Sector:	Industry	Financial mechanism:	SlovSEFF III – industry		
$ \acute{\text{U}}S_i = \left(S_{pred} - S_{po}\right) $					

 $ÚS_i$ – energy saving (final energy consumption) in the year of project implementation [MWh/year];

 S_{pred} - energy consumption before project implementation - value from the loan application in [GJ/year] converted to [MWh/year];

 S_{po} – energy consumption after project implementation – value from the loan application in [GJ/year] converted to [MWh/year].

Note: The energy saving is provided by the programme consultant as a resultant value in GJ. After conversion to a unified physical unit, that value is used in the pursuit of the target under Article 7 of the Directive

Measure	5.2.4			e of measure:		Increased energy efficiency in
MSEE ID: Sector:	Industry			Financial mechanism:		industrial production Operational Programme
	,			i manda mediamam.		Environment 2007-2013, Axis 4
Measure lasting from: (year)	2007			to: (year)		2015 (2013+2)
Responsible:	Ministry of the			Measure to comply with Article 7 of Directive 2012/27/EU:		Yes
	Liviloriiion		Pol	icy measure cl	assification:	Article 7(9)(b)
Lifetime of measure (years):	>15		Cor	mpliance with	Article 7(10)	Yes
Form of energy:	Natural gas	Electricity		Heat	Other:	0
Breakdown (%) by form of energy	37.63 %	3.80 %	·	32.67 %	25.90 %	Statistical Office – Energy Sector 2014
	energy sources infrastructure ir elimination of the ecosystems. Nature of meas	s. Priority As n Slovakia in the negative sure:	xis 4 n acc imp	Specific objection Specific objection Specific objection Specific objection Specific objection	ective: Completic EU and national mental loads an	ling the promotion of renewable on of waste management legislation, the reduction and d landfills on human health and ructural Funds via the Operational
Characteristics of the measure (including eligible	Prog the earm	ramme Env Bratislava arked.	/iron Se	ment, Priority	Axis 4, for the ir Region; appro	nplementation of projects outside ximately EUR 570 million was
activities)	Supported/eligible activities are mainly focused on: - construction of a biopellet production plant - separation of municipal waste collection in a central collection yard with energy recover - utilisation of the possibility of the anaerobic fermentation of biodegradable waste, which generates biogas - biogas plants most commonly built at wastewater treatment plants (in connection with sludge stabilization). - Biogas plants, as part of the waste management infrastructure, could further improve the treatment of sludge, which is a waste generated in large quantities (WWTP waste) - waste incineration with energy recovery					of biodegradable waste, which ent plants (in connection with ucture, could further improve the
Evaluation of the measure	Bottom-up, via					
Methods for the calculation of savings (in accordance with Annex V(1) to the EED ²³ and Implementing Decree No 327/2015)	Methods for the calculation of savings (choice of options): (a) ex ante – projected savings (standard savings for each measure); (b) ex post – measured savings (measurement before and after); (c) relative savings drawing on technical estimates of savings.					
Detailed description of the method to calculate energy savings	 Savings are determined on the basis of annual energy consumption data prior to the implementation of the measure and energy consumption planned after the implementation of the measure. Data on energy consumption is included in the grant application. The credibility of the data is confirmed by professional evaluators in the evaluation of the application. The actual savings achieved are monitored by the intermediate body for five years after the completion of project implementation. Projects focusing exclusively on the installation of facilities for the use of renewable sources of energy are not included in this measure because, in this case, there is no reduction in final energy consumption, only the replacement of one form of energy with another. No potential reduction in losses during energy distribution is applied. 					
	Yes					
Use of expert estimates and assumptions in the calculation of energy savings	In the calculation of energy savings for projects where measured energy consumption data i still not available after the implementation of the measure, expert estimates will be used in the preparation of the project by professionally competent persons (energy auditors or designers according to the type of project by determining the energy consumption after the implementation of the measure, by applying relative energy savings further to knowledge of current and projected developments in science and technology.					
Monitoring, control and verification of the energy savings made Overall evaluation and way						

 $^{^{23}}$ EED – Directive 2012/27/EU on energy efficiency

forward	implementation could last up to 31 December 2015.			
Projected overlapping with another measure – duplication	None foreseen.			
Method to avoid duplication	Not applicable.			

Information for the purp	oses of Article 7 of Directive 2012/27/EU					
Materiality of the measure (Annex V, point 2(c), to the EED)	The responsible entity, the Ministry of the Environment, is the managing authority of the Operational Programme Environment, which announces calls for grant applications. Project administration is carried out by the intermediate body, i.e. the Slovak Environmental Agency. The activities of these entities are demonstrably material to the achievement of the energy savings reported.					
	Complementarity is not applicable.					
Complementarity of the measure	The measure would not be implemented to the scope indicated without a funding scheme. Undertakings would only take the measures necessary to run their businesses.					
Compliance with legislation and principles of support mechanisms (including quality control and sanctions), if relevant	This measure is consistent with the procedure laid down in legislation of general application of the use of the European Structural Funds in the 2007-2013 programming period, in particula the European Regional Development Fund and State aid rules. Quality control and sanctions are set out in specific grant agreements.					
Compliance with criteria (under Article 7(10) of the Directive)	 (a) Act No 321/2014 established two transitional periods. The 4AP will evaluate the contribution made by policy measures in the first transitional period (2014-2016) and compliance with the trajectory for the energy savings target under Article 7 by 2020. (b) Ministry responsible for the measure: Ministry of the Environment. (c) Savings are determined transparently according to the <i>ex ante</i> and <i>ex post</i> methods and by means of relative savings; (d) Energy savings are shown in final energy consumption. (e) Savings are determined further to point 1(a), (b) and (c) of Annex V, in accordance with point 2 of Annex V to the EED; (f) Not applicable; these are not policy measures under Article 7(9)(a), second subparagraph. (g) Not applicable, these are not voluntary agreements. (h) The results of the measure are continuously monitored and, if they are not sufficient, corrective measures will be taken. (i) The control system is implemented at ITMS level and as part of the preparation of action plans and annual reports. As measures are checked on a project-by-project basis, no statistically significant share of measures for checking was established. (j) Trends in savings will be set out in the annual reports on progress achieved towards national energy efficiency targets. 					

Formula to calculate energy savings					
Measure MSEE ID:	5.2.4	Title of measure:	Increased energy efficiency in industrial production		
Sector:	Industry	Financial mechanism:	Operational Programme Environment, Axis 4		
$ÚS_i = (S_{nred} - S_{no})$					

 $\acute{\text{US}}_{i}$ – energy saving (final energy consumption) in the year of project implementation [MWh/year];

 S_{pred} - energy consumption before project implementation - value from the grant application in [GJ/year] converted to [MWh/year];

 S_{po} – energy consumption after project implementation – value from the grant application in [GJ/year] converted to [MWh/year].

Note: If the energy saving is provided by the managing authority as a resultant value in GJ or %, that value is used, after conversion to a unified physical unit, in the pursuit of the target under Article 7 of the Directive.

Measure	5.3.1					Implementation of energy
MSEE ID:	0.0		Titl	e of measure	:	efficiency measures derived from
Sector:	Industry		Fina	ancial mechan	ism:	energy audits Operational Programme Environmental Quality 2014- 2020, Priority Axis 4
Measure lasting from: (year)	2014		to:	(year)		2020
Responsible:	Ministry of the Environment, S Innovation and		Arti 201	asure to compicle 7 of Direct 2/27/EU:	tive	Yes
Lifetime of measure (years):	Agency >15			icy measure cl npliance with		Article 7(9)(b) Yes
Form of energy:	Natural gas	Electricity	001	Heat	Other:	103
Breakdown (%) by form of		,	,			Statistical Office – Energy
energy	37.63 %	3.80 %	0	32.67 %	25.90 %	Sector 2014
	Reductions in t	he energy i	nten	sity of underta	kings	
	Envi gove medi	ing scheme ronmental (rning Regio	Quali on; the nterp	ty for the imple ne aid intensity orises and sma	ementation of pro for undertaking	via the Operational Programme ojects outside the Bratislava Selfs is 30 %, and the bonuses for e 10 % and 15 % of eligible
Characteristics of the measure (including eligible activities)	(b) imple ones	uction of erementation () in industry the reconsistervices in the reconsistervices in the reconsistervices in the reconsidistribution the introduand envircenergy properties and green the constribution systems of external light industrial indu	of mey and struct orde tructicience struction on me oduction or enclose truction of the control	I related servicion and mode or to reduce the ion and mode by or to reduce tion and mode ems; of measurem intal managen ion and consulting and consulting gas emission in, modernisa ergy-medium of industrial c	energy audits for ces, focusing on: ernisation of st e energy intensit rnisation of exis greenhouse gas dernisation of enert and manag nent systems, e umption in orde is; tion and recor- distribution sys- omplexes;	ructures in industry and related y thereof; sting energy facilities to increase
Evaluation of the measure	Bottom-up, via	individual p	orojeo	cts		, , , , ,
Methods for the calculation of savings (in accordance with Annex V(1))	(b) ex p mea	<i>nte</i> – projec <i>ost –</i> meas sure);	ted s ured	savings (standa savings (mea	ard savings for e	e and after implementation of the
Detailed description of the method to calculate energy savings	implemen implemen applicatio evaluatior intermedia 2. Projects f	tation of the tation of the creen of the attention of the attention of the tatential to the tatential to the tatential tatenti	the me me dibilit application five cclusing the me	measure a easure. Data ty of the data cation. The a years after the ively on the included in	nd energy conson energy conson energy conson is confirmed by ctual savings are completion of partiallation of fathis measure by	gy consumption data prior to the onsumption planned after the sumption is included in the grant by professional evaluators in the achieved are monitored by the project implementation. Cilities for the use of renewable ecause, in this case, there is no ement of one form of energy with
	Yes					
Assumptions and estimates used in the calculation of energy savings	still not availab preparation of according to implementation current and pro	le after the the project the type of the meopjected devo	imple by poff positions of positions eloper	ementation of rofessionally of project by de e, by applying nents in science	the measure, excompetent person etermining the grelative energy ce and technolog	
Monitoring, control and verification of the energy savings made	esiF for the 20 of the indica Beneficiaries responsible for	014-2020 pr tor (the a provide da r the data p	ogra nnua ita v orovid	mming period. Il energy savi ia the ITMS ded. The inter	This entails the ving) five year 2014+ monitor mediate body (e of financial resources from the provision of data on the fulfilment s after project implementation. ing system. The beneficiary is the Ministry of Economy and the t of the indicator (energy savings)

	and, if it is not being met, applies the sanction mechanisms specified in the grant agreement.
Overall evaluation and way forward	The implementation of specific projects is expected in 2017.
Projected overlapping with another measure – duplication	None foreseen.
Method to avoid duplication	Not applicable.
Information for the purp	oses of Article 7 of Directive 2012/27/EU
Materiality of the measure (Annex V, point 2(c))	The responsible entity, the Ministry of the Environment, is the managing authority of the Operational Programme Environmental Quality. Calls for grant applications are announced by the intermediate body, i.e. the Slovak Innovation and Energy Agency. The Slovak Innovation and Energy Agency is responsible for the entire process of project administration and evaluation. The activities of these entities are demonstrably material to the achievement of the energy savings reported.
Complementarity of the measure	Complementarity is not applicable: The measure would not be implemented to the scope indicated without a funding scheme. Undertakings would only take the measures necessary to run their businesses.
Compliance with legislation and principles of support mechanisms (including quality control and sanctions), if relevant	This measure is consistent with the procedure laid down in legislation of general application on the use of the European Structural and Investment Funds in the 2014-2020 programming period, in particular the European Regional Development Fund and State aid rules. Quality control and sanctions are set out in specific grant agreements.
Compliance with criteria (under Article 7(10) of the Directive)	 (a) Act No 321/2014 established two transitional periods. The 4AP will evaluate the contribution made by policy measures in the first transitional period (2014-2016) and compliance with the trajectory for the energy savings target under Article 7 by 2020. (b) Ministry responsible for the measure: Ministry of the Environment. (c) Savings are determined transparently according to the <i>ex ante</i> and <i>ex post</i> methods and by means of relative savings; (d) Energy savings are shown in final energy consumption. (e) Savings are determined further to point 1(a), (b) and (c) of Annex V, in accordance with point 2 of Annex V to the EED; (f) Not applicable; these are not policy measures under Article 7(9)(a), second subparagraph. (g) Not applicable, these are not voluntary agreements. (h) The results of the measure are continuously monitored and, if they are not sufficient, corrective measures will be taken. (i) The control system is implemented at ITMS 2014+ level and as part of the preparation of action plans and annual reports. As measures are checked on a project-by-project basis, no statistically significant share of measures for checking was established. (j) Trends in savings will be set out in the annual reports on progress achieved towards national energy efficiency targets.

Formula to calculat	te energy savings		
Measure MSEE ID:	5.3.1	Title of measure:	Implementation of energy efficiency measures derived from energy audits
Sector:	Industry	Financial mechanism:	Operational Programme Environmental Quality 2014-2020, Priority Axis 4
		$ÚS_i = (S_{pred} - S_{po})$	

 $\acute{U}S_{i}-energy\ saving\ (final\ energy\ consumption)\ in\ the\ year\ of\ project\ implementation\ [MWh/year];$

 S_{pred} - energy consumption before project implementation - value from the grant application in [GJ/year] converted to [MWh/year];

 S_{po} – energy consumption after project implementation – value from the grant application in [GJ/year] converted to [MWh/year];

Note: If the energy saving is provided by the managing authority as a resultant value in GJ or %, that value is used, after conversion to a unified physical unit, in the pursuit of the target under Article 7 of the Directive.

Measure	5.4					Promotion of energy audits
MSEE ID:	011		Titl	e of measure:		for SMEs in the Bratislava Region
Sector:	Industry		Sou	urce of financir	g:	Subsidy schemes within the purview of the Ministry of Economy
Measure lasting from: (year)	2016		to:	(year)		2020
Responsible:	Ministry of Eco	nomy	Art	asure to compicle 7 of Direct 2/27/EU:		Yes
			Pol	icy measure cl	assification:	According to Article 7(9)(b) and (f)
Lifetime of measure (years):			Cor	mpliance with A	Article 7(10)	Yes
Type of fuel:	Natural gas	Electricity		Heat	Other fuels:	
Breakdown (%) by fuel	37.63 %	3.80 %		32.67 %	25.90 %	Statistical Office – Energy Sector 2014 commendations from the energy
Characteristics of the measure (including eligible activities)	the implement (SMEs) based eligible expend from the central (f) training, edupartly funded f	sure: neme – substation of of in the Br diture; the mal governme ucation – th rom the pul g of profess	ener ratisl naxin ent bu e Sk blic p	gy audits of lava Region. num grant is Eudget are earmovak Innovatio burse under the	micro, small The maximum UR 10 000. Fin earked for support and Energy A	gency (SIEA), as an organisation conomy, organises free tests and
	- imple	ementation			d from energy a	audits
Evaluation of the measure Methods for the calculation of savings (in accordance with Annex V(1) to the EED ²⁴ and Implementing Decree No 327/2015)	Methods for the (a) ex ante –	e calculation	n of s	savings:	avings for each	measure);
Detailed description of the method to calculate energy savings	each undertak Savings are of efficiency mon during the prev Further to an a	ing will at calculated for itering system itering system iterious calendariallysis of talendariallysis of	leas rom em (lar ye he d erato	t implement le the datasets MSEE) operate ear. ata submitted, r calculates th	ow-cost measu delivered by the or for all energy in particular the	energy audits, it is assumed that res stemming from the auditing. he energy auditor to the energy y audits performed by the auditor he payback period of the proposed of low-cost measures that energy
Application of expert estimates and assumptions in the calculation of energy savings	mandatory en determined that following an e energy auditor. Information on subsidy for an	ergy audits at the share nergy audit the measu energy audi	und of I is 1 ires it to t	der Act No 47 ow-cost meas 0 % of energy actually impler he MSEE ope	76/2008 and Aures implement y savings unde mented will be prator on request	
Monitoring, control and verification of the energy savings made	supported from of SIEA checks	n public sou s on energy	ırces audi	, is monitored t reports. The	in MSEE. Ener SIEA checks at	d from energy audits, which are gy savings are verified by means least 5 % of energy audit reports.
Overall evaluation and way forward	to-date until 20	017. The im	nplen	nentation of m		e Bratislava Region will not be up- to recommendations from these 3.
Projected overlapping with another measure – duplication	support of final	ncial schem		asures are no	t taken when i	mplementing measures with the
Method to avoid duplication	Not applicable.					
Information for the purp	oses of Articl	e 7 of Dire	ectiv	ve 2012/27/E	U	

 $^{^{24}}$ EED – Directive 2012/27/EU on energy efficiency

Materiality of the measure (Annex V, point 2(c), to the EED)	The responsible entity, the Ministry of Economy, grants energy auditing subsidies for SMEs registered in the Bratislava Region. As a result of the introduction of a funding scheme and the training of energy auditors by the SIEA, the activities of these entities are demonstrably material to the achievement of the energy savings reported.
Complementarity of the measure	Not applicable. The measure would not be implemented to the scope indicated without a funding scheme. Undertakings would only deal with the implementation of energy efficiency measures sporadically, to the extent necessary for their operation.
Compliance with legislation and principles of support mechanisms (including quality control and sanctions), if relevant	This measure is consistent with Act No 71/2013 on subsidisation in the competence of the Ministry of Economy of the Slovak Republic and Act No 321/2014 on energy efficiency.
Compliance with criteria (under Article 7(10) of the Directive)	 (a) Act No 321/2014 established two transitional periods. The 4AP will evaluate the contribution made by policy measures in the first transitional period (2014-2016) and compliance with the trajectory for the energy savings target under Article 7 by 2020. (b) Ministry responsible for the measure: Ministry of Economy. (c) Savings are determined transparently according to the <i>ex ante</i> method. (d) Energy savings are shown in final energy consumption. (e) Savings are determined further to point 1(a) of Annex V, in accordance with point 2 of Annex V to the EED; (f) Not applicable; these are not policy measures under Article 7(9)(a), second subparagraph. (g) Not applicable, these are not voluntary agreements. (h) The results of the measure are continuously monitored and, if they are not sufficient, corrective measures will be taken. (i) The control system is implemented at MSEE level and as part of the preparation of action plans and annual reports. As measures are checked as project packages, a 5 % share of measures for checking was established. (j) Trends in savings will be set out in the annual reports on progress achieved towards national energy efficiency targets.

Measure	5.4	Title of measure:	Promotion of energy audits for SMEs in the Bratislava
MSEE ID:			Region
Sector:	Industry	Source of financing:	Subsidy schemes within the purview of the Ministry of Economy
	Ţ	$\hat{J}S_i = 0.1 \times (S_{pred} - S_{po})$	

ÚS, – energy saving (final energy consumption) in the year of project implementation [MWh/year];

 S_{pred} - energy consumption before project implementation - value from the set of data provided by the energy auditor [MWh/year];

 S_{po} – energy consumption after project implementation – value from the set of data provided by the energy auditor [MWh/year].

Measure	5.5		Tiala	o of moscours		Application of legislative
MSEE ID:			HITTE	e of measure	<u> </u>	measures
Sector:	Industry		Sou	rce of financir	ig:	Energy audits at industrial enterprises pursuant to the Energy Efficiency Act
Measure lasting from: (year)	2009		to: (year)		2020
Responsible:	Ministry of Ecor	nomy	Arti	asure to comp cle 7 of Direct 2/27/EU:		Yes
			Poli	cy measure cl	assification:	According to Article 7(9)(c) and (f)
Lifetime of measure (years):	>15		Con	npliance with	Article 7(10)	Yes
Type of fuel:	Natural gas	Electricity		Heat	Other fuels:	Otatiatian Office France
Breakdown (%) by fuel	37.63 %	3.80 %	Ď	32.67 %	25.90 %	Statistical Office – Energy Sector 2014
Characteristics of the measure (including eligible activities)	the obligation drawing of the control of the contro	regulations regulation of en on the avider 2011 (to 31 D 000 MWh) assures, increasures, education on partly free tests	veragy verago final ecem . Unc cludir . Unc — th funde and	auditing for e annual fin energy consu iber 2013 dertakings th ng the energy der this instru ee Slovak In ed from the periodic traini	energy consumal energy conmption from 2.5 (final energy us obtained ar , economic and ment, they can novation and public purse u	gy efficiency, Slovakia introduced ners in industry and agriculture, sumption in the period up to 600/5 000 to 10 000/20 000 MWh) consumption of more than in instrument to propose energy environmental evaluation of the prepare and implement energy energy Agency (SIEA), as an inder the Ministry of Economy, nally competent persons (energy
Evaluation of the measure	Bottom-up, furth	her to proje	ect pa	ckages.		
Methods for the calculation of savings (in accordance with Annex V(1) to the EED ²⁵ and Implementing Decree No 327/2015)	Methods for the (a) ex ante – p				avings for each ı	measure);
Detailed description of the method to calculate energy savings	each undertaki Savings are ca efficiency monit during the previ Further to an a	ng will at alculated fit toring systemious calend nalysis of to MSEE open	least rom t em (Mar yeathe the da erator	t implement letthe datasets MSEE) operatear. ata submitted, r calculates th	ow-cost measured by the or for all energy in particular the	energy audits, it is assumed that res stemming from the auditing. The energy auditor to the energy audits performed by the auditor appropriate payback period of the proposed of low-cost measures that energy
Application of expert estimates and assumptions in the calculation of energy savings	determined that following an er energy auditor. Actual energy repeated energy	t the share nergy audit efficiency a y audits at	e of lo	ow-cost meas 0 % of energins at individual year intervals.	ures implement y savings under al undertakings	delivered by the energy auditor, ed by an undertaking in the year r the measures proposed by the can be identified only further to
Monitoring, control and verification of the energy savings made	MSEE. Energy SIEA checks at	savings a least 5 %	re ve of en	rified by mea ergy audit rep	ns of SIEA cheo orts.	om energy audits is monitored in cks on energy audit reports. The entified in industry than the saving
Overall evaluation and way forward	reported as a	10 % share	e of	low-cost mea	sures. Further t	to the dataset from the repeated s will have to be corrected.
Projected overlapping with another measure – duplication		Low-cost	mea			mplementing measures with the
Method to avoid duplication	Not applicable.					
Information for the purp	oses of Article	e 7 of Dire	ectiv	re 2012/27/E	:U	

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 $^{^{25}}$ EED – Directive 2012/27/EU on energy efficiency

Materiality of the measure (Annex V, point 2(c), to the EED)	The responsible entity, the Ministry of Economy, proposes relevant legislative regulations or amendments thereto. As a result of the introduction of mandatory energy auditing and the training of energy auditors by the SIEA, the activities of these entities are demonstrably material to the achievement of the energy savings reported.
Complementarity of the measure	Not applicable. The measure would not be implemented to the scope indicated without legislation of general application. Undertakings would only deal with the implementation of energy efficiency measures sporadically, to the extent necessary for their operation.
Compliance with legislation and principles of support mechanisms (including quality control and sanctions), if relevant	This measure is consistent with Act No 476/2008 on energy efficiency, which was superseded by Act No 321/2014 on energy efficiency on 1 December 2014.
Compliance with criteria (under Article 7(10) of the Directive)	 (a) Act No 321/2014 established two transitional periods. The 4AP will evaluate the contribution made by policy measures in the first transitional period (2014-2016) and compliance with the trajectory for the energy savings target under Article 7 by 2020. (b) Ministry responsible for the measure: Ministry of Economy. (c) Savings are determined transparently according to the ex ante method. (d) Energy savings are shown in final energy consumption. (e) Savings are determined further to point 1(a) of Annex V, in accordance with point 2 of Annex V to the EED; (f) Not applicable; these are not policy measures under Article 7(9)(a), second subparagraph. (g) Not applicable, these are not voluntary agreements. (h) The results of the measure are continuously monitored and, if they are not sufficient, corrective measures will be taken. (i) The control system is implemented at MSEE level and as part of the preparation of action plans and annual reports. As measures are checked as project packages, a 5 % share of measures for checking was established. (j) Trends in savings will be set out in the annual reports on progress achieved towards national energy efficiency targets.

Formula to calcula	te energy savings		
Measure	5.5	Title of measure:	Application of legislative
MSEE ID:		Title of fileasure.	measures
Sector:	Industry	Source of financing:	Energy audits at industrial enterprises pursuant to the Energy Efficiency Act
		$ÚS_i = 0.1 \times (S_{pred} - S_{po})$	

 $ÚS_i$ – energy saving (final energy consumption) in the year of project implementation [MWh/year];

 S_{pred} - energy consumption before project implementation - value from the set of data provided by the energy auditor [MWh/year];

 S_{po} – energy consumption after project implementation – value from the set of data provided by the energy auditor [MWh/year].

Measure MSEE ID:	5.6		Title	e of measure:		Voluntary energy savings agreement
Sector:	Industry		Sou	rce of financir	ng:	Own funds
Measure lasting from: (year)	2014			year)		2020
Responsible:	Ministry of Eco	nomy	Arti 201	asure to comp cle 7 of Direct 2/27/EU:	tive	Yes
Lifetime of measure (years):	case-by-case be depending on to measure			cy measure cl		According to Article 7(9)(c) Yes
Type of fuel:	Natural gas	Electricity		Heat	Other fuels:	
Breakdown (%) by fuel	37.63 %	3.80 %	D	32.67 %	25.90 %	Statistical Office – Energy Sector 2014
Characteristics of the measure (including eligible activities)	Nature of meas (b) legislative No 321/20 agreemen the stakel informatio	sure: regulations 014, the Mir at with a nat holder make n on its me	s and nistry tural p es the asure	voluntary agr of Economy noerson engagi e commitment	nay entered into ng in business o to achieve an a ments in energy	uant to Section 8 of Act o a voluntary energy saving or with a legal person, whereby greed energy saving or to provide
Evaluation of the measure		ach project	, or f	rom the bottor		nature of the measure, from the roject package. The stakeholder is
Methods for the calculation of savings (in accordance with Annex V(1) to the EED ²⁶ and Implementing Decree No 327/2015)	moni (b) ex p mea: (c) relati	nte – proje tored energ ost – meas sure);	cted gy impured – ted	savings, by re provements in savings (mea	similar facilities surement befor	results of previous independently;; e and after implementation of the y reference to similar facilities
Detailed description of the method to calculate energy savings	Depending on energy savings		meas	sure, the stake	eholder applies	one of the methods for calculating
Application of expert estimates and assumptions in the calculation of energy savings	Yes. The stakeholde on the energy s					and assumptions along with data
Monitoring, control and verification of the energy savings made	the energy effice monitoring, it a	ciency mon rranges che	itorin ecks	g system (MS and verification	EE) operator m n for 5 % of the	No 321/2014 on energy efficiency, onitors energy savings. As part of energy savings reported.
Overall evaluation and way forward					first voluntary ill be adjusted it	agreements in 2016. Further to finecessary.
Projected overlapping with another measure – duplication	Without informa	ation on the	spe	cific measures	implemented, i	t is impossible to determine this.
Method to avoid duplication	This will be ad stakeholders.	dressed on	a ca	se-by-case ba	asis further to a	n analysis of the data provided by
Information for the purp	oses of Articl	e 7 of Dir	ectiv	re 2012/27/E	:U	
Materiality of the measure (Annex V, point 2(c), to the EED)	stakeholders. I and the Slovak efficiency infor measures impl	The volunta Innovation mation and emented by	ry ag and I to p y the	reement also Energy Agend provide coope stakeholder.	includes the oblicy to regularly propertion in the call	o energy saving agreements with igation of the Ministry of Economy rovide the stakeholder with energy alculation of energy savings from f the Ministry and the Agency are ngs reported.

 $^{^{26}}$ EED – Directive 2012/27/EU on energy efficiency

Complementarity of the measure	Not applicable. The measure would not be implemented to the scope indicated without legislation of general application. Stakeholders would only engage in the implementation of energy efficiency measures sporadically, mainly for positive marketing in order to attract new energy customers.
Compliance with legislation and principles of support mechanisms (including quality control and sanctions), if relevant	This measure is carried out in accordance with Act No 321/2014 on energy efficiency and in line with individual voluntary energy savings agreements.
Compliance with criteria (under Article 7(10) of the Directive)	 (a) Act No 321/2014 established two transitional periods. The 4AP will evaluate the contribution made by policy measures in the first transitional period (2014-2016) and compliance with the trajectory for the energy savings target under Article 7 by 2020. (b) Ministry responsible for the measure: Ministry of Economy. (c) Savings are determined transparently according to the type of energy efficiency measure; (d) Energy savings are shown in final energy consumption. (e) Savings are determined further to point 1(a) to (d) of Annex V, in accordance with point 2 of Annex V to the EED; (f) Not applicable; these are not policy measures under Article 7(9)(a), second subparagraph. (g) Where possible, stakeholders will draw up and publish an annual report on the energy savings achieved; (h) The results of the measure are continuously monitored and, if they are not sufficient, corrective measures will be taken. (i) The control system is implemented at MSEE level and as part of the preparation of action plans and annual reports. As measures are also checked as project packages, a 5 % share of measures for checking was established. (j) Trends in savings will be set out in the annual reports on progress achieved towards national energy efficiency targets.

MSEE ID: Sector:	Industry	Title of measure:	agreement
Sector:	Inductor		
	แเนนธนา	Source of financing:	Own funds
where:			

Measure	5.9		Title of measure:			Investment incentives for	
MSEE ID: Sector:	Industry		Source of financing:			industrial enterprises	
Measure lasting from: (year)	2014			year)	<u> </u>	2020	
Responsible:	Ministry of Economy		Arti 201	Measure to comply with Article 7 of Directive 2012/27/EU:		Yes	
Lifetime of measure (years):	Indicate in accordance with Implementing Decree No 327/2015.			cy measure c		According to Article 7(9)(b) Yes	
Type of fuel:	Natural gas	Electricity	Heat Other fuels:		Other fuels:		
Breakdown (%) by fuel	37.63 %	3.80 %	32.67 % 25.90 %		25.90 %	Statistical Office – Energy Sector 2014	
Characteristics of the measure (including eligible activities)	neasure (including eligible efficient technologies or techniques and result in a reduction in final energ						
	Eligible activities: Measures to develop business and increase competitiveness, including the use of energy efficient technologies or techniques.						
Methods for the calculation of savings (in accordance with Annex V(1) to the EED ²⁷ and Implementing Decree No 327/2015)	Bottom-up, on a project-by-project basis. Methods for the calculation of savings: (a) ex post – savings measured (the measurement before and after the implementation of the measure takes into account factors that may affect consumption (e.g. the utilisation rate, the production level, the weather)						
Detailed description of the method to calculate energy savings	The beneficiary of an investment incentive determines energy savings by measuring energy consumption before and after the implementation of the measure for which the incentive was granted. Where it is impossible to quantify energy savings by measuring a particular facility, the saving will be determined by reference to the added value and final energy consumption before and after the implementation of the measure.						
Application of expert estimates and assumptions in the calculation of energy savings	Yes. Expert estimates are used on a case-by-case basis. The incentive beneficiary, together with information on the energy savings achieved, also notifies the energy efficiency monitoring system (MSEE) operator of any use of expert estimates and assumptions.						
Monitoring, control and verification of the energy savings made	Energy savings are monitored by the MSEE operator. As part of monitoring, it arranges checks and verification for 5 % of the energy savings reported.						
Overall evaluation and way forward	Further to experience gained from the measures implemented, the measure will be adjusted if necessary.						
Projected overlapping with another measure – duplication	Without information on the specific measures implemented, it is impossible to determine this.						
Method to avoid duplication	This will be addressed on a case-by-case basis further to an analysis of the data provided by investment incentive beneficiaries.						
Information for the purp	oses of Articl	e 7 of Dire	ectiv	/e 2012/27/E	U		
Materiality of the measure (Annex V, point 2(c), to the EED)	The activities of the responsible entity, the Ministry of Economy, which provides financial incentives, are demonstrably material to the achievement of the energy savings reported.						

 $^{^{27}}$ EED – Directive 2012/27/EU on energy efficiency

Complementarity of the measure	Not applicable. The measure would not be implemented to the scope indicated without the provision of a financial incentive. Undertakings would only deal sporadically with reductions in energy intensity.				
Compliance with legislation and principles of support mechanisms (including quality control and sanctions), if relevant	The measure is implemented in accordance with State aid rules.				
Compliance with criteria (under Article 7(10) of the Directive)	 (a) Act No 321/2014 established two transitional periods. The 4AP will evaluate the contribution made by policy measures in the first transitional period (2014-2016) and compliance with the trajectory for the energy savings target under Article 7 by 2020. (b) Ministry responsible for the measure: Ministry of Economy. (c) Savings are determined transparently according to the <i>ex post</i> method. (d) Energy savings are shown in final energy consumption. (e) Savings are determined further to point 1(b) of Annex V, in accordance with point 2 of Annex V to the EED; (f) Not applicable; these are not policy measures under Article 7(9)(a), second subparagraph. (g) Not applicable, these are not voluntary agreements. (h) The results of the measure are continuously monitored and, if they are not sufficient, corrective measures will be taken. (i) The control system is implemented at MSEE level and as part of the preparation of action plans and annual reports. As measures are checked as project packages, a 5 % share of measures for checking was established. (j) Trends in savings will be set out in the annual reports on progress achieved towards national energy efficiency targets. 				

Measure	5.9	Title of measure:	Investment incentives for
MSEE ID:		Title of fileasure.	industrial enterprises
Sector:	Industry	Source of financing:	
where:			
wnere:			
ÚS _i – energy saving	(final energy consumption)	in the year of project implementation	[MWh/year];
0, 0	,	in the year of project implementation mentation – value provided by the inc	. , .

Public sector

Measure	3.1.1					Improvements in the thermal	
MSEE ID:	0.1.1		Title	Title of measure:		performance of public buildings	
Sector:	Public sector		Fina	Financial mechanism:		Operational Programme Health 2007-2013	
Measure lasting from: (year)	2007			to: (year)		2015 (2013+2)	
Responsible:	Ministry of Health			asure to compicle 7 of Direc 2/27/EU:	tive	Yes	
Lifetime of measure (years):	>7		Policy measure classification: Compliance with Article 7(10)			Article 7(9)(b) Yes	
	-	Electricity	Coi	Heat	· ` ` ` ` `	res	
Form of energy: Breakdown (%) by form of	Natural gas	Electricity		пеаі	Other:		
energy	66.92 %	0.55 %		32.55 %	0.00 %	MSEE – RS 2015	
Characteristics of the measure (including eligible activities)	Modernisation and reconstruction of the capacities of hospitals and outpatient healthcare facilities with a view to introducing the low-energy intensity of the buildings. Nature of measure: (b) support schemes – a grant from the 2007-2013 Structural Funds via the Operational Programme Health to improve the thermal performance of buildings as part of Measures 1.1 'Construction, reconstruction and modernisation of specialised hospitals', 1.2 'Construction, reconstruction and modernisation of general hospitals' and 2.1 'Reconstruction and modernisation of outpatient healthcare facilities'. Eligible applicants are healthcare providers and/or founders of hospitals and healthcare facilities at central and local government level. Activities are supported by a 100 % grant for bodies of State administration and a 95 % grant for other eligible entities. Projects may be implemented up to the end of 2015 and energy savings data will be submitted to the managing authority, the Ministry of Health, up to 2020 (i.e. five years after the end of the last projects). Overall, Measures 1.1 and 1.2 were allocated approximately EUR 230.3 million. Measure 2.1 was allocated approximately EUR 57.6 million, part of which was used to improve the thermal performance of buildings and modernise building technical systems. Supported/eligible activities are mainly focused on: (a) the construction, modernisation and reconstruction of capacities with a view to introducing low-energy intensity via — structural alterations that improve the energy performance of buildings; — reconstruction work on central heating and steam distribution systems, water and electricity distribution systems, and the sewage system, reconstruction of metering and control.						
Evaluation of the measure Methods for the calculation of savings (in accordance with Annex V(1) to the EED ²⁸ and Implementing Decree No 327/2015) Detailed description of the method to calculate energy savings	Bottom-up, via individual projects Methods for the calculation of energy savings: (a) ex ante – projected savings – the original and new condition of a building is determined on the basis of a project evaluation of the energy required for space heating, drawn up by a professionally competent person (designer) according to technical standards (in particular STN EN ISO 13790/NA, STN EN 15603, STN 730540) by reference to the existing and proposed thermal performance of the building; (b) ex post – savings measured after project implementation, taking into account the extent to which the building is used, plus climate impacts. 1. Savings are determined on the basis of annual energy consumption data prior to the implementation of the measure and energy consumption planned after the implementation of the measure. Data on energy consumption is included in the grant application. The credibility of the data is confirmed by professional evaluators in the evaluation of the application. The actual savings achieved are monitored by the managing authority for five years after the completion of project implementation. 2. Projects focusing exclusively on the installation of facilities for the use of renewable sources of energy are not included in this measure because, in this case, there is no reduction in final energy consumption, only the replacement of one form of energy with another. No potential reduction in losses during energy distribution is applied. 3. The date of physical completion of implementation (if available) or the date for the completion of implementation entered in the ITMS system is taken as the decisive factor.						

 $^{^{28}}$ EED – Directive 2012/27/EU on energy efficiency

Use of expert estimates	Yes			
and assumptions in the calculation of energy savings	In the calculation of energy requirements, the average degree days applicable to the whole of Slovakia and other technical coefficients specified in the relevant technical standards (in particular STN EN ISO 13790/NA, STN EN 15603, and STN 730540) are used.			
Monitoring, control and verification of the energy savings made	Monitoring is carried out by the managing authority (the Ministry of Health) via the ITMS, where a measurable indicator is presented. As the 'Energy savings' indicator is an impact indicator, information is monitored by way of <i>ex post</i> monitoring reports, which beneficiaries are required to submit once a year for the five years following the end of the project. The beneficiary is responsible for the data provided. Under Section 11(2) of Act No 321/2014 on energy efficiency, the MSEE operator may ask the owner/manager of a building with a total floor area of more than 1 000 m² to provide energy consumption data for the previous calendar year. Checks are then also conducted as part of the preparation of action plans and the annual report. As measures are checked on a project-by-project basis, there was no need to establish			
Overall evaluation and way forward	 a statistically significant share of measures to be checked. The final deadline for the receipt of grant applications was 15 October 2014. The overall evaluation of the effectiveness of the measure also includes the financial resources used to achieve energy savings. In this measure, it is impossible to separate financial resources directly linked to a reduction in the energy intensity of hospitals and outpatient healthcare facilities from the total resources used. The investment intensity per unit of energy savings may therefore report a significant deviation from other similar energy efficiency measures in the buildings sector. For future similar funding schemes, it is necessary to separate funds to improve the thermal performance of buildings from other eligible costs when a grant application is submitted. 			
Projected overlapping with another measure – duplication	None foreseen.			
Method to avoid duplication	Not applicable.			
Information for the purp	oses of Article 7 of Directive 2012/27/EU			
Motoriality of the second	Project implementation contributes to savings for the final customer.			
Materiality of the measure (Annex V, point 2(c), to the EED)	Activity carried out by the managing authority is demonstrably material, particularly the provision of financial resources and the management of the process for the use of those funds.			
	Complementarity is not applicable in the buildings sector.			
Complementarity of the measure	The measure would not be implemented without a funding scheme. Were it not for State intervention, projects would not be implemented to the existing extent. They would only deal with any serious disrepair and energy-saving measures with a reasonable payback period (e.g. window replacement).			
Compliance with legislation and principles of support mechanisms (including quality control and sanctions), if relevant	This measure is consistent with the procedure laid down in legislation of general application on the use of the European Structural Funds in the 2007-2013 programming period, in particular the European Regional Development Fund and State aid rules. Quality control and sanctions are set out in specific grant agreements.			
Compliance with criteria (under Article 7(10) of the Directive)	 (a) Act No 321/2014 established two transitional periods. The 4AP will evaluate the contribution made by policy measures in the first transitional period (2014-2016) and compliance with the trajectory for the energy savings target under Article 7 by 2020. (b) Ministry responsible for the measure: Ministry of Health. (c) Savings are determined transparently according to method (a) ex ante, by reference to a calculation of the energy required, and method (b) ex post, by measuring energy consumption after project implementation; (d) Energy savings are shown in final energy consumption. (e) Savings are determined further to point 1(a) and (b) of Annex V, in accordance with point 2 of Annex V. (f) Not applicable; these are not policy measures under Article 7(9)(a), second subparagraph. (g) Not applicable, these are not voluntary agreements. (h) The results of the measure are continuously monitored and, if they are not sufficient, corrective measures will be taken. (i) The control system is implemented at MSEE IS level and as part of the preparation of action plans and annual reports. As measures are checked on a project-by-project basis, no statistically significant share of measures for checking was established. (j) Trends in savings will be set out in the annual reports on progress achieved towards national energy efficiency targets. 			

Formula to calculate energy savings					
Measure MSEE ID:	3.1.1	Title of measure:	Improvements in the thermal performance of public buildings		
Sector:	Public sector	Financial mechanism:	Operational Programme Health 2007-2013		

$$ÚS_{i_pl\acute{a}n} = (P_{pred} - P_{po}) \cdot CPP$$

ÚSi_plán - planned energy saving (final energy consumption) in the year of building renovation [kWh/a];

Ppred – energy requirement for the building prior to renovation – standardised energy requirement for the original condition of the building [kWh/(m².a)];

Ppo – energy required for a building after renovation – standardised heat requirement for the post-renovation condition of the building [kWh/(m².a)];

CPP - total floor area of the building [m²].

Measure	3.1.2				Improvements in the thermal	
MSEE ID:			Title of measure:		performance of public buildings – Healthcare facilities	
Sector:	Public sector		Financial mechan	nism:	Public resources	
Measure lasting from: (year)	2007		to: (year)		2020	
Responsible:	Ministry of Hea	ılth	Measure to com Article 7 of Direct 2012/27/EU:		Yes	
			Policy measure of	lassification:	Article 7(9)(b) Article 7(9)(f)	
Lifetime of measure (years):	>7		Compliance with Article 7(10)		Yes	
Form of energy:	Natural gas	Electricity	Heat	Other:		
Breakdown (%) by fuel	66.92 %	0.55 %	32.55 %	0.00 %	MSEE – RS 2015	
Characteristics of the measure (including eligible activities)	particular the h Nature of meas (c) legislative buildings unde for new buildin (f) training, edu	eat required sure: regulations rgoing major gs); ucation – co	d for space heating — (energy perfor renovation are ensulting, seminars	g, or other energy mance of buildir established on a , conferences an	ealth sector to save energy, in a efficiency measures. Ings – minimum requirements for a par with minimum requirements and information campaigns.	
Evaluation of the measure	(a) impr	ovements ir	cused primarily on the thermal perfo		ngs.	
Methods for the calculation of savings (in accordance with Annex V(1) to the EED ²⁹ and Implementing Decree No 327/2015)	Bottom-up, via individual projects Methods for the calculation of energy savings: (a) ex ante – projected savings – the original and new condition of a building is determined on the basis of a project evaluation of the heat required for space heating, drawn up by a professionally competent person (designer) according to technical standards (in particular STN EN ISO 13790/NA, STN EN 15603, STN 730540) by reference to the existing and proposed thermal performance of the building.					
Detailed description of the method to calculate energy savings	The energy saving for improvements in the thermal performance of buildings is determined as the difference in the heat required for space heating in the building's original condition and after renovation, according to the energy performance certificate. The INFOREG IS operated by the Ministry of Transport, Construction and Regional Development is used as a data source.					
Use of expert estimates and assumptions in the calculation of energy savings	In the calculation of energy savings, the average heat requirements for space heatin applicable to the building in its original condition (based on the year of construction and the technical standards applicable to the given building category at the time) will be used. The average figure for the original condition of the office building is a value corresponding to the upper limit of energy class D (Implementing Decree of the Ministry of Transport and Construction No 364/2012). Estimates need to be used as no data on the original condition of renovated office buildings in available and additional surveying of energy consumption data is demanding and unreasonably costly. In the calculation of heat required for space heating, the average degree days applicable to the whole of Slovakia and other technical coefficients specified in the relevant technical standards (in particular STN EN ISO 13790/NA, STN EN 15603, and STN 730540) are used.					
Monitoring, control and verification of the energy savings made	Monitoring – carried out via the INFOREG and MSEE IS (the energy efficiency monitoring system operated by the Slovak Innovation and Energy Agency). Data is entered in the INFOREG system by professionally competent persons responsible for energy performance certificates. INFOREG automatically (systemically) checks the data entered. Data on energy requirements (energy performance certificates) is exported, data formatted, from INFOREG to MSEE. Under Section 11(2) of Act No 321/2014 on energy efficiency, the MSEE operator may ask the owner/manager of a building with a total floor area of more than 1 000 m² to provide energy consumption data for the previous calendar year. Checks are then also conducted as part of the preparation of action plans and the annual report. As measures are checked on a project-by-project basis, there was no need to establish a statistically significant share of measures to be checked.					
Overall evaluation and way forward	The measure	will continue for building	nue in the comi ngs undergoing	ng period. This	s change will tighten minimum her to Act No 555/2005 and	
Projected overlapping with another measure – duplication					2007-2013 Structural Funds, the healthcare facilities.	

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 $^{^{29}}$ EED – Directive 2012/27/EU on energy efficiency

	The duplication of the energy savings made by overlapping measures is prevented by the fact					
Method to avoid duplication	that energy savings presented for identifiable financial mechanisms (public sector measures) and related to healthcare facilities (e.g. 3.1.1, 3.14) are deducted in full from the savings determined for this measure (3.1.2).					
Information for the purp	oses of Article 7 of Directive 2012/27/EU					
	Project implementation contributes to savings for the final customer.					
	The introduction of the obligation to renovate buildings to the energy efficiency level of new buildings means that owners are forced to carry out renovation beyond the average measures they would take for a reasonable economic return.					
Materiality of the measure (Annex V, point 2(c), to the EED)	To implement measures of the Energy Efficiency Policy (adopted under Government Resolution No 576 of 4 July 2007), Slovakia introduced a coherent system to raise awareness of energy efficiency, which includes the provision of free consulting by the Slovak Innovation and Energy Agency financed annually by the budget heading of the Ministry of Economy and the EU Structural Funds (mainly via the national 'Living with Energy' project). In addition to individual and group consulting on how to reduce energy requirements in buildings, publications have been issued and disseminated, such as Insulation and Window Replacement in Office Buildings.					
	It is only through these State-initiated synergic support measures that investment activities in the renovation and construction of office buildings and in the modernisation and reconstruction of building technical systems have been significantly accelerated. Complementarity is applicable in the public sector.					
	The savings made by improvements in the thermal performance of buildings are only included if a major renovation is performed under an issued energy performance certificate that the owners would not have carried out to the required extent had the State not intervened, i.e. they would only have dealt with energy-saving measures with a short payback period (e.g. window replacement).					
Complementarity of the measure	The measure takes into account energy savings, representing the difference in the heat required for space heating between the original and the new condition of the building, because the minimum requirements for buildings undergoing major renovation are set at the level of the minimum requirements for new buildings, which in the case of renovated buildings is not always technically, functionally and economically feasible.					
	Potential savings that can be achieved by replacing an existing heat source with a more modern new one to which the Ecodesign Directive might apply, as well as potential savings from the modernisation and reconstruction of lighting, do not count towards energy savings.					
Compliance with legislation and principles of support mechanisms (including quality control and sanctions), if relevant	If a building undergoes major renovation, minimum energy performance requirements shou be achieved if technically, functionally and economically feasible. This is checked in the finapproval procedure. If the fulfilment of requirements is not technically, functionally are economically feasible, this is already evident when the project for the issuance of a building permit is submitted, and the competent building authority decides whether non-compliance with the minimum requirements is justified. If it is not justified, no building permit is issued.					
Compliance with criteria (under Article 7(10) of the Directive)	 (a) Act No 321/2014 established two transitional periods. The 4AP will evaluate the contribution made by policy measures in the first transitional period (2014-2016) and compliance with the trajectory for the energy savings target under Article 7 by 2020. (b) Ministry responsible for the measure: Ministry of Health. (c) Savings are determined transparently according to method (a) – ex ante. (d) Energy savings are shown in final energy consumption. (e) Savings are determined further to point 1(a) of Annex V, in accordance with point 2 of Annex V. (f) Not applicable; these are not policy measures under Article 7(9)(a), second subparagraph. (g) Not applicable, these are not voluntary agreements. (h) The results of the measure are continuously monitored and, if they are not sufficient, corrective measures will be taken. (i) The control system is implemented at MSEE IS and INFOREG IS level and as part of the preparation of action plans and annual reports. As measures are checked on a project-by-project basis, no statistically significant share of measures for checking was established. (j) Trends in savings will be set out in the annual reports on progress achieved towards national energy efficiency targets. 					

Formula to calculate energy savings					
Measure MSEE ID:	3.1.2	Title of measure:	Improvements in the thermal performance of public buildings – Healthcare facilities		
Sector:	Public sector	Financial mechanism:	Public resources		

$\acute{\text{U}}S_{i_pl\acute{a}n} = \, \left(P_{pred} - \, P_{po}\right) \, \bullet \, \, CPP$

where: $ÚS_{I,plán}$ – planned energy saving (final energy consumption) in the year of building renovation [kWh/a]; P_{pred} – energy requirement for the building prior to renovation – standardised energy requirement for the original condition of the building [kWh/(m².a)]; P_{po} – energy required for a building after renovation – standardised heat requirement for the post-renovation condition of the building [kWh/(m².a)]; CPP – total floor area of the building [m²].

Measure	3.2.1					Improvements in the thermal
MSEE ID:			Title	Title of measure:		performance of public buildings – Schools and school facilities
Sector:	Public sector		Fina	Financial mechanism:		Operational Programme Research and Development 2007-2013
Measure lasting from: (year)	2007		to: (year)		2015 (2013+2)
Responsible:	Ministry of Edu Science, Resea Sport		Arti 201	asure to comp icle 7 of Direc 2/27/EU:	tive	Yes
	·			cy measure cl		Article 7(9)(b)
Lifetime of measure (years):	>7	[=:	_	npliance with A		Yes
Form of energy: Breakdown (%) by form of energy	Natural gas 57.37 %	Electricity 7.28 %		35.05 %	Other: 0.31 %	Analysis of energy-saving potential in the public sector – December 2015
	-			-		and modernisation of their interior
Characteristics of the measure (including eligible activities)	Nature of measure: (b) funding schemes – a grant from the 2007-2013 Structural Funds via the Operation Programme Research and Development to improve the thermal performance of buildings a part of Measure 5.1 Building of the infrastructure of higher-education institutions at modernisation of their interior fittings in order to improve the conditions of the education process. Eligible applicants are public and State higher-education institutions and the Slovak Acaden of Sciences. Activities are supported by a 95 % grant for public higher-education institution and 100 % for other eligible beneficiaries. Projects may be implemented up to the end of 201 and energy savings data will be submitted to the intermediate body, i.e. the Agency of the end of the last projects). Overall, EUR 285.3 million was allocated to Measure 5.1. Part this was used to improve the thermal performance of buildings. Supported/eligible activities are mainly focused on: (a) reconstruction of higher-education institutions (e.g. building insulation, window replacement, roof replacement or repair, central heating replacement, the repair building walls, building stabilisation, the repair of the building exterior, reconstruction of hot water, water supply, sewage and electrical networks); (b) construction of the new buildings of existing higher-education institutions; (c) expansion of the structures of higher-education institutions (e.g. horizontal ar vertical building extensions, academic libraries) (d) modernisation and reconstruction of accommodation capacities, gymnasium canteens, and sports facilities of higher-education institutions.					rmal performance of buildings as higher-education institutions and the conditions of the educational titutions and the Slovak Academy ublic higher-education institutions plemented up to the end of 2015, iate body, i.e. the Agency of the 1), up to 2020 (i.e. five years after allocated to Measure 5.1. Part of s. e.g. building insulation, window leating replacement, the repair of the building exterior, reconstruction etworks); -education institutions; institutions (e.g. horizontal and dation capacities, gymnasiums,
Methods for the calculation of savings (in accordance with Annex V(1) to the EED ³⁰ and Implementing Decree No 327/2015)	Bottom-up, via individual projects Methods for the calculation of energy savings: (a) ex ante – projected savings – the original and new condition of a building is determined on the basis of a project evaluation of the energy required for space heating, drawn up by a professionally competent person (designer) according to technical standards (in particular STN EN ISO 13790/NA, STN EN 15603, STN 730540) by reference to the existing and proposed thermal performance of the building; (b) ex post – savings measured after project implementation, taking into account the extent to which the building is used, plus climate impacts.					
Detailed description of the method to calculate energy savings	of the buil project (in annually prequired a	lding and the street of the st	he er it in t impl ition i	nergy required the building's lementation of is included in t	after its renova- thermal perform the renovation the grant applica-	required in the original condition tion, as set out in the renovation nance). Data on energy required project and the planned energy ation. The credibility of the data is n of the application. The actual

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	savings achieved are monitored by the intermediate body for five years after the completion of project implementation. 2. Projects focusing exclusively on the installation of facilities for the use of renewable sources of energy are not included in this measure because, in this case, there is no reduction in final energy consumption, only the replacement of one form of energy with another. No potential reduction in losses during energy distribution is applied. 3. The date of physical completion of implementation (if available) or the date for the completion of implementation entered in the ITMS system is taken as the decisive factor.
Use of expert estimates and assumptions in the calculation of energy savings	In the calculation of energy requirements, the average degree days applicable to the whole of Slovakia and other technical coefficients specified in the relevant technical standards (in particular STN EN ISO 13790/NA, STN EN 15603, and STN 730540) are used.
Monitoring, control and verification of the energy savings made	Monitoring is arranged 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 – ASFEU) via ITMS, where a measurable indicator is provided. As the 'Energy savings' indicator is an impact indicator, information is monitored by way of <i>ex post</i> monitoring reports, which beneficiaries are required to submit once a year for the five years following the end of the project. The beneficiary is responsible for the data provided. Under Section 11(2) of Act No 321/2014 on energy efficiency, the MSEE operator may ask the owner/manager of a building with a total floor area of more than 1 000 m² to provide energy consumption data for the previous calendar year. Checks are then also conducted as part of the preparation of action plans and the annual report. As measures are checked on a project-by-project basis, there was no need to establish a statistically significant share of measures to be checked.
Overall evaluation and way forward	 The overall evaluation of the effectiveness of the measure also includes the financial resources used to achieve energy savings. In this measure, it is impossible to separate financial resources directly linked to a reduction in the energy intensity of schools and school facilities from the total financial resources used to improve the conditions of the education process. The investment intensity per unit of energy savings may therefore report a significant deviation from other similar energy efficiency measures in the buildings sector. For future similar funding schemes, it is necessary to separate funds to improve the thermal performance of buildings from other eligible costs when a grant application is submitted.
Projected overlapping with another measure – duplication	None foreseen.
Method to avoid duplication	Not applicable.
Information for the purp	oses of Article 7 of Directive 2012/27/EU
Materiality of the measure (Annex V, point 2(c), to the EED)	Project implementation contributes to savings for the final customer. Activity carried out by the managing authority and the intermediate body is demonstrably material, particularly the provision of financial resources and the management of the process for the use of those funds.
Complementarity of the measure	Not applicable. The measure would not be implemented without a funding scheme. Were it not for State intervention, projects would not be implemented to the existing extent. They would only deal with any serious disrepair and energy-saving measures with a reasonable payback period (e.g. window replacement).
Compliance with legislation and principles of support mechanisms (including quality control and sanctions), if relevant	This measure is consistent with the procedure laid down in legislation of general application on the use of the European Structural Funds in the 2007-2013 programming period, in particular the European Regional Development Fund. Quality control and sanctions are set out in specific grant agreements.
Compliance with criteria (under Article 7(10) of the Directive)	 (a) Act No 321/2014 established two transitional periods. The 4AP will evaluate the contribution made by policy measures in the first transitional period (2014-2016) and compliance with the trajectory for the energy savings target under Article 7 by 2020. (b) Ministry responsible for the measure: Ministry of Education, Science, Research and Sport. (c) Savings are determined transparently according to method (a) ex ante, by reference to a calculation of the energy required, and method (b) ex post, by measuring energy consumption after project implementation; (d) Energy savings are shown in final energy consumption. (e) Savings are determined further to point 1(a) and (b) of Annex V, in accordance with point 2 of Annex V. (f) Not applicable; these are not policy measures under Article 7(9)(a), second subparagraph. (g) Not applicable, these are not voluntary agreements.

	action plans and annual reports. As measures are checked on a project-by-project
	basis, no statistically significant share of measures for checking was established.
(j)	Trends in savings will be set out in the annual reports on progress achieved towards
	national energy efficiency targets.

Formulas for calculating savings for individual energy efficiency measures

Formula to calculate energy savings					
Measure MSEE ID:	3.2.1	Title of measure:	Improvements in the thermal performance of public buildings – Schools and school facilities		
Sector:	Public sector	Financial mechanism:	2007-2013 Structural Funds, Operational Programme Research and Development		
$US_{i,mlón} = (P_{mnod} - P_{no}) \cdot CPP$					

$$ÚS_{i_plán} = (P_{pred} - P_{po}) \cdot CPI$$

where:

ÚSi_plán - planned energy saving (final energy consumption) in the year of building renovation [kWh/a];

Ppred – energy requirement for the building prior to renovation – standardised energy requirement for the original condition of the building [kWh/(m2.a)];

Ppo – energy required for a building after renovation – standardised heat requirement for the post-renovation condition of the building [kWh/(m².a)];

CPP - total floor area of the building [m2].

Measure	3.2.2					Improvements in the thermal
MSEE ID:			Title	Title of measure:		performance of public buildings – Schools and school facilities
Sector:	Public sector		Fina	Financial mechanism:		2007-2013 ROP, Measure 1.1 Education infrastructure
Measure lasting from: (year)	2007		to: (year)		2015 (2013+2)
Responsible:	Ministry of Agri		Arti	Measure to comply with Article 7 of Directive 2012/27/EU:		Yes
	and Raidi Bov	olopinone	Poli	cy measure cl	assification:	Article 7(9)(b) Article 7(9)(f)
Lifetime of measure (years):	>7		Con	npliance with A	Article 7(10)	Yes
Form of energy:	Natural gas	Electricity		Heat	Other:	
Breakdown (%) by fuel	57.37 %	7.28 %	, D	35.05 %	0.31 %	Analysis of energy-saving potential in the public sector – December 2015
		of the ROP				re contributes to the objective of ion services provided'.
	 (b) support schemes – a grant under the ROP; Measure 1.1 was intended to increase the quality of education services provided through the reconstruction, extension and modernisation of preschool facilities, primary schools and secondary schools, including the procurement of their equipment. (f) training, education – consulting, seminars, conferences and information campaigns – the opportunity to benefit from free advice via Living with Energy and similar SIEA activities aimed at achieving energy savings Supported/eligible activities are mainly focused on: 					
Characteristics of the measure (including eligible activities)	the reconstruction, extension and modernisation of selected nursery, primary and secondary schools and the related procurement of equipment More detailed description of eligible activities:					
Evaluation of the measure	 (a) horizontal extension, vertical extension, structural alterations, building, reconstruct structures and completion of buildings under construction, the connection of structure utility networks (in accordance with the Building Act); (b) improvements in the energy performance of buildings – implementation of measure improve the thermal insulation properties of structures, in particular the restoration external skin, the repair and replacement of the roof cladding, including roofing an roof surfaces, the repair and replacement of exterior windows and doors, the repair building's technical, energy or technological equipment and facilities, and the replace of components thereof (in particular the replacement of boilers and radiators, in plumbing systems, air-conditioning equipment, the installation of solar panels appropriate, etc.); (c) the procurement of a building's internal and external equipment necessarily related building's purpose of use (d) design and engineering work for a project 					n, the connection of structures to - implementation of measures to n particular the restoration of the adding, including roofing and flat ndows and doors, the repair of a ind facilities, and the replacement of boilers and radiators, interior stallation of solar panels where
Evaluation of the measure	Bottom-up, via					
Methods for the calculation of savings (in accordance with Annex V(1) to the EED ³¹ and Implementing Decree No 327/2015)	Methods for the calculation of energy savings: (a) ex ante – projected savings – the original and new condition of a building is determined or the basis of a project evaluation of the heat required for space heating, drawn up by a professionally competent person (designer) according to technical standards (in particular STN EN ISO 13790/NA, STN EN 15603, STN 730540) by reference to the existing and proposed thermal performance of the building;					
Detailed description of the method to calculate energy savings	 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. 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.). 					
Use of expert estimates and assumptions in the	Yes					

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calculation of energy savings	 Energy savings: assumptions: initial condition: upper limit of F (168 kWh/(m2.a)); post-renovation: upper limit of C (84 kWh/(m2.a)) (based on the energy performance certificate in 2011) i.e. the average saving is approximately 84.00 kWh/(m2.a). That equates to approximately 208 MWh per building. 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. The savings are indicated in the year following the year of renovation. Finances are indicated out by the managing authority (the Ministry of Agriculture and Rural 				
Monitoring, control and verification of the energy savings made	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 measure was successful; it delivered the required savings. 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.				
Projected overlapping with another measure – duplication	Potential overlap with other measures for school buildings.				
Method to avoid duplication	The duplication of the energy savings made by overlapping measures is prevented by the fact that the energy savings reported are monitored on a project-by-project basis and the savings are counted in only one of the relevant measures, depending on the financing method.				
Information for the purp	oses of Article 7 of Directive 2012/27/EU				
	Project implementation contributes to savings for the final customer.				
	The activity of the designated bodies (central bodies of State administration) is demonstrably material, in particular in the exercise of Task B of Government Resolution No 350/2014. Resources from the central government budget are provided to implement the measure in full.				
	The introduction of the obligation to renovate buildings to the energy efficiency level of new buildings means that central bodies of State administration are forced to carry out renovation beyond the average measures they would take for a reasonable economic return.				
Materiality of the measure (Annex V, point 2(c), to the EED)	To implement measures of the Energy Efficiency Policy (adopted under Government Resolution No 576 of 4 July 2007), Slovakia introduced a coherent system to raise awareness of energy efficiency, which includes the provision of free consulting by the Slovak Innovation and Energy Agency financed annually by the budget heading of the Ministry of Economy and the EU Structural Funds (mainly via the national 'Living with Energy' project). In addition to individual and group consulting on how to reduce energy requirements in buildings, publications have been issued and disseminated, such as Insulation and Window Replacement in Office Buildings.				
	It is only through these State-initiated synergic support measures that investment activities in the renovation of the office buildings of central bodies of State administration and in the modernisation and reconstruction of building technical systems have been significantly accelerated.				
	Complementarity is not applicable in the buildings sector. Savings from this measure are counted only if renovation is based on the acceptance of a				
Complementarity of the measure	grant.				
	The measure takes into account total energy savings representing the difference between the original and the new condition of the building.				
Compliance with legislation and principles of support mechanisms (including quality control and sanctions), if relevant	This measure is consistent with the procedure laid down in legislation of general application on the use of the European Structural Funds in the 2007-2013 programming period, in particular the European Regional Development Fund and State aid rules. Quality control and sanctions are set out in specific grant agreements.				
Compliance with criteria (under Article 7(10) of the Directive)	 (a) Act No 321/2014 established two transitional periods. The 4AP will evaluate the contribution made by policy measures in the first transitional period (2014-2016) and compliance with the trajectory for the energy savings target under Article 7 by 2020. (b) Ministry responsible for the measure: Ministry of Agriculture and Rural Development. (c) Savings are determined transparently according to method (a) – ex ante. (d) Energy savings are shown in final energy consumption. (e) Savings are determined further to point 1(a) of Annex V, in accordance with point 2 of Annex V. (f) Not applicable; these are not policy measures under Article 7(9)(a), second 				

- subparagraph.

 Not applicable, these are not voluntary agreements.

 The results of the measure are continuously monitored and, if they are not sufficient, corrective measures will be taken.
- The control system is implemented at ITMS IS and MSEE IS level and as part of the preparation of action plans and annual reports. As measures are checked on a project-by-project basis, no statistically significant share of measures for checking
- was established.

 Trends in savings will be set out in the annual reports on progress achieved towards national energy efficiency targets.

Formula to calculate energy savings				
Measure MSEE ID:	3.2.2	Title of measure:	Improvements in the thermal performance of public buildings – Schools and school facilities	
Sector:	Public sector	Financial mechanism:	2007-2013 ROP, Measure 1.1 Education infrastructure	
$IIS_{-N} = (P_{-N} - P_{-N}) \bullet CPP$				

$US_{i_plán} = (P_{pred})$ P_{po} • CPF

where:

ÚSi_plán - planned energy saving (final energy consumption) in the year of building renovation [kWh];

Ppred – energy requirement for the building prior to renovation – standardised energy requirement for the original condition of the building [kWh/(m².a)];

Ppo – energy required for a building after renovation – standardised heat requirement for the post-renovation condition of the building [kWh/(m².a)];

CPP - total floor area of the building [m²].

Measure	3.3					Improvements in the thermal
MSEE ID:			Title of measure:		:	performance of public buildings – Social services
Sector:	Public sector		Fina	Financial mechanism:		2007-2013 ROP, Measure 2.1 Infrastructure of social services, social protection and social guardianship
Measure lasting from: (year)	2007		to: ((year)		2015 (2013+2)
Responsible:	Ministry of Agri		Arti	Measure to comply with Article 7 of Directive 2012/27/EU: Policy measure classification:		Yes
	and italai beve	лоринсти				Article 7(9)(b) Article 7(9)(f)
Lifetime of measure (years):	>7		Con	npliance with I	Article 7(10)	Yes
Form of energy:	Natural gas	Electricity		Heat	Other:	
Breakdown (%) by form of energy	41 %	12 %		47 %	0 %	Analysis of energy-saving potential in the public sector – December 2015
Characteristics of the measure (including eligible activities)	41 % 12 % 47 % 0 % potential in the public se				ation services provided'. Measure ded through the reconstruction, es and child protection and social pment. I Funds via the ROP for the verning Region; the maximum aid pible expenditure for the ERDF, cipalities and higher territorial and information campaigns – the energy and similar SIEA activities of existing social service facilities go child protection and social econstruction, extension and and the related procurement of existing in the energy ene	
Evaluation of the measure	Bottom-up, via	individual p	orojec	cts		
Methods for the calculation of savings (in accordance with Annex V(1) to the EED ³² and Implementing Decree No 327/2015)	Bottom-up, via individual projects Methods for the calculation of energy savings: (a) ex ante – projected savings – to determine the original condition of the building according to the year of construction and the technical standards applicable at time, and the new condition of the building, using a project evaluation of the energed required for space heating, drawn up by a professionally competent personal (designer) according to technical standards (in particular STN EN ISO 13790/N STN EN 15603, STN 730540) by reference to the existing thermal performance the building					nical standards applicable at the a project evaluation of the energy professionally competent person articular STN EN ISO 13790/NA, existing thermal performance of
Detailed description of the method to calculate energy savings	implemen implemen application evaluation	tation of tation of th n. The cre n of the a	the le me dibilit applic	measure a easure. Data y of the data ation. The a	nd energy cons on energy cons is confirmed b ctual savings a	by consumption data prior to the consumption planned after the sumption is included in the grant by professional evaluators in the achieved are monitored by the project implementation.

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	 Projects focusing exclusively on the installation of facilities for the use of renewable sources of energy are not included in this measure because, in this case, there is no reduction in final energy consumption, only the replacement of one form of energy with another. No potential reduction in losses during energy distribution is applied. The date of physical completion of implementation (if available) or the date for the completion of implementation entered in the ITMS system is taken as the decisive factor. 			
	Yes			
Use of expert estimates and assumptions in the calculation of energy savings	In the calculation of energy requirements, the average degree days applicable to the whole of Slovakia and other technical coefficients specified in the relevant technical standards (in particular STN EN ISO 13790/NA, STN EN 15603, and STN 730540) are used.			
Monitoring, control and verification of the energy savings made	Monitoring is carried out by the managing authority (the Ministry of Construction and Regional Development) via the ITMS, where a measurable indicator is presented. As the 'Energy savings' indicator is an impact indicator, information is monitored by way of <i>ex post</i> monitoring reports, which beneficiaries are required to submit once a year for the five years following the end of the project. The beneficiary is responsible for the data provided. Under Section 11(2) of Act No 321/2014 on energy efficiency, the MSEE operator may ask the owner/manager of a building with a total floor area of more than 1 000 m² to provide energy consumption data for the previous calendar year. Checks are then also conducted as part of the preparation of action plans and the annual report. As measures are checked on a project-by-project basis, there was no need to establish a statistically significant share of measures to be checked.			
Overall evaluation and way forward	 The final deadline for the receipt of grant applications was 10 March 2014. The overall evaluation of the effectiveness of the measure also includes the financial resources used to achieve energy savings. In this measure, it is impossible to separat financial resources directly linked to a reduction in the energy intensity of hospitals an outpatient healthcare facilities from the total resources used. The investment intensity per unit of energy savings may therefore report a significant deviation from other similar energy efficiency measures in the buildings sector. For future similar funding schemes, it is necessary to separate funds to improve the thermal performance of buildings from other eligible costs when a grant application is submitted. The IROP 2014-2020, which will be used to finance the renovation of public buildings, in the follow-up programme to the ROP 2007-2013. 			
Projected overlapping with another measure – duplication	None foreseen.			
Method to avoid duplication	Not applicable.			
Information for the purp	oses of Article 7 of Directive 2012/27/EU			
Materiality of the measure (Annex V, point 2(c), to the EED)	Project implementation contributes to savings for the final customer. Activity carried out by the managing authority is demonstrably material, particularly the provision of financial resources and the management of the process for the use of those funds.			
	Complementarity is not applicable in the buildings sector.			
Complementarity of the measure	The measure would not be implemented without a funding scheme. Were it not for State intervention, projects would not be implemented to the existing extent. They would only deal with any serious disrepair and energy-saving measures with a reasonable payback period (e.g. window replacement).			
Compliance with legislation and principles of support mechanisms (including quality control and sanctions), if relevant	This measure is consistent with the procedure laid down in legislation of general application on the use of the European Structural Funds in the 2007-2013 programming period, in particular the European Regional Development Fund and State aid rules. Quality control and sanctions are set out in specific grant agreements.			
	 (a) Act No 321/2014 established two transitional periods. The 4AP will evaluate the contribution made by policy measures in the first transitional period (2014-2016) and compliance with the trajectory for the energy savings target under Article 7 by 2020. (b) Ministry responsible for the measure: Ministry of Agriculture and Rural Development. (c) Savings are determined transparently according to method (a) ex ante, by reference 			

(i)	of action plans and annual reports. As measures are checked on a project-by- project basis, no statistically significant share of measures for checking was established. Trends in savings will be set out in the annual reports on progress achieved towards national energy efficiency targets.
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Formula to calculate energy savings				
Measure MSEE ID:	3.3	Title of measure:	Improvements in the thermal performance of public buildings – Social services	
Sector:	Public sector	Financial mechanism:	2007-2013 ROP, Measure 2.1 Infrastructure of social services, social protection and social guardianship	
$US_{i pl\acute{a}n} = (P_{pred} - P_{po})$				

ÚS_{i_plán} - planned energy saving (final energy consumption) in the year of building renovation [kWh/a];

 P_{pred} – energy requirement for the building prior to renovation – standardised energy requirement for the original condition of the building [kWh/a];

 P_{po} – energy required for a building after renovation – standardised heat requirement for the post-renovation condition of the building [kWh/(a)].

Measure	3.4				Improvements in the thermal	
MSEE ID:			Title of measure:		performance of public buildings – Cultural facilities	
Sector:	Public sector		Financial mechanism:		ROP 2007-2013, Measure 3.1 Strengthening the cultural potential of the regions	
Measure lasting from: (year)	2007		to: (year)		2015 (2013+2)	
Responsible:	Ministry of Agri		Measure to comply with Article 7 of Directive 2012/27/EU:		Yes	
	and Rulai Dev	Siopinoni	Policy measure classification:		Article 7(9)(b) Article 7(9)(f)	
Lifetime of measure (years):	>7		Compliance with	Article 7(10)	Yes	
Form of energy:	Natural gas	Electricity	Heat	Other:		
Breakdown (%) by form of energy	41 %	12 %	47 %	0 %	Analysis of energy-saving potential in the public sector – December 2015	
	'Strengthening Measure 3.1 ai institutions loca including the pi connection with tourism.	the cultural ms to incre ally and regi rocurement in the preser	potential of the rease the quality of sionally through the of their equipment	gions and the de services provided ir reconstruction, s, and the revitalis	tive of Priority Axis 3 of the ROP velopment of tourism'. I by heritage and repository extension and modernisation, sation of important landmarks in se in cultural and sightseeing	
Characteristics of the measure (including eligible activities)	Nature of measure: (b) funding schemes – a grant from the 2007-2013 Structural Funds via the ROP for the implementation of projects outside the Bratislava Self-governing Region; the maximum a intensity for undertakings was 85 %, 10 % and 5 % of eligible expenditure for the ERDF, the central government budget, and the budgets of municipalities and higher territorial units; (f) training, education – consulting, seminars, conferences and information campaigns. Topportunity to benefit from free advice via Living with Energy and similar SIEA activitiaimed at achieving energy savings Supported/eligible ROP 3.1 activities mainly focused on: (a) the reconstruction, extension and modernisation of heritage and repository institution locally and regionally (libraries, museums, galleries) and the associated procurement equipment, including ICT, improvement in the energy performance of buildings — implementation of measures to improve the thermal insulation properties of structures, particular the restoration of the external skin, the repair and replacement of the recladding, including roofing and flat roof surfaces, and the repair and replacement exterior windows and doors; — the repair of a building's technical, energy or technological equipment and facilities, a the replacement of components thereof (in particular the replacement of boilers a radiators, interior plumbing systems, and air-conditioning equipment); — the installation of solar panels where appropriate, etc. (b) the revitalisation of significant unused or inappropriately used immovable cultur monuments in an area owned by the public sector, used to expand the activities heritage and repository institutions and their use in cultural and sightseeing tourism, justified and exceptional cases for cultural, social and educational purposes, and t associated procurement of equipment, including ICT equipment				verning Region; the maximum aid gible expenditure for the ERDF, sipalities and higher territorial and information campaigns. The energy and similar SIEA activities ritage and repository institutions defined the associated procurement of formance of buildings sulation properties of structures, in air and replacement of the roof defined the repair and replacement of gical equipment and facilities, and the replacement of boilers and equipment); ritately used immovable cultural used to expand the activities of litural and sightseeing tourism, in deducational purposes, and the	
Methods for the calculation of savings (in accordance with Annex V(1) to the EED ³³ and Implementing Decree No 327/2015)	Bottom-up, via individual projects Methods for the calculation of energy savings: (c) ex ante – projected savings – to determine the original condition of the building according to the year of construction and the technical standards applicable at the time, and the new condition of the building, using a project evaluation of the energy required for space heating, drawn up by a professionally competent person (designer) according to technical standards (in particular STN EN ISO 13790/NA, STN EN 15603, STN 730540) by reference to the existing thermal performance of the building 1. Savings are determined on the basis of annual energy consumption data prior to the implementation of the measure and energy consumption planned after the					
Detailed description of the method to calculate energy savings	implemen applicatio evaluatior managing 2. Projects f	tation of the creen of the action of the action authority for cousing exposure the cousing exposure of	ne measure. Data dibility of the data application. The application after the clusively on the interest and t	on energy cons a is confirmed bactual savings a he completion of nstallation of fa	sumption is included in the grant by professional evaluators in the achieved are monitored by the project implementation. cilities for the use of renewable ecause, in this case, there is no	

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	reduction in final energy consumption, only the replacement of one form of energy with another. No potential reduction in losses during energy distribution is applied. 3. The date of physical completion of implementation (if available) or the date for the completion of implementation entered in the ITMS system is taken as the decisive factor.
Use of expert estimates and assumptions in the calculation of energy savings	Yes In the calculation of energy requirements, the average degree days applicable to the whole of Slovakia and other technical coefficients specified in the relevant technical standards (in particular STN EN ISO 13790/NA, STN EN 15603, and STN 730540) are used.
Monitoring, control and verification of the energy savings made	Monitoring is carried out by the managing authority (the Ministry of Construction and Regional Development) via the ITMS, where a measurable indicator is presented. As the 'Energy savings' indicator is an impact indicator, information is monitored by way of <i>ex post</i> monitoring reports, which beneficiaries are required to submit once a year for the five years following the end of the project. The beneficiary is responsible for the data provided. Under Section 11(2) of Act No 321/2014 on energy efficiency, the MSEE operator may ask the owner/manager of a building with a total floor area of more than 1 000 m² to provide energy consumption data for the previous calendar year. Checks are then also conducted as part of the preparation of action plans and the annual report. As measures are checked on a project-by-project basis, there was no need to establish a statistically significant share of measures to be checked.
Overall evaluation and way forward	 The final deadline for the receipt of grant applications was 18 February 2015. The overall evaluation of the effectiveness of the measure also includes the financial resources used to achieve energy savings. In this measure, it is impossible to separate financial resources directly linked to a reduction in the energy intensity of hospitals and outpatient healthcare facilities from the total resources used. The investment intensity per unit of energy savings may therefore report a significant deviation from other similar energy efficiency measures in the buildings sector. For future similar funding schemes, it is necessary to separate funds to improve the thermal performance of buildings from other eligible costs when a grant application is submitted. 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.
Projected overlapping with another measure – duplication	None foreseen.
Method to avoid duplication	Not applicable.
Information for the purp	Oses of Article 7 of Directive 2012/27/EU
Materiality of the measure (Annex V, point 2(c), to the EED)	Project implementation contributes to savings for the final customer. Activity carried out by the managing authority is demonstrably material, particularly the provision of financial resources and the management of the process for the use of those funds.
Complementarity of the measure	Complementarity is not applicable in the buildings sector. The measure would not be implemented without a funding scheme. Were it not for State intervention, projects would not be implemented to the existing extent. They would only deal with any serious disrepair and energy-saving measures with a reasonable payback period (e.g. window replacement).
Compliance with legislation and principles of support mechanisms (including quality control and sanctions), if relevant	This measure is consistent with the procedure laid down in legislation of general application on the use of the European Structural Funds in the 2007-2013 programming period, in particular the European Regional Development Fund and State aid rules. Quality control and sanctions are set out in specific grant agreements.
Compliance with criteria (under Article 7(10) of the Directive)	 (a) Act No 321/2014 established two transitional periods. The 4AP will evaluate the contribution made by policy measures in the first transitional period (2014-2016) and compliance with the trajectory for the energy savings target under Article 7 by 2020. (b) Ministry responsible for the measure: Ministry of Agriculture and Rural Development. (c) Savings are determined transparently according to method (a) ex ante, by reference to a calculation of the energy required, and method (b) ex post, by measuring energy consumption after project implementation; (d) Energy savings are shown in final energy consumption. (e) Savings are determined further to point 1(a) and (b) of Annex V, in accordance with point 2 of Annex V. (f) Not applicable; these are not policy measures under Article 7(9)(a), second subparagraph.

(j)	Trends in savings will be set out in the annual reports on progress achieved towards
	national energy efficiency targets.

Formula to calculate energy savings				
Measure MSEE ID:	3.4	Title of measure:	Improvements in the thermal performance of public buildings – Cultural facilities	
Sector:	Public sector	Financial mechanism:	ROP 2007-2013, Measure 3.1 Strengthening the cultural potential of the regions	

 $\acute{\text{U}}S_{i_pl\acute{a}n} = \left(P_{pred} - P_{po}\right)$

where

 $ÚS_{i,plán}$ – planned energy saving (final energy consumption) in the year of building renovation [kWh/a];

P_{pred} – energy requirement for the building prior to renovation – standardised energy requirement for the original condition of the building [kWh/a];

 P_{po} – energy required for a building after renovation – standardised heat requirement for the post-renovation condition of the building [kWh/(a)].

Measure	3.5					Improvements in the thermal
MSEE ID:	ROP		Titl	Title of measure:		performance of public buildings – emergency services
Sector:	Public sector		Fin	Financial mechanism:		ROP 2007-2013, Measure 4.2 Infrastructure of non- commercial emergency services
Measure lasting from:	2007		to:	(year)		2015 (2013+2)
(year) Responsible:	Ministry of Agri		Art	Measure to comply with Article 7 of Directive 2012/27/EU:		Yes
	and Rulai Devi	еюрттетт	Pol	Policy measure classification:		Article 7(9)(b) Article 7(9)(f)
Lifetime of measure (years):	>7		Cor	Compliance with Article 7(10)		Yes
Form of energy:	Natural gas	Electricity		Heat	Other:	
Breakdown (%) by form of energy	41 %	12 %		47 %	0 %	Analysis of energy-saving potential in the public sector – December 2015
Characteristics of the measure (including eligible activities)	The implementation of Measure 4.2 contributes to the objective of Priority Axis 4 of th 'Increasing the competitiveness of settlements and increasing the quality and safety of spaces'. Measure 4.2 aims to increase the quality and safety of public spaces through the reconstruction, extension and modernisation of non-commercial emergency service faci including the procurement of their equipment. Nature of measure: (b) funding schemes – a grant from the 2007-2013 Structural Funds via the ROP implementation of projects outside the Bratislava Self-governing Region; the maxim intensity for undertakings was 85 %, 10 % and 5 % of eligible expenditure for the the central government budget, and the budgets of municipalities and higher to units; (f) training, education – consulting, seminars, conferences and information campaign opportunity to benefit from free advice via Living with Energy and similar SIEA a aimed at achieving energy savings Supported/eligible ROP 4.2 activities mainly focused on: (a) the reconstruction, extension and modernisation of existing facilities and the asso procurement of non-commercial emergency service equipment, including improvements in the energy performance of buildings, improvements in the				spaces through the cial emergency service facilities, tural Funds via the ROP for the everning Region; the maximum aid eligible expenditure for the ERDF, funicipalities and higher territorial and information campaigns – the energy and similar SIEA activities ting facilities and the associated be equipment, including ICT, in including ICT, including ICT, including ICT, including ICT, including ICT, including ICT equipment, including ICT equipment, including ICT equipment,	
Evaluation of the measure	Bottom-up, via					
Methods for the calculation of savings (in accordance with Annex V(1) to the EED ³⁴ and Implementing Decree No 327/2015)	to the yea new cond heating, o standards	projected s ar of constr ition of the Irawn up by s (in particu	aving ruction build a prular	gs – to determ on and the tec ling, using a professionally co STN EN ISO	ine the original or thnical standard roject evaluation ompetent persor	condition of the building according s applicable at the time, and the n of the energy required for space (designer) according to technical TN EN 15603, STN 730540) by Iding
Detailed description of the method to calculate energy savings	Savings a implement implement	are determi tation of tation of th	ned the e m	on the basis measure a easure. Data	of annual enerond enerond energy conson energy cons	gy consumption data prior to the consumption planned after the sumption is included in the grant by professional evaluators in the

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	evaluation of the application. The actual savings achieved are monitored by the managing authority for five years after the completion of project implementation. 2. Projects focusing exclusively on the installation of facilities for the use of renewable sources of energy are not included in this measure because, in this case, there is no reduction in final energy consumption, only the replacement of one form of energy with another. No potential reduction in losses during energy distribution is applied. 3. The date of physical completion of implementation (if available) or the date for the completion of implementation entered in the ITMS system is taken as the decisive factor.
Use of expert estimates and assumptions in the calculation of energy savings	Yes In the calculation of energy requirements, the average degree days applicable to the whole of Slovakia and other technical coefficients specified in the relevant technical standards (in particular STN EN ISO 13790/NA, STN EN 15603, and STN 730540) are used.
Monitoring, control and verification of the energy savings made	Monitoring is carried out by the managing authority (the Ministry of Agriculture and Rural Development) via the ITMS, where a measurable indicator is presented. As the 'Energy savings' indicator is an impact indicator, information is monitored by way of <i>ex post</i> monitoring reports, which beneficiaries are required to submit once a year for the five years following the end of the project. The beneficiary is responsible for the data provided. Under Section 11(2) of Act No 321/2014 on energy efficiency, the MSEE operator may ask the owner/manager of a building with a total floor area of more than 1 000 m² to provide energy consumption data for the previous calendar year. Checks are then also conducted as part of the preparation of action plans and the annual report. As measures are checked on a project-by-project basis, there was no need to establish a statistically significant share of measures to be checked.
Overall evaluation and way forward	 The final deadline for the receipt of grant applications was 17 May 2013. The overall evaluation of the effectiveness of the measure also includes the financial resources used to achieve energy savings. In this measure, it is impossible to separate financial resources directly linked to a reduction in the energy intensity of hospitals and outpatient healthcare facilities from the total resources used. The investment intensity per unit of energy savings may therefore report a significant deviation from other similar energy efficiency measures in the buildings sector. For future similar funding schemes, it is necessary to separate funds to improve the thermal performance of buildings from other eligible costs when a grant application is submitted. 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.
Projected overlapping with another measure – duplication	None foreseen.
Method to avoid duplication	Not applicable.
Information for the purp	oses of Article 7 of Directive 2012/27/EU
Materiality of the measure (Annex V, point 2(c), to the EED)	Project implementation contributes to savings for the final customer. Activity carried out by the managing authority is demonstrably material, particularly the provision of financial resources and the management of the process for the use of those funds.
Complementarity of the measure	Complementarity is not applicable in the buildings sector. The measure would not be implemented without a funding scheme. Were it not for State intervention, projects would not be implemented to the existing extent. They would only deal with any serious disrepair and energy-saving measures with a reasonable payback period (e.g. window replacement).
Compliance with legislation and principles of support mechanisms (including quality control and sanctions), if relevant	This measure is consistent with the procedure laid down in legislation of general application on the use of the European Structural Funds in the 2007-2013 programming period, in particular the European Regional Development Fund and State aid rules. Quality control and sanctions are set out in specific grant agreements.
	 (a) Act No 321/2014 established two transitional periods. The 4AP will evaluate the contribution made by policy measures in the first transitional period (2014-2016) and compliance with the trajectory for the energy savings target under Article 7 by 2020. (b) Ministry responsible for the measure: Ministry of Agriculture and Rural

(i)	The control system is implemented at MSEE IS level and as part of the preparation of action plans and annual reports. As measures are checked on a project-by-project basis, no statistically significant share of measures for checking was established.
(j)	Trends in savings will be set out in the annual reports on progress achieved towards national energy efficiency targets.

Formulas for calculating savings for individual energy efficiency measures

Formula to calculate energy savings				
Measure	3.5		Improvements in the thermal	
MSEE ID:	ROP	Title of measure:	performance of public buildings – emergency services	
Sector:	Public sector	Financial mechanism:	2007-2013 Structural Funds, ROP, Measure 4.2 Infrastructure of non- commercial rescue services	
$ÚS_{i_pl\acute{a}n} = \left(P_{pred} - P_{po}\right)$				

where:

 $ÚS_{i_plán}$ – planned energy saving (final energy consumption) in the year of building renovation [kWh/a];

P_{pred} – energy requirement for the building prior to renovation – standardised energy requirement for the original condition of the building [kWh/a];

 P_{po} – energy required for a building after renovation – standardised heat requirement for the post-renovation condition of the building [kWh/(a)].

Measure	3.6					Reduction in the energy	
MSEE ID:			Titl	e of measure:	:	intensity of public buildings – office buildings, buildings of schools and school facilities, healthcare facilities	
Sector:	Public sector		Fina	ancial mechan	ism:	Operational Programme Environmental Quality 2014- 2020	
Measure lasting from: (year)	2014			(year)		2020	
Responsible:	Ministry of the Environment		Art 201	asure to compicle 7 of Direct 2/27/EU:	tive	Yes	
	_			icy measure cl		Article 7(9)(b)	
Lifetime of measure (years):	>7	Et a colore	Cor	mpliance with /	-	Yes	
Form of energy:	Natural gas	Electricity		Heat	Other:	Analysis of energy-saving	
Breakdown (%) by form of energy	54.35 %	17.50 %		27.46 %	0.69 %	potential (AB) in the public sector – December 2015	
Characteristics of the measure (including eligible activities)	Programme Ei i.e. projects co energy building Nature of meas (b) support s Environme	Under Specific Objective 4.3 'Support of energy efficiency and the use of energy from renewable sources in public infrastructure, including public buildings' of the Operational Programme Environmental Quality, particular support will focus on comprehensive projects i.e. projects combining several measures to reduce energy requirement to the level of low energy buildings, ultra-low-energy buildings and nearly zero-energy buildings. Nature of measure: (b) support schemes — Structural Funds, grant from the Operational Programmental Quality. Energy-saving activities are financed up to a maximum of 85 % of eligible expenditure (excluding the Bratislava Region) in the form of a grant in accordance.					
Fuglishing of the manager	Structural Funds for the 2014-2020 Programming Period. Supported/eligible activities are mainly focused on: (a) improvements in the thermal performance of buildings (b) the modernisation of space heating/air-conditioning systems (c) the modernisation of hot water production systems (d) the modernisation of lighting and wiring with other energy-saving measures (e) the installation of RES facilities in buildings will only be supported as part of comprehensive project to improve the energy performance of public buildings					ngs g systems energy-saving measures only be supported as part of a	
Evaluation of the measure	Bottom-up, via individual projects Methods for the calculation of energy savings:						
Methods for the calculation of savings (in accordance with Annex V(1) to the EED ³⁵ and Implementing Decree No 327/2015)	Methods for the calculation of energy savings: (a) ex ante – projected savings – the original and new condition of a building is determined on the basis of a project evaluation of the energy required for space heating, drawn up by a professionally competent person (designer) according to technical standards (in particular STN EN ISO 13790/NA, STN EN 15603, STN 730540) by reference to the existing and proposed thermal performance of the building; (b) ex post – savings measured after project implementation, taking into account the extent to which the building is used, plus climate impacts.						
Detailed description of the method to calculate energy savings	 Savings are determined on the basis of annual energy consumption data prior to the implementation of the measure and energy consumption planned after the implementation of the measure. Data on energy consumption is included in the grant application. The credibility of the data is confirmed by professional evaluators in the evaluation of the application. The actual savings achieved are monitored by the intermediate body for five years after the completion of project implementation. Projects focusing exclusively on the installation of facilities for the use of renewable sources of energy are not included in this measure because, in this case, there is no reduction in final energy consumption, only the replacement of one form of energy with another. No potential reduction in losses during energy distribution is applied. The date of physical completion of implementation (if available) or the date for the completion of implementation entered in the ITMS 2014+ system is taken as the decisive factor. 						
Use of expert estimates and assumptions in the calculation of energy savings	Yes In the calculati Slovakia and particular STN						
Monitoring, control and verification of the energy savings made	esiF for the 20 of the indica Beneficiaries paystem). The	014-2020 pr tor (the a provide dat beneficiary	ogra nnua a via is re	mming period. I energy save a the ITMS 2 esponsible for	This entails the ving) five year 014+ and MSE the data provi	use of financial resources from the provision of data on the fulfilment s after project implementation. EE (energy efficiency monitoring ded. The intermediate body (the tof the indicator (energy savings)	

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	and, if it is not being met, applies the sanction mechanisms specified in the grant agreement.					
Overall evaluation and way forward	By the end of 2016, no call for projects had been announced. It is envisaged that projects will be included in the detailed monitoring of energy consumption for operational purposes by the energy efficiency monitoring system (MSEE)					
Projected overlapping with another measure – duplication	None foreseen.					
Method to avoid duplication	Not applicable.					
Information for the purp	oses of Article 7 of Directive 2012/27/EU					
Materiality of the measure (Annex V, point 2(c), to the EED)	Project implementation contributes to savings for the final customer.					
,	Complementarity is not applicable in the buildings sector.					
Complementarity of the measure	Savings from this measure are counted only if renovation is based on the acceptance of a grant.					
measure	The measure takes into account total energy savings representing the difference between the original and the new condition of the building.					
Compliance with legislation and principles of support mechanisms (including quality control and sanctions), if relevant	This measure is consistent with the procedure laid down in legislation of general application on the use of the European Structural Funds in the 2014-2020 programming period and in State aid rules. Quality control and sanctions are set out in specific grant agreements.					
Compliance with criteria (under Article 7(10) of the Directive)	 (a) Act No 321/2014 established two transitional periods. The 4AP will assess the contribution of policy measures in the 2017-2020 period. (b) Ministry responsible for the measure: Ministry of the Environment. (c) Savings are determined transparently according to method (a) – ex ante and method (b) ex post. (d) Energy savings are shown in final energy consumption. (e) Savings are determined further to point 1(a) of Annex V, in accordance with point 2 of Annex V. (f) Not applicable; these are not policy measures under Article 7(9)(a), second subparagraph. (g) Not applicable, these are not voluntary agreements. (h) The results of the measure are continuously monitored and, if they are not sufficient, corrective measures will be taken. (i) The control system is implemented at ITMS 2014+ IS and MSEE level and as part of the preparation of action plans and annual reports. As measures are checked on a project-by-project basis, no statistically significant share of measures for checking was established. (j) Trends in savings will be set out in the annual reports on progress achieved towards national energy efficiency targets. 					

Formula to calculate energy savings					
Measure	3.6		Reduction in the energy intensity of public buildings –		
MSEE ID: KZP	Title of measure:	office buildings, buildings of schools and school facilities, healthcare facilities			
Sector:	Public sector	Financial mechanism:	Operational Programme Environmental Quality 2014- 2020		
$\acute{\mathrm{U}}S_{i_pl\acute{a}n} = \left(P_{pred} - P_{po}\right)$					

 $\acute{\text{US}}_{\underline{\text{Lplán}}}-\text{planned energy saving (final energy consumption) in the year of building renovation [kWh/a];}$

P_{pred} – energy requirement for the building prior to renovation – standardised energy requirement for the original condition of the building [kWh/a];

 P_{po} – energy required for a building after renovation – standardised heat requirement for the post-renovation condition of the building [kWh/(a)].

Measure	3.7.1					Improvements in the thermal
MSEE ID:	REL		Title	e of measure:	:	performance of public buildings – office buildings ('relevant')
Sector:	Public sector		Financial mechanism:			Budget headings of central bodies of State administration
Measure lasting from: (year)	2007			year)		2020
Responsible:	Central bodies	of State	Arti	asure to comp cle 7 of Direc 2/27/EU:		Yes
	administration			cy measure cl		Article 7(9)(c) Article 7(9)(f)
Lifetime of measure (years):	>7		Con	npliance with /		Yes
Form of energy:	Natural gas	Electricity		Heat	Other:	
Breakdown (%) by fuel	54.35 %	17.50 %	6	27.46 %	0.69 %	Analysis of energy-saving potential in the public sector – December 2015
Characteristics of the measure (including eligible activities)	Renovation of the buildings and building technical systems of central bodies of Stadministration (relevant buildings included in the list maintained by the Ministry of Transpand Construction). Nature of measure: (c) legislative regulations – (energy performance of buildings – minimum requirements buildings undergoing major renovation are set at the level of minimum requirements for n buildings, the building renovation plan pursuant to Section 10 of Act No 321/2014 on ene efficiency, the hydronic balancing of heat and hot water distribution, the insulation of hot was distribution systems);					
Evaluation of the measure	 (f) training, education – consulting, seminars, conferences and information campaigns. The activities evaluated focused primarily on: (a) improvements in the thermal performance of buildings; (b) hydronic balancing of space heating, including thermostatic valves; (c) hydronic balancing and insulation of hot water distribution systems. Bottom-up, via individual projects 					
Methods for the calculation of savings (in accordance with Annex V(1) to the EED ³⁶ and Implementing Decree No 327/2015)	Methods for the calculation of energy savings: (a) ex ante – projected savings – the original and new condition of a building is determined on the basis of a project evaluation of the heat required for space heating, drawn up by a professionally competent person (designer) according to technical standards (in particular STN EN ISO 13790/NA, STN EN 15603, STN 730540) by reference to the existing and proposed thermal performance of the building;					
Detailed description of the method to calculate energy savings	The energy saving is determined as the difference between the energy required for space heating and hot water production in the original condition of the building and the energy required for space heating and hot water production after the renovation of the building according to the building renovation project. The data necessary for the energy saving calculation is transmitted electronically to the energy efficiency monitoring system (MSEE) by central bodies of State administration further to Task B of Government Resolution No 350/2014 and pursuant to Section 24 of Act No 321/2014 on energy efficiency.					
Use of expert estimates and assumptions in the calculation of energy savings	Yes In the calculation of energy requirements for activity (a), the average degree days applicable to the whole of Slovakia and other technical coefficients specified in the relevant technical standards (in particular STN EN ISO 13790/NA, STN EN 15603, and STN 730540) are used.					
Monitoring, control and verification of the energy savings made	Monitoring – carried out via the MSEE IS (the energy efficiency monitoring system operated by the Slovak Innovation and Energy Agency). Data is transmitted to the system electronically by building managers. Under Section 24 of Act No 321/2014 on energy efficiency, central bodies of State administration are required to provide the MSEE operator annually with energy consumption data for the previous calendar year and, under Section 11(2), the MSEE operator may ask the owner/manager of a building with a total floor area of more than 1 000 m² to provide data or the energy efficiency measures implemented for the previous calendar year. Checks are then also conducted as part of the preparation of action plans and the annual report. As measures are checked on a project-by-project basis, there was no need to establish					
Overall evaluation and way forward	a statistically significant share of measures to be checked. The measure will continue in the coming period. This change will tighten minimum requirements for buildings undergoing renovation further to Act No 555/2005 and Implementing Decree No 364/2012.					
Projected overlapping with another measure –						2007-2013 Structural Funds, the public- and private-sector office

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duplication	buildings.					
duplication Method to avoid duplication	The duplication of the energy savings made by overlapping measures is prevented by the fact that energy savings are monitored on a project-by-project basis and the savings are counted in only one of the relevant measures. Priority is given to energy savings counted towards measures funded from the 2007-2013 Structural Funds, the 2014-2020 ESIF and via guaranteed energy services, if such funding sources have been identified. In this case, the savings for the building in question are not included in the savings under Measure 3.7.1.					
Information for the purp	oses of Article 7 of Directive 2012/27/EU					
	Project implementation contributes to savings for the final customer.					
	The activity of the designated bodies (central bodies of State administration) is demonstrably material, in particular in the exercise of Task B of Government Resolution No 350/2014. Resources from the central government budget are provided to implement the measure in full.					
	The introduction of the obligation to renovate buildings to the energy efficiency level of new buildings means that central bodies of State administration are forced to carry out renovation beyond the average measures they would take for a reasonable economic return.					
Materiality of the measure (Annex V, point 2(c), to the EED)	To implement measures of the Energy Efficiency Policy (adopted under Government Resolution No 576 of 4 July 2007), Slovakia introduced a coherent system to raise awareness of energy efficiency, which includes the provision of free consulting by the Slovak Innovation and Energy Agency financed annually by the budget heading of the Ministry of Economy and the EU Structural Funds (mainly via the national 'Living with Energy' project). In addition to individual and group consulting on how to reduce energy requirements in buildings, publications have been issued and disseminated, such as Insulation and Window Replacement in Office Buildings.					
	It is only through these State-initiated synergic support measures that investment activities in the renovation of the office buildings of central bodies of State administration and in the modernisation and reconstruction of building technical systems have been significantly accelerated.					
	Complementarity is not applicable in the buildings sector.					
Complementarity of the measure	The measure takes into account energy savings, representing the difference in the heat required for space heating and hot water production between the original and the new condition of the building, because the minimum requirements for buildings undergoing major renovation are set at the level of the minimum requirements for new buildings, which in the case of renovated buildings is not always technically, functionally and economically feasible.					
	Potential savings that can be achieved by replacing an existing heat source with a more modern new one to which the Ecodesign Directive might apply, as well as potential savings from the modernisation and reconstruction of lighting, do not count towards energy savings.					
Compliance with legislation and principles of support mechanisms (including quality control and sanctions), if relevant	If a building undergoes major renovation, minimum energy performance requirements should be achieved if technically, functionally and economically feasible. This is checked in the final approval procedure. If the fulfilment of requirements is not technically, functionally and economically feasible, this is already evident when the project for the issuance of a building permit is submitted, and the competent building authority decides whether non-compliance with the minimum requirements is justified. If it is not justified, no building permit is issued. The performance of the tasks under Government Resolution No 350/2014 is checked annually by the Government Office.					
Compliance with criteria (under Article 7(10) of the Directive)	 (a) Act No 321/2014 established two transitional periods. The 4AP will evaluate the contribution made by policy measures in the first transitional period (2014-2016) and compliance with the trajectory for the energy savings target under Article 7 by 2020. (b) Ministry responsible for the measure: Ministry of Transport and Construction. (c) Savings are determined transparently according to method (a) – ex ante. (d) Energy savings are shown in final energy consumption. (e) Savings are determined further to point 1(a) of Annex V, in accordance with point 2 of Annex V. (f) Not applicable; these are not policy measures under Article 7(9)(a), second subparagraph. (g) Not applicable, these are not voluntary agreements. (h) The results of the measure are continuously monitored and, if they are not sufficient, corrective measures will be taken. (i) The control system is implemented at MSEE IS level and as part of the preparation of action plans and annual reports. As measures are checked on a project-by-project basis, no statistically significant share of measures for checking was established. (j) Trends in savings will be set out in the annual reports on progress achieved towards national energy efficiency targets. 					

Formula to calcula	ate energy savings		
Measure	3.7.1	Title of measure:	Improvements in the thermal

MSEE ID:			performance of public buildings – office buildings ('relevant')
Sector:	Public sector	Financial mechanism:	Budget headings of central bodies of State administration

$$ÚS_{i_pl\acute{a}n} = (P_{pred} - P_{po})$$

ÚSi_plán - planned energy saving (final energy consumption) in the year of building renovation [kWh/a];

Ppred – energy required for space heating and hot water production prior to renovation of the building – standardised energy requirement for space heating and hot water production in the original condition of the building [kWh/a];

Ppo – energy required for space heating and hot water production after renovation of the building – standardised energy requirement for space heating and hot water production in the post-renovation condition of the building [kWh/a];

Measure	3.7.2a					Improvements in the thermal
MSEE ID:	uoss		Titl	le of measure:	:	performance of public buildings – office buildings (of central bodies of State administration directly)
Sector:	Public sector		Fin	ancial mechan	ism:	Budget headings of central bodies of State administration
Measure lasting from: (year)	2007		to:	(year)		2020
Responsible:	Central bodies administration	of State	Art	asure to compice of the complete of the comple		Yes
	adminionation		Pol	icy measure cl	assification:	Article 7(9)(c) Article 7(9)(f)
Lifetime of measure (years):	>7		Co	mpliance with	Article 7(10)	Yes
Form of energy:	Natural gas	Electricity		Heat	Other:	
Breakdown (%) by fuel	54.35 %	17.50 %	6	27.46 %	0.69 %	Analysis of energy-saving potential in the public sector – December 2015
Characteristics of the measure (including eligible activities)	Renovation of the buildings and building technical systems of central bodies of State administration (buildings owned/managed by central bodies of State administration, excludir relevant buildings included in the list maintained by the Ministry of Transport are Construction). Nature of measure: (c) legislative regulations — (energy performance of buildings — minimum requirements for buildings undergoing major renovation are set at the level of minimum requirements for ne buildings, the building renovation plan pursuant to Section 10 of Act No 321/2014 on energy efficiency, the hydronic balancing of heat and hot water distribution, the insulation of hot water distribution systems); (f) training, education — consulting, seminars, conferences and information campaigns. The activities evaluated focused primarily on: (a) improvements in the thermal performance of buildings;					of State administration, excluding the Ministry of Transport and Transport a
Evaluation of the measure Methods for the calculation of savings (in accordance with Annex V(1) to the EED ³⁷ and Implementing Decree No 327/2015)	(c) hydronic balancing and insulation of hot water distribution systems. Bottom-up, via individual projects Methods for the calculation of energy savings: (a) ex ante – projected savings – the original and new condition of a building is determined on the basis of a project evaluation of the heat required for space heating, drawn up by a professionally competent person (designer) according to technical standards (in particular STN EN ISO 13790/NA, STN EN 15603, STN 730540) by reference to the existing and proposed thermal performance of the building;					
Detailed description of the method to calculate energy savings	The energy saving is determined as the difference between the energy required for space heating and hot water production in the original condition of the building and the energy required for space heating and hot water production after the renovation of the building according to the building renovation project. The data necessary for the energy saving calculation is transmitted electronically to the energy efficiency monitoring system (MSEE) by central bodies of State administration further to Task B of Government Resolution No 350/2014 and pursuant to Section 24 of Act No 321/2014 on energy efficiency.					
Use of expert estimates and assumptions in the calculation of energy savings	Yes In the calculation of energy requirements for activity (a), the average degree days applicable to the whole of Slovakia and other technical coefficients specified in the relevant technical standards (in particular STN EN ISO 13790/NA, STN EN 15603, and STN 730540) are used.					
Monitoring, control and verification of the energy savings made	Monitoring – carried out via the MSEE IS (the energy efficiency monitoring system operated the Slovak Innovation and Energy Agency). Data is transmitted to the system electronically building managers. Under Section 24 of Act No 321/2014 on energy efficiency, central bodies of Sta administration are required to provide the MSEE operator annually with energy consumptio data for the previous calendar year and, under Section 11(2), the MSEE operator may ask the owner/manager of a building with a total floor area of more than 1 000 m² to provide data of the energy efficiency measures implemented for the previous calendar year. Checks are then also conducted as part of the preparation of action plans and the annual conduction and the sum of the preparation of action plans and the annual conduction and the sum of the preparation of action plans and the annual conduction area of the preparation of action plans and the annual conduction area of the preparation of action plans and the annual conduction area of the preparation of action plans and the annual conduction area of the preparation of action plans and the annual conduction area of the preparation of action plans and the annual conduction area of the preparation of action plans and the annual conduction area of the preparation of action plans and the annual conduction area of the preparation of action plans are conducted as part of the preparation of action plans are conducted as part of the preparation of action plans are conducted as part of the preparation of action plans are conducted as part of the preparation of action plans are conducted as part of the preparation of action plans are conducted as part of the preparation of action plans are conducted as part of the preparation of action plans are conducted as part of the preparation of action plans are conducted as part of the preparation of action plans are conducted as part of the preparation of action plans are conducted as part of the preparation of action plans are conducted as part of the preparatio					ed to the system electronically by iency, central bodies of State innually with energy consumption, the MSEE operator may ask the than 1 000 m² to provide data on calendar year.
Overall evaluation and way forward	a statistically s The measure	gnificant sh will conting for buildir	are nue ngs	of measures to in the comir undergoing	be checked. ng period. This	s change will tighten minimum her to Act No 555/2005 and

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 $^{^{}m 37}$ EED - Directive 2012/27/EU on energy efficiency

Projected overlapping with another measure – duplication	There is a potential overlap with measures funded from the 2007-2013 Structural Funds, the 2014-2020 ESIF and via guaranteed energy services for public- and private-sector office buildings.					
Method to avoid duplication	The duplication of the energy savings made by overlapping measures is prevented by the fact that energy savings are monitored on a project-by-project basis and the savings are counted in only one of the relevant measures. Priority is given to energy savings counted towards measures funded from the 2007-2013 Structural Funds, the 2014-2020 ESIF and via guaranteed energy services, if such funding sources have been identified. In this case, the savings for the building in question are not included in the savings under Measure 3.7.2a.					
Information for the purp	oses of Article 7 of Directive 2012/27/EU					
	Project implementation contributes to savings for the final customer.					
	The activity of the designated bodies (central bodies of State administration) is demonstrably material, in particular in the exercise of Task B of Government Resolution No 350/2014. Resources from the central government budget are provided to implement the measure in full.					
	The introduction of the obligation to renovate buildings to the energy efficiency level of new buildings means that central bodies of State administration are forced to carry out renovation beyond the average measures they would take for a reasonable economic return.					
Materiality of the measure (Annex V, point 2(c), to the EED)	To implement measures of the Energy Efficiency Policy (adopted under Government Resolution No 576 of 4 July 2007), Slovakia introduced a coherent system to raise awareness of energy efficiency, which includes the provision of free consulting by the Slovak Innovation and Energy Agency financed annually by the budget heading of the Ministry of Economy and the EU Structural Funds (mainly via the national 'Living with Energy' project). In addition to individual and group consulting on how to reduce energy requirements in buildings, publications have been issued and disseminated, such as Insulation and Window Replacement in Office Buildings.					
	It is only through these State-initiated synergic support measures that investment activities in the renovation of the office buildings of central bodies of State administration and in the modernisation and reconstruction of building technical systems have been significantly accelerated.					
Complementarity of the measure	Complementarity is not applicable in the buildings sector. The measure takes into account energy savings, representing the difference in the heat required for space heating and hot water production between the original and the new condition of the building, because the minimum requirements for buildings undergoing major renovation are set at the level of the minimum requirements for new buildings, which in the case of renovated buildings is not always technically, functionally and economically feasible. Potential savings that can be achieved by replacing an existing heat source with a more modern new one to which the Ecodesign Directive might apply, as well as potential savings from the modernisation and reconstruction of lighting, do not count towards energy savings.					
Compliance with legislation and principles of support mechanisms (including quality control and sanctions), if relevant	If a building undergoes major renovation, minimum energy performance requirements should be achieved if technically, functionally and economically feasible. This is checked in the final approval procedure. If the fulfilment of requirements is not technically, functionally and economically feasible, this is already evident when the project for the issuance of a building permit is submitted, and the competent building authority decides whether non-compliance with the minimum requirements is justified. If it is not justified, no building permit is issued. The performance of the tasks under Government Resolution No 350/2014 is checked annually by the Government Office.					
Compliance with criteria (under Article 7(10) of the Directive)	 (a) Act No 321/2014 established two transitional periods. The 4AP will evaluate the contribution made by policy measures in the first transitional period (2014-2016) and compliance with the trajectory for the energy savings target under Article 7 by 2020. (b) Ministry responsible for the measure: Ministry of Transport and Construction. (c) Savings are determined transparently according to method (a) – ex ante. (d) Energy savings are shown in final energy consumption. (e) Savings are determined further to point 1(a) of Annex V, in accordance with point 2 of Annex V. (f) Not applicable; these are not policy measures under Article 7(9)(a), second subparagraph. (g) Not applicable, these are not voluntary agreements. (h) The results of the measure are continuously monitored and, if they are not sufficient corrective measures will be taken. (i) The control system is implemented at MSEE IS level and as part of the preparation of action plans and annual reports. As measures are checked on a project-by project basis, no statistically significant share of measures for checking was established. (j) Trends in savings will be set out in the annual reports on progress achieved towards national energy efficiency targets. 					

Formula to calcula	te energy savings			
Measure	3.7.2a		Improvements in the thermal	
MSEE ID:	uoss	Title of measure:	performance of public buildings – office buildings (central bodies of State administration directly)	
Sector:	Public sector	Financial mechanism:	Budget headings of central bodies of State administration	
ίς − (P − P)				

 $ÚS_{i_pl\acute{a}n} = (P_{pred} - P_{po})$

where:

ÚSi_plán - planned energy saving (final energy consumption) in the year of building renovation [kWh/a];

Ppred – energy required for space heating and hot water production prior to renovation of the building – standardised energy requirement for space heating and hot water production in the original condition of the building [kWh/a];

Ppo – energy required for space heating and hot water production after renovation of the building – standardised energy requirement for space heating and hot water production in the post-renovation condition of the building [kWh/a];

Measure	3.7.2a					Improvements in the thermal
MSEE ID:	uoss		Title	e of measure:		performance of public buildings – office buildings (of central bodies of State administration indirectly)
Sector:	Public sector		Fina	ancial mechan	ism:	Budget headings of central bodies of State administration
Measure lasting from: (year)	2007		to: (year)		2020
Responsible:	Central bodies administration	of State	Arti	asure to comp cle 7 of Direct 2/27/EU:		Yes
	aummistration		Poli	cy measure cl	assification:	Article 7(9)(c) Article 7(9)(f)
Lifetime of measure (years):	>7		Con	npliance with	Article 7(10)	Yes
Form of energy:	Natural gas	Electricity		Heat	Other:	
Breakdown (%) by fuel	54.35 %	17.50 %		27.46 %	0.69 %	Analysis of energy-saving potential in the public sector – December 2015
Characteristics of the measure (including eligible activities)	Renovation of the buildings and building technical systems of organisations within the competence of central bodies of State administration (e.g. office buildings owned by towns and municipalities). Nature of measure: (c) legislative regulations – (energy performance of buildings – minimum requirements for buildings undergoing major renovation are set at the level of minimum requirements for new buildings, the building renovation plan pursuant to Section 10 of Act No 321/2014 on energy efficiency, the hydronic balancing of heat and hot water distribution, the insulation of hot water distribution systems); (f) training, education – consulting, seminars, conferences and information campaigns. The activities evaluated focused primarily on: (a) improvements in the thermal performance of buildings; (b) hydronic balancing of space heating, including thermostatic valves;					
Evaluation of the measure Methods for the calculation of savings (in accordance with Annex V(1) to the EED ³⁸ and Implementing Decree No 327/2015)	 (c) hydronic balancing and insulation of hot water distribution systems. Bottom-up, via individual projects Methods for the calculation of energy savings: (a) ex ante – projected savings – the original and new condition of a building is determined on the basis of a project evaluation of the heat required for space heating, drawn up by a professionally competent person (designer) according to technical standards (in particular STN EN ISO 13790/NA, STN EN 15603, STN 730540) by reference to the existing and 					
Detailed description of the method to calculate energy savings	proposed thermal performance of the building; The energy saving is determined as the difference between the energy required for space heating and hot water production in the original condition of the building and the energy required for space heating and hot water production after the renovation of the building according to the building renovation project. The data necessary for the energy saving calculation is transmitted electronically to the energy efficiency monitoring system (MSEE) by central bodies of State administration further to Task B of Government Resolution No 350/2014 and pursuant to Section 24 of Act No 321/2014 on energy efficiency.					
Use of expert estimates and assumptions in the calculation of energy savings	Yes In the calculation of energy requirements for activity (a), the average degree days applicable to the whole of Slovakia and other technical coefficients specified in the relevant technical standards (in particular STN EN ISO 13790/NA, STN EN 15603, and STN 730540) are used.					
Monitoring, control and verification of the energy savings made	Monitoring – carried out via the MSEE IS (the energy efficiency monitoring system operated by the Slovak Innovation and Energy Agency). Data is transmitted to the system electronically by building managers. Under Section 24 of Act No 321/2014 on energy efficiency, central bodies of State administration are required to provide the MSEE operator annually with energy consumption data for the previous calendar year and, under Section 11(2), the MSEE operator may ask the owner/manager of a building with a total floor area of more than 1 000 m² to provide data on the energy efficiency measures implemented for the previous calendar year. Checks are then also conducted as part of the preparation of action plans and the annual report. As measures are checked on a project-by-project basis, there was no need to establish a statistically significant share of measures to be checked.					
Overall evaluation and way forward Projected overlapping with	The measure requirements Implementing I	will conting for buildir Decree No 3	nue ngs 364/2	in the comir undergoing 012.	ng period. This renovation furt	change will tighten minimum her to Act No 555/2005 and 2007-2013 Structural Funds, the

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 $^{^{38}}$ EED – Directive 2012/27/EU on energy efficiency

another measure – duplication	2014-2020 ESIF and via guaranteed energy services for public- and private-sector office buildings.						
Method to avoid duplication	The duplication of the energy savings made by overlapping measures is prevented by the fact that energy savings are monitored on a project-by-project basis and the savings are counted in only one of the relevant measures. Priority is given to energy savings counted towards measures funded from the 2007-2013 Structural Funds, the 2014-2020 ESIF and via guaranteed energy services, if such funding sources have been identified. In this case, the savings for the building in question are not included in the savings under Measure 3.7.2a.						
Information for the purp	oses of Article 7 of Directive 2012/27/EU						
	Project implementation contributes to savings for the final customer. The activity of the designated bodies (central bodies of State administration) is demonstrably material, in particular in the exercise of Task B of Government Resolution No 350/2014. Resources from the central government budget are provided to implement the measure in full. The introduction of the obligation to renovate buildings to the energy efficiency level of new						
	buildings means that central bodies of State administration are forced to carry out renovation beyond the average measures they would take for a reasonable economic return.						
Materiality of the measure (Annex V, point 2(c), to the EED)	To implement measures of the Energy Efficiency Policy (adopted under Government Resolution No 576 of 4 July 2007), Slovakia introduced a coherent system to raise awareness of energy efficiency, which includes the provision of free consulting by the Slovak Innovation and Energy Agency financed annually by the budget heading of the Ministry of Economy and the EU Structural Funds (mainly via the national 'Living with Energy' project). In addition to individual and group consulting on how to reduce energy requirements in buildings, publications have been issued and disseminated, such as Insulation and Window Replacement in Office Buildings.						
	It is only through these State-initiated synergic support measures that investment activities in the renovation of the office buildings of central bodies of State administration and in the modernisation and reconstruction of building technical systems have been significantly accelerated.						
Complementarity of the measure	Complementarity is not applicable in the buildings sector. The measure takes into account energy savings, representing the difference in the heat required for space heating and hot water production between the original and the new condition of the building, because the minimum requirements for buildings undergoing major renovation are set at the level of the minimum requirements for new buildings, which in the case of renovated buildings is not always technically, functionally and economically feasible. Potential savings that can be achieved by replacing an existing heat source with a more modern new one to which the Ecodosign Directive might apply as well as potential savings.						
	modern new one to which the Ecodesign Directive might apply, as well as potential savings from the modernisation and reconstruction of lighting, do not count towards energy savings.						
Compliance with legislation and principles of support mechanisms (including quality control and sanctions), if relevant	If a building undergoes major renovation, minimum energy performance requirements should be achieved if technically, functionally and economically feasible. This is checked in the final approval procedure. If the fulfilment of requirements is not technically, functionally and economically feasible, this is already evident when the project for the issuance of a building permit is submitted, and the competent building authority decides whether non-compliance with the minimum requirements is justified. If it is not justified, no building permit is issued. The performance of the tasks under Government Resolution No 350/2014 is checked annually by the Government Office.						
Compliance with criteria (under Article 7(10) of the Directive)	 (a) Act No 321/2014 established two transitional periods. The 4AP will evaluate the contribution made by policy measures in the first transitional period (2014-2016) and compliance with the trajectory for the energy savings target under Article 7 by 2020. (b) Ministry responsible for the measure: Ministry of Transport and Construction. (c) Savings are determined transparently according to method (a) – ex ante. (d) Energy savings are shown in final energy consumption. (e) Savings are determined further to point 1(a) of Annex V, in accordance with point 2 of Annex V. (f) Not applicable; these are not policy measures under Article 7(9)(a), second subparagraph. (g) Not applicable, these are not voluntary agreements. (h) The results of the measure are continuously monitored and, if they are not sufficient, corrective measures will be taken. (i) The control system is implemented at MSEE IS level and as part of the preparation of action plans and annual reports. As measures are checked on a project-by-project basis, no statistically significant share of measures for checking was established. (j) Trends in savings will be set out in the annual reports on progress achieved towards national energy efficiency targets. 						

Formula to calculate energy savings						
Measure	3.7.2b		Improvements in the thermal			
MSEE ID:	uoss	Title of measure:	performance of public buildings – office buildings (central bodies of State administration indirectly)			
Sector:	Public sector	Financial mechanism:	Budget headings of central bodies of State administration			
$(S_{-}, - (P_{-}, P_{-}))$						

$ÚS_{i_pl\acute{a}n} = (P_{pred} - P_{po})$

where:

ÚSi_plán - planned energy saving (final energy consumption) in the year of building renovation [kWh/a];

Ppred – energy required for space heating and hot water production prior to renovation of the building – standardised energy requirement for space heating and hot water production in the original condition of the building [kWh/a];

Ppo – energy required for space heating and hot water production after renovation of the building – standardised energy requirement for space heating and hot water production in the post-renovation condition of the building [kWh/a].

Measure	3.9					Improvements in the thermal	
MSEE ID:	0.0		Title of measure:			performance of public buildings	
Sector:	Public sector		Financial mechanism:			EkoFond	
Measure lasting from:	2007		to: (year)		2015 (2013+2)	
(year) Responsible:	EkoFond non-investment fund			asure to comp cle 7 of Direc 2/27/EU:	tive	Yes	
L'CoConnat anno anno (anno anno)	_			cy measure cl		Article 7(9)(b)	
Lifetime of measure (years): Form of energy:	>7 Natural gas	Electricity	Cor	npliance with <i>I</i> Heat	Other:	Yes	
Breakdown (%) by fuel	54.35 %	17.50 %	6	27.46 %	0.69 %	Analysis of energy-saving potential in the public sector – December 2015	
	The main form of support for non-business entities (schools, municipalities, higher territunits and others) lies in the granting of financial contributions under programmes and grant promote energy efficiency. EkoFond pools financial resources intended to meet a general beneficial purpose, such as promoting the efficient use of energy and environment protection.					under programmes and grants to ces intended to meet a generally	
Characteristics of the measure (including eligible activities)	Nature of measure: (b) funding schemes – EkoFond provides support in the form of financial contributions, in accordance with the generally beneficial purpose and conditions specified in the declared programme, further to applications for these contributions from applicants. EkoFond is a non-investment fund, founded by Slovenský plynárenský priemysel, a.s., that has been operating in Slovakia since 2007. Since its establishment, it has financially supported – as a publicly beneficial and active society – projects for the efficient use of energy, environmental protection and educational activities in these areas.						
	Supported/eligible activities are mainly focused on: (c) eligible projects under EkoFond: GP 01 Cogeneration and trigeneration based on natural gas – up to 1 MWe GP 02 Improvement in the energy performance of buildings (thermal insulation of the external skin of buildings and window replacement) GP 03 Support of gas heat pump installation GP 04 Research, development and introduction of new progressive technology based on natural gas GP 05 Support for the development of the use of alternative CNG motor fuel						
Evaluation of the measure	Bottom-up, via individual projects						
Methods for the calculation of savings (in accordance with Annex V(1) to the EED ³⁹ and Implementing Decree No 327/2015)	Methods for the calculation of savings (choice of options): (a) ex ante – projected savings (standard savings for each measure); (b) ex post – measured savings (measurement before and after).						
Detailed description of the method to calculate energy savings	Savings are determined on the basis of annual energy consumption data prior to the implementation of the measure and energy consumption planned after the implementation of the measure. Under GP 01 Cogeneration and trigeneration based on natural gas – highly efficient combined production produces primary energy savings of at least 10 % compared to the separate production of heat and electricity; Under GP 02 Improvement in the energy performance of buildings – EkoFond provides a contribution of EUR 25 per m² of insulated surface for the thermal insulation of the external skin and roofs of buildings, and EUR 80 per m² of window surface for the replacement of windows; Under GP 03 Support of gas heat pump installation – gas heat pumps most commonly obtain heat from the ambient air, and, to produce heat, require approximately 55 % of primary energy compared to other space heating systems.						
	Yes						
Use of expert estimates and assumptions in the calculation of energy savings	In the calculation of energy savings for projects where measured energy consumption data is still not available after the implementation of the measure, expert estimates will be used in the preparation of the project by professionally competent persons (energy auditors or designers) according to the type of project by determining the energy consumption after the implementation of the measure, by applying relative energy savings further to knowledge of the state of the art and projected developments in science and technology.						
Monitoring, control and verification of the energy savings made	The fund enters into an agreement on the granting of a financial contribution with beneficiaries. Financial resources will not be released to the beneficiary until the project has been completed. 70 % of the financial contribution will be credited to the beneficiary's bank account						

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 $^{^{39}}$ EED – Directive 2012/27/EU on energy efficiency

	after project implementation, and 30 % after 12 months of project operation, provided that the			
	project implementation, and 30 % after 12 months of project operation, provided that the project parameters foreseen under the design documentation submitted by the applicant are met. The fund is entitled to carry out interim in-person checks on the use of the financial contribution			
Overall evaluation and way forward	The fund keeps complete records of applications for financial contributions and decisions to grant/refuse financial contributions throughout the life of the fund.			
Projected overlapping with another measure – duplication	There is no overlapping with any measure.			
Method to avoid duplication	The duplication of the energy savings made by overlapping measures is prevented by the fact that the energy savings presented are monitored on a project-by-project basis.			
Information for the purp	oses of Article 7 of Directive 2012/27/EU			
Materiality of the measure (Annex V, point 2(c), to the EED)	Project implementation contributes to savings for the final customer.			
Complementarity of the measure	The complementarity of the measure is irrelevant – the measure would not be implemented without the EkoFond support programme.			
Compliance with legislation and principles of support mechanisms (including quality control and sanctions), if relevant	In keeping with an approved agreement on the granting of a financial contribution, the fulfilment of the conditions attached to the approved financial contribution are continuously monitored during the process of project implementation. The first instalment of the financial contribution will be disbursed after the project has been implemented in keeping with its expected parameters and intentions. This is followed by a final evaluation of the approved project and the financial contribution, with the Fund reserving the right to monitor and evaluate the preparation, progress and results of the projects supported. The final project and financial statement are also evaluated and checked. The second instalment of the financial contribution is then disbursed.			
Compliance with criteria (under Article 7(10) of the Directive)	 (a) Act No 321/2014 established two transitional periods. The 4AP will evaluate the contribution made by policy measures in the first transitional period (2014-2016) and compliance with the trajectory for the energy savings target under Article 7 by 2020. (b) Ministry responsible for the measure: Ministry of Transport and Construction. (c) Savings are determined transparently according to method (a) ex ante and method (b) ex post. (d) Energy savings are shown in final energy consumption. (e) Savings are determined further to point 1(a) of Annex V, in accordance with point 2 of Annex V. (f) Not applicable; these are not policy measures under Article 7(9)(a), second subparagraph. (g) Not applicable, these are not voluntary agreements. (h) The results of the measure are continuously monitored and, if they are not sufficient, corrective measures will be taken. (i) The control system is implemented at MSEE IS level and as part of the preparation of action plans and annual reports. As measures are checked on a project-by-project basis, no statistically significant share of measures for checking was established. (j) Trends in savings will be set out in the annual reports on progress achieved towards national energy efficiency targets. 			

Measure	3.9		Improvements in the thermal			
MSEE ID:		Title of measure:	performance of public buildings			
Sector:	Public sector	Financial mechanism:	EkoFond			
		$\dot{U}S_i = S_{pred} - S_{po}$				
where:						
ÚS _i – energy saving	ÚS _i – energy saving (final energy consumption) in the year of project implementation [kWh/year];					
S _{pred} – energy cons	umption before project implemer	ntation – value from the financial o	contribution application in [kWh/year];			
S _{po} – energy consu	mption before project implement	ation – value from the financial co	ontribution application in [kWh/year].			
		aging authority as a resultant val If the target under Article 7 of the	ue in GJ or %, that value is used, after Directive.			

Formula to calculate energy savings

Measure	3.10					Improvements in the thermal	
MSEE ID:	0.10		Title of measure:			performance of public buildings	
Sector:	Public sector			ancial mechan	ism:	MunSEFF	
Measure lasting from: (year)	2011			year)		2015	
Responsible:	EBRD, Commission, ESG			asure to comp cle 7 of Direc 2/27/EU:	tive	Yes	
Lifetime of manaura (vacra):	>7			cy measure cl npliance with A		Article 7(9)(b) Yes	
Lifetime of measure (years): Form of energy:	Natural gas	Electricity	Col	Heat	Other:	res	
Breakdown (%) by fuel	54.35 %	17.50 %	6	27.46 %	0.69 %	Analysis of energy-saving potential in the public sector – December 2015	
Characteristics of the measure (including eligible activities)	The main objective of the programme is to stimulate the energy-efficient renovation of municipal infrastructure, especially in cases where there is high potential to achieve savings in the sector of municipality-owned public buildings Nature of measure: (b) funding schemes – credit line to support the development of energy efficiency and renewable energy sources among towns and municipalities in Slovakia; Supported/eligible activities are mainly focused on: (c) eligible projects under MunSEFF: component 2 – projects for the energy efficiency of municipality-owned buildings – heat production for space heating and water heating, replacement of windows and						
Evaluation of the measure Methods for the calculation of savings (in accordance with Annex V(1) to the EED ⁴⁰ and Implementing Decree No 327/2015)	transparent parts of the building envelope, thermal insulation of the external skin Bottom-up, via individual projects Methods for the calculation of savings (choice of options): (a) ex ante – projected savings (standard savings for each measure); (b) ex post – measured savings (measurement before and after)						
Detailed description of the method to calculate energy savings	According to MunSEFF, component 2: Savings are determined on the basis of annual energy consumption data prior to the implementation of the measure and energy consumption planned after the implementation of the measure. Data on energy consumption is part of the grant application. Grant eligibility depends on minimum energy savings of 30 % compared to the original energy consumption.						
Use of expert estimates and assumptions in the calculation of energy savings	Yes In the calculation of energy savings for projects where measured energy consumption data is still not available after the implementation of the measure, expert estimates will be used in the preparation of the project by professionally competent persons (energy auditors or designers) according to the type of project by determining the energy consumption after the implementation of the measure, by applying relative energy savings further to knowledge of the state of the art and projected developments in science and technology.						
Monitoring, control and verification of the energy savings made	Monitoring – the design consultant (ESG/ENVIROS) conducts an energy audit for projects to improve the energy efficiency of municipality-owned public buildings. If the client already has a clearly defined project scope presented in the appropriate form, the design consultant proceeds directly to the production of a Rational Energy Utilisation Plan (REUP), which includes the results of the energy audit, and describes the financing plan and timetable for implementation. It also incorporates proposed measures related to the investor's plan, as well as compliance with environmental standards. If required, the design consultant assists the client when applying for a loan. Checks are also conducted as part of the preparation of action plans and the annual report. As measures are checked on a project-by-project basis, there was no need to establish a statistically significant share of measures to be checked.						
Overall evaluation and way forward Projected overlapping with another measure –	The measure will continue in the coming period.						
duplication Method to avoid duplication	There is no overlapping with any measure. The duplication of the energy savings made by overlapping measures is prevented by the fact that energy savings presented for projects intended to improve the energy efficiency of public buildings owned by municipalities with a MunSEFF contribution are not counted towards other measures as the processing is carried out on a project-by-project basis.						
Information for the purp Materiality of the measure						ean Bank for Reconstruction and	

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 $^{^{40}}$ EED - Directive 2012/27/EU on energy efficiency

(Annex V, point 2(c), to the EED)	Development and the European Commission. The programme implementers are Slovenská sporiteľňa a.s. and Všeobecná úverová banka a.s. The design consultant (ESG/ENVIROS) assists clients applying for loans and monitors the relevant projects for the energy efficiency of public buildings. The activities of these entities are demonstrably material to the achievement of claimable energy savings.			
Complementarity of the measure	The complementarity of the measure is irrelevant – the measure would not be implemented without the MunSEFF support programme.			
Compliance with legislation and principles of support mechanisms (including quality control and sanctions), if relevant	Grant levels relative to the loan principal are set according to the components of each project: component 2 – the grant level ranges from 10 % to 15 % of the loan principal			
Compliance with criteria (under Article 7(10) of the Directive)	 (a) Act No 321/2014 established two transitional periods. The 4AP will evaluate the contribution made by policy measures in the first transitional period (2014-2016) and compliance with the trajectory for the energy savings target under Article 7 by 2020. (b) Ministry responsible for the measure: Ministry of Transport and Construction. (c) Savings are determined transparently according to method (a) ex ante and the ex post method. (d) Energy savings are shown in final energy consumption. (e) Savings are determined further to point 1(a) of Annex V, in accordance with point 2 of Annex V. (f) Not applicable; these are not policy measures under Article 7(9)(a), second subparagraph. (g) Not applicable, these are not voluntary agreements. (h) The results of the measure are continuously monitored and, if they are not sufficient, corrective measures will be taken. (i) The control system is implemented at MSEE IS level and as part of the preparation of action plans and annual reports. As measures are checked on a project-by-project basis, no statistically significant share of measures for checking was established. (j) Trends in savings will be set out in the annual reports on progress achieved towards national energy efficiency targets. 			

Formula to calculate energy savings						
Measure MSEE ID:	3.10	Title of measure:	Improvements in the thermal performance of public buildings			
Sector:	Public sector	Financial mechanism:	MunSEFF			
$\acute{U} S_{i_pl\acute{a} n} = \mathit{P}_{pred} - \mathit{P}_{po}$						

ÚS _{i_plán} – planned energy saving (final energy consumption) in the year in which improvements are made to the energy efficiency of a public building owned by a municipality [GJ/a];

P_{pred} – energy requirement for the project prior to renovation – for the original condition [GJ/a];

P_{po} – energy requirement for the project after renovation – for the new condition [GJ/a];

Measure	3.11					Improvements in the thermal	
MSEE ID:	9			e of measure:		performance of public buildings	
Sector:	Public sector			ancial mechan	ism:	Environmental Fund	
Measure lasting from: (year)	2005			year)		2017	
Responsible:	Environmental Fund			asure to comp cle 7 of Direc 2/27/EU:	tive	Yes	
Lifetime of measure (years):	>7			cy measure clands		Article 7(9)(b) Yes	
Form of energy:	Natural gas	Electricity	001	Heat	Other:	103	
Breakdown (%) by fuel	54.35 %	17.50 %		27.46 %	0.69 %	Analysis of energy-saving potential in the public sector – December 2015	
Characteristics of the measure (including eligible activities)	The Environmental Fund has been established primarily to provide State aid in environmental care and the cultivation of the environment on the principles of sustainable development. Nature of measure: (b) funding schemes – the Environmental Fund's main mission is to provide financial resources to applicants in the form of subsidies or loans to support projects where activities are aimed at fulfilling State environmental policy objectives nationally, regionally or locally. Supported/eligible activities are mainly focused on: (c) eligible projects under the Environmental Fund: • support of projects intended to make realistically achievable and measurable savings in greenhouse gas emissions;						
Evaluation of the measure	 the modernisation of facilities to make energy savings for the consumer; the enhanced energy efficiency of existing buildings, including insulation; support for a switch to low-emission forms of transport and from individual to public transport; heat loss reduction during heat distribution in district heating; the enhanced energy efficiency of technological units and individual facilities; 						
Evaluation of the measure Methods for the calculation	Bottom-up, via individual projects						
of savings (in accordance with Annex V(1) to the EED ⁴¹ and Implementing Decree No 327/2015)	Methods for the calculation of savings (choice of options): (a) ex ante – projected savings (standard savings for each measure); (b) ex post – measured savings (measurement before and after).						
Detailed description of the method to calculate energy savings	Savings are determined on the basis of annual energy consumption data prior to the implementation of the measure and energy consumption planned after the implementation of the measure.						
Use of expert estimates and assumptions in the calculation of energy savings	Yes In the calculation of energy savings for projects where measured energy consumption data is still not available after the implementation of the measure, expert estimates will be used in the preparation of the project by professionally competent persons (energy auditors or designers) according to the type of project by determining the energy consumption after the implementation of the measure, by applying relative energy savings further to knowledge of the state of the art and projected developments in science and technology.						
Manitoring central and	The Environmental Fund performs the following activities and processes related to provision of support to applicants: the acceptance, registration and administration of subsidy or loan applications unt subsidy/loan agreements with applicants are signed;					·	
Monitoring, control and verification of the energy savings made	 supervision of project implementation and the utilisation of financial resource beneficiaries until the final evaluation of the fulfilment of terms under the subsice agreements a check on the fulfilment of terms under subsidy/loan agreements and a financial pursuant to Act No 502/2001 on financial control and internal auditing 						
Overall evaluation and way forward	Once the contractual terms have been met, the fund will release and transfer financial resources to the beneficiaries, supervising the implementation of the projects in question and compliance with the contractual terms and legislation of general application.						
Projected overlapping with another measure – duplication	There is no overlapping with any measure.						
Method to avoid duplication	The duplication of the energy savings made by overlapping measures is prevented by the fact						

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 $^{^{41}}$ EED – Directive 2012/27/EU on energy efficiency

that the energy savings presented are monitored on a project-by-project basis.						
Information for the purp	oses of Article 7 of Directive 2012/27/EU					
Materiality of the measure (Annex V, point 2(c), to the EED)	Project implementation contributes to savings for the final customer.					
Complementarity of the measure	The complementarity of the measure is irrelevant – the measure would not be implemented without the Environmental Fund support programme.					
Compliance with legislation and principles of support mechanisms (including quality control and sanctions), if relevant	The provision of the fund's resources and the method for the use thereof are governed primarily by Sections 4, 6, 7, 8 and 9 of the Fund Act. The starting point for the support of applicants with subsidies or loans is the annual publication of specifications covering the support of activities in the form of a subsidy/loan for which applicants may apply. This specification of activities may be extended to include new activities (they must comply with the Fund Act) further to a proposal from the Environmental Fund Board.					
Compliance with criteria (under Article 7(10) of the Directive)	 (a) Act No 321/2014 established two transitional periods. The 4AP will evaluate the contribution made by policy measures in the first transitional period (2014-2016) and compliance with the trajectory for the energy savings target under Article 7 by 2020. (b) Ministry responsible for the measure: Ministry of Transport and Construction. (c) Savings are determined transparently according to method (a) ex ante and method (b) ex post. (d) Energy savings are shown in final energy consumption. (e) Savings are determined further to point 1(a) of Annex V, in accordance with point 2 of Annex V. (f) Not applicable; these are not policy measures under Article 7(9)(a), second subparagraph. (g) Not applicable, these are not voluntary agreements. (h) The results of the measure are continuously monitored and, if they are not sufficient, corrective measures will be taken. (i) The control system is implemented at MSEE IS level and as part of the preparation of action plans and annual reports. As measures are checked on a project-by-project basis, no statistically significant share of measures for checking was established. (j) Trends in savings will be set out in the annual reports on progress achieved towards national energy efficiency targets. 					

Formula to calculate energy savings							
Measure	3.11	Title of measure:	Improvements in the thermal performance of public				
MSEE ID:			buildings				
Sector:	Public sector	Financial mechanism:	Environmental Fund				
where:							
ÚS _i – energy savin	g (final energy consumption) in th	e year of project implementation [kWh/year];				
S _{pred} – energy cons	sumption before project implemen	tation – value from the financial co	ontribution application in [kWh/year];				
S _{po} – energy consu	umption before project implementa	ation – value from the financial co	ntribution application in [kWh/year].				

Note: If the energy saving is provided by the managing authority as a resultant value in GJ or %, that value is used, after conversion to a unified physical unit, in the pursuit of the target under Article 7 of the Directive.

Measure	3.12					Application of the principle of		
MSEE ID:			Title	Title of measure:		energy efficiency in public procurement		
Sector:	Public sector		Sou	rce of financin	ng:	National budget		
Measure lasting from: (year)	2014		`	to: (year)		2020		
Responsible:	Ministry of the Environment		Arti 201	sure to comp cle 7 of Direc 2/27/EU:	tive	Yes		
	La dia ata in ana		Poli	cy measure cl	assification:	According to Article 7(9)(c)		
Lifetime of measure (years):	Indicate in acco with Implement Decree No 327	ing	Con	npliance with A	Article 7(10)	Yes		
Type of fuel:	Natural gas	Electricity		Heat	Other fuels:			
Breakdown (%) by fuel	54.35 %	17.50 %	6	27.46 %	0.69 %	Analysis of energy-saving potential (AB) in the public sector – December 2015		
Characteristics of the measure (including eligible activities)	 Green public procurement is a voluntary environmental policy instrument, i.e. it is not enforced by law or motivated by any form of stimulus, and its non-application is not punishable. It is a preventive strategy instrument that comprises measures to reduce environmental pollution. Nature of measure: (c) legislative regulations, Act No 25/2006 and Act No 343/2015 on public procurement and amending certain acts, as amended (the green public procurement framework), lay down obligations for above-the-limit-contracting:							
Evaluation of the measure			_		minimum purcha	ase price		
Evaluation of the measure Methods for the calculation of savings (in accordance with Annex V(1) to the EED ⁴² and Implementing Decree No 327/2015)	Bottom-up, via individual facilities procured Methods for the calculation of energy savings: (a) ex ante — expected savings on the basis of previous independently monitored energy efficiency measures by an energy service provider or by the operator of the Energy Efficiency Monitoring System (MSEE), i.e. the Slovak Innovation and Energy Agency;							
Detailed description of the method to calculate energy savings	The calcu consumption energy co	lation of er	nergy e lifet over	savings typic ime of the fac	cally takes into ility for the norr	on the type of facility procured; account the average final energy nal solution, and the average final r the solution procured as part of		
Application of expert estimates and assumptions in the calculation of energy savings	case basis. For	each type	of fac	cility procured.	, the savings mi	gy savings are used on a case-by- ust be determined.		
Monitoring, control and verification of the energy savings made Overall evaluation and way	procuring entiti Agency. Saving	es in the page are evalu	previo uated	ous calendar for each facili	year, as provid ty separately.	of facilities procured by individual ded by the Slovak Environmental ocurement data provided for 2014,		
forward	2015 and 2016					ocurement data provided for 2014,		
Projected overlapping with another measure – duplication	None foreseen.							
Method to avoid duplication	Not applicable.							

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 $^{^{42}}$ EED – Directive 2012/27/EU on energy efficiency

Information for the purposes of Article 7 of Directive 2012/27/EU						
Materiality of the measure (Annex V, point 2(c), to the EED)	Project implementation contributes to savings for the final customer.					
Complementarity of the measure	Not applicable: a) the measure would not be implemented without a supportive legislative framework;					
Compliance with legislation and principles of support mechanisms (including quality control and sanctions), if relevant	The measure is in accordance with Act No 321/2014 on energy efficiency. Supervision o compliance with the provisions of the Act is carried out by the Slovak Trade Inspectorate.					
Compliance with criteria (under Article 7(10) of the Directive)	 (a) Act No 321/2014 established two transitional periods. The 4AP will evaluate the contribution made by policy measures in the first transitional period (2014-2016) and compliance with the trajectory for the energy savings target under Article 7 by 2020. (b) Ministry responsible for the measure: Ministry of Economy. (c) Savings are determined transparently according to the <i>ex ante</i> method. (d) Energy savings are shown in final energy consumption (if energy savings are only listed in primary energy consumption, they are not counted towards compliance with Article 7 of the Directive); (e) Savings are determined further to point 1(a) and (b) of Annex V, in accordance with point 2 of Annex V to the EED; (f) Not applicable; these are not policy measures under Article 7(9)(a), second subparagraph. (g) Not applicable, these are not voluntary agreements. (h) The results of the measure are continuously monitored and, if they are not sufficient, corrective measures will be taken. (i) The control systems are run at the MSEE operator. (j) Trends in savings will be set out in the annual reports on progress achieved towards national energy efficiency targets. 					

Formula to calculate energy savings								
Measure	3.12	Title of managemen	Application of the principle of					
MSEE ID:		Title of measure:	energy efficiency in public procurement					
Sector:	Sector: Public sector Source of financing:							
$\acute{\text{U}}S_{i_{GES}} = \begin{pmatrix} P_{pred} - P_{po} \end{pmatrix}$								

where:

 $\dot{\mathsf{US}}_{i_\mathsf{plán}}$ – planned energy saving (final energy consumption) in the year of building renovation [kWh/a];

P_{pred} – energy requirement for the building prior to renovation – standardised energy requirement for the original condition of the building [kWh/a];

 P_{po} – energy required for a building after renovation – standardised heat requirement for the post-renovation condition of the building [kWh/(a)].

Note: If the energy saving is provided by the managing authority as a resultant value in GJ or %, that value is used, after conversion to a unified physical unit, in the pursuit of the target under Article 7 of the Directive.

Measure	3.13.1			o of monouro	-	Modernisation of public lighting		
MSEE ID:				e of measure	•			
Sector:	Public		Sou	Source of financing:		2007-2013 Structural Funds, Operational Programme Competitiveness and Economic Growth, Measure 2.2		
Measure lasting from: (year)	2007		to: ((year)		2013		
Responsible:	Ministry of Eco	nomy	Arti 201	asure to compicle 7 of Direct 2/27/EU:	tive	Yes		
lifations of management			Poli	icy measure cl	assification:	According to Article 7(9)(b)		
Lifetime of measure (years):	15	_	Cor	mpliance with	Article 7(10)	Yes		
Type of fuel:	Natural gas	Electricity		Heat	Other fuels:			
Breakdown (%) by fuel		100				expert estimate		
Characteristics of the measure (including eligible activities)	This measure is intended to make savings by reducing the cost of electricity and down the lighting system maintenance requirements. The reduced energy intensity of public lighting following the renovation, reconst modernisation of the lighting system will alleviate the impact of lighting on the envicutting CO2 emissions, contributing to the environmental component of development. The new lighting will reduce the lighting energy intensity dramatically. Nature of measure: (b) funding scheme – energy-saving activities are financed by grants in accordar rules set out in the current System for the Financial Management of the Structures and the Cohesion Fund for the 2007-2013 Programming Period. Eligible activities: 1. the replacement of original lights or light sources in the existing public lighting system, technically superior, less energy intensive lights or light sources; 2. the addition of new technically advanced, less energy intensive lights to already constructed lighting points in the public lighting system, or already constructed lostructures; 4. the technical renovation of original – or the installation of new – distribution board system of public lighting in connection with Activity 1 and/or 2; 5. the modification or installation of the control or monitoring system for public lighting in connection with Activity 1 and/or 2; 6. the replacement and addition of cabling (not underground) in connection with Activity and/or 2; 7. the production of design documentation to the following extent: a. a technical light study;							
Evaluation of the measure	b. the technical light measurement of the properties of the lighting system, to the extent of the project after reconstruction (final measurement).							
Methods for the calculation of savings (in accordance with Annex V(1) to the EED ⁴³ and Implementing Decree No 327/2015) Detailed description of the	Methods for the calculation of savings (choice of options): (a) ex ante – projected savings (standard savings for each measure); (b) ex post – measured savings (measurement before and after).							
method to calculate energy savings	0,	virig calcula	uon (uraws on the C	over or the tech	nical light study.		
Application of expert estimates and assumptions in the calculation of energy savings		competent	perso	on providing s		chnical light study drawn up by a eficiary of aid from the Structural		
Monitoring, control and verification of the energy savings made	The energy sa reported in th checked by the	avings mad e beneficia project ma	e are ry's nage	e monitored a monitoring re er.	ports. The ben	means of a check on the data eficiary's monitoring reports are		
Overall evaluation and way forward	It is impossible to describe the success/failure of the overall evaluation as the measure under way and the actual evaluation of the achievement of the objectives will be mon over the next five years of project sustainability. In this respect, it could be said the measure remains ongoing. Bearing in mind the current stage of the measure implementation, no change in new rules on the granting of aid under the implementation and no change in the reporting of the measurable indicators achieved is expected.							
Projected overlapping with another measure – duplication	The measure of documentation	does not ov and subsec	erlap quen	with other m t evaluation ar	easures, as the re the responsibi	collection of data and underlying lity of the Ministry of Economy.		
Method to avoid duplication						collection of data and underlying lity of the Ministry of Economy.		

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 $^{^{43}}$ EED – Directive 2012/27/EU on energy efficiency

Information for the purp	oses of Article 7 of Directive 2012/27/EU					
	Materiality of the measure – according to the EED: 'the activities of the obligated, participating or entrusted party must be demonstrably material to the achievement of the claimed savings' (Annex V, point 2(c))					
Materiality of the measure (Annex V, point 2(c), to the EED)	The materiality of the measure can be expressed as follows: (a) demonstration that the influence of the entity or the State is <u>material</u> to the final consumer's decision to implement an energy efficiency measure; (b) the State's influence can be demonstrated by the designated <u>budget</u> , <u>the responsible entity/ministry</u> , State-financed support measures (consulting, information campaigns), legislation, etc. (It is advisable to describe who is responsible for the individual supporting activities and how they are funded as accurately as possible.)					
Complementarity of the measure	The complementarity of the measure is irrelevant – the measure would not be implemented without the support programme.					
Compliance with legislation and principles of support mechanisms (including quality control and sanctions), if relevant	This measure is consistent with the procedure laid down in legislation of general application or the use of the European Structural Funds in the 2007-2013 programming period, in particula the European Regional Development Fund and State aid rules. Quality control and sanctions are set out in specific grant agreements.					
Compliance with criteria (under Article 7(10) of the Directive)	 (a) Act No 321/2014 established two transitional periods. The 4AP will evaluate the contribution made by policy measures in the first transitional period (2014-2016) and compliance with the trajectory for the energy savings target under Article 7 by 2020. (b) Ministry responsible for the measure: Ministry of Economy. (c) Savings are determined transparently according to method (a) ex ante and method (b) ex post. (d) Energy savings are shown in final energy consumption. (e) Savings are determined further to point 1(a) of Annex V, in accordance with point 2 of Annex V. (f) Not applicable; these are not policy measures under Article 7(9)(a), second subparagraph. (g) Not applicable, these are not voluntary agreements. (h) The results of the measure are continuously monitored and, if they are not sufficient, corrective measures will be taken. (i) The control system is implemented at MSEE IS level and as part of the preparation of action plans and annual reports. As measures are checked on a project-by-project basis, no statistically significant share of measures for checking was established. (j) Trends in savings will be set out in the annual reports on progress achieved towards national energy efficiency targets. 					

Formula to calculate energy savings							
Measure	3.13.1	Title of measure:	Modernisation of public lighting				
MSEE ID:	-	Thie of measure.					
Sector:	PUBLIC	Source of financing:	2007-2013 Structural Funds, Operational Programme Competitiveness and Economic Growth, Measure 2.2				
$ ÚS_{i_plán} = (P_{pred} - P_{po}) \times N_s \times h $							

where: $ÚS_{i_plán}$ – planned energy saving (final energy consumption) in the year of public lighting modernisation [kWh/year]; P_{pred} – electricity required for public lighting before modernisation – average value modulated for the original condition = 0.291 [kW/(light)]; P_{po} – electricity required for public lighting after modernisation – average value for new condition = 0.100 [kW/(light)]; N_S – number of lights h – hours of public lighting illumination per year (3 900 hours)

Measure	3.13.2			e of measure:		Modernisation of public lighting	
MSEE ID: Sector:	Public sector		Sou	rce of financin	ıa:	MunSEFF	
Measure lasting from:	2011			to: (year)			
(year) Responsible:	2011 xxx			year) asure to comp icle 7 of Direc 2/27/EU:		2015 Yes	
Lifetime of measure	15			icy measure cl npliance with A		According to Article 7(9)(b) Yes	
(years):			COI	-	. ,	163	
Type of fuel:	Natural gas	Electricity		Heat	Other fuels:		
Breakdown (%) by fuel		100				expert estimate	
		structure, es	spec	ially in cases v	vhere there is hi	e energy-efficient renovation of gh potential to achieve savings in	
Characteristics of the measure (including eligible activities)		hemes - c			oort the develo and municipaliti	pment of energy efficiency and es in Slovakia	
		ects under - projects f	Mun or th	SEFF: e energy effic	iency of munici	pality-owned infrastructure (other phing within the municipality	
Evaluation of the measure	Bottom-up, via	individual p	rojed	cts			
Methods for the calculation of savings (in accordance with Annex V(1) to the EED ⁴⁴ and Implementing Decree No 327/2015)	Methods for the calculation of savings (choice of options): (a) ex ante – projected savings (standard savings for each measure); (b) ex post – measured savings (measurement before and after).						
Detailed description of the method to calculate energy savings	According to MunSEFF, component 1: Savings are determined on the basis of annual energy consumption data prior to the implementation of the measure and energy consumption planned after the implementation of the measure. Data on energy consumption is part of the grant application. Grant eligibility depends on minimum energy savings of 20 % compared to the original energy consumption.						
	Yes						
Application of expert estimates and assumptions in the calculation of energy savings	In the calculation of energy savings for projects where measured energy consumption data is still not available after the implementation of the measure, expert estimates will be used in the preparation of the project by professionally competent persons (energy auditors or designers) according to the type of project by determining the energy consumption after the implementation of the measure, by applying relative energy savings further to knowledge of the state of the art and projected developments in science and technology.						
Monitoring, control and verification of the energy savings made	Monitoring – the design consultant (ESG/ENVIROS) conducts an energy audit for projects to renovate public lighting within the municipality. If the client already has a clearly defined project scope presented in the appropriate form, the design consultant proceeds directly to the production of a Rational Energy Utilisation Plan (REUP), which includes the results of the energy audit, and describes the financing plan and timetable for implementation. It also incorporates proposed measures related to the investor's plan, as well as compliance with environmental standards. If required, the design consultant assists the client when applying for a loan. Checks are also conducted as part of the preparation of action plans and the annual report. As measures are checked on a project-by-project basis, there was no need to establish a statistically significant share of measures to be checked.						
Overall evaluation and way forward	The measure w	vill continue	in th	e coming perio	od.		
Projected overlapping with another measure – duplication	There is no ove	erlapping wi	th ar	ny measure.			
Method to avoid duplication	The duplication of the energy savings made by overlapping measures is prevented by the fact that energy savings presented for projects to renovate public lighting within the municipality with a MunSEFF contribution are not counted towards other measures as the processing is carried out on a project-by-project basis.						

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⁴⁴ EED – Directive 2012/27/EU on energy efficiency

Materiality of the measure (Annex V, point 2(c), to the EED)	The MunSEFF-measure support providers are the European Bank for Reconstruction and Development and the European Commission. The programme implementers are Slovenská sporiteľňa a.s. and Všeobecná úverová banka a.s. The design consultant (ESG/ENVIROS) assists clients applying for loans and monitors the relevant projects for the energy efficiency of public buildings. The activities of these entities are demonstrably material to the achievement of claimable energy savings.						
Complementarity of the measure	The complementarity of the measure is irrelevant – the measure would not be implemented without the MunSEFF support programme.						
Compliance with legislation and principles of support mechanisms (including quality control and sanctions), if relevant	Grant levels relative to the loan principal are set according to the components of each project component 1 – the grant level ranges from 10 % to 20 % of the loan principal						
Compliance with criteria (under Article 7(10) of the Directive)	 (a) Act No 321/2014 established two transitional periods. The 4AP will evaluate the contribution made by policy measures in the first transitional period (2014-2016) and compliance with the trajectory for the energy savings target under Article 7 by 2020. (b) Ministry responsible for the measure: Ministry of Transport and Construction. (c) Savings are determined transparently according to method (a) ex ante and method (b) ex post. (d) Energy savings are shown in final energy consumption. (e) Savings are determined further to point 1(a) of Annex V, in accordance with point 2 of Annex V. (f) Not applicable; these are not policy measures under Article 7(9)(a), second subparagraph. (g) Not applicable, these are not voluntary agreements. (h) The results of the measure are continuously monitored and, if they are not sufficient, corrective measures will be taken. (i) The control system is implemented at MSEE IS level and as part of the preparation of action plans and annual reports. As measures are checked on a project-by-project basis, no statistically significant share of measures for checking was established. (j) Trends in savings will be set out in the annual reports on progress achieved towards national energy efficiency targets. 						

Formula to calculate energy savings							
Measure MSEE ID:	3.13.2	Title of measure:	Modernisation of public lighting				
Sector:	Public sector	Source of financing:	MunSEFF				

where: $\dot{\text{US}}_{\text{i.plán}}$ – planned energy saving (final energy consumption) in the year of public lighting modernisation [kWh/year]; P_{pred} – electricity required for public lighting before modernisation – average value modulated for the original condition [kW/(light)]; P_{po} – electricity required for public lighting after modernisation – average value for new condition [kW/(light)]; N_{S} – number of lights N_{C} – number of public lighting illumination per year (3 900 hours)

Measure	3.13.3		Title of measure:			Modernisation of public lighting		
MSEE ID:			110	Title of measure:		Operational Programme		
Sector:	Public		Sou	Source of financing:		Bratislava Region, Measure 2.2		
Measure lasting from: (year)	2007		to:	(year)		2013		
Responsible:	Ministry of Eco	nomy	Art 201	asure to compicle 7 of Direct 2/27/EU:	tive	Yes		
Lifetime of measure				icy measure cl		According to Article 7(9)(b)		
(years):	15		Cor	mpliance with /	Article 7(10)	Yes		
Type of fuel: Breakdown (%) by fuel	Natural gas	Electricity 100		Heat	Other fuels:	expert estimate		
Characteristics of the measure (including eligible activities)	This measure is intended to make savings by reducing the cost of electricity and by down the lighting system maintenance requirements. The reduced energy intensity of public lighting following the renovation, reconstruct modernisation of the lighting system will alleviate the impact of lighting on the environr cutting CO ₂ emissions, contributing to the environmental component of sust development. The new lighting will reduce the lighting energy intensity dramatically. Nature of measure: (b) funding schemes – energy-saving activities are financed by grants in accordance rules set out in the current System for the Financial Management of the Structural Furthe Cohesion Fund for the 2007-2013 Programming Period. Eligible activities: 1. the replacement of original lights or light sources in the existing public lighting system new, technically superior, less energy intensive lights or light sources; 2. the addition of new technically advanced, less energy intensive lights; 3. constructed lighting points in the public lighting system, or already constructed load-t structures; 4. the technical renovation of original – or the installation of new – distribution boards for system of public lighting in connection with Activity 1 and/or 2; 5. the modification or installation of the control or monitoring system for public lighting in connection with Activity 1 and/or 2. 6. the replacement and addition of cabling (not underground) in connection with Activity and/or 2; 7. the production of design documentation to the following extent: a. a technical light study;							
Evaluation of the measure Methods for the calculation of savings (in accordance with Annex V(1) to the EED ⁴⁵ and Implementing Decree No 327/2015) Detailed description of the method to calculate energy savings	project after reconstruction (final measurement). Bottom-up, via individual projects Methods for the calculation of savings (choice of options): (a) ex ante – projected savings (standard savings for each measure); (b) ex post – measured savings (measurement before and after). The energy saving calculation draws on the cover of the technical light study.							
Application of expert estimates and assumptions in the calculation of energy savings Monitoring, control and verification of the energy	Yes The energy saving calculation draws on the cover of the technical light study drawn up by a professionally competent person providing services to a beneficiary of aid from the Structural Funds under individual projects. The energy savings made are monitored and checked by means of a check on the data reported in the beneficiary's monitoring reports. The beneficiary's monitoring reports are							
Savings made Overall evaluation and way forward	checked by the project manager. It is impossible to describe the success/failure of the overall evaluation as the measure is so under way and the actual evaluation of the achievement of the objectives will be monitored over the next five years of project sustainability. In this respect, it could be said that the measure remains ongoing. Bearing in mind the current stage of the measure implementation, no change in new rules on the granting of aid under the implementation measure and no change in the reporting of the measurable indicators achieved is expected.							
Projected overlapping with another measure – duplication	documentation	and subse	quen	t evaluation ar	e the responsib	collection of data and underlying ility of the Ministry of Economy.		
Method to avoid duplication						collection of data and underlying ility of the Ministry of Economy.		

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 $^{^{45}}$ EED – Directive 2012/27/EU on energy efficiency

Information for the purp	oses of Article 7 of Directive 2012/27/EU					
	Materiality of the measure – according to the EED: 'the activities of the obligated, participating or entrusted party must be demonstrably material to the achievement of the claimed savings' (Annex V, point 2(c))					
Materiality of the measure (Annex V, point 2(c), to the EED)	The materiality of the measure can be expressed as follows: (a) demonstration that the influence of the entity or the State is <u>material</u> to the final consumer's decision to implement an energy efficiency measure (b) the State's influence can be demonstrated by the designated <u>budget</u> , <u>the responsible entity/ministry</u> , State-financed support measures (consulting, information campaigns), legislation, etc. (It is advisable to describe who is responsible for the individual supporting activities and how they are funded as accurately as possible.)					
Complementarity of the measure	The complementarity of the measure is irrelevant – the measure would not be implemented without the support programme.					
Compliance with legislation and principles of support mechanisms (including quality control and sanctions), if relevant	This measure is consistent with the procedure laid down in legislation of general application of the use of the European Structural Funds in the 2007-2013 programming period, in particular the European Regional Development Fund and State aid rules (<i>de minimis</i> aid). Qualit control and sanctions are set out in specific grant agreements.					
Compliance with criteria (under Article 7(10) of the Directive)	 (a) Act No 321/2014 established two transitional periods. The 4AP will evaluate the contribution made by policy measures in the first transitional period (2014-2016) and compliance with the trajectory for the energy savings target under Article 7 by 2020. (b) Ministry responsible for the measure: Ministry of Transport and Construction. (c) Savings are determined transparently according to method (a) ex ante and method (b) ex post. (d) Energy savings are shown in final energy consumption. (e) Savings are determined further to point 1(a) of Annex V, in accordance with point 2 of Annex V. (f) Not applicable; these are not policy measures under Article 7(9)(a), second subparagraph. (g) Not applicable, these are not voluntary agreements. (h) The results of the measure are continuously monitored and, if they are not sufficient, corrective measures will be taken. (i) The control system is implemented at MSEE IS level and as part of the preparation of action plans and annual reports. As measures are checked on a project-by-project basis, no statistically significant share of measures for checking was established. (j) Trends in savings will be set out in the annual reports on progress achieved towards national energy efficiency targets. 					

Formula to calculate energy savings Measure 3.13.3 Modernisation of public lighting						
Wodernisation of public lighting	of measure:			MSEE ID:		
nal Programme a Region, Measure 2.2		;	ctor: PUBLIC	Sector:		
			ctor: PUBLIC	Sector:		

where:

where: $\dot{\text{US}}_{\text{i_plán}} - \text{planned energy saving (final energy consumption) in the year of public lighting modernisation [kWh/year]; } \\ P_{\text{pred}} - \text{electricity required for public lighting before modernisation} - \text{average modulated value for the original condition} \\ = 0.291 \text{ [kW/(light)]; } \\ P_{\text{po}} - \text{electricity required for public lighting after modernisation} - \text{average value for new condition} \\ = 0100 \text{ [kW/(light)]; } \\ N_{\text{S}} - \text{number of lights} \\ h - \text{hours of public lighting illumination per year (3 900 hours)}$

Measure	3.14				Provision of energy services		
MSEE ID:	GES		liti	Title of measure:		for the public sector	
Sector:	Public sector		Sou	Source of financing:		Providers of guaranteed energy services (GES), recipients of GES	
Measure lasting from: (year)	2014		to: ((year)		2020	
Responsible:	Ministry of Eco	nomy	Arti	Measure to comply with Article 7 of Directive 2012/27/EU:		Yes	
			Poli	Policy measure classification:		According to Article 7(9)(c) According to Article 7(9)(f)	
Lifetime of measure (years):	Indicate in accordance with Implementing Decree No 327/2015.		Cor	Compliance with Article 7(10)		Yes	
Type of fuel:	Natural gas	Electricity	=	Heat	Other fuels:		
Breakdown (%) by fuel	54.35 %	17.50 %		27.46 %	0.69 %	Analysis of energy-saving potential in the public sector – December 2015	
Characteristics of the measure (including eligible activities)	service provide The investment cover the cost Nature of meas (c) legis prov (f) train guar train Ener Eligible activitie - mea	er (ESCO) of the sexpected of energy in sure: slative regulision of guating and energy Agency) es are: sures to recoices), in pare of the recontrol of the reco	piects, implemented by an energy ct with guaranteed energy saving. The GES beneficiary would use to ergy efficiency (framework for the tence required for providers of andatory participation in refresher omy via the Slovak Innovation and g. in buildings for the provision of expace heating system, including a compact heat transfer station; lighting; listribution systems, including the or hot water distribution systems; monitoring and control of energy				
Evaluation of the measure	- Botto		_				
Methods for the calculation of savings (in accordance with Annex V(1) to the EED ⁴⁶ and Implementing Decree No 327/2015)	 Bottom-up, via individual projects Methods for the calculation of energy savings: ex ante – expected savings on the basis of previous independently monitored energy efficiency measures by an energy service provider or by the operator of the Energy Efficiency Monitoring System (MSEE), i.e. the Slovak Innovation and Energy Agency; ex post – energy savings achieved annually are verified by the GES provider in the form of measurements 						
Detailed description of the method to calculate energy savings	 The energy saving is determined individually depending on the proposed energy efficiency measures and comprises the difference between the measurement or calculation of the energy consumption determined before the implementation of energy efficiency measures and the energy consumption calculated after the introduction of energy efficiency measures. In the calculation of energy savings, the average final energy consumption for a minimum of three years prior to the implementation of energy efficiency measures is typically taken into account. A calculation of energy savings, including the specific calculation methodology, carried out by a professionally competent person (professional competence as set forth in Section 19 of Act No 321/2014), is part of each GES provision contract. The actual energy savings achieved are evaluated annually according to the methodology set out in the GES provision contract. 						
Application of expert estimates and assumptions in the calculation of energy savings		d is stated	in th			gy saving calculation depends on part of the methodology for the	
Monitoring, control and verification of the energy savings made	mandatory und	der Sections sum of ene	s 16 ergy	and 19 of Act savings from	No 321/20104 each energy s	to the MSEE operator, which is on energy efficiency. The dataset service provider for the previous project basis and provides them as	

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 $^{^{46}}$ EED – Directive 2012/27/EU on energy efficiency

	a package of projects. The provision of data on a project-by-project basis is voluntary.						
	The provision of energy services is a mechanism that represents an effective way of						
Overall evaluation and way forward	designing, implementing and, in particular, evaluating energy efficiency measures. With significant support in raising the awareness of potential energy service recipients, it may be one of the most significant alternative measures to meet the target under Article 7 of the Energy Efficiency Directive						
	Energy Efficiency Directive. Overlapping would be possible in the year following the implementation of energy efficiency						
Projected overlapping with another measure – duplication	measures if the building owner/manager provided information on energy consumption at the request of the MSEE operator and did not indicate that the measures were implemented via GES.						
	If, in MSEE, energy savings are identified further to a decrease in energy consumption in a building without reference to the measure implemented, the MSEE operator will email.						
Mothod to avoid duplication	and, where appropriate, telephone the data provider to identify the specific instrument						
Method to avoid duplication	 behind the energy savings ascertained. If savings are identified as part of GES from a particular provider, building energy savings determined according to the data of the owner/manager of the building will not be counted. 						
Information for the purp	oses of Article 7 of Directive 2012/27/EU						
	The Ministry of Economy of the Slovak Republic, which maintains and updates the list of						
Materiality of the measure (Annex V, point 2(c), to the EED)	energy service providers (http://www.mhsr.sk/poskytovanie-energetickej-sluzby/145697s is responsible for registering and issuing permits for energy service providers' activities. The Slovak Innovation and Energy Agency provides professional competence for providers of guaranteed energy services, as well as up-to-date training, from the resources of the central						
	government budget. The Slovak Innovation and Energy Agency evaluates datasets from energy service providers.						
Complementarity of the measure	Not applicable: (a) the measure would not be implemented without a supportive legislative framework;						
Compliance with legislation and principles of support mechanisms (including quality control and sanctions), if relevant	The measure is in accordance with Act No 321/2014 on energy efficiency. Supervision of compliance with the provisions of the Act is carried out by the Slovak Trade Inspectorate.						
,	(a) Act No 321/2014 established two transitional periods. The 4AP will evaluate the contribution made by policy measures in the first transitional period (2014-2016) and compliance with the trajectory for the energy savings target under Article 7 by 2020.						
	 (b) Ministry responsible for the measure: Ministry of Economy. (c) Savings are determined transparently according to the ex ante and ex post methods. 						
	(d) Energy savings are shown in final energy consumption (if energy savings are only listed in primary energy consumption, they are not counted towards compliance with Article 7 of the Directive);						
Compliance with criteria (under Article 7(10) of the	(e) Savings are determined further to point 1(a) and (b) of Annex V, in accordance with						
Directive)	point 2 of Annex V to the EED; (f) Not applicable; these are not policy measures under Article 7(9)(a), second						
	subparagraph.						
	 (g) Not applicable, these are not voluntary agreements. (h) The results of the measure are continuously monitored and, if they are not sufficient, corrective measures will be taken. 						
	(i) The control system is run at the MSEE operator. All summary datasets from each						
	GES provider are checked. (j) Trends in savings will be set out in the annual reports on progress achieved towards national energy efficiency targets.						

Measure	3.14	Title of measure:	Provision of energy services			
MSEE ID:	GES	Title of fileasure.	for the public sector			
Sector:	Public sector	Source of financing:	Providers of guaranteed energy services (GES), recipients of GES			
$\acute{U}S_{i_{GES}} = \left(P_{pred} - P_{po}\right)$						

efficiency measures [kWh];

 P_{pred} – energy consumption for the building prior to the implementation of energy efficiency measures (typically the average energy consumption for the original condition over the past 3 years) [kWh];

 P_{po} – building energy consumption after the implementation of energy efficiency measures [kWh];

Note: The calculation of ÚSi_GES is only indicative. Energy savings are announced to the GES operator by a GES operator for all projects in the previous calendar year.

Measure	3.19					Introduction of energy		
MSEE ID:	KZP		Title	Title of measure:		management systems, including energy audits and environmental management		
Sector:	Public sector			Financial mechanism:		Operational Programme Environmental Quality 2014- 2020		
Measure lasting from: (year)	2014		to: (year)		2020		
Responsible:	Ministry of the Environment		Arti	Measure to comply with Article 7 of Directive 2012/27/EU:		Yes Article 7(9)(b)		
				Policy measure classification:		Article 7(9)(c) Article 7(9)(f)		
Lifetime of measure (years):	>7	Flootricity	Cor	npliance with A		Yes		
Form of energy:	Natural gas	Electricity		Heat	Other:	Analysis of energy-saving		
Breakdown (%) by form of energy	54.35 %	17.50 %		27.46 %	0.69 %	potential (AB) in the public sector – December 2015		
	'Increase in the for all types of	e number o territory' – i ystems, ind EMAS).	f loca Activi	al plans and m ity B, supports	neasures associ the implementa	part of Specific Objective 4.4.1 ated with the low-carbon strategy ation of energy and environmental Environmental Management and		
Characteristics of the measure (including eligible	(b) support schemes – Structural Funds, grant from the Operation Environmental Quality. Energy-saving activities are financed up to a maxi eligible expenditure (excluding the Bratislava Region) in the form of a grant with the rules set out in the System for the Financial Management of					nced up to a maximum of 85 % of the form of a grant in accordance al Management of the European		
activities)	(c) legislative regulations – Act No 321/2014 on energy efficiency (framework for the provision of environmental management, including EMAS energy audits).							
	(f) training and education – professional competence required for providers of guaranteed energy services (test followed by mandatory participation in refresher training courses arranged by the Ministry of Economy via the Slovak Innovation and Energy Agency)							
	Supported/eligible activities are mainly focused on: (a) Implementation of environmental management (EMAS) (b) Energy auditing (EA)							
Evaluation of the measure		Bottom-up, via individual projects						
Methods for the calculation of savings (in accordance with Annex V(1) to the EED ⁴⁷ and Implementing Decree No 327/2015)	Methods for the calculation of energy savings: (a) ex ante – projected savings – the original and new condition of a building is determined on the basis of a project evaluation of the energy required for space heating, drawn up by a professionally competent person (designer) according to technical standards (in particular STN EN ISO 13790/NA, STN EN 15603, STN 730540) by reference to the existing and proposed thermal performance of the building; (b) ex post – savings measured after project implementation, taking into account the extent to which the building is used, plus climate impacts.							
Detailed description of the method to calculate energy savings	 Savings are determined on the basis of annual energy consumption data prior to the implementation of the measure and energy consumption planned after the implementation of the measure. Data on energy consumption is included in the grant application. The credibility of the data is confirmed by professional evaluators in the evaluation of the application. The actual savings achieved are monitored by the intermediate body for five years after the completion of project implementation. Projects focusing exclusively on the installation of facilities for the use of renewable sources of energy are not included in this measure because, in this case, there is no reduction in final energy consumption, only the replacement of one form of energy with another. No potential reduction in losses during energy distribution is applied. The date of physical completion of implementation (if available) or the date for the completion of implementation entered in the ITMS 2014+ system is taken as the decisive 							
Use of expert estimates and assumptions in the calculation of energy savings	Slovakia and	other techr	nical	coefficients s	pecified in the	ee days applicable to the whole of relevant technical standards (in 730540) are used.		
Monitoring, control and verification of the energy	Monitoring will	be arrange	d in a	accordance wit	th rules on the u	ise of financial resources from the provision of data on the fulfilment		

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 $^{^{47}}$ EED – Directive 2012/27/EU on energy efficiency

savings made	of the indicator (the annual energy saving) five years after project implementation. Beneficiaries provide data via the ITMS 2014+ monitoring system. The beneficiary is responsible for the data provided. The intermediate body (the Slovak Innovation and Energy Agency) monitors the fulfilment of the indicator (energy savings) and, if it is not being met, applies the sanction mechanisms specified in the grant agreement.						
Overall evaluation and way forward	By the end of 2016, no call for projects had been announced. It is envisaged that projects will be included in the detailed monitoring of energy consumption for operational purposes by the energy efficiency monitoring system (MSEE)						
Projected overlapping with another measure – duplication	None foreseen.						
Method to avoid duplication	Not applicable.						
Information for the purp	oses of Article 7 of Directive 2012/27/EU						
Materiality of the measure (Annex V, point 2(c), to the EED)	Project implementation contributes to savings for the final customer.						
	Complementarity is not applicable in the buildings sector.						
Complementarity of the measure	Savings from this measure are counted only if renovation is based on the acceptance of a grant.						
measure	The measure takes into account total energy savings representing the difference between the original and the new condition of the building.						
Compliance with legislation and principles of support mechanisms (including quality control and sanctions), if relevant	This measure is consistent with the procedure laid down in legislation of general application on the use of the European Structural Funds in the 2014-2020 programming period and in State aid rules. Quality control and sanctions are set out in specific grant agreements.						
Compliance with criteria (under Article 7(10) of the Directive)	 (a) Act No 321/2014 established two transitional periods. The 4AP will assess the contribution of policy measures in the 2017-2020 period; (b) Ministry responsible for the measure: Ministry of the Environment. (c) Savings are determined transparently according to method (a) ex ante and method (b) ex post. (d) Energy savings are shown in final energy consumption. (e) Savings are determined further to point 1(a) of Annex V, in accordance with point 2 of Annex V. (f) Not applicable; these are not policy measures under Article 7(9)(a), second subparagraph. (g) Not applicable, these are not voluntary agreements. (h) The results of the measure are continuously monitored and, if they are not sufficient, corrective measures will be taken. (i) The control system is implemented at ITMS 2014+ IS and MSEE level and as part of the preparation of action plans and annual reports. As measures are checked on a project-by-project basis, no statistically significant share of measures for checking was established. (j) Trends in savings will be set out in the annual reports on progress achieved towards national energy efficiency targets. 						

Formula to calculate energy savings						
Measure	3.19		Introduction of energy			
MSEE ID:	KZP	Title of measure:	management systems, including energy audits and environmental management			
Sector:	Public sector	Financial mechanism:	Operational Programme Environmental Quality 2014- 2020			
$ÚS_{i_pl\acute{a}n} = \left(P_{pred} - P_{po}\right)$						

where:

 $\acute{\text{US}}_{i_\text{plán}}$ – planned energy saving (final energy consumption) in the year of building renovation [kWh/a];

 P_{pred} – energy requirement for the building prior to renovation – standardised energy requirement for the original condition of the building [kWh/a];

 P_{po} – energy required for a building after renovation – standardised heat requirement for the post-renovation condition of the building [kWh/(a)].

Note: If the energy saving is provided by the managing authority as a resultant value in GJ or %, that value is used, after conversion to a unified physical unit, in the pursuit of the target under Article 7 of the Directive.

Measure	3.21					Implementation of measures	
MSEE ID:			Title	Title of measure:		derived from energy audits at public buildings	
Sector:	Public sector		Sou	Source of financing:		Operational Programme Competitiveness and Economic Growth 2007-2013	
Measure lasting from: (year)	2007		to: (year)		2015 (2013+2)	
Responsible:	Ministry of Economy			Measure to comply with Article 7 of Directive 2012/27/EU:		Yes	
Lifetime of measure	>7			cy measure cland		According to Article 7(9)(b) Yes	
(years): Type of fuel:	Natural gas	Electricity	COII	Heat	Other fuels:	165	
Breakdown (%) by fuel	54.35 %	17.50 %	6	27.46 %	0.69 %	Analysis of energy-saving potential in the public sector – December 2015	
	The main object to energy audit		duce	energy consu	ımption in the op	peration of public buildings further	
Characteristics of the	the rules	schemes – set out in	the c	urrent System	for the Financ	eed by grants in accordance with ial Management of the Structural amming Period.	
measure (including eligible activities)	Supported/eligible activities are mainly focused on: (c) eligible projects in accordance with energy audits: • improvements in the thermal performance of structures; • the modernisation of space heating/air-conditioning systems, hot water production systems, lighting and lifts to reduce energy consumption; • installation of measurement and management systems; • change in the heat supply method to exploit efficient district heating systems; • installation of facilities for the use of renewable energy sources (RES) for energy consumption in a building.						
Evaluation of the measure	Bottom-up, via individual projects						
Methods for the calculation of savings (in accordance with Annex V(1) to the EED ⁴⁸ and Implementing Decree No 327/2015)	Methods for the calculation of savings: (a) ex ante – projected savings (standard savings for each measure).						
Detailed description of the method to calculate energy savings	The energy saved in the operation of a public building is the difference between the energy required before and after the renovation of the public building. Priority will be given in particular to composite projects, i.e. projects combining improvements in the thermal performance of structures with the modernisation of space heating/air-conditioning systems, hot water production systems, lighting, wiring or other energy-saving measures in a building that are proposed to reduce energy requirements to the level of low-energy buildings, ultra-low-energy buildings and nearly zero-energy buildings. State administration buildings will be supported as a matter of priority.						
Application of expert estimates and assumptions in the calculation of energy savings	still not availab preparation of according to implementation	le after the the the project the type of the me	imple by pr of p asure	ementation of to rofessionally coroject by de e, by applying	the measure, ex ompetent perso etermining the	sured energy consumption data is spert estimates will be used in the ns (energy auditors or designers) energy consumption after the savings further to knowledge of d technology.	

 $^{^{48}}$ EED – Directive 2012/27/EU on energy efficiency

Monitoring, control and verification of the energy savings made	Energy savings will be monitored by requiring support beneficiaries (engaging in projects to construct or make structural and technical alterations to buildings) to enter/transmit data to the energy efficiency monitoring system (in accordance with Act No 476/2008 on energy efficiency) operated by the Slovak Innovation and Energy Agency.						
Overall evaluation and way forward	The measure will continue in the coming period.						
Projected overlapping with another measure – duplication	There is no overlapping with any measure.						
Method to avoid duplication	The duplication of the energy savings made by overlapping measures is prevented by the fact that energy savings presented for projects to reduce energy consumption in the operation of public buildings are not counted towards other measures as the processing is carried out on a project-by-project basis.						
Information for the purp	oses of Article 7 of Directive 2012/27/EU						
Materiality of the measure (Annex V, point 2(c), to the EED)	Project implementation contributes to savings for the final customer.						
Complementarity of the measure	The complementarity of the measure is irrelevant – the measure would not be implemented without the Structural Funds' support programmes.						
Compliance with legislation and principles of support mechanisms (including quality control and sanctions), if relevant	The proposed measures and their energy, environmental and economic evaluation will have to be substantiated by an energy audit conducted by a professionally competent person (energy auditor) at least to the extent specified in Annex VI to Directive 2012/27/EU. For this purpose, use will also be made of energy audits of public buildings conducted by the Slovak Innovation and Energy Agency as part of the pilot project 'Support of instruments for the deployment and optimisation of measures related to the energy efficiency of public buildings', financed under the Operational Programme Competitiveness and Economic Growth. Here, up to the end of 2015, 250 audits of public buildings operated by central bodies of State administration, municipalities and higher territorial units were continuously processed. Audits were conducted for office buildings, school buildings and buildings providing health or social care.						
Compliance with criteria (under Article 7(10) of the Directive)	 (a) Act No 321/2014 established two transitional periods. The 4AP will evaluate the contribution made by policy measures in the first transitional period (2014-2016) and compliance with the trajectory for the energy savings target under Article 7 by 2020. (b) Ministry responsible for the measure: Ministry of Economy. (c) Savings are determined transparently according to method (a) ex ante, further to the calculated energy requirement. (d) Energy savings are shown in final energy consumption. (e) Savings are determined further to point 1(a) and (b) of Annex V, in accordance with point 2 of Annex V. (f) Not applicable; these are not policy measures under Article 7(9)(a), second subparagraph. (g) Not applicable, these are not voluntary agreements. (h) The results of the measure are continuously monitored and, if they are not sufficient, corrective measures will be taken. (i) The control system is implemented at MSEE IS level and as part of the preparation of action plans and annual reports. As measures are checked on a project-by-project basis, no statistically significant share of measures for checking was established. (j) Trends in savings will be set out in the annual reports on progress achieved towards national energy efficiency targets. 						

Formula to calculate energy savings					
Measure	3.21		Implementation of measures		
MSEE ID:		Title of measure:	derived from energy audits at public buildings		
Sector:	Public sector	Source of financing:	Operational Programme Competitiveness and Economic Growth 2007-2013		
$ ilde{ t US}_{i_plán} = ig(P_{pred} - P_{po}ig) ullet extit{CPP}$					

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ÚS _{Lplán} – planned energy saving (final energy consumption) in the year of building renovation [kWh/a];

 P_{pred} – energy requirement for the building prior to renovation – average energy requirement for the original condition of the building [kWh/(m².a)];

 P_{po} – energy requirement for the building after renovation, by reference to energy performance certificate data [kWh/(m².a)]; CPP – total floor area of the building, as per the energy performance certificate [m²].

Measure	3.26.1					Improvements in the thermal		
MSEE ID:			Title	e of measure:		performance of public buildings		
Sector:	Public sector			ancial mechan	ism:	IROP 2014-2020		
Measure lasting from: (year)	2014			(year)		2020		
Responsible:	Ministry of Agriculture and Rural Development			asure to comp icle 7 of Direc 2/27/EU:	tive	Yes		
Lifetime of managers (vacra).	. 7			icy measure cl		Article 7(9)(b)		
Lifetime of measure (years): Form of energy:	>7 Natural gas	Electricity	COI	npliance with A	Other:	Yes		
Breakdown (%) by form of energy	54.35 %	17.50 %	6	27.46 %	0.69 %	Analysis of energy-saving potential (AB) in the public sector – December 2015		
	for the 2014-2 improvements with an impact	2020 programments programment on the qualities on balance ocial cohes	amm ity of ced a	ing period. T life and to en and sustainabl	he IROP's glol sure the sustain	a national programming document cal objective is to contribute to nable provision of public services elopment, and on the economic, lities.		
Characteristics of the						elative to the regional category.		
measure (including eligible activities)	Supported/eligible activities are mainly focused on: (c) eligible projects under the IROP: Priority axis 2: Easier access to efficient and better quality public services Investment priority 2.1: investing in health and social infrastructure which contributes to national, regional local development, reducing inequalities in terms of health status, promoting inclusion through improved access to social, cultural and recreational services are transition from institutional to community-based services							
Evaluation of the measure	Bottom-up, via individual projects							
Methods for the calculation of savings (in accordance with Annex V(1) to the EED ⁴⁹ and Implementing Decree No 327/2015)	Methods for the calculation of savings: (a) ex ante – projected savings (standard savings for each measure).							
Detailed description of the method to calculate energy savings	Under the IROP, investment priorities 2.1.1 and 2.1.2 – investments in health and social infrastructure, measures will be taken to increase the energy performance of buildings, and to modernise and reconstruct existing buildings. An indicator has been established – the reduction in annual primary energy consumption in public buildings, which is calculated as the difference between consumption before and after modernisation or reconstruction. Yes							
Use of expert estimates and assumptions in the calculation of energy savings	In the calculation of energy savings for projects where measured energy consumption data is still not available after the implementation of the measure, expert estimates will be used in the preparation of the project by professionally competent persons (energy auditors or designers) according to the type of project by determining the energy consumption after the implementation of the measure, by applying relative energy savings further to knowledge of the state of the art and projected developments in science and technology.							
Monitoring, control and verification of the energy savings made	Energy savings construct or ma energy efficier	s will be make structurency monito	onito al an oring	red by requiring technical alta system (in a	ng support bene erations to build	eficiaries (engaging in projects to lings) to enter/transmit data to the h Act No 476/2008 on energy		
Overall evaluation and way	The measure w	/ill continue	in th	e coming perio	od.			
forward Projected overlapping with another measure – duplication	There is no ove	erlapping wi	ith ar	ny measure.				
Method to avoid duplication						measures is prevented by the fact s-by-project basis.		
Information for the purp	oses of Articl	e 7 of Dire	ectiv	/e 2012/27/E	U			
Materiality of the measure (Annex V, point 2(c), to the EED)	Project implem	entation co	ntribu	utes to savings	for the final cus	stomer.		
Complementarity of the	Complementarity is not applicable in the buildings sector.							

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 $^{^{49}}$ EED – Directive 2012/27/EU on energy efficiency

measure	Savings from this measure are counted only if building modernisation is based on the acceptance of a grant and support via financial instruments (loans).							
	The measure takes into account total energy savings representing the difference between the original and the new condition of the building.							
Compliance with legislation and principles of support mechanisms (including quality control and sanctions), if relevant	The IROP's financial plan, by source and regional category, has the following co-financir rate: - a less developed region has 85 % of financing from the European Region Development Fund; - a more developed region has 50 % of financing from the European Region Development Fund. National co-financing by regional category is 15 % or 50 % of total financing							
Compliance with criteria (under Article 7(10) of the Directive)	 (a) Act No 321/2014 established two transitional periods. The 4AP will evaluate the contribution made by policy measures in the first transitional period (2014-2016) and compliance with the trajectory for the energy savings target under Article 7 by 2020. (b) Ministry responsible for the measure: Ministry of Agriculture and Rural Development. (c) Savings are determined transparently according to method (a) ex ante. (d) Energy savings are shown in final energy consumption. (e) Savings are determined further to point 1(a) of Annex V, in accordance with point 2 of Annex V. (f) Not applicable; these are not policy measures under Article 7(9)(a), second subparagraph. (g) Not applicable, these are not voluntary agreements. (h) The results of the measure are continuously monitored and, if they are not sufficient, corrective measures will be taken. (i) The control system is implemented at MSEE IS level and as part of the preparation of action plans and annual reports. As measures are checked on a project-by-project basis, no statistically significant share of measures for checking was established. (j) Trends in savings will be set out in the annual reports on progress achieved towards national energy efficiency targets. 							

Formula to calculate energy savings						
Measure	3.26.1	Title of managers	Improvements in the thermal			
MSEE ID:	MSEE ID: Title of measure: performance of public buildings					
Sector:	Sector: Public sector Financial mechanism: IROP 2014-2020					
$ÚS_{i_pl\acute{a}n} = (S_{pred} - S_{po}) \bullet CPP$						

where:

ÚS _{i_plán} – planned energy saving (primary energy consumption) in the year of building modernisation [kWh/a];

 S_{pred} - energy requirement for the building prior to modernisation - standardised energy requirement for the original condition of the building [kWh/(m².a)];

 S_{po} – energy required for a building after modernisation – standardised heat requirement for the post-renovation condition [kWh/(m².a)];

CPP – total floor area of the building [m²].

Note: If the energy saving is provided by the managing authority as a resultant value in GJ or %, that value is used, after conversion to a unified physical unit, in the pursuit of the target under Article 7 of the Directive.

Measure	3.26.2					Improvements in the thermal
MSEE ID:			Title	Title of measure:		performance of public buildings
Sector:	Public sector		Fina	Financial mechanism:		IROP 2014-2020
Measure lasting from: (year)	2014		to: (to: (year)		2020
Responsible:	Ministry of Agriculture and Rural Development			Measure to comply with Article 7 of Directive 2012/27/EU:		Yes
Lifetime of measure (years):	>7			cy measure clands		Article 7(9)(b) Yes
Form of energy:	Natural gas	Electricity	001	Heat	Other:	1.00
Breakdown (%) by fuel	57.37 %	7.28 %)	35.05 %	0.31 %	Analysis of energy-saving potential in the public sector – December 2015
	document for the to improvement with an impact	ne 2014-20 ts in the qu ocial cohes	20 pi ality ed a	ogramming pe of life and to e and sustainable	eriod. The IROP nsure the sustai) is the national programming 's global objective is to contribute inable provision of public services elopment, and on the economic, lities.
Characteristics of the measure (including eligible activities)	(b) funding so Development F	hemes - t und (ERDF	and	d national co-fi	nancing relative	ects by the European Regional to the regional category.
activities)	Supported/eligible activities are mainly focused on: (c) eligible projects under the IROP: Priority axis 2: Easier access to efficient and better quality public services Investment priority 2.2: Investing in education and training, skills and lifelong learning through the deve of educational and training infrastructure focusing on the energy efficiency of schools and secondary vocational schools					earning through the development
Evaluation of the measure	Bottom-up, via	individual p	rojec	ts		
Methods for the calculation of savings (in accordance with Annex V(1) to the EED ⁵⁰ and Implementing Decree No 327/2015)	Methods for the calculation of savings: (a) ex ante – projected savings (standard savings for each measure);					
Detailed description of the method to calculate energy savings	Under the IROP, investment priority 2.1 (nursery schools), investments in the expansion of the capacities of existing nursery schools or the construction of new nursery schools, including improvements in the energy efficiency of buildings. Under investment priority 2.1.3 (secondary vocational schools), the energy efficiency of secondary vocational schools, vocational education and training centres, vocational training centres, practical teaching centres, and school holdings is improved; An indicator has been established – the reduction in annual primary energy consumption in public buildings, which is calculated as the difference between consumption before and after modernisation or reconstruction					
Use of expert estimates and assumptions in the calculation of energy savings	Yes In the calculation of energy savings for projects where measured energy consumption data is still not available after the implementation of the measure, expert estimates will be used in the preparation of the project by professionally competent persons (energy auditors or designers) according to the type of project by determining the energy consumption after the implementation of the measure, by applying relative energy savings further to knowledge of the state of the art and projected developments in science and technology.					
Monitoring, control and verification of the energy savings made	construct or ma energy efficier	ake structur ncy monito	al an ring	d technical alt system (in	erations to build	eficiaries (engaging in projects to lings) to enter/transmit data to the h Act No 476/2008 on energy ency.
Overall evaluation and way forward	The measure v				0, 0	•
Projected overlapping with another measure – duplication	There is no ove					
Method to avoid duplication	The duplication of the energy savings made by overlapping measures is prevented by the fact that the energy savings presented are monitored on a project-by-project basis.					
Information for the purp	oses of Articl	e 7 of Dire	ectiv	re 2012/27/E	U	
Materiality of the measure (Annex V, point 2(c), to the EED)	Project implem	entation co	ntribu	ites to savings	for the final cus	stomer.

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 $^{^{50}}$ EED – Directive 2012/27/EU on energy efficiency

	Complementarity is not applicable in the buildings sector.				
Complementarity of the	Savings from this measure are counted only if building modernisation is based on the acceptance of a grant and support via financial instruments (loans).				
measure	The measure takes into account total energy savings representing the difference between the original and the new condition of the building.				
Compliance with legislation and principles of support mechanisms (including quality control and sanctions), if relevant	The IROP's financial plan, by source and regional category, has the following co-financing rate: - a less developed region has 85 % of financing from the European Regional Development Fund; - a more developed region has 50 % of financing from the European Regional Development Fund; National co-financing by regional category is 15 % or 50 % of total financing				
Compliance with criteria (under Article 7(10) of the Directive)	 (a) Act No 321/2014 established two transitional periods. The 4AP will evaluate the contribution made by policy measures in the first transitional period (2014-2016) and compliance with the trajectory for the energy savings target under Article 7 by 2020. (b) Ministry responsible for the measure: Ministry of Agriculture and Rural Development. (c) Savings are determined transparently according to method (a) ex ante. (d) Energy savings are shown in final energy consumption. (e) Savings are determined further to point 1(a) of Annex V, in accordance with point 2 of Annex V. (f) Not applicable; these are not policy measures under Article 7(9)(a), second subparagraph. (g) Not applicable, these are not voluntary agreements. (h) The results of the measure are continuously monitored and, if they are not sufficient, corrective measures will be taken. (i) The control system is implemented at MSEE IS level and as part of the preparation of action plans and annual reports. As measures are checked on a project-by-project basis, no statistically significant share of measures for checking was established. (j) Trends in savings will be set out in the annual reports on progress achieved towards national energy efficiency targets. 				

Formula to calculate energy savings					
Measure 3.26.1 MSEE ID: Improvements in the therma performance of public buildings					
Sector:	Public sector	Financial mechanism:	IROP 2014-2020		
$ \acute{U} S_{i_pl\acute{a}n} = \left(S_{pred} - S_{po}\right) \bullet \mathit{CPP} $					

where:

ÚS i. plán – planned energy saving (primary energy consumption) in the year of building modernisation [kWh/a];

 S_{pred} – energy requirement for the building prior to modernisation – standardised energy requirement for the original condition of the building [kWh/(m².a)];

 S_{po} – energy required for a building after modernisation – standardised heat requirement for the post-renovation condition [kWh/(m^2 .a)];

CPP – total floor area of the building [m²].

Note: If the energy saving is provided by the managing authority as a resultant value in GJ or %, that value is used, after conversion to a unified physical unit, in the pursuit of the target under Article 7 of the Directive.

Measure	3.26.3					Improvements in the thermal
MSEE ID:			Title	Title of measure:		performance of public buildings – nursery schools, primary schools, social and community facilities
Sector:	Public sector		Fina	ancial mechan	ism:	Operational Programme Bratislava Region, Measure 1.1
Measure lasting from: (year)	2007		to: (year)		2015 (2013+2)
Responsible:	Ministry of Agri and Rural Deve		Arti 201	asure to comp icle 7 of Direct 2/27/EU:	tive	Yes
Lifetime of measure (years):	>7			cy measure cl npliance with <i>i</i>		Article 7(9)(b) Yes
Form of energy:	Natural gas	Electricity		Heat	Other:	
Breakdown (%) by fuel	57.37 %	7.28 %	ò	35.05 %	0.31 %	Analysis of energy-saving potential in the public sector – December 2015
Characteristics of the measure (including eligible activities)	Bratislava Reg Nature of meas (b) support sol Region. Energ reconstruction the Financial M	ion in accor sure: hemes – S gy-saving a cost in the f Managemen	tructu activit form t of t	e with the prinural Funds, gries are finant of a grant in a he Structural	rant from the Onced up to a ccordance with Funds and the Once	enjoyed by the inhabitants of the hable development. perational Programme Bratislava maximum of 85 % of the total the rules set out in the System for Cohesion Fund for the 2007-2013 be beneficiary's own resources and
Evaluation of the measure	Programming Period (hence financing is accompanied by the beneficiary's own resources a commercial banks). 15 % co-financing: Supported/eligible activities are mainly focused on: (a) improvements in the thermal performance of buildings (b) improvements in the technical facilities of buildings (c) energy-saving lighting;				ngs	
Methods for the calculation of savings (in accordance with Annex V(1) to the EED ⁵¹ and Implementing Decree No 327/2015)	Bottom-up, via individual projects Methods for the calculation of energy savings: (a) ex ante – projected savings – the original and new condition of a building is determined on the basis of a project evaluation of the heat required for space heating, drawn up by a professionally competent person (designer) according to technical standards (in particular STN EN ISO 13790/NA, STN EN 15603, STN 730540) by reference to the existing and proposed thermal performance of the building.					
Detailed description of the method to calculate energy savings	 Savings are determined on the basis of annual energy consumption data prior to the implementation of the measure and energy consumption planned after the implementation of the measure. Data on energy consumption is included in the grant application. The credibility of the data is confirmed by professional evaluators in the evaluation of the application. Projects focusing exclusively on the installation of facilities for the use of renewable sources of energy are not included in this measure because, in this case, there is no reduction in final energy consumption, only the replacement of one form of energy with another. No potential reduction in losses during energy distribution is applied. The date of physical completion of implementation (if available) or the date for the completion of implementation entered in the ITMS system is taken as the decisive factor. 					
Use of expert estimates and assumptions in the calculation of energy savings	Yes In the calculation of energy requirements for activity (a), the average degree days applicable to the whole of Slovakia and other technical coefficients specified in the relevant technical standards (in particular STN EN ISO 13790/NA, STN EN 15603, and STN 730540) are used.					
Monitoring, control and verification of the energy savings made	Monitoring is arranged in accordance with rules on the use of financial resources from Structural Funds for the 2007-2013 programming period. This entails the disclosure of data on the fulfilment of the impact indicator (the annual energy saving) five years after project implementation. Beneficiaries provide data via the ITMS monitoring system. The beneficiary is responsible for the data provided. The intermediate body (the Slovak Innovation and Energy Agency) monitors the fulfilment of the indicator (energy savings) and, if it is not being met, applies the sanction mechanisms specified in the grant agreement.					
Overall evaluation and way forward	implemen completed 2. The overa resources financial represents the total for the total for the control of the c	tation may d no later th all evaluation used to accessources describing the financial res f energy sa	take an 3° on of chieve irectly source ivings	as long as 24 1 December 20 the effective e energy saving linked to a resulted to ince	I months, with a 015. ness of the mengs. In this mean reduction in the crease their operer report a signi	ions was 25 July 2013. Project a possible extension, but must be asure also includes the financial asure, it is impossible to separate energy intensity of buildings from erability. The investment intensity ficant deviation from other similar

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 $^{^{51}}$ EED - Directive 2012/27/EU on energy efficiency

Projected overlapping with	Not applicable to this measure.					
another measure – duplication	Potential overlaps with buildings of the same category where major renovation is accompanied by the issuance of an energy performance certificate (EPC) are handled by the appropriate measures					
Method to avoid duplication	The duplication of the energy savings made by overlapping measures is prevented by the fact that the energy savings presented are monitored on a project-by-project basis. If an EPC is found to exist, the calculated saving is deducted from the relevant measure, i.e. as a matter of priority it is counted towards this measure.					
Information for the purp	oses of Article 7 of Directive 2012/27/EU					
Materiality of the measure (Annex V, point 2(c), to the EED)	Project implementation contributes to savings for the final customer.					
	Complementarity is not applicable in the buildings sector.					
Complementarity of the measure	Savings from this measure are counted only if renovation is based on the acceptance of a grant.					
measure	The measure takes into account total energy savings representing the difference between the original and the new condition of the building.					
Compliance with legislation and principles of support mechanisms (including quality control and sanctions), if relevant	This measure is consistent with the procedure laid down in legislation of general application on the use of the European Structural Funds in the 2007-2013 programming period, in particular the European Regional Development Fund and State aid rules. Quality control and sanctions are set out in specific grant agreements.					
Compliance with criteria (under Article 7(10) of the Directive)	 (a) Act No 321/2014 established two transitional periods. The 4AP will evaluate the contribution made by policy measures in the first transitional period (2014-2016) and compliance with the trajectory for the energy savings target under Article 7 by 2020. (b) Ministry responsible for the measure: Ministry of Agriculture and Rural Development. (c) Savings are determined transparently according to method (a) ex ante. (d) Energy savings are shown in final energy consumption. (e) Savings are determined further to point 1(a) of Annex V, in accordance with point 2 of Annex V. (f) Not applicable; these are not policy measures under Article 7(9)(a), second subparagraph. (g) Not applicable, these are not voluntary agreements. (h) The results of the measure are continuously monitored and, if they are not sufficient, corrective measures will be taken. (i) The control system is implemented at MSEE IS level and as part of the preparation of action plans and annual reports. As measures are checked on a project-by-project basis, no statistically significant share of measures for checking was established. (j) Trends in savings will be set out in the annual reports on progress achieved towards national energy efficiency targets. 					

Formula to calculate energy savings				
Measure MSEE ID:	3.26.3	Title of measure:	Improvements in the thermal performance of public buildings – nursery schools, primary schools, social and community facilities	
Sector: Public sector Financial mechanism: Operational Programme Bratislava Region, Measure 1.				
$ ext{Ú} extit{S}_{i.plán} = ig(P_{pred} - P_{po}ig)$ • CPP				

where:

ÚSi_plán - planned energy saving (final energy consumption) in the year of building renovation [kWh/a];

Ppred – energy requirement for the building prior to renovation – standardised energy requirement for the original condition of the building [kWh/(m².a)];

Ppo – energy required for a building after renovation – standardised heat requirement for the post-renovation condition of the building [kWh/(m².a)];

CPP – total floor area of the building [m²].

Note: If the energy saving is provided by the managing authority/the intermediate body as a resultant value in GJ or %, that value is used, after conversion to a unified physical unit, in the pursuit of the target under Article 7 of the Directive.

Transport

Measure MSEE ID:	4.1.1 a		Title of measure:			Renewal and modernisation of the fleet – rail transport
Sector:	Transport		Sou	Source of financing:		Operational Programme Transport 2007-2013
Measure lasting from: (year)	2007		to: ((year)		2015 (2013+2)
Responsible:	Ministry of Tran Construction	nsport and	Arti 201	asure to comp icle 7 of Direc 2/27/EU:	tive	Yes
			Poli	icy measure cl	assification:	Article 7(9)(b)
Lifetime of measure (years):	20		Cor	mpliance with A	Article 7(10)	Yes
Type of fuel:	Natural gas	Electricity		Heat	Other fuels:	
Breakdown (%) by fuel	0 %	100 %		0 %	0 %	
Characteristics of the measure (including eligible activities)	The principle pursued by the measure is the purchase of new deployment in regional transport and the replacement of responsible for urban public rail transport in the public inter and Žilina. Energy savings will be achieved by reducing the c (if electric traction units are used) by new more efficient outdated units/vehicles. The complementary effect will a attractiveness of public passenger transport, which will ma slowdown in the growth of automotive developments. Nature of measure: b) support schemes. In the financing of the investment costs of projects under th EU resources is expected (Operational Programme Trans 15 % is co-financed by the central government budget, the I municipalities and towns, and private sources. Supported/eligible activities are mainly focused on: an increase in the attractiveness of public paprocurement of new				the obsolete fleets of carriers sest in Bratislava, Košice, Prešov consumption of fuel and electricity fleet units replacing the current also increase the comfort and ske a positive contribution to the sport 2017-2013). The remaining budgets of higher territorial units,	
Evaluation of the measure	- Botto	m-up, via ii	ndivi	dual projects		
Methods for the calculation of savings (in accordance with Annex V(1) to the EED ⁵² and Implementing Decree No 327/2015)	Methods for the calculation of savings: (a) ex ante – by means of a calculation					
Detailed description of the method to calculate energy savings	The methodology used to calculate energy savings is based on a comparison of the fuel consumed on the annual capacities reached by more energy-efficient vehicles with consumption on annual capacities reported for the existing outdated fleet. The specific energy saving is expressed as a reduction in the consumption of the fuel and electricity 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 transport capacity reported per vehicle/unit achieved annually in the analysed territory, or from the driving capacity of the group of new vehicles. A prerequisite applied in the calculation is the saving in electricity and fuel among newly acquired vehicles compared to the original vehicles in use.					

 $^{^{52}}$ EED – Directive 2012/27/EU on energy efficiency

	Yes					
Use of expert estimates and assumptions in the calculation of energy savings	A prerequisite applied in the calculation is the percentage-based saving in electricity and among newly acquired vehicles compared to the original vehicles in use. These savexpressed as a percentage, are presented by manufacturers and verified by mean comparative projects at undertakings where the new vehicles are in routine use. If new eldouble-decker multiple units are deployed, a unit saving of 0.004017 kWh/(place.kl projected. Sa With the new diesel units, the assumption is that they will have 10 % consumption compared to the original train units. It is estimated that these sets will be in circulation for 250 km (approximately 8 hours), with the passenger load of the units definite manufacturer. If new trolleybuses are deployed, the calculation of savings is based projection derived from a comparative before-and-after project in such a manner that the trolleybus reports annual electricity consumption which is 164 MWh (30 %) lower. With new training the project in consumption is taken into account. Se with new training the project in consumption in consumption is taken into account.					
Monitoring, control 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	Measure 4.1.1.a proved its worth. This measure is replaced by the new Measure 4.1.1.b, which will continue as long as the public passenger transport projects defined under the Operational Programme Integrated Infrastructure 2014-2020 are implemented and the cofinancing of measures/projects is provided by the EU.					
Projected overlapping with another measure – duplication	Overlapping with another measure and the duplicate counting of savings are not expected.					
Method to avoid duplication	[-					
Information for the purp	oses of Article 7 of Directive 2012/27/EU					
Materiality of the measure (Annex V, point 2(c), to the EED)	The responsible entity, the Ministry of Transport and Construction, is the managing authority of the Operational Programme Transport (2007-2013), which announces calls for grant applications. The measure is consistent with measures under the Slovak Public Passenger and Non-motorised Transport Development Strategy up to 2020. These facts indicate that activities under the measure are demonstrably material to the achievement of the energy savings reported.					
Complementarity of the measure	Complementarity does not apply at either national or EU level. (a) National level: Energy would not be saved if the measure is not implemented. Non-implementation of the measure would confirm declining trends in the use of public passenger transport in favour of individual transport and transport would thus be more energy intensive. (b) Complementarity with EU legislation: EU legislation does not directly define savings in rail transport.					
Compliance with legislation and principles of support mechanisms (including quality control and sanctions), if relevant	The requirement to draw on ESIF financial resources meets the result indicators defined in the documentation for the Operational Programme Integrated Infrastructure 2014-2020. Applicants are required to ensure that rolling stock is deployed, thus ensuring the increased attractiveness of public passenger transport.					
Compliance with criteria (under Article 7(10) of the Directive)	 (a) Act No 321/2014 established two transitional periods. The 4AP will evaluate the contribution made by policy measures in the first transitional period (2014-2016) and compliance with the trajectory for the energy savings target under Article 7 by 2020. (b) Ministry responsible for the measure: Ministry of Transport and Construction. (c) Savings are determined transparently according to method (b) savings measured. (d) Energy savings are shown in final energy consumption. (e) Savings are determined further to point 1(a) of Annex V, in accordance with point 2 of Annex V. (f) Not applicable; these are not policy measures under Article 7(9)(a), second subparagraph. (g) Not applicable, these are not voluntary agreements/yes, these are voluntary agreements. (h) The results of the measure are continuously monitored and, if they are not sufficient, corrective measures will be taken. (i) The control system is implemented at ITMS level and as part of the preparation of action plans and annual reports. As measures are checked on a project-by-project 					

⁵³ 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.

⁵⁴ Available online at: http://www.zilina.sk/dokumenty/DokumentyProgramyMZ_20130619103328.pdf

⁵⁵ Available online at: http://www.busportal.sk/modules.php?name=article&sid=9384

**Total Control of the control of the

⁵⁶ Expert estimate by the Transport Research Institute.

basis, no statistically significant share of measures for checking was established.

(j) Trends in savings will be set out in the annual reports on progress achieved towards national energy efficiency targets.

Formulas for calculating savings for individual energy efficiency measures

Formula to calculate energy savings – electric double-decker units					
Measure 4.1.1 a Renewal and modernisation of the fleet					
Sector: Transport Source of financing: Operational Programme Transport 2007-2013					

where

ÚE - annual energy saving [kWh];

úe - unit-based energy saving [kWh/(place.km)];

O - unit capacity [place];

L - annual driving capacity [km].

The conversion factor for electricity is used to convert to primary energy consumption

Formula to calculate energy savings – diesel multiple units						
Measure	4.1.1 a	Title of measure:	Renewal and modernisation			
MSEE ID:		of the fleet				
Sector:	Transport	Source of financing:	Operational Programme			
Sector.	Transport	Source of finalicing.	Transport 2007-2013			

$$\acute{\mathrm{U}}E=S_{phm}*L*0,1$$
 * calorific value of diesel (kWh/l)

where

ÚE - annual energy saving [kWh];

S_{phm} - average fuel consumption [l/km];

L - annual driving capacity [km].

The conversion factor for diesel fuel is used to convert to primary energy consumption

Measure	4.1.1 a	Title of measure:	Renewal and modernisation
MSEE ID:		Title of measure:	of the fleet
Sector:	Transport	Source of financing:	Operational Programme Transport 2007-2013

Where (average monthly saving * sum from 1 to n for m)

ÚE - annual energy saving [kWh];

úe - average annual saving per trolleybus [kWh];

n – number of trolleybuses;

 $\mbox{\ensuremath{m-number}}\mbox{\ensuremath{n}}$

The conversion factor for electricity is used to convert to primary energy consumption

Formula to calculate energy savings – trams				
Measure	4.1.1 a	Title of measure:	Renewal and modernisation	
MSEE ID:			of the fleet	
Sector:	Transport	Source of financing:	Operational Programme Transport 2007-2013	
$ \acute{\mathbf{U}}E = S_{ee} * L * 0.25 $				

where

ÚE – annual energy saving [kWh];

 S_{ee} – average electricity consumption [kWh/km];

L – annual driving capacity [km].

The conversion factor for electricity is used to convert to primary energy consumption

Measure	4.1.1 b					Fleet renewal
MSEE ID:			Title of measure:			Renewal and modernisation of the fleet – rail transport
Sector:	Transport		Source of financing:		g:	Operational Programme Integrated Infrastructure 2014- 2020
Measure lasting from: (year)	2014			to: (year)		2020
Responsible:	Ministry of Transport and Construction			Measure to comply with Article 7 of Directive 2012/27/EU:		Yes
Lifetime of measure				Policy measure classification:		Article 7(9)(b)
(years):	20	(E) (1)	Con	Compliance with Article 7(10)		Yes
Type of fuel:	Natural gas	Electricity		Heat	Other fuels: 100 %	
Breakdown (%) by fuel	0 %	0 %		0 %	(diesel)	
Characteristics of the measure (including eligible activities)	The principle pursued by the measure is the purchase of new electric and diesel train units deployment in regional transport and the replacement of the obsolete fleets of carrie responsible for urban public rail transport in the public interest in Bratislava, Košice, Preš and Žilina. Energy savings will be achieved by reducing the consumption of fuel and electric (if electric traction units are used) by new more efficient fleet units replacing the curre outdated units/vehicles. The complementary effect will also increase the comfort a attractiveness of public passenger transport, which will make a positive contribution to t slowdown in the growth of automotive developments. Nature of measure: (b) support schemes. In the financing of the investment costs of projects under the measure, 85 % coverage from EU resources is projected. The remaining 15 % is co-financed by the central government budget, the budgets of higher territorial units, municipalities and towns, and private sources. Supported/eligible activities are mainly focused on: - an increase in the attractiveness of public passenger transport through the procurement of new resources to provide public passenger transport by rail;				rest in Bratislava, Košice, Prešov consumption of fuel and electricity fleet units replacing the current also increase the comfort and ake a positive contribution to the me measure, 85 % coverage from inced by the central government and towns, and private sources.	
Evaluation of the measure	- Botto	m-up, via ii	ndivio	dual projects		
Methods for the calculation of savings (in accordance with Annex V(1))		``				
Detailed description of the method to calculate energy savings	The methodology used to calculate energy savings is based on a comparison of the fuel consumed on the annual capacities reached by more energy-efficient vehicles with consumption on annual capacities reported for the existing outdated fleet. The specific energy saving is expressed as a reduction in the consumption of the fuel and electricity 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 transport capacity reported per vehicle/unit achieved annually in the analysed territory, or from the driving capacity of the group of new vehicles. A prerequisite applied in the calculation is the saving in electricity and fuel among newly acquired vehicles compared to the original vehicles in use.					
Application of expert	acquired vehicles compared to the original vehicles in use. Yes					
Assumptions and estimates used in the calculation of energy savings	among newly expressed as comparative pr double-decker projected. ⁵⁷ Wi consumption or 2 the manufactur projection deriv trolleybus repowith hybrid eng 25 % reduction	acquired voice a percenta ojects at ur multiple u tith the new ompared to 0.50 km (apprer. If new tired from a orts annual egines have in consur	ehicle age, nderta nits a v dies the coroxir trolles compelectri 39 % mptio	es compared are presented are presented are deployed, sel units, the original train unately 8 hours ybuses are de arative before city consumpt to lower consumpt is under co	to the original d by manufacton he new vehicles a unit saving assumption is nits. It is estimate), with the passeployed, the calculation of the projection which is 164 mption ⁵⁹ than ornsideration. ⁶⁰ In	ased saving in electricity and fuel vehicles in use. These savings, urers and verified by means of are in routine use. If new electric of 0.004017 kWh/(place.km) is that they will have 10 % lower ted that these sets will be in daily enger load of the units defined by culation of savings is based on a act in such a manner that the new MWh (30 %) lower. New buses relinary buses. With new trams, a the financing of the investment m EU sources (the Operational

⁵⁷ 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.
58 Available online at: http://www.silina.sk/dokumenty/DokumentyProgramyMZ_20130619103328.pdf
59 Available online at: http://www.slovakrail.sk/sk/o-spolocnosti/projekty-eu/projekt-obnovy-zkv.html?no-graphics=0&print&prin

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	Programme Transport 2007-2013 and the Operational Programme Integrated Infrastructure 2014-2020) is projected.
Monitoring, control 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	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 cofinancing of measures/projects is provided by the EU.
Projected overlapping with another measure – duplication	Overlapping with another measure and the duplicate counting of savings are not expected.
Method to avoid duplication	-

Information for the purp	oses of Article 7 of Directive 2012/27/EU			
Materiality of the measure (Annex V, point 2(c))	The responsible entity, the Ministry of Transport and Construction, is the managing authority of the Operational Programme Integrated Infrastructure 2014-2020, which announces calls for grant applications. The measure is consistent with measures under the Slovak Public Passenger and Non-motorised Transport Development Strategy up to 2020. These facts indicate that activities under the measure are demonstrably material to the achievement of the energy savings reported.			
Complementarity of the measure	Complementarity does not apply at either national or EU level. (a) National level: - Energy would not be saved if the measure is not implemented. Non-implement of the measure would confirm declining trends in the use of public passes transport in favour of individual transport and transport would thus be more en intensive. (b) Complementarity with EU legislation: - There are no requirements in this area at EU level.			
Compliance with legislation and principles of support mechanisms (including quality control and sanctions), if relevant	The requirement to draw on ESIF financial resources meets the result indicators defined in the documentation for the Operational Programme Integrated Infrastructure 2014-2020. Applicants are required to ensure that rolling stock is deployed, thus ensuring the increased attractiveness of public passenger transport.			
Compliance with criteria (under Article 7(10) of the Directive)	 (a) Act No 321/2014 established two transitional periods. The 4AP will evaluate the contribution made by policy measures in the first transitional period (2014-2016) at compliance with the trajectory for the energy savings target under Article 7 by 2020 (b) Ministry responsible for the measure: Ministry of Transport and Construction. (c) Savings are determined transparently according to method (b) savings measured. (d) Energy savings are shown in final energy consumption. (e) Savings are determined further to point 1(a) of Annex V, in accordance with point of Annex V. (f) Not applicable; these are not policy measures under Article 7(9)(a), secon subparagraph. (g) Not applicable, these are not voluntary agreements/yes, these are voluntate agreements. (h) The results of the measure are continuously monitored and, if they are not sufficient corrective measures will be taken. (i) The control system is implemented at ITMS level and as part of the preparation action plans and annual reports. As measures are checked on a project-by-proje basis, no statistically significant share of measures for checking was established. (j) Trends in savings will be set out in the annual reports on progress achieved towarn national energy efficiency targets. 			

Formulas for calculating savings for individual energy efficiency measures

Formula to calculate energy savings – electric double-decker units					
Measure MSEE ID:	4.1.1 b	Title of measure:	Fleet renewal Renewal and modernisation of the fleet – rail transport		
Sector:	Transport	Source of financing:	Operational Programme Integrated Infrastructure 2014- 2020		
	$ \acute{\mathrm{U}}E = \acute{\mathrm{u}}e * O * L $				
where ÚE — annual energy saving [kWh];					
úe — unit-based energy saving [kWh/(place km)]; O – unit capacity [places]; L – annual driving capacity [km]. The conversion factor for electricity is used to convert to primary energy consumption					

Measure	4.1.1 b		Fleet renewal Renewal and modernisation of	
MSEE ID:		Title of measure:	the fleet – rail transport	
Sector:	Transport	Source of financing:	Operational Programme Integrated Infrastructure 2014- 2020	
$ \acute{\mathbf{U}}E = S_{phm} * L * 0,1 $				
where				
ÚE – annual energy saving [I];				
Sphm — average fuel consumption [I/km]; L — annual driving capacity [km]. The conversion factor for diesel fuel is used to convert to primary energy consumption				

Formula to calculate energy savings – trolleybuses				
Measure	4.1.1 b		Fleet renewal	
MSEE ID:		Title of measure:	Renewal and modernisation of the fleet – rail transport	
Sector:	Transport	Source of financing:	Operational Programme Integrated Infrastructure 2014- 2020	
$ \acute{\mathrm{U}}E = \mathrm{suma}(\acute{\mathrm{u}}\mathrm{e} * \mathrm{n} * \frac{m}{12}) $				
where				
ÚE — annual energy saving [I];				
Sphm — average fuel consum L – annual driving capacity [k The conversion factor for elec	xm].	primary energy consumption		

Formula to calculate energy savings – trams			
Measure	4.1.1 b		Fleet renewal
MSEE ID:		Title of measure:	Renewal and modernisation of the fleet – rail transport
Sector:	Transport	Source of financing:	Operational Programme Integrated Infrastructure 2014- 2020

$$\acute{\mathrm{U}}E = S_{ee} * L * 0,25$$

where

ÚE – annual energy saving [kWh];

See — average electricity consumption [kWh/km];
L – annual driving capacity [km].
The conversion factor for electricity is used to convert to primary energy consumption

Measure	4.1.1 c					Fleet renewal –	
MSEE ID:			Title	Title of measure:		buses/trolleybuses	
Sector:	Transport		Sou	Source of financing:		Operational Programme Environment 2007-2013 IROP 2014-2020	
Measure lasting from: (year)	2014			to: (year)		2020	
Responsible:	Ministry of the Environment, Ministry of Agriculture and Rural Development, Ministry of Transport and Construction			Measure to comply with Article 7 of Directive 2012/27/EU:		Yes	
			Poli	cy measure cl	assification:	Article 7(9)(b) Article 7(9)(d)	
Lifetime of measure (years):	20		Con	npliance with	Article 7(10)	Yes	
Type of fuel:	Natural gas	Electricity		Heat	Other fuels:		
Breakdown (%) by fuel	0 %	0 %		0 %	100 %		
Characteristics of the measure (including eligible activities)	The principle pursued by the measure is the purchase of new hybrid buses to be deployed in urban transport in Žilina. Energy savings will be achieved by reducing the consumption of furby means of new more efficient fleet vehicles replacing the current outdated vehicles. The complementary effect will also increase the comfort and attractiveness of public passenge transport, which will make a positive contribution to the slowdown in the growth of automotive developments. Nature of measure: (b) support schemes. In the financing of the investment costs of projects under the measure, 85 % coverage from EU resources is expected (Operational Programme Environment 2017-2013). The remaining 15 % is co-financed by the central government budget, the budgets of higher territorial units municipalities and towns, and private sources. Supported/eligible activities are mainly focused on:					reducing the consumption of fuel the current outdated vehicles. The ttractiveness of public passenger redown in the growth of automotive the measure, 85 % coverage from the ment 2017-2013). The remaining budgets of higher territorial units,	
Evaluation of the measure	proc	 an increase in the attractiveness of public passenger transport through the procurement of new resources to provide public passenger transport; Bottom-up, via individual projects 					
Methods for the calculation of savings (in accordance with Annex V(1))	Methods for the	Methods for the calculation of savings: (a) ex ante – by means of a calculation					
Detailed description of the method to calculate energy savings	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.						
Application of expert estimates and assumptions	Yes						
Assumptions and estimates used in the calculation of energy savings	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 place per km is projected. With the new diesel units, the assumption is that they will have 10 % 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. New buses with hybrid engines have 39 % lower consumption so that ordinary buses. With new trams, a 25 % reduction in consumption is under consideration. In the financing of the investment costs of projects under the measure, 85 % coverage from EU sources (the Operational Programme Transport 2007-2013 and the Operational Programme Integrated Infrastructure 2014-2020) is projected.						
Monitoring, control and verification of the energy						alues planned under this measure bove, taking into account projects	

⁶¹ 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.
62 Available online at: http://www.silina.sk/dokumenty/DokumentyProgramyMZ_20130619103328.pdf
63 Available online at: http://www.slovakrail.sk/sk/o-spolocnosti/projekty-eu/projekt-obnovy-zkv.html?no-graphics=0&print&prin

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savings made	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	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 cofinancing of measures/projects is provided by the EU.
Projected overlapping with another measure – duplication	Overlapping with another measure and the duplicate counting of savings are not expected.
Method to avoid duplication	-

Information for the purposes of Article 7 of Directive 2012/27/EU					
Materiality of the measure (Annex V, point 2(c))	The responsible entities, the Ministry of the Environment, as the managing authority of the Operational Programme Environment (2007-2013), and the Ministry of Agriculture and Rural Development, as the managing authority of the IROP (2014-2020), announce calls for grant applications. The measure is consistent with measures under the Slovak Public Passenger and Nonmotorised Transport Development Strategy up to 2020. It falls within the remit of the Ministry of Transport and Construction, which is responsible for implementing it. These facts indicate that activities under the measure are demonstrably material to the achievement of the energy savings reported.				
Complementarity of the measure	 (a) Complementarity does not apply at either national or EU level. National level: Energy would not be saved if the measure is not implemented. Non-implementation of the measure would confirm declining trends in the use of public passenger transport in favour of individual transport and transport would thus be more energy intensive. (b) Complementarity with EU legislation: There are no requirements in this area at EU level. 				
Compliance with legislation and principles of support mechanisms (including quality control and sanctions), if relevant	The requirement to draw on ESIF financial resources meets the result indicators defined in the documentation for the Integrated Regional Operational Programme 2014-2020. Applicants are required to ensure that rolling stock is deployed, thus ensuring the increased attractiveness of public passenger transport.				
Compliance with criteria (under Article 7(10) of the Directive)	 (a) Act No 321/2014 established two transitional periods. The 4AP will evaluate the contribution made by policy measures in the first transitional period (2014-2016) and compliance with the trajectory for the energy savings target under Article 7 by 2020 (b) Ministry responsible for the measure: Ministry of the Environment, Ministry Agriculture and Rural Development, Ministry of Transport and Construction. (c) Savings are determined transparently according to method (b) savings measured. (d) Energy savings are shown in final energy consumption. (e) Savings are determined further to point 1(a) of Annex V, in accordance with point of Annex V. (f) Not applicable; these are not policy measures under Article 7(9)(a), second subparagraph. (g) Not applicable, these are not voluntary agreements/yes, these are voluntal agreements. (h) The results of the measure are continuously monitored and, if they are not sufficient corrective measures will be taken. (i) The control system is implemented at the level of the Ministry of Transport and Construction level and as part of the preparation of action plans and annual report As measures are checked on a project-by-project basis, no statistically significate share of measures for checking was established. (j) Trends in savings will be set out in the annual reports on progress achieved toward national energy efficiency targets. 				

MSEE ID:		Title of measure:	Fleet renewal –				
MISEE ID.		Title of fileasure.	buses/trolleybuses				
Sector:	Transport	Source of financing:	Operational Programme Environment 2007-2013 IROP 2014-2020				
$ \acute{\mathrm{U}}E = S_{phm} * L * 0,39 $							

Sphm — average fuel consumption [l/km];

L – annual driving capacity [km].

The conversion factor for electricity is used to convert to primary energy consumption

Measure	4.1.1 d				Fleet renewal – buses			
MSEE ID:	7.11.1 u		Title of measure:		: 			
Sector:	Transport		Source of financing:		g:	Operational Programme Environment 2007-2013 IROP 2014-2020		
Measure lasting from: (year)	2014		to: (y	to: (year)		2020		
Responsible:	Ministry of the Environment, Ministry of Agriculture and Rural Development, Ministry of Transport and Construction		Measure to comply with Article 7 of Directive 2012/27/EU:			Yes		
	Construction		Policy measure classification:		assification:	Article 7(9)(b) Article 7(9)(d)		
Lifetime of measure (years):	20		Compliance with Article 7(10)		Article 7(10)	Yes		
Type of fuel:	Natural gas	Electricity		Heat	Other fuels:			
Breakdown (%) by fuel	0 %	0 %		0 %	100 % (diesel)			
Characteristics of the measure (including eligible activities)	and trolleybuses designed primarily for urban public transport and scheduled bus services in the context of public-interest activities not covered by any of the aforementioned submeasures. Energy savings will be achieved by reducing the consumption of fuel by means of new more efficient fleet vehicles replacing the current outdated vehicles. The complementary effect will also increase the comfort and attractiveness of public passenger transport, which will make a positive contribution to the slowdown in the growth of automotive developments. Nature of measure: (b) support schemes. In the financing of the investment costs of projects under the measure, 85 % coverage from EU resources is expected (Operational Programme Environment 2017-2013). The remaining 15 % – co-financing: higher territorial units. Supported/eligible activities are mainly focused on: an increase in the attractiveness of public passenger transport through the procurement of new resources to provide public passenger transport by rail;							
Evaluation of the measure	Bottom-up, via individual projects							
Methods for the calculation of savings (in accordance with Annex V(1))	Methods for the calculation of savings: (a) ex ante – by means of a calculation							
Detailed description of the method to calculate energy savings Application of expert	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.							
estimates and assumptions	Yes							
Assumptions and estimates used in the calculation of energy savings	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 projected. With the new diesel units, the assumption is that they will have 10 % 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. New buses with hybrid engines have 39 % lower consumption of than ordinary buses. With new trams, a 25 % reduction in consumption is under consideration. In the financing of the investment costs of projects under the measure, 85 % coverage from EU sources (the Operational Programme Transport 2007-2013 and the Operational Programme Integrated Infrastructure 2014-2020) is projected.							

⁶⁵ 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.
66 Available online at: http://www.silina.sk/dokumenty/DokumentyProgramyMZ_20130619103328.pdf
67 Available online at: http://www.slovakrail.sk/sk/o-spolocnosti/projekty-eu/projekt-obnovy-zkv.html?no-graphics=0&print&prin

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Monitoring, control 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	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 cofinancing of measures/projects is provided by the EU.
Projected overlapping with another measure – duplication	Overlapping with another measure and the duplicate counting of savings are not expected.
Method to avoid duplication	-

Information for the purp	oses of Article 7 of Directive 2012/27/EU
Materiality of the measure (Annex V, point 2(c))	The responsible entities, the Ministry of the Environment, as the managing authority of the Operational Programme Environment (2007-2013), and the Ministry of Agriculture and Rural Development, as the managing authority of the IROP (2014-2020), announce calls for grant applications. These facts indicate that activities under the measure are demonstrably material to the achievement of the energy savings reported. The measure is consistent with measures under the Slovak Public Passenger and Non-motorised Transport Development Strategy up to 2020. It falls within the remit of the Ministry of Transport and Construction, which is responsible for implementing it. These facts indicate that activities under the measure are demonstrably material to the achievement of the energy savings reported.
Complementarity of the measure	 (a) Complementarity does not apply at either national or EU level. National level: Energy would not be saved if the measure is not implemented. Non-implementation of the measure would confirm declining trends in the use of public passenger transport in favour of individual transport and transport would thus be more energy intensive. (b) Complementarity with EU legislation: There are no requirements in this area at EU level.
Compliance with legislation and principles of support mechanisms (including quality control and sanctions), if relevant	The requirement to draw on ESIF financial resources meets the result indicators defined in the Energy Efficiency Action Plan for 2014-2016, with an outlook up to 2020. Applicants are required to ensure that rolling stock is deployed, thus ensuring the increased attractiveness of public passenger transport. This will change the overall distribution of transport work in favour of public transport.
Compliance with criteria (under Article 7(10) of the Directive)	 (a) Act No 321/2014 established two transitional periods. The 4AP will evaluate the contribution made by policy measures in the first transitional period (2014-2016) and compliance with the trajectory for the energy savings target under Article 7 by 2020. (b) Ministry responsible for the measure: Ministry of the Environment, Ministry of Agriculture and Rural Development, Ministry of Transport and Construction. (c) Savings are determined transparently according to method (b) savings measured. (d) Energy savings are shown in final energy consumption. (e) Savings are determined further to point 1(a) of Annex V, in accordance with point 2 of Annex V. (f) Not applicable; these are not policy measures under Article 7(9)(a), second subparagraph. (g) Not applicable, these are not voluntary agreements/yes, these are voluntary agreements. (h) The results of the measure are continuously monitored and, if they are not sufficient, corrective measures will be taken. (i) The control system is implemented at the level of surveying by the Ministry of Transport and Construction level and as part of the preparation of action plans and annual reports. As measures are checked on a project-by-project basis, no statistically significant share of measures for checking was established. (j) Trends in savings will be set out in the annual reports on progress achieved towards national energy efficiency targets.

Formula to calculate energy savings – buses					
Measure MSEE ID:	4.1.1 d	Title of measure:	Fleet renewal – buses		
Sector:	Transport	Source of financing:	Operational Programme Environment 2007-2013 IROP 2014-2020		
$ \acute{\mathbf{U}}E = \left(S_{phmSV} * L\right) - \left(S_{phmNV} * L\right) $					

where

ÚE - annual energy saving [kWh];

SphmSV — average fuel consumption of old vehicle [l/km];

 ${\tt SphmNV-average\ fuel\ consumption\ of\ new\ vehicle\ [I/km];}$

L - annual driving capacity [km].

Measure	4.1.2			f		Renewal and modernisation of	
MSEE ID:				e of measure:		the fleet – Bus/coach transport	
Sector:	Transport		Sou	Source of financing:		Operational Programme Environment 2007-2013 IROP 2014-2020	
Measure lasting from: (year)	2014		to: (year)		2020	
Responsible:	Ministry of the Environment, Ministry of Agriculture and Rural Development, Ministry of Transport and Construction			Measure to comply with Article 7 of Directive 2012/27/EU:		Yes	
			Poli	Policy measure classification:		Article 7(9)(b) Article 7(9)(d)	
Lifetime of measure (years):	20		Con	npliance with A	Article 7(10)	Yes	
Type of fuel:	Natural gas	Electricity		Heat	Other fuels:		
Breakdown (%) by fuel	0 %	0 %		0 %	100 % (diesel)	llowing on seamlessly from the	
Characteristics of the measure (including eligible activities)	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 achieved by reducing the consumption of fuel by means of new more efficient fleet units replacing the current outdated vehicles. Nature of measure: (b) support schemes. In the financing of the investment costs of projects under the measure, 85 % coverage from EU resources is expected (Operational Programme Environment 2017-2013). The remaining 15 % is co-financed by the central government budget, the budgets of higher territorial units,						
Evaluation of the measure		municipalities and towns, and private sources. - Bottom-up, via individual projects					
Methods for the calculation of savings (in accordance with Annex V(1))	Methods for the calculation of savings (choice of options): (a) ex ante – by means of a calculation						
Detailed description of the method to calculate energy savings	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).						
Application of expert estimates and assumptions	Yes	Yes					
Assumptions and estimates used 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 expected.						
Monitoring, control 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 project under the measure which have actually been implemented. Information on energous consumption or energy savings will be monitored by means of a series of measurements 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 carried who are beneficiaries of aid.					pove, taking into account projects nented. Information on energy is of a series of measurements in after the implementation of the cotransport operators and carriers	
Overall evaluation and way forward		Regional	Opera	ational Progra	mme 2014-202	transport projects defined under 20 are implemented and the co-	
Projected overlapping with another measure – duplication	Overlapping wi	th another i	meas	sure and the du	uplicate counting	g of savings are not expected.	

Information for the purp	oses of Article 7 of Directive 2012/27/EU				
Materiality of the measure (Annex V, point 2(c))	The principle of the measure consists of the purchase of new buses designed primarily for urban public transport and scheduled bus services in the context of public-interest activities. Energy savings will be achieved by reducing the consumption of fuel by means of new more efficient fleet vehicles replacing the current/outdated vehicles. The complementary effect will also increase the comfort and attractiveness of public passenger transport, which will make a positive contribution to the slowdown in the growth of automotive developments. The responsible entities, the Ministry of the Environment, as the managing authority of the Operational Programme Environment (2007-2013), and the Ministry of Agriculture and Rural Development, as the managing authority of the IROP (2014-2020), announce calls for grant applications. The measure is implemented further to the Slovak Strategic Public Passenger Transport Development Plan up to 2020. These facts indicate that activities under the measure are demonstrably material to the achievement of the energy savings reported. The measure is consistent with measures under the Slovak Public Passenger and Non-motorised Transport Development Strategy up to 2020.				
Complementarity of the measure	Complementarity does not apply at either national or EU level. (a) National level: Energy would not be saved if the measure is not implemented. Non-implementation of the measure would confirm declining trends in the use of public passenger transport in favour of individual transport and transport would thus be more energy intensive. (b) Complementarity with EU legislation: There are no requirements in this area at EU level.				
Compliance with legislation and principles of support mechanisms (including quality control and sanctions), if relevant	The requirement to draw on ESIF financial resources meets the result indicators defined in the management documentation for the relevant operational programmes in the 2014-2020 programming period. Applicants are required to ensure that rolling stock is deployed, thus ensuring the increased attractiveness of public passenger transport. This will change the overall distribution of transport work in favour of public transport.				
Compliance with criteria (under Article 7(10) of the Directive)	 (a) Act No 321/2014 established two transitional periods. The 4AP will evaluate the contribution made by policy measures in the first transitional period (2014-2016) and compliance with the trajectory for the energy savings target under Article 7 by 2020. (b) Ministry responsible for the measure: Ministry of the Environment, Ministry of Agriculture and Rural Development, Ministry of Transport and Construction. (c) Savings are determined transparently according to method (b) savings measured. (d) Energy savings are shown in final energy consumption. (e) Savings are determined further to point 1(a) of Annex V, in accordance with point 2 of Annex V. (f) Not applicable; these are not policy measures under Article 7(9)(a), second subparagraph. (g) Not applicable, these are not voluntary agreements/yes, these are voluntary agreements. (h) The results of the measure are continuously monitored and, if they are not sufficient, corrective measures will be taken. (i) The control system is implemented at the level of the Ministry of Transport and Construction level and as part of the preparation of action plans and annual reports. As measures are checked on a project-by-project basis, no statistically significant share of measures for checking was established. (j) Trends in savings will be set out in the annual reports on progress achieved towards national energy efficiency targets. 				

MSEE ID:	4.1.2	Title of measure:	Renewal and modernisation of the fleet – Bus/coach transport		
Sector:	Transport	Source of financing:	Operational Programme Environment 2007-2013 IROP 2014-2020		
$ \acute{\mathbf{U}}E = \left(S_{phmSV} * L\right) - \left(S_{phmNV} * L\right) $					
where					

SphmSV — average fuel consumption of old vehicle [l/km];

SphmNV — average fuel consumption of new vehicle [l/km];

L – annual driving capacity [km].

Measure	4.2					Building and upgrading the	
MSEE ID:			Title	Title of measure:		transport infrastructure (contd.)	
Sector:	Transport		Sou	Source of financing:		Operational Programme Transport 2007-2013 Operational Programme Integrated Infrastructure 2014- 2020	
Measure lasting from: (year)	2014		to: (year)		2020	
Responsible:	Ministry of Trai Construction	nsport and	Arti	sure to com cle 7 of Direc 2/27/EU:		Yes	
			Poli	cy measure c	lassification:	Article 7(9)(b) Article 7(9)(d)	
Lifetime of measure (years):	20		Con	npliance with	Article 7(10)	Yes	
Type of fuel:	Natural gas	Electricity		Other fuels:	Other fuels:		
Breakdown (%) by fuel	xx	58.31 %	6	16.14 % (petrol)	25.54 % (diesel)		
Characteristics of the measure (including eligible activities)	The 'Building and upgrading the transport infrastructure' in following on seamlessly from a measure defined in the Energ 2013. Eligible project applicants are transport infrastructure a.s., the Slovak Road Administration (SSC) and Railways Implementation of the measure is derived from the Openfrastructure 2014-2020, the Transport Infrastructure Develoand projects financed under the Operational Programme Trabe put into operation until the 2014-2016 reporting period. The fixed duration. The principle pursued by the measure is the sections of road infrastructure, the removal of defects in class railway infrastructure. Energy savings are achieved by reducinfrastructure users on new technically more refined infrast technically outdated road infrastructure. In rail transport, ereducing the number of bursts of speed on the transport infrupgrading of the track, and by enhancing comfort, winning motorised transportation. Nature of measure: (b) support schemes. In the financing of the investment costs of projects under the EU resources is expected (Operational Programme Trans 15 % is co-financed by the central government budget and				gy Efficiency Action Plan for 2011-managers in Slovakia, i.e. NDS, is of the Slovak Republic (ŽSR). erational Programme Integrated opment Strategy Plan up to 2020, ansport 2007-2013 which will not his is a continuous measure of note building of new large-capacity is I roads and the upgrading of the cing the fuel consumption of road tructure compared to the original energy savings are generated by trastructure, made possible by the over passengers from individual one measure, 85 % coverage from sport 2017-2013). The remaining		
Evaluation of the measure		Select from the options: - Bottom-up, via individual projects					
Methods for the calculation of savings (in accordance with Annex V(1))	(a) ex a	Methods for the calculation of savings (choice of options): (a) ex ante – by means of a calculation The reduction in appoint approximation of the the completion and ungrading of transport.					
Detailed description of the method to calculate energy savings	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 induced traffic period is projected. 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 individual motorised transportation and road freight vehicles.						
Application of expert estimates and assumptions	Yes						
Assumptions and estimates used in the calculation of energy savings	new and origin of a 3.5 t - 7.5 t - 7.5 t vehicle 7.5 t - 12 t veh t vehicle on a rover 12 t on a on a motorway passenger car driven passer consumption of	al infrastruct vehicle on a moto icle on a cla motorway/exclass I roacy/expresswar on a classinger car cof a diesel-	cture, a cla rway, ass I r xpres I is 45 ay is s I ro on a drive	as measured ass I road is 1 /expressway i oad is 23 I/10 sway is 19 I/1 5 I/100 km, th 40 I/100 km, ad is 8.5 I/10 motorway/e. n passenger	I on a trial sectic 8 I/100 km, the a is 15 I/100 km, tl 0 km, the average 00 km, the average fuel c the average fuel the average fuel to the average fuel c trial to a verage fuel c trial to a verage fuel c average f	onsumption of vehicle fuel on the on: The average fuel consumption average fuel consumption of a 3.5 he average fuel consumption of a ge fuel consumption of a 7.5 t - 12 age fuel consumption of a vehicle consumption of a vehicle consumption of a petrol-driven ge fuel consumption of a petrol-7.5 l/100km, the average fuel to a motorway/expressway is 5	

	I/100km. The weighted proportion of diesel-powered vehicles in traffic flow is considered to be 67 %, with petrol-driven vehicles accounting for 33 %.
Monitoring, control 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	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.
Projected overlapping with another measure – duplication	Overlapping with another measure and the duplicate counting of savings are not expected.
Method to avoid duplication	-

Information for the purp	oses of Article 7 of Directive 2012/27/EU				
	Project implementation contributes to savings for the final customer.				
Materiality of the measure	The principle of the measure consists of the construction of top-class infrastructure ensuring the unobstructed mobility of rolling stock without drops in speed leading to increased fuel consumption. In road transport, the negative impact of construction – induced traffic – must also be taken into account.				
(Annex V, point 2(c))	The responsible entity, the Ministry of Transport and Construction, is the managing authority of the Operational Programme Transport (2007-2013) and Operational Programme Integrated Infrastructure (2014-2020), which announces calls for grant applications. The measure is implemented further to the Slovak Strategic Public Passenger Transport Development Plan up to 2020. These facts indicate that activities under the measure are demonstrably material to the achievement of the energy savings reported.				
Complementarity of the measure	Complementarity does not apply at either national or EU level.				
Compliance with legislation and principles of support mechanisms (including quality control and sanctions), if relevant	The requirement to draw on ESIF financial resources meets the result indicators defined in the documentation for the Operational Programme Integrated Infrastructure 2014-2020. Applicants are required to ensure that rolling stock is deployed, thus ensuring the increased attractiveness of public passenger transport. This will change the overall distribution of transport work in favour of public transport.				
Compliance with criteria (under Article 7(10) of the Directive)	 (a) Act No 321/2014 established two transitional periods. The 4AP will evaluate the contribution made by policy measures in the first transitional period (2014-2016) and compliance with the trajectory for the energy savings target under Article 7 by 2020. (b) Ministry responsible for the measure: Ministry of Transport and Construction. (c) Savings are determined transparently according to method (b) savings measured. (d) Energy savings are shown in final energy consumption. (e) Savings are determined further to point 1(a) of Annex V, in accordance with point 2 of Annex V. (f) Not applicable; these are not policy measures under Article 7(9)(a), second subparagraph. (g) Not applicable, these are not voluntary agreements/yes, these are voluntary agreements. (h) The results of the measure are continuously monitored and, if they are not sufficient, corrective measures will be taken. (i) The control system is implemented at ITMS level and as part of the preparation of action plans and annual reports. As measures are checked on a project-by-project basis, no statistically significant share of measures for checking was established. (j) Trends in savings will be set out in the annual reports on progress achieved towards national energy efficiency targets. 				

Formula to calculate energy savings – road infrastructure					
Measure	4.2	Building and upgrading the			
MSEE ID:		Title of measure:	transport infrastructure (contd.)		
Sector:	Transport	Source of financing:	Operational Programme Transport 2007-2013 Operational Programme Integrated Infrastructure 2014- 2020		

$$\begin{split} \dot{\mathbf{U}}E &= PDP * \left\{ \left[D_{CI.tr} * \left(\left(RPDI_{OV_{CI.tr}} * S_{PHM_{OV_{CI.tr}}} \right) + \left(RPDI_{NV_{CI.tr}} * S_{PHM_{NV_{CI.tr}}} \right) \right) \right] \\ &- \left[\left(D_{CI.tr} * P_{CI.tr} * \left(\left(RPDI_{OV_{CI.tr}} * S_{PHM_{OV_{CI.tr}}} \right) + \left(RPDI_{NV_{CI.tr}} * S_{PHM_{NV_{CI.tr}}} \right) \right) \right) \\ &+ \left(D_{D/R} * P_{D/R} \left(\left(RPDI_{OV_{D/R}} * S_{PHM_{OV_{D/R}}} \right) + \left(RPDI_{NV_{D/R}} * S_{PHM_{NV_{D/R}}} \right) \right) \right) \right] \end{split}$$

$$\acute{\mathbf{U}}E_{celkom} = \acute{\mathbf{U}}E - S_{PHMindukovan\'{a}\ doprava}$$

$$\hat{\mathbf{U}}_{km_O} = \frac{(P_O * 0.082)}{O_{OV}}$$

$$\acute{\mathbf{U}}_{km_N} = \frac{(P_N * 0,082)}{q}$$

where

PDP - number of days the newly built motorway/expressway is in operation over the reference period;

RPD_{Cl.tr} – annual average of the daily passenger vehicle intensity on Class I roads [vehicles/24 h];

RPD_{Cl.tr} – annual average of the daily freight vehicle intensity on Class I roads [vehicles/24 h];

RPDIov_{D/R} – annual average of the daily passenger vehicle intensity on motorways/expressways [vehicles/24 h];

RPD_{InvD/R} — annual average of the daily freight vehicle intensity on motorways/expressways [vehicles/24 h];

SPHM_{OVCl.tr} – average passenger vehicle fuel consumption on Class I roads [l/km];

SPHM_{NVCl.tr} — average freight vehicle fuel consumption on Class I roads [I/km];

SPHM_{OVD/R} — average passenger vehicle fuel consumption on motorways/expressways [I/km];

SPHM_{OVD/R} - average freight vehicle fuel consumption on motorways/expressways [I/km];

D_{Cl.tr} - length of the continuous section of Class I road [km];

D_{D/R} - length of the newly constructed motorway/expressway [km].

P_{Cl.tr} - percentage of reallocation of traffic intensity to Class I roads [%];

P_{D/R} – percentage of reallocation of traffic intensity to motorways/expressways [%];

 $\acute{\text{U}}\text{E}_{\text{celkom}}$ – final energy saving over the period under assessment [I];

ÚE — energy saving due to the construction of a new section [I];

S_{PHM indukovaná doprava} - energy consumption as a result of induced traffic [I];

 \acute{U}_{kmo} — passenger transport saving in kilometres travelled [km];

Po - road passenger transport distance [passenger-kilometres];

 $\ensuremath{\text{O}_{\text{OV}}}$ — average occupancy of passenger vehicles [persons/vehicle]

 \dot{U}_{kmo} – freight transport saving in kilometres travelled [km];

P_O - road freight transport distance [tkm];

q - average quantity of goods transported [t].

Formula to calculate energy savings – railway infrastructure					
Measure MSEE ID:	4.2	Title of measure:	Building and upgrading the transport infrastructure (contd.)		
Sector:	Transport	Source of financing:	Operational Programme Transport 2007-2013 Operational Programme Integrated Infrastructure 2014- 2020		
, ,	,	//			

$$\acute{\mathbf{U}}E = \left(\acute{\mathbf{U}}_{km_O} * S_{PHM_b} * P_b \right) + \left(\acute{\mathbf{U}}_{km_O} * S_{PHM_d} * P_d \right) + \left(\acute{\mathbf{U}}_{km_N} * S_{PHM} \right)$$

where

ÚE - energy saving [I];

Úkmo – road passenger transport saving in kilometres travelled [km];

SPHMb — average fuel consumption of petrol-powered passenger vehicles [l/km];

Pb — percentage of petrol-powered passenger vehicles in traffic flow [%];

SPHMd — average fuel consumption of diesel-powered passenger vehicles [I/km];

Pd — percentage of diesel-powered passenger vehicles in traffic flow [%];

ÚkmN - road freight transport saving in kilometres travelled [km];

SPHM - average fuel consumption of freight vehicles [I/km].

Measure	4.3					Support for the development	
MSEE ID:			Title	Title of measure:		and use of public passenger transport, including support for the creation of integrated transport systems	
Sector:	Transport		Source	Source of financing:		Operational Programme Transport 2007-2013 Operational Programme Integrated Infrastructure 2014- 2020	
Measure lasting from: (year)	2014		to: (ye	ear)		2020	
Responsible:	Ministry of Tran Construction	nsport and	Articl	ure to comp e 7 of Direc 27/EU:		Yes	
			Policy	/ measure cla	assification:	Article 7(9)(b) Article 7(9)(d)	
Lifetime of measure (years):	20		Comp	liance with A	Article 7(10)	Yes	
Type of fuel:	Natural gas	Electricity	C	Other fuels:	Other fuels:		
Breakdown (%) by fuel	0 %	0 %		32.96 % (petrol)	67.06 % (diesel)		
Characteristics of the measure (including eligible activities)	applicants are ZSR. This mea 2007-2013 al Implementation motorised Trai supporting the transport syste implementation section: Janíkov dvo ZSR, Integrate hlavná stanica – Janíkov dvo ZSR, Integrate hlavná stanica Transport Term Ves (implemer Janíkov dvor, Passenger Tra documentation projects define Strategy up to benefit. This is measure is th transport infrast transport (espepublic passenger This will take the replacement the Nature of meas (b) supp In the financing EU resources 15 % is co-final units, municipal Select from the	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. ZSR. 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 Nonmotorised 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: Janikov dvor - Safárikovo nám., Part 1: Safárikovo nám. – Bosákova ulica', 'Dúbravka Tramway in the Hanulova – Pri kríži section', 'Pivotal urban public transport system, Stage 1, Hlavná stanica – Janikov dvor, traffic section: Bosákova ulica - Janikov dvor, Part 2: Bosákova – Janikov dvor', 'Tramway upgrade: Karloveská, Vajnorská and Račianska Radial Road', 'ŽSR, Integrated Passenger Transport Terminals (TIOP) in Bratislava, Section: Bratislava hlavná stanica – Devinska Nová Ves (implementation)', 'Pivotal urban public transport system, Stage 1: Hlavná stanica – Janikov dvor, traffic section: Hlavná stanica – Safárikovo námestie', 'ŽSR, Integrated Passenger Transport Terminals (TIOP) in Košice Self-governing Region, Stage 1: (Design + Davinska Nová Ves (implementation)', 'Pivotal urban public transport system, Stage 1: Hlavná stanica – Bratislava stanica – Safárikovo námestie', 'ŽSR, Integrated Passenger Transport Terminals (TIOP) in Košice Self-governing Region					
Methods for the calculation of savings (in accordance with Annex V(1)) Detailed description of the method to calculate energy savings	- Bottom-up, via individual projects Methods for the calculation of savings (choice of options): (a) ex ante – projected savings (standard savings for each measure); 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						
Application of expert estimates and assumptions	ransport syste Yes	•	sumptio	on associate	a with the expa	ansion of the tram and trolley bus	

Assumptions and estimates used in the calculation of energy savings	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'. Prerequisites in the calculation of planned energy savings are: • The proportion of individual motorised transportation in traffic is taken to be an average of 70 % for petrol cars and 30 % for diesel vehicles. • 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) • The average occupancy of the replaced urban public transport buses is 34 passengers and the average occupancy of replaced individual motorised transportation is 1.8 persons. • 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 individual motorised transportation 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 individual motorised transportation can be anticipated. • 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 system in Bratislava will attract a number of passengers from individual motorised transportation to the extent that the annual fossil fuel consumption associated with the need for approxim
Monitoring, control 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	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 Operational Programme Integrated Infrastructure 2014-2020 and the co-financing of measures/projects is provided by the EU.
Projected overlapping with another measure – duplication	Overlapping with another measure and the duplicate counting of savings are not expected.
Method to avoid duplication	-

Information for the purp	oses of Article 7 of Directive 2012/27/EU
	Project implementation contributes to savings for the final customer.
Materiality of the measure (Annex V, point 2(c))	The principle of the measure consists of the upgrading of railway infrastructure in towns and the construction of integrated passenger transport terminals in order to make public passenger transport (especially rail transport) more attractive and to mitigate the negative effects resulting from the current situation. The responsible entity, the Ministry of Transport and Construction, is the managing authority of the Operational Programme Transport (2007-2013) and Operational Programme Integrated Infrastructure (2014-2020), which announces calls for grant applications. The measure is implemented further to the Slovak Public Passenger and Non-motorised Transport Development Strategy up to 2020. These facts indicate that activities under the measure are demonstrably material to the achievement of the energy savings reported.
Complementarity of the measure	Complementarity does not apply at either national or EU level.
Compliance with legislation and principles of support mechanisms (including quality control and sanctions), if relevant	The requirement to draw on ESIF financial resources meets the result indicators defined in the documentation for the Operational Programme Integrated Infrastructure 2014-2020. Applicants are required to ensure that rolling stock is deployed, thus ensuring the increased attractiveness of public passenger transport. This will change the overall distribution of transport work in favour of public transport.
Compliance with criteria (under Article 7(10) of the	 (a) Act No 321/2014 established two transitional periods. The 4AP will evaluate the contribution made by policy measures in the first transitional period (2014-2016) and

Directive)	compliance with the trajectory for the energy savings target under Article 7 by 2020.
	(b) Ministry responsible for the measure: Ministry of Transport and Construction.
	(c) Savings are determined transparently according to method (b) savings measured.
	(d) Energy savings are shown in final energy consumption.
	(e) Savings are determined further to point 1(a) of Annex V, in accordance with point 2
	of Annex V.
	(f) Not applicable; these are not policy measures under Article 7(9)(a), second
	subparagraph.
	(g) Not applicable, these are not voluntary agreements/yes, these are voluntary
	agreements.
	(h) The results of the measure are continuously monitored and, if they are not sufficient corrective measures will be taken.
	(i) The control system is implemented at ITMS level and as part of the preparation o
	action plans and annual reports. As measures are checked on a project-by-projec
	basis, no statistically significant share of measures for checking was established.
	(j) Trends in savings will be set out in the annual reports on progress achieved towards
	national energy efficiency targets.

Formula to calculate	te energy savings – public	passenger transport	
Measure MSEE ID:	4.3	Title of measure:	Support for the development and use of public passenger transport, including support for the creation of integrated transport systems
Sector:	Transport	Source of financing:	Operational Programme Transport 2007-2013 Operational Programme Integrated Infrastructure 2014- 2020
Ú <i>E</i>	$E = \left(L_{IAD} * S_{PHM_b} * P_b\right)$	$(S_{IAD} * S_{PHM_d} * P_d) + (L_{IAD} * S_{PHM_d} * P_d) + (I_{IAD} * S_{PHM_d} * P_d) + (I_{$	$(L_{BUS} * S_{PHM_{bus}})$
where			
ÚE – energy saving	[1];		
L _{IAD} — driving capaci	ty of individual motorised tra	nsportation vehicles that needs to be	e provided [km];
SPHM₀ – average fu	uel consumption of petrol-pov	wered passenger vehicles [l/km];	
P _b – percentage of p	petrol-powered passenger ve	hicles in traffic flow [%];	
SPHM _d – average fu	uel consumption of diesel-po	wered passenger vehicles [l/km];	
P _d – percentage of o	diesel-powered passenger ve	ehicles in traffic flow [%];	
L _{BUS} — driving capac	ity of bus transport that need	ls to be provided [km];	
SPHM _{bus} – average	fuel consumption of buses [l/	km].	

Measure	4.4				Support for the development of
MSEE ID:			Title of measure	•	non-motorised transport, especially cycling
Sector:	Transport		Source of financing	ng:	IROP 2014-2020
Measure lasting from: (year)	2014		to: (year)		2020
Responsible:	Ministry of Agric and Rural Deve Ministry of Tran Construction	lopment,	Measure to comp Article 7 of Direct 2012/27/EU:		Yes
			Policy measure cl	assification:	Article 7(9)(b)
Lifetime of measure (years):	20		Compliance with	Article 7(10)	Yes
Type of fuel:	Natural gas	Electricity	Other fuels:	Other fuels:	
Breakdown (%) by fuel	0 %	0 %	29.40 %	58.95 %	
Characteristics of the measure (including eligible activities)	non-motorised 2011-2013. Eli measure will to measure is do Development Solitate the Slovak Rep identified by the following specif (Karlova Ves - 'Construction 'Construction 'Construction Podlavice - Ho continuous me construction of passengers the energy non-inte will be achieve share of private Nature of meas (b) supp In the financing EU resources	modes of tigible projected from trategy up ublic and one strategy in the V6 of the V9 ustak – Bu asure of remember a mew cycle incentive ensive mode by reduce the car use in ure:	transport (cycling)', act applicants are d with funds from the Slovak Puto 2020 and the National and the Slovak Puto 2020 and the National and the Slovak Puto 2020 and the National and the Slovak Puto Construction of Construction of Construction of Cycle road in Žiling station and raily the station and raily the switch from modes of non-motoristing fuel consumpting the overall breakders.	defined in the Slovak towns in the IROP 20° iblic Passenger attional Strategy cycling and non measure compf the cycle pattine H2 cycle roa (Veľký Diel – na V9 (Vlčince – way station – Ci The principle prin order to proviotorised transported transport own of transport ovojects under the 15 % is co-final	ne measure, 85 % coverage from nced by the central government
Evaluation of the measure	Select from the Botto	•	ndividual projects		
Methods for the calculation of savings (in accordance with Annex V(1))	(a) ex ar	nte – projec	n of savings (choice ted savings (standa	ard savings for e	,
Detailed description of the method to calculate energy savings	projected redu transportation of public bus tran motorised cycli	oction in of passenge sport who, ng. This v	fossil fuel consu ers travelling withir on completion of	mption, i.e. function the city by mean quality cycling are of individual	based on the quantification of a el currently consumed in the ans of private road vehicle use or infrastructure, will switch to non- l motorised transportation in the
Application of expert estimates and assumptions	Yes				
Assumptions and estimates used in the calculation of energy savings	Slovak cities — Slovak cities v population is re under consider of population is individual moto and, on averag keeping with the Slovak Repthe share of cytoby 2020. And implementing the current mod the financing of resources is an	Žilina and where a m presented ation are as 2.45 per rised transe, a bicycle e fundame bublic, the abling in the ther key his measur dal split in to the invest ticipated in	I Prešov. The bas obility survey has in much the same is follows: the number day; the current portation; the avere can be used for trental vision of the Name is to ensure the overall breakdown measure is to be, it would be possible relevant Slovak ment costs of projections.	ic assumption of not been conditions way as in these per of journeys remodal split in the age length of a ransportation apparational Strategy late, by implement of transportation wild sufficient, sible, according the cities from the cects under the neconditions.	vey conducted in 2011 in selected of the calculation is that in other ducted, the mobility of the local selected cities. The assumptions egularly taken in the city per head he city is 3 % cycling and 33 % cycling trip in the city is 2.8 km proximately 150 days per year. In for the Development of Cycling in thing all of the defined measures, in in cities in Slovakia will be 10 % safe cycling infrastructure. By so an expert estimate, to increase current level of 3 % to 4 %-5 %. In measure, 85 % coverage from EU
Monitoring, control and verification of the energy savings made	will be carried	out by mea	ans of the calculati	on described ab	alues planned under this measure pove, taking into account projects Data on 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 individual motorised transportation.
Overall evaluation and way forward	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 Operational Programme Integrated Infrastructure 2014-2020 and the co-financing of measures/projects is provided by the EU.
Projected overlapping with another measure – duplication	Overlapping with another measure and the duplicate counting of savings are not expected.
Method to avoid duplication	

Information for the purp	oses of Article 7 of Directive 2012/27/EU
Materiality of the measure (Annex V, point 2(c))	The principle of the measure consists of the development of cycling and non-motorised infrastructure in towns in order to make this type of transport more attractive and to mitigate the negative effects resulting from the current situation. The responsible entity, the Ministry of Agriculture and Rural Development, is the managing authority of the IROP (2014-2020), which announces calls for grant applications. The measure is carried out further to the Slovak Strategic Public Passenger Transport Development Plan up to 2020, which is implemented by the Ministry of Transport and Construction. These facts indicate that activities under the measure are demonstrably material to the achievement of the energy savings reported.
Complementarity of the measure	Complementarity does not apply at either national or EU level.
Compliance with legislation and principles of support mechanisms (including quality control and sanctions), if relevant	The requirement to draw on ESIF financial resources meets the result indicators defined in the documentation for the Integrated Operational Programme 2014-2020.
Compliance with criteria (under Article 7(10) of the Directive)	 (a) Act No 321/2014 established two transitional periods. The 4AP will evaluate the contribution made by policy measures in the first transitional period (2014-2016) and compliance with the trajectory for the energy savings target under Article 7 by 2020. (b) Ministry responsible for the measure: Ministry of Agriculture and Rural Development, Ministry of Transport and Construction. (c) Savings are determined transparently according to method (b) savings measured. (d) Energy savings are shown in final energy consumption. (e) Savings are determined further to point 1(a) of Annex V, in accordance with point 2 of Annex V. (f) Not applicable; these are not policy measures under Article 7(9)(a), second subparagraph. (g) Not applicable, these are not voluntary agreements/yes, these are voluntary agreements. (h) The results of the measure are continuously monitored and, if they are not sufficient, corrective measures will be taken. (i) The control system is implemented at ITMS level and as part of the preparation of action plans and annual reports. As measures are checked on a project-by-project basis, no statistically significant share of measures for checking was established. (j) Trends in savings will be set out in the annual reports on progress achieved towards national energy efficiency targets.

Measure	4.4		Support for the development of
MSEE ID:		Title of measure:	non-motorised transport, especially cycling
Sector:	Transport	Source of financing:	IROP 2014-2020
	$ \acute{\mathbf{U}}E = (\acute{\mathbf{U}}_{km})^{\frac{1}{2}} $	$*S_{PHM_b}*P_b)+(\acute{\mathbf{U}}_{km}*S_{PHM})$	$_{d}*P_{d}$)
where			
ÚE – energy saving	g [l];		
\acute{U}_{km} — saving in kilo	metres travelled [km];		
SPHM _b – average	fuel consumption of petrol-p	owered passenger vehicles [l/km];	
P _b – percentage of	petrol-powered passenger	vehicles in traffic flow [%];	
SPHM _d – average	fuel consumption of diesel-p	powered passenger vehicles [l/km];	

 P_{d} — percentage of diesel-powered passenger vehicles in traffic flow [%].

Measure	4.5			,		Urban mass transport –
MSEE ID:			Titl	e of measure):	trolleybuses
Sector:	Transport		Sou	urce of financi	ng:	MunSEFF
Measure lasting from: (year)	2011			(year)		2015
Responsible:	Ministry of Tra Construction, E Commission		Art 201	asure to com icle 7 of Direct 2/27/EU:	ctive	Yes
Lifetime of measure			Pol	icy measure c	lassification:	Article 7(9)(b)
(years):	20		Cor	mpliance with	` ′	Yes
Type of fuel:	Natural gas	Electricity		Heat	Other fuels:	
Breakdown (%) by fuel		100 %		<u> </u>		expert estimate
Characteristics of the measure (including eligible activities)	municipal infra Nature of mea: (b) funding si and renew Supported/elig (c) eligible pro componen (other thar	structure, es sure: chemes – able energy ible activitie ojects under t 1 – proje n buildings)	cree sou s are Mun cts	dit line to s rces among to e mainly focus SEFF: for the energ rangements fo	support the devowns and municiped on: by efficiency of or urban mass to	ne energy-efficient renovation of swithin a given municipality. velopment of energy efficiency polities in Slovakia municipality-owned infrastructure ransport (trolleybuses) – focusing
Evaluation of the measure	Bottom-up, via			ricity consump cts	tion	
Methods for the calculation of savings (in accordance with Annex V(1))	Methods for th				lard savings for e	each measure).
Detailed description of the method to calculate energy savings	consumed on consumption of electricity saving vehicles compiterritories whe reported per verified per verifie	the annual on annual ng is expre ared to the ere new ve ehicle achie ew vehicles. applied in	capa essection original hiclestyed	capacities re- acities reported as a reduct nal outdated in as are deploy annually in the calculation is	ached by more of for the exist ion in the consifleet. The calculated and is derive analysed territors the saving in each	on a comparison of the electricity e energy-efficient vehicles with ing outdated fleet. The specific amption of the electricity of new ation is tied to specific towns and wed from the transport capacity ory, or from the driving capacity of electricity among newly acquired
Application of expert estimates and assumptions	Yes					
Assumptions and estimates used in the calculation of energy savings	among newly expressed as comparative p trolleybuses an	acquired vo a percenta projects at the re deployed pefore-and-a	ehicl age, unde , the after	es compared are presente rtakings whe calculation o project, with	to the original ed by manufactore the new veh f savings is based a new trolley	sed as a percentage) in electricity vehicles in use. These savings, urers and verified by means of icles are in routine use. If newed on a projection derived from a bus reporting annual electricity
Monitoring, control and verification of the energy savings made	will be carried under the mea actually been monitored by consumption b The energy at	out by mea sure which measured. means of a efore and a udit will be	ns o have Info ser fter t carri	of the calculate actually been broading on the comment of measures of measures out by an actual of the court by actual of the court by an actual of the court by actual of the co	ion described ab in implemented ar energy consumprements in the f ation of the meas authorised ene	alues planned under this measure bove, taking into account projects and the energy savings which have bition or energy savings will be field, taken to compare electricity sure. In rgy auditor and the audit will be ch Republic) for the MunSEFF
Overall evaluation and way forward	The measure v	will continue	in th	ne coming per	iod.	

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⁶⁹ Available online at: http://www.zilina.sk/dokumenty/DokumentyProgramyMZ_20130619103328.pdf

Projected overlapping with another measure – duplication	There is no overlapping with any measure.
Method to avoid duplication	The duplication of the energy savings made by overlapping measures is prevented by the fact that energy savings presented for projects aimed at the energy efficiency of infrastructure within the municipality with a MunSEFF contribution are not counted towards other measures as the processing is carried out on a project-by-project basis.

Information for the purp	oses of Article 7 of Directive 2012/27/EU
Materiality of the measure (Annex V, point 2(c))	The principle of this measure consists of the purchase of new trolleybuses. Energy savings will be achieved by reducing the consumption of electricity by means of new more efficient trolleybuses replacing the current outdated trolleybuses. The complementary effect will also increase the comfort and attractiveness of public passenger transport, which will make a positive contribution to the slowdown in the growth of automotive developments. The measure is consistent with measures under the Slovak Public Passenger and Nonmotorised Transport Development Strategy up to 2020, the implementation of which is the responsibility of the Ministry of Transport and Construction.
Complementarity of the measure	The complementarity of the measure is irrelevant – the measure would not be implemented without the MunSEFF support programme.
Compliance with legislation and principles of support mechanisms (including quality control and sanctions), if relevant	Grant levels relative to the loan principal are set according to the components of each project: component 1 – the grant level ranges from 10 % to 20 % of the loan principal
Compliance with criteria (under Article 7(10) of the Directive)	 (a) Act No 321/2014 established two transitional periods. The 4AP will evaluate the contribution made by policy measures in the first transitional period (2014-2016) and compliance with the trajectory for the energy savings target under Article 7 by 2020. (b) Ministry responsible for the measure: Ministry of Transport and Construction. (c) Savings are determined transparently according to method (a) ex ante. (d) Energy savings are shown in final energy consumption. (e) Savings are determined further to point 1(a) of Annex V, in accordance with point 2 of Annex V. (f) Not applicable; these are not policy measures under Article 7(9)(a), second subparagraph. (g) Not applicable, these are not voluntary agreements. (h) The results of the measure are continuously monitored and, if they are not sufficient, corrective measures will be taken. (i) The control system is implemented at MSEE IS level and as part of the preparation of action plans and annual reports. As measures are checked on a project-by-project basis, no statistically significant share of measures for checking was established. (j) Trends in savings will be set out in the annual reports on progress achieved towards national energy efficiency targets.

Measure	4.5	Title of measure:	Urban mass transport – trolleybuses
MSEE ID: Sector:	Transport	Source of financing:	MunSEFF
	Ú.	$S_{i_plán} = (S_{pred} - S_{po}) x L$	
	energy saving (final energy co	onsumption) in the year of trolleybus	replacement [kWh/a];
ÚS _{i_plán} – planned		onsumption) in the year of trolleybus trolleybus – original condition [kWh/	
S _{pred} – average ele	ectricity consumption of an old		

Appliances

Measure	2.1.						
MSEE ID:			Title of measure:		:	Replacement of white goods	
Sector:	Appliances		Source of financing:		ng:	private resources, special offers from retailers and manufacturers	
Measure lasting from: (year)	2014		to: (to: (year)		2020	
Responsible:	CECED, Ministry of Economy		Measure to comply with Article 7 of Directive 2012/27/EU:		ctive	Yes	
Lifetime of measure	>7			Policy measure classification: Compliance with Article 7(10)		Article 7(9)(f) Yes	
(years):	Nistanalasa	Florida de la constante de la	. ,		Other first	-	
Type of fuel: Breakdown (%) by fuel	Natural gas	Electricity		Heat	Other fuels:		
Breakdown (76) by Idei	Support for the marketability of economical products, the transfer of very old products to electrical waste in the Envidom collective system. Energy savings are calculated for refrigerators, freezers (including built-in and freestanding products). Nature of measure:						
Characteristics of the measure (including eligible activities)	(f) consulting, seminars, conferences and information campaigns on energy-saving appliances and explanations of the importance of energy labels. EU legislation on ecodesign and labelling, as well as special offers from retailers and manufacturers, also contribute to overall savings under the measure (i.e. not only Article 7 of the EED). Supported/eligible activities are mainly focused on: (c) the correct choice of appliance, its importance and use for the household; (d) the replacement of old appliances with more energy efficient appliances.						
Evaluation of the measure	Bottom-up						
Methods for the calculation of savings (in accordance with Annex V(1) to the EED and Implementing Decree No 327/2015)	Methods for the calculation of energy savings: (a) ex ante – projected savings; (b) relative savings by reference to the planned energy requirement.						
	Bottom up – energy savings express the reduction in energy consumption following the removal of old appliances and their replacement with new, more economical appliances.						
	As appliances are affected by EU legislation, both the total energy saving and the energy saving further to Article 7 of Directive 2012/27/EU are counted:						
Detailed description of the method to calculate energy savings	(a) The total energy saving is calculated by reference to the energy saving of the collected products (the energy consumption saved), from which the energy consumption of the products sold (in a given year) is deducted.						
	(b) The energy saving further to Article 7 is calculated by deducting the total energy saving from the impact of the energy savings achieved under EU legislation (Directive 2009/125/EC, i.e. the Ecodesign Directive).						
	The energy saving of the collected products is calculated as the average consumption of the collected products (approximately 1 000 kWh/year) multiplied by the number of products collected (i.e. electrical waste). The energy consumption of the products sold on the market is calculated on the basis of the average consumption of products sold by energy class (the average is calculated from product catalogues per calendar year for more than 20 trademarks, and the arithmetic average of consumption in each category is calculated according to the energy class).						
	The energy saving for Article 7 is determined by the fact that, on the one hand, the energy saving of the collected products is deducted from the energy consumption of the collected products in prohibited (unauthorised) energy classes. On the other hand, the energy consumption of the products sold in prohibited energy classes is deducted from the energy consumption of the products sold (see the calculation formulas). The calculation of energy savings covers only the refrigerators and freezers of official importers (about 85-88 % of the market share); online purchases and individual imports (10-15 %) are not included.						
Application of expert	Yes						

estimates and assumptions in the calculation of energy savings	The average age of a collected appliance, measured from the production date, is over 15 years. The average consumption of an old refrigerator/freezer from 1992 is around 1 000 kWh per year (source: data from the Technical Testing Institute, Piešťany). Numbers of newly marketed units, share of energy classes – source: CECED SK (85-90 % on the white goods market). Number of collected pieces, their average age – source: ENVIDOM (90 % on the white goods market). Average energy consumption, by energy class, according to the catalogue products offered, containing the product models of 20 major trademarks – source: CECED SK. Although energy savings are achieved when refrigerators/freezers are replaced, it is assumed that the overall absolute household energy consumption on appliances will remain stable. Consumption will not decrease significantly in absolute terms in the wake of replacement, mainly due to the growth of new types of appliances (coffee makers, dishwashers, dryers, computers and mobile devices, such as mobile phones and tablets).
Monitoring, control and verification of the energy savings made	Monitoring – via CECED SK. Checks and verification of energy savings via the Ministry of Economy – evaluation of annually provided for the quality control of input data. Checks on energy saving calculations are also conducted as part of the preparation of action plans and annual reports.
Overall evaluation and way forward	The replacement of large white goods will continue in the future. In the future, there are also plans for statistics on the removal and sale/marketing of other large white goods, so that the savings achieved on other appliances can also be calculated for the categories of washing machines, dishwashers and vacuum cleaners.
Projected overlapping with another measure – duplication	There is a risk of overlapping or duplication with Measure 3.12 Application of the principle of energy efficiency in public procurement. However, under Measure 3.12 no savings have been reported in the long term.
Method to avoid duplication	Since, under Measure 3.12, with which there is a risk of overlapping, no energy savings have yet been reported, there has been no duplication.

Information for the purposes of Article 7 of Directive 2012/27/EU					
Materiality of the measure (Annex V, point 2(c), to the EED)	This measure is highly feasible in that awareness of the benefits of using products that are less energy intensive and more efficient is raised by CECED SK, the Slovak Innovation and Energy Agency and other organisations via information campaigns, consulting, seminars and conferences for professionals and the general public. Information campaigns are financed by the Operational Programme Environmental Quality via the national project 'Living with Energy' and by CECED's own resources. In addition, there are special offers from retailers and manufacturers. It is only through these State-initiated support measures that appliance investment activities have accelerated very quickly. As the measure reduces electricity consumption, it contributes to energy savings for the final customer.				
Complementarity of the measure	Complementarity for appliances is applied in relation to EU legislation (Directive 2009/125/EC on ecodesign).				
Compliance with legislation and principles of support mechanisms (including quality control and sanctions), if relevant	This measure is consistent with Act No 79/2015 on waste and Act No 529/2010 on ecodesign.				
Compliance with criteria (under Article 7(10) of the Directive)	 (k) Act No 321/2014 established two transitional periods. The 4AP will evaluate the contribution made by policy measures in the first transitional period (2014-2016) and compliance with the trajectory for the energy savings target under Article 7 by 2020. (l) Ministry responsible for the measure: Ministry of Economy (in conjunction with CECED). (m) Savings are determined transparently according to the <i>ex ante</i> and relative-saving methods. (n) Energy savings are shown in final energy consumption. (o) Savings are determined further to point 1(a) of Annex V, in accordance with point 2 of Annex V to the EED. (p) Not applicable; these are not policy measures under Article 7(9)(a), second subparagraph. (q) Not applicable, these are not voluntary agreements. (r) The results of the measure are continuously monitored and, if they are not sufficient, corrective measures will be taken. (s) The control system is implemented as part of the preparation of action plans and annual reports. (t) Trends in savings will be set out in the annual reports on progress achieved towards national energy efficiency targets. 				

Formula to calculate energy savings					
Measure	2.1.	Title of measure:	Replacement of white goods		

MSEE ID:	-		
Sector:	Appliances	Source of financing:	private resources, special offers from retailers and manufacturers

Step 1: calculation of savings made by collected appliances:

$$\acute{\mathbf{U}}_{vvzbieran\acute{\mathbf{e}}} = k S_{vvzbieran\acute{\mathbf{e}}} * \overline{S_{vvzbieran\acute{\mathbf{e}}}}$$

where:

Ú_vyzbierané – energy saving of collected appliances (i.e. energy unused due to removal from operation) [kWh]; ks_vyzbierané - number of appliances collected [pc];

 $\overline{S_{pyzhleran\acute{e}}}$ – average consumption of a removed appliance [1 000 kWh/year].

Step 2: calculation of the net energy saving (i.e. adjusted for the influence of appliances sold in a given year):

$$\dot{\mathbf{U}}_{\mathrm{cista}} = \dot{\mathbf{U}}_{vyzbieran\acute{\mathrm{e}}} - S_{predan\acute{\mathrm{e}}}$$

where

$$S_{predan\acute{e}} = \sum_{i=1}^{6} \left(k s_{predan\acute{e}_{_}i} * \overline{S_{predan\acute{e}_{_}l}} \right)$$

S_ predané - the energy consumption of appliances sold in a given year [kWh];

ks_ predané_i – number of appliances sold in a given year in individual energy classes i [pcs], where i = 1-6; i = {A+++, A++, A+, A, B, C};

 $\overline{S_{predan\acute{e}t}}$ - the average energy consumption of an appliance sold in a given year according to the energy classes i [kWh].

Step 3: calculation of the net energy saving further to Article 7 of Directive 2012/27/EU (i.e. adjusted for the impact of EU legislation).

Step 3.1: calculation of the savings of collected appliances adjusted for the influence of appliances prohibited (unauthorised) on the market under Directive 2009/125/EC, the Ecodesign Directive:

$$\dot{\mathbf{U}}_{vyzbieran\acute{\mathbf{e}}_\check{\mathbf{e}}l7} = \dot{\mathbf{U}}_{vyzbieran\acute{\mathbf{e}}} - \dot{\mathbf{U}}_{vyzbieran\acute{\mathbf{e}}_zak\acute{\mathbf{a}}zan\acute{\mathbf{e}}}$$

where

$$\hat{\mathbf{U}}_{vyzbieran\acute{\mathbf{e}}\ zak\acute{\mathbf{a}}zan\acute{\mathbf{e}}} = (ks_{vyzbieran\acute{\mathbf{e}}} - ks_{vyzbieran\acute{\mathbf{e}}zak\acute{\mathbf{a}}zan\acute{\mathbf{e}}}) * \overline{S_{vyzbieran\acute{\mathbf{e}}}}$$

and

$$ks_{vyzbieran\acute{e}zak\acute{a}zan\acute{e}} = ks_{predan\acute{e}zak\acute{a}zan\acute{e}} * \frac{ks_{vyzbieran\acute{e}}}{ks_{predan\acute{e}}}$$

Ú vyzbierané čl7 – energy saving of collected appliances adjusted for the influence of prohibited appliances [kWh];

Ú_vyzbierané_zakázané - energy saving of collected appliances [kWh];

ks_vyzbierané - number of collected appliances in a given year [pcs];

ks_ vyzbierané_zakázané - total number of collected appliances in prohibited energy classes in a given year [pcs];

 $\frac{ks_{vyzbieran\acute{e}}}{\cdot}$ – the share of appliances collected in the total number of appliances sold in a given year.

Step 3.2: calculation of the total net energy saving further to Article 7 of Directive 2012/27/EU

where

$$S_{predan\acute{e}_\check{c}l7} = S_{predan\acute{e}} - S_{predan\acute{e}_zak\acute{a}zan\acute{e}}$$

S_ predané_čl7 – energy consumption of appliances sold in a given year, adjusted for the influence of prohibited appliances

S_ predané_zakázané - energy consumption of appliances sold in a given year in prohibited energy classes [kWh], where:

$$Q_{predan\acute{e}_zak\acute{a}zan\acute{e}} = \sum_{i=1}^{3} (\overline{Q_{predan\acute{e}_zak\acute{a}zan\acute{e}_J}} * ks_{predan\acute{e}_zak\acute{a}zan\acute{e}_J})$$

- the average consumption of an appliance sold in a given year according to individual prohibited energ

ks_predané_zakázané_j - number of appliances sold in a given year in individual prohibited energy classes j, j = 1-3; j = {A, C); j depends on the calendar year in which the individual energy classes are prohibited. The schedule of prohibited energy

classes is set out in the Commission's delegated regulations for each product category separately.

The schedule for the category of refrigerators, freezers and household wine bars is as follows:

- From 1 July 2012 energy classes B and C prohibited; From 1 July 2014: energy classes A, B and C prohibited.