

**REPORT ON IMPLEMENTATION OF THE NATIONAL ENERGY EFFICIENCY
ACTION PLAN 2008-2010**

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CONTENTS

1	SUMMARY	9
2	INTRODUCTION	11
3	METHODS FOR DETERMINING ENERGY SAVINGS	16
4	ENERGY SAVINGS IN HOUSEHOLDS, THE TERTIARY SECTOR AND INDUSTRY, DETERMINED USING THE BOTTOM-UP METHOD	19
4.1	Energy savings in households	19
4.1.1	Low-interest loans from the Eco Fund for households (Instruments 1 to 3)	19
4.1.2	Allocation of Eco Fund grant incentives for households (Instruments 1 to 4)	21
4.1.3	Allocation of Ministry of the Environment and Spatial Planning grant incentives to raise the energy efficiency of multi-dwelling buildings (Instruments 1 and 2)	23
4.1.4	Allocation of MESP grant incentives to increase the use of renewable energy sources (Instrument 2)	24
4.1.5	Scheme of energy efficiency for low-income households (Instrument 4)	25
4.1.6	Energy labelling of household appliances and other devices (Instrument 5)	26
4.1.7	Compulsory division and calculation of heating costs in multi-dwelling and buildings with several separate sections according to actual consumption (Instrument 6)	other 27
4.1.8	Energy advice network for citizens (Instrument 7)	28
4.2	Energy savings in the tertiary sector	29
4.2.1	Low-interest loans from the Eco Fund for the tertiary sector (Instruments 8 to 10)	29
4.2.2	Grant funds from the Rural Development Programme (Instrument 9)	31
4.2.3	Energy management of public buildings	32
4.2.4	Green public procurement (Instrument 11)	33
4.3	Energy savings in industry (Instrument 12)	34
4.3.1	Low-interest loans from the Eco Fund for industry	34
4.3.2	Grant incentives from the Operational Programme for Environmental and Transport Infrastructure Development	35
4.4	Energy efficiency in transport	36
4.4.1	Promoting the competitiveness of public transport (Instrument 13)	36
4.4.2	Promoting sustainable freight transport (Instrument 14)	37
4.4.3	Increasing the energy efficiency of private vehicles (Instrument 15)	38
4.4.4	Building cycle paths and support structures and promoting cycling (Instrument 16)	40
4.5	Multisectoral instruments in broad consumption and industry	41
4.5.1	Regulations on the energy performance of buildings (Instrument 17)	41
4.5.2	Requirements on the minimum energy efficiency of products (Instrument 18)	44
4.5.3	Cofinancing energy audits (Instrument 19)	45
4.5.4	System of guaranteed purchase prices for electricity (Instrument 20)	45
4.5.5	Contractual reduction of energy costs (Instrument 21)	46
4.5.6	Energy consumption management programmes at final consumers (Instrument 22)	47
4.6	Horizontal instruments in broad consumption and industry	50
4.6.1	Programmes of awareness-raising, information, promotion and training and demonstration projects (Instrument 23)	50
4.6.2	Education programmes (Instrument 24)	53
4.6.3	Providing information to users on energy consumption, transparent charging and other information (Instrument 25)	55
4.6.4	Environmental tax for polluting the air with CO ₂ (Instrument 26)	55
4.6.5	Excise on fuels and electricity (Instrument 27)	56
4.6.6	Exemption from payment of the environmental tax for polluting the air with CO ₂ (Instrument 28)	57
4.6.7	Financial incentives to support research and development and pilot projects (Instrument 29)	58
4.7	Attained energy savings	61
5	ENERGY SAVINGS IN INDUSTRY AND TRANSPORT DETERMINED BY TOP-DOWN METHODS	62
5.1	Energy savings in industry	62
5.2	energy savings in transport	65
6	ENERGY SAVINGS THROUGH EARLIER ACTIVITIES	67
7	ANALYSIS OF IMPLEMENTATION OF THE NATIONAL ENERGY EFFICIENCY ACTION PLAN IN THE 2008-2010 PERIOD	69
7.1	Energy savings through the implementation of national programmes 2008-2010	69
7.2	Financial resources for implementation of the NEEAP 1 in the 2008-2010 period	73
7.3	Determining overall energy savings achieved 2008-2010	73

TABLES

Table 1:	Review of NEEAP 1 instruments and planned savings of end-use energy under the NEEAP 1 in the 2008-2010 period	12
Table 2:	Review of bottom-up methods used to calculate savings (BU)	18
Table 3:	The effects of Eco Fund loans to citizens 2008-2010	21
Table 4:	The effects of allocating Eco Fund grant incentives to citizens 2008-2010	23
Table 5:	The effects of allocating MESP grants to households for measures in multi-dwelling buildings in 2008 and 2009	24
Table 6:	The effects of allocating MESP grant incentives to households for using RES in 2008	25
Table 7:	Number of household appliances bought in 2008, and effects of replacing old appliances	26
Table 8:	Number of household appliances bought in 2009, and effects of replacing old appliances	27
Table 9:	Number of household appliances bought in 2010, and effects of replacing old appliances	27
Table 10:	Type and scope of activities and effects achieved in the ENSVET programme 2008-2010	29
Table 11:	The effects of Eco Fund loans to tertiary sector organisations 2008-2010	31
Table 12:	The effects of Eco Fund loans to industry organisations 2008-2010	35
Table 13:	The effects of allocating grant incentives from the OP ETID to industry organisations for biomass boilers in 2009 and 2010	36
Table 14:	Number of first registered private motor vehicles in Slovenia in terms of CO ₂ emissions (only petrol and diesel engines)	40
Table 15:	Payments and refunds and net revenue for the national budget from the environmental tax for polluting the air with carbon dioxide emissions, EUR million	56
Table 16:	Amounts of excise in the 2008-2010 period, in EUR/1000 L	57
Table 17:	Energy savings in manufacturing in 2009 relative to 2007, determined using the index of industrial output	64
Table 18:	Review of bottom-up methods (BU) used to calculate savings for transport	65
Table 19:	Energy savings in transport in 2009 relative to 2007, in GWh	66
Table 20:	Review of earlier activities for households 1995 - 2007	68
Table 21:	Review of earlier activities for industry and the tertiary sector 1995 - 2007	68
Table 22:	Energy savings through the implementation of national programmes 2008-2010, determined according to BU methods	70
Table 23:	Planned and attained energy savings 2008-2010, determined using BU methods, by sector and instrument	72
Table 24:	Financial resources planned and provided for implementation of the NEEAP 1 in the 2008-2010 period	73

1 SUMMARY

At the end of January 2008 the Slovenian Government adopted the National Energy Efficiency Action Plan 2008-2016 (NEEAP 1), which was formulated in accordance with Directive 2006/32/EC on energy end-use efficiency and energy services (hereinafter: Directive 2006/32/EC). This was the first of three action plans that Member States must submit to the Commission in the 2008-2016 period.

The Report on Implementation of the NEEAP 1 in the 2008-2010 period is a constituent part of the second National Energy Efficiency Action Plan 2011-2016, which in accordance with Article 14 of Directive 2006/32/EC must also contain a thorough analysis and evaluation of the NEEAP 1, including the final results with regard to the fulfilment of the energy savings targets in 2008-2010.

Under the NEEAP 1, in the 2008-2016 period Slovenia should achieve at least 4,261 GWh or at least 9% savings of end-use energy. The budget funds required for implementation of the NEEAP amount to around EUR 380 million. The target energy saving in the first three years (2008 - 2010) was set at 1,184 GWh or 2.5%. The funds envisaged for implementation of the NEEAP 1 in this period amounted to EUR 112 million.

In accordance with Article 4 of Directive 2006/32/EC, Member States must identify the savings achieved through individual measures to increase energy efficiency, with account being taken of the general framework for measurement and verification of energy savings given in Annex IV to Directive 2006/32/EC. The calculation of energy savings may involve use of the top-down (TD) or the bottom-up (BU) method. To determine energy savings, this report used the methods formulated by the Jožef Stefan Institute under commission from the Ministry of the Economy. For certain sectors and energy efficiency measures, the recommended European Commission methods were adopted.

This report provides a description of all 29 NEEAP 1 instruments employed to carry out national programmes to raise energy efficiency in the 2008-2010 period. These instruments involve financial instruments to promote investment, regulatory instruments, information and awareness-raising, voluntary agreements, offering energy services and other instruments. For 16 instruments, BU methods were used to determine energy savings amounting to 642.4 GWh/year or 54.3% of the target savings.

The highest energy savings were achieved in households (375,746 GWh/year or 58.5%), followed by multisectoral measures (148.3 GWh/year or 23.1%), industry (46.9 GWh/year or 7.3%) and transport (45.0 GWh/year or 7%).

Instruments yielding the greatest savings are: energy labelling of household appliances (128.7 GWh/year or 20%; electricity savings multiplied by a factor of 2.5), financial incentives from the Eco Fund for households (126.9 GWh/year or 19.8%), regular inspections of broad consumption boilers (108.2 GWh/year or 16.8%), energy advice for citizens (51.6 GWh/year or 8%) and compulsory division and calculation of heating costs together with thermostat valves in multi-dwelling buildings (51 GWh/year or 7.9%).

The energy savings determined using BU methods do not represent all energy savings achieved in the 2008-2010 period. In accordance with Directive 2006/32/EC, in determining overall energy savings, a combination of BU and TD methods is used; this combination was selected taking into account energy savings determined by BU methods for households and the tertiary sector, while for industry and transport, energy savings determined by TD methods were used. With this combination of BU and TD methods, and taking account of

the consumption of end-use energy in the reference year (the 2001-2005 period), BU methods are used to calculate energy savings relating to 45% of end-use energy included in Directive 2006/32/EC.

Taking into account energy savings in households and the tertiary sector using BU methods, which amount to 530.6 GWh/year, in industry, which using TD methods amount to 144.1 GWh/year, and in transport, which under BU methods amount to 156.2 GWh/year, overall energy savings amount to 830.9 GWh/year or 70.2% of target energy savings for 2008-2010. **This means that the target energy saving was not achieved through activities in the 2008-2010 period.**

In addition to energy savings achieved through the measures that were or will be carried out from 2008 to 2016, in accordance with Directive 2006/32/EC, energy savings from what are termed earlier activities, which were carried out from 1995 to 2007, may also be used to show evidence of achieving target energy savings up to 2016. Through these activities, measures were carried out that involved energy savings of 343.2 GWh/year.

Taking into account energy savings through earlier activities, overall energy savings amount to 1,174.1 GWh/year, meaning that with the help of earlier activities, the target energy saving for 2008-2010 was achieved.

A total of EUR 112 million was envisaged in the NEEAP 1 for the 2008-2010 period. Upon adoption of the NEEAP 1, the sum of EUR 79.739 million was provided for that period (71.2%), and by the end of 2010 this rose to EUR 105.793 million (94.5%). The major portion of the shortfall in funds was provided through the introduction of the contribution to raise the efficiency of electricity consumption and surcharges to raise the efficiency of using district heating and liquid and gaseous fuels, in line with the Decree Ensuring Energy Savings for Final Customers.

In the 2008-2010 period, a total of EUR 50.475 million was spent on implementing the NEEAP 1, accounting for 45.1% of the planned funds or 47.7% of funds provided, and this served to achieve 51.9% of the target energy saving. The main reason for the insufficient spending of funds lies in the fact that both the Energy Efficiency and Renewable Energy Sources Section at the Ministry of the Economy, which heads up implementation of the Sustainable Energy Consumption development priority as part of the Operational Programme for Environmental and Transport Infrastructure Development 2007-2013, and the Eco Fund only filled out their human resources positions in 2010 and 2011.

2 INTRODUCTION

On 31 January 2008 the Slovenian Government adopted the first National Energy Efficiency Action Plan

2008-2016 (NEEAP 1), which was formulated in accordance with Directive 2006/32/EC on energy end-use efficiency and energy services (hereinafter: Directive 2006/32/EC). This was the first of three action plans that Member States must submit to the Commission in the 2008-2016 period.

The Report on Implementation of the NEEAP 1 in the 2008-2010 period is a constituent part of the National Energy Efficiency Action Plan 2011-2016, which in accordance with Article 14 of Directive 2006/32/EC must also contain a thorough analysis and evaluation of the NEEAP 1, including the final results with regard to the fulfilment of the energy savings targets in 2008-2010.

Under the NEEAP 1, in the 2008-2016 period Slovenia should achieve at least 4,261 GWh or at least 9% savings of end-use energy, and reductions in CO₂ emissions of around 1.1 million tons a year. The 2001-2005 period was taken to determine the target value of energy savings, while in accordance with Directive 2006/32/EC this excluded energy included in trading in rights to carbon dioxide emissions. The budget funds required for implementation of the NEEAP 1 amount to around EUR 380 million. A portion of these funds has been provided as part of the Operational Programme of Environmental and Transport Infrastructure Development 2007-2013, the implementation of which will be financed to 85% from the Cohesion Fund. The overall value of the NEEAP 1, including investor funds, amounts to around EUR 1.1 billion.

The NEEAP 1 provides a range of measures that are implemented at consumers of end-use energy and that serve to reduce consumption of end-use or primary energy. Alongside measures for efficient use of end-use energy, this includes systems for cogeneration of heat and power and measures for the exploitation of renewable energy sources. The implementation of these measures envisages a selection of 29 instruments covering financial incentives for investment (subsidies, low-interest loans, tax relief), regulatory instruments (regulations on buildings, energy-efficient products etc.), information and awareness-raising (promotional campaigns, energy advice network, energy audits, demonstration projects, informative energy bills etc.), voluntary agreements, offering energy services and other instruments. A review of NEEAP 1 instruments is provided in the table below, Table 1.

Table 1 (continued): Review of NEEAP 1 instruments and planned savings of end-use energy under the NEEAP 1 in the 2008-2010 period

No	Instruments	Energy savings 2008-2010 [GWh/year]	Energy savings 2008-2016 [GWh/year]	Public funds 2008-2016 [EUR million]	Savings of CO ₂ emissions 2008- 2016 [kt CO ₂ /year]
HOUSEHOLDS (chapter 4.1)					
1	Financial incentives for energy-efficient renovation and sustainable construction of buildings.	84	210	33	54
2	Financial incentives for energy-efficient heating systems	17	53	37	67
3	Financial incentives for efficient electricity consumption	153	460	29	104
4	Scheme of energy efficiency for low-income households	6	29	21	10
5	Energy labelling of household appliances and other devices	66	263		63
6	Compulsory division and calculation of heating costs in multi-dwelling and other buildings according to actual consumption		150		33
7	Energy advice network for citizens ^(*)				
	TOTAL (1-7)	326	1,165	120	331
TERTIARY SECTOR (chapter 4.2)					
8	Financial incentives for energy-efficient renovation and sustainable construction of buildings.	40	96	44	25
9	Financial incentives for energy-efficient heating systems	41	183	44	75
10	Financial incentives for efficient electricity consumption	138	525	21	121
11	Green public procurement ^(*)				
	TOTAL (8-11)	219	804	109	221
INDUSTRY (chapter 4.3)					
12	Financial incentives for efficient electricity consumption	336	840	15	202
	TOTAL (12)	336	840	15	202

(*) - the savings of end-use energy and CO₂ emissions are indirect

Table 1 (continued): Review of NEEAP 1 instruments and planned savings of end-use energy under the NEEAP 1 in the 2008-2010 period

No	Instruments	Energy savings 2008-2010 [GWh/year]	Energy savings 2008-2016 [GWh/year]	Public funds 2008-2016 [EUR million]	Savings of CO ₂ emissions 2008- 2016 [kt CO ₂ /year]
TRANSPORT (chapter 4.4)					
13	Promotion and competitiveness of public transport	32	191	15	52
14	Promoting sustainable freight transport	33	294	10	79
15	Increasing the energy efficiency of private vehicles	33	198	6	53
16	Building cycle paths and support structures and promoting cycling	24	38	8	10
	TOTAL (13-16)	122	721	39	194
MULTISECTORAL MEASURES IN BROAD CONSUMPTION AND INDUSTRY (chapter 5.1)					
17	Regulations on the energy performance of buildings	71	319		86
18	Requirements on the minimum energy efficiency of products (*)				
19	Cofinancing energy audits (*)				
20	System of guaranteed purchase prices for electricity	11	102	23	20
21	Contractual reduction of energy costs ⁽¹⁾				
22	Programmes for energy use management at final consumers (DSM)	92	279	15	84
	TOTAL (17-22)	174	700	38	190

(*) - the savings of end-use energy and CO₂ emissions are indirect

Table 1 (continued): Review of NEEAP 1 instruments and planned savings of end-use energy under the NEEAP 1 in the 2008-2010 period

No	Instruments	Energy savings 2008-2010 [GWh/year]	Energy savings 2008-2016 [GWh/year]	Public funds 2008-2016 [EUR million]	Savings of CO ₂ emissions 2008- 2016 [kt CO ₂ /year]
HORIZONTAL MEASURES IN BROAD CONSUMPTION AND INDUSTRY (chapter 5.2)					
23	Programmes of awareness-raising, information, promotion and training and demonstration projects (*)			30	
24	Education programmes				
25	Providing information to users on energy consumption, transparent charging and other information (*)				
26	Environmental tax for polluting the air with CO ₂ (*)				
27	Excise on fuels and electricity (*)				
28	Exemption from payment of the environmental tax for polluting the air with CO ₂	7	32	1	9
29	Financial incentives to support research and development and pilot projects				
	TOTAL (23-29)	7	32	31	9
30	TOTAL (1-29)	1,184	4,261	352	1,147
	Costs of managing and implementing NEEAP (8% of 30)			28	
	Total costs of NEEAP			380	
	Target end-use energy savings 2008-2010 (2.5%)	1,184			
	Target end-use energy savings 2008-2016 (9.0%)		4,261		

(*) - the savings of end-use energy and CO₂ emissions are indirect.

The NEEAP 1 pays special attention to energy efficiency in the public sector, since that sector is supposed to serve as a model for other sectors. In addition to other instruments, green public procurement will be introduced in the public sector for purchasing energy-efficient equipment and vehicles and purchase or rental of energy-efficient buildings. Another important element will be the use of financial instruments for raising energy efficiency, such as contractual assurance of energy savings.

The providers of the instruments are responsible for achieving the targets that must be met through the specific instruments. The Ministry of the Economy is responsible for the majority of instruments, while responsibility for the others is held by: the Ministry of Transport, Ministry of Agriculture, Forestry and Food, Ministry of Finance, Ministry of the Environment and Spatial Planning, Ministry of Higher Education, Science and Technology and the Ministry of Education and Sports.

In substantive terms, the NEEAP 1 is also an important part of the Operational Programme to Reduce Greenhouse Gas Emissions by 2012 (OP RGGE-1), which was adopted by the Slovenian Government on 30 July 2009. The OP RGGE-1 calls for a reduction in total greenhouse gas emissions of 8% by 2012 in the first 5-year target period (2008-2012) relative to baseline emissions. Implementation of the OP RGGE-1 in 2009 to 2012 will require EUR 684.6 million, of which EUR 446.6 million, or 65.2% will be needed for energy efficiency and renewable sources.

Under the NEEAP 1, in the first three years (2008 - 2010) Slovenia should achieve energy savings of 1184 GWh or 2.5%. The funds envisaged for implementation of the NEEAP 1 in this period amounted to EUR 112 million, of which EUR 28 million was for 2008, EUR 39.3 million for 2009 and EUR 44.7 million for 2010.

The Report on Implementation of the NEEAP 1 in the 2008-2010 period was compiled using reports and data from the Ministry of the Economy and other ministries, the providers of specific instruments, the Eco Fund and a range of other organisations collaborating in implementation of the NEEAP.

3 METHODS FOR DETERMINING ENERGY SAVINGS

In accordance with Article 4 of Directive 2006/32/EC, Member States must identify the savings achieved through individual measures to increase energy efficiency, with account being taken of the general framework for measurement and verification of energy savings given in Annex IV to Directive 2006/32/EC. The contribution of individual measures is thus taken into account only if they ensure savings that accord with Annex IV, are clearly measurable and verifiable or estimable, and their effect on energy savings is not already included in other measures (double counting).

The calculation of energy savings may involve use of the top-down (TD) or the bottom-up (BU) method. The TD method (what is termed the method of “energy efficiency indicators”) means that in calculating energy savings the baseline is taken to be national data or data on energy savings combined within sectors. The BU method means that the energy savings achieved through specific measures to improve energy efficiency are measured in kilowatt hours (kWh), joules (J) or kilograms of oil equivalent (kgoe), and are added up with energy savings from other special measures to improve energy efficiency. The data used to calculate the savings using the two methods include data and methods based on measurements and data and methods based on estimates.

In accordance with Directive 2006/32/EC the Commission had the task of drafting and issuing a decision by 1 January 2008 on harmonised methods, which would ensure the determining of energy savings using the BU method for 20% to 30% of annual consumption of end-use energy to which Directive 2006/32/EC relates. In October 2010 the Commission sent to Member States a preliminary draft of methods (Recommendations on Measurement and Verification Methods in the Framework of Directive 2006/32/EC on Energy End-use Efficiency and Energy Services, preliminary draft, October 2010). The reason for the delay lay primarily in the complexity of drafting the methods and in the challenge of coordination among Member States. The Commission recommendations cover 25 TD methods for all sectors of energy consumption (households, service sector, transport and industry) and 11 BU methods, which relate to energy efficiency measures in buildings and to products that use energy.

Given the possibility of using national methods and the anticipated delays, in September 2008 the Ministry of the Environment and Spatial Planning commissioned the project “Development and testing of methods for monitoring and evaluating the effects of instruments and measures to raise energy efficiency”, which was carried out by the Jožef Stefan Institute’s Centre for Energy Efficiency. The aim of the project was to formulate an expert basis for the methodology of calculating end-use energy savings in Slovenia, in order to monitor and assess implementation of the NEEAP.

The project contractor produced the report “Methods for calculating energy savings in implementing measures to increase energy efficiency and the use of renewable energy sources” (IJS-DP-10072, supplemented September 2011), which was appropriately supplemented on the basis of methods for calculating energy savings in the 2008-2010 period.

The IJS-DP-10072 report set out 25 BU and 10 TD methods. The BU methods relate to measures for raising energy efficiency in buildings, energy advice, energy-efficient vehicles, electricity generation plants, installations that use electricity and voluntary agreements. These methods dovetail fully with those of the Commission in two instances, and partly in six instances. The TD methods adopt fully the Commission’s methods. In addition to energy savings, the

IJS-DP-10072 report sets out the methods for calculating reductions in CO₂ emissions, and in measures using renewable sources it sets out the methods for calculating the use of renewable energy sources.

The methods from the IJS-DP-10072 report were used in determining energy savings achieved through implementation of the NEEAP 1 in the 2008-2010 period. For all measures where adequate data were available (households, tertiary sector, partly industry), BU methods were used. Depending on the type of measure, this served to determine:

- savings of fuel or district heating (e.g. in thermal insulation of the building shell, replacement of boiler and so forth) or
- savings of electricity (e.g. in replacement of household appliances, replacement of electric boiler with heat pump and so forth) or
- savings of primary energy (e.g. in replacement of boiler with a system for cogenerating heat and power or with a heat pump).

A review of BU methods used is given in the table (Table 2).

Total energy savings, which were calculated for individual measures using BU methods, were determined through the adding together of the aforementioned savings, wherein savings of electricity were multiplied by a factor of 2.5, in accordance with Directive 2006/32/EC. This factor is slightly lower than the ratio of consumption of primary energy for electricity generation to consumption of electricity (end-use energy level) in Slovenia.

Owing to a lack of data, in industry and transport it was not possible to obtain a comprehensive picture of energy savings achieved using BU methods. For this reason TD methods were used for transport and industry. A review of TD methods used for industry and transport is given in chapter 5.

Overall energy savings achieved in the 2008-2010 period in all sectors of energy consumption were determined by adding up total energy savings calculated for specific measures using BU methods, and energy savings in industry and transport using TD methods. Here the savings calculated using BU methods were reduced by the savings determined for industry using BU methods (to avoid double counting).

Table 2: Review of bottom-up methods used to calculate savings (BU)

Method (No.)	Name/title of method	Selected equation and additional parameters ¹	Source of input data	Conformity to European Commission recommendations ²
1	Complete renovation of buildings	Equation 1, excl = 0.88	Eco Fund	yes (EC: measure 1), detailed treatment
2	Construction of low-energy and passive buildings	Heating with boilers – Equation 19 Heating with heat pumps Equation 22	Eco Fund	no EC method
3	Partial renovation of buildings (renovation of individual elements of the exterior shell)	Equation 30 (+ equation 32)	Eco Fund, MESP	partly (EC: measure 2)
4	Regulations on the energy performance of new buildings	Equation 35		partly (EC: measure 3)
5	Replacing hot water boilers with new ones	Equation 39	Eco Fund, MESP	partly (EC: measure 4), detailed treatment
6	Replacement of electric heating element for heating sanitary water	Equation 52, 3,000 kWh/hours/year	Eco Fund	different method of treatment
7	Installation of heat pumps	Equation 64	Eco Fund, MESP	no EC method
8	New installation of solar collectors (SC)	Equation 135 and 100 m ² - average surface area of building	Eco Fund, MESP	partly (EC: measure 7)
9	Optimisation of heating system in multi-dwelling buildings with several separate sections	Equation 76	MESP, SORS, REUS	no EC method
10	Performing public chimney maintenance service	Equation 79	MESP	no EC method
11	Providing energy advice for citizens (ENSVET project)	Equation 82	MESP	no EC method
12	Energy audits in industry and the service sector	Equation 86	MESP	no EC method
13	New private vehicles with specific emissions up to 130 gCO ₂ /km	Equation 91	MESP, ME	no EC method
14	Systems for cogeneration of heat and power (CHP)	Equation 94	BORZEN	no EC method
15	Photovoltaic power plants	Equation 101	BORZEN	no EC method
16	Energy-efficient household appliances	Equation 122	GfK	partly (EC: measure 8), detailed treatment
17	Systems for exploiting waste heat	Equation 133	Eco Fund	no EC method
18	Implementing voluntary agreements (exemption from payment of environmental tax)	Equations 137, 138	ARSO, Customs Administration of the Republic of Slovenia	no EC method
19	Introducing energy management systems	Equation 142	MES, ENERGAP	no EC method

¹ Methods for calculating energy savings in implementing measures to increase energy efficiency and the use of renewable energy sources (IJS-DP-10072, supplemented September 2011)

² European Commission - Recommendations on Measurement and Verification Methods in the Framework of Directive 2006/32/EC on Energy End-use Efficiency and Energy Services, preliminary draft, October 2010

4 ENERGY SAVINGS IN HOUSEHOLDS, THE TERTIARY SECTOR AND INDUSTRY, DETERMINED USING THE BOTTOM-UP METHOD (BU)

This chapter provides a review of the measures and energy savings achieved through the implementation of national programmes - by implementing measures in households, the tertiary sector and industry - as well as multisectoral and horizontal instruments.

4.1 Energy savings in households

4.1.1 Low-interest loans from the Eco Fund for households (Instruments 1 to 3)

2008

In 2008 the Eco Fund issued a tender to provide low-interest loans for environmental investments by members of the public³ valued at EUR 14 million, with a favourable fixed nominal interest rate of 3.9% and repayment period of up to 10 years. Loans were intended for: installation of modern appliances and heating systems, use of renewable energy sources (RES), reducing heat losses in the renovation of residential buildings, buying energy-efficient appliances and buying environment-friendly vehicles. The maximum loan for such purposes was EUR 20,000, and could be no higher than the approved investment costs. Equally, it was possible to take loans of up to EUR 40,000 for new constructions of low-energy and passive houses, extensive renovation of residential buildings or generation of electricity from RES. In this call for applications, the costs of loans for citizens were lower than in 2007. Owing to the great interest from citizens, the call for applications was closed early, on 1 August 2008. The largest number of loans to citizens was approved for investments in energy efficiency (EUR 8.383 million) and for the use of renewable energy sources (EUR 3.427 million), with a combined total of EUR 11.810 million.

For measures that were carried out by means of Eco Fund loans and that started to yield energy and other effects in 2008, we took into account investments concluded in 2008 for which the final portion of the loan was paid out in 2008. Loans were approved on the basis of five calls for applications for loans to citizens from 2006 to 2008 as follows: call for applications 36OB06A⁴, call for applications 37OB07A⁵, call for applications 37OB07B⁶, call for applications 39OB08A⁷ and call for applications 39OB08B⁸.

2009

In 2009 the Eco Fund issued a public call for providing loans for environmental investments by members of the public 41OB09⁹. Loans were tendered to the value of EUR 12 million, with a favourable fixed nominal interest rate of 3.9% and repayment period of up to 10 years. The purpose of the loans included: installation of modern appliances and heating systems, use of renewable energy sources, reducing heat losses in the renovation of residential buildings, new construction of low-energy and passive houses, buying energy-efficient

³ Official Gazette of the Republic of Slovenia (Off. Gaz. RS) No. 12/2008 and 79/2008

⁴ Off. Gaz. RS No. 9/2006 and 55/2006

⁵ Off. Gaz. RS No. 9/2007 and 100/2007

⁶ Off. Gaz. RS No. 95/2007 and 31/2008

⁷ Off. Gaz. RS No. 12/2008 and 79/2008

⁸ Off. Gaz. RS No. 79/2008 and 99/2008

⁹ Off. Gaz. RS No. 21/2009

household appliances and buying environment-friendly vehicles. The maximum loan was EUR 20,000, and could be no higher than the approved investment costs. Equally, it was possible to take loans of up to EUR 40,000 for new constructions of low-energy and passive houses, extensive renovation of residential buildings or generation of electricity from RES. In this public call, the costs associated with approving loans remained unchanged relative to 2008. The public call was closed on 29 January 2010. Based on signed loan agreements, the largest number of loans to citizens was approved for investments in energy efficiency (EUR 4.756 million) and for the use of renewable energy sources (EUR 2.010 million), with a combined total of EUR 6.766 million.

In order to determine energy savings through the allocation of Eco Fund loans, account was taken of investments concluded in 2009 for which the final portion of the loan was paid out in 2009. Loans were approved on the basis of five public calls for applications for loans to citizens from 2007 to 2009 as follows: calls for applications 37OB07A¹⁰, 37OB07B¹¹, 39OB08A¹², 39OB08B¹³ and call 41OB09¹⁴.

2010

In 2010 the Eco Fund issued a public call for providing loans for environmental investments by members of the public 43OB10¹⁵. Loans were tendered to the value of EUR 12 million, with a favourable fixed nominal interest rate of 3.2% and repayment period of up to five years, and 3.9% for loans with a longer repayment period of up to 10 years. The purpose of the loans included: installation of modern appliances and heating systems, use of renewable energy sources, reducing heat losses in the renovation of residential buildings, new construction of low-energy and passive houses, buying energy-efficient household appliances and buying environment-friendly vehicles. The maximum loan was EUR 20,000, and could be no higher than the approved investment costs. Equally, it was possible to take loans of up to EUR 40,000 for new constructions of low-energy and passive houses, extensive renovation of residential buildings or generation of electricity from RES. In this public call, the costs associated with approving loans remained unchanged relative to 2009. Given that the tendered loan funds were not distributed by the close of the public call, the call was extended up to 31 March 2011. Based on all the loan agreements signed in 2010, loans of EUR 2.595 million to citizens were approved for investments in energy efficiency and EUR 0.715 million for the use of renewable energy sources, with a combined total of EUR 3.310 million.

In order to determine energy savings through the allocation of Eco Fund loans, account was taken of investments concluded in 2010 for which the final portion of the loan was paid out in 2010. Loans were approved on the basis of five public calls for applications for loans to citizens from 2008 to 2010 as follows: calls for applications 39OB08A¹⁶, call for applications 39OB08B¹⁷, call 41OB09¹⁸ and call 43OB10¹⁹.

¹⁰ Off. Gaz. RS No. 9/2007 and 100/2007

¹¹ Off. Gaz. RS No. 95/2007 and 31/2008

¹² Off. Gaz. RS No. 12/2008 and 79/2008

¹³ Off. Gaz. RS No. 79/2008 and 99/2008

¹⁴ Off. Gaz. RS No. 21/2009

¹⁵ Off. Gaz. RS No. 7/2010

¹⁶ Off. Gaz. RS No. 12/2008 and 79/2008

¹⁷ Off. Gaz. RS No. 79/2008 and 99/2008

¹⁸ Off. Gaz. RS No. 21/2009

¹⁹ Off. Gaz. RS No. 7/2010

The collective results of Eco Fund calls for applications and calls for providing loans to citizens in the 2008-2010 period are shown in the table below, Table 3.

Table 3: The effects of Eco Fund loans to citizens 2008-2010

No.	Type of measure	Units	2008	2009	2010	Total
1	replacement of building fixtures	[m ²]	16,133	6,225	3,081	25,439
2	thermal insulation of building shell	[m ²]	148,265	57,910	20,529	226,704
3	installation of solar collectors	[m ²]	1,149	324	97	1,570
4	condensing boilers	[kW]	2,574	1,156	901	4,631
5	biomass boilers	[kW]	1,944	1570	483	3,997
6	heat pumps	[kW _t]	1,032	969	146	2,147
7	purchase of household appliances*	number	46	39	79	164
8	hybrid vehicles	number	19	19	25	63
	amount of loans	[EUR million]	15.333	7.053	4.109	26.495
	amount of subsidy included	[EUR million]	2.405	1.087	0.997	4.489
	amount of approved investments	[EUR million]	18.974	43.801	64.410	127.185
	savings of fuel and district heating	[MWh/year]	22,697	7,271	3,694	33,662
	electricity savings	[MWh/year]	0	0	0	0
	primary energy savings**	[MWh/year]	3,986	833	689	5,508

* energy saving taken into account in the instrument "energy labelling of household appliances"

** primary energy saving calculated for all heat pumps except heat pumps that replaced electric heating elements for water

4.1.2 Allocation of Eco Fund grant incentives for households (Instruments 1 to 4)

2008

In May 2008 the Eco Fund published a call for applications for the allocation of grant incentives to citizens for the use of renewable energy sources and greater energy efficiency in residential buildings²⁰ in the amount of EUR 7.5 million, for:

- solar heating systems,
- comprehensive renovation of existing residential buildings, within which three measures were required: replacement of the exterior building fixtures with energy-saving fixtures, thermal insulation of the building and upgrading of the heating system to a more appropriate one (condensing boiler, water-water or ground-water heat pump, wood biomass boiler) and
- new construction of low-energy and passive houses (with the energy efficiency class $Q_h < 35 \text{ kWh/m}^2\text{a}$).

2009

In May 2009 the Eco Fund continued the public call for applications, issued in 2008, for the allocation of grant incentives to citizens for the use of renewable energy sources and greater energy efficiency in residential buildings. Owing to the EUR 4 million provided in 2009 from budget resources, the tendered amount rose from EUR 7.5 million to EUR 11.5 million, while the call for applications was also enhanced with certain specific

²⁰ Off. Gaz. RS No. 9/2010, ZDMV-C

measures for the comprehensive energy renovation of existing residential buildings²¹. Through the expanded public call for applications, it was possible to obtain grant funds for the following purposes or measures:

- solar heating systems,
- comprehensive renovation of existing residential buildings, within which three measures were required: replacement of the exterior building fixtures with energy-saving fixtures, thermal insulation of the building and upgrading of the heating system to a more appropriate one (condensing boiler, water-water or ground-water heat pump, wood biomass boiler),
- new construction of low-energy and passive houses (with the energy efficiency class $Q_h < 35 \text{ kWh/m}^2\text{a}$),
- installation of wood biomass combustion appliances for central heating,
- complete insulation of the exterior in the renovation of existing residential buildings and
- replacement of exterior building fixtures.

2010

In 2010 the Eco Fund allocated grant incentives to citizens for the use of renewable energy sources and greater energy efficiency in residential buildings on the basis of the programme adopted by the Slovenian Government, which involved at the same time the issuing of three public calls, 3SUB-OB10, 4SUB-OB10 and 5SUB-OB10²². A total of EUR 18 million in grant funds was tendered. Below we set out all the purposes and measures for which it was possible to obtain grants in single or two-dwelling buildings and individual flats:

- installation of solar heating system for sanitary hot water and/or central heating,
- installation of heat pump for sanitary hot water and/or central heating,
- installation of wood biomass combustion appliance for central heating,
- installation of a central heating system during the renovation of a residential building in the case of connection to district heating using a renewable energy source,
- replacement of exterior building fixtures,
- thermal insulation of the exterior in the renovation of a single or two-dwelling building,
- thermal insulation of the roof or loft in the renovation of a single or two-dwelling building,
- installation of a system of ventilation with heat recovery from waste air,
- construction or purchase of a new low-energy and passive residential building and
- purchase of a housing unit in a multi-dwelling building constructed or renovated in the passive energy class.

At the same time, a special public call, 5SUB-OB10, was issued, with the intention of promoting investments in multi-dwelling buildings for the following measures:

- thermal insulation of exterior surface,
- thermal insulation of roof or loft,
- replacement of exterior building fixtures in common areas,
- installation of wood biomass combustion appliance for central heating,
- installation of thermostat valves and hydraulic balancing of heating systems and
- installation of a system of dividing heating costs.

Equally, in 2010 the Eco Fund paid out grants to citizens who had punctually and properly concluded investments based on the public call for applications 1SUB-OB08, which was carried out in 2008 and 2009.

²¹ Off. Gaz. RS No. 42/2009

²² Off. Gaz. RS No. 40/2010

The collective results of Eco Fund calls for applications and calls for providing grant incentives to citizens in the 2008-2010 period are shown in the table below, Table 4.

Table 4: The effects of allocating Eco Fund grant incentives to citizens in the 2008-2010 period

No.	Type of measure	Units	2008	2009	2010	Total
1	replacement of building fixtures	[m ²]	/	24,613	80,163	104,776
2	thermal insulation of building shell	[m ²]	/	60,800	202,321	263,121
3	complete renovation of buildings	[m ² heated surface]	1,453	15,229	13,937	30,619
4	construction of low-energy buildings	[m ² heated surface]	180	4,486	16,196	20,862
5	installation of solar collectors	[m ²]	5,614	16,740	9,248	31,602
6	biomass boilers	[kW]	/	15,000	15,000	30,000
7	heat pumps - heating	[kW _t]	/	/	1,107	1,107
8	heat pumps - hot water	[kW _t]	/	/	1,330	1,330
	level of grant funds	[EUR million]	0.890	6.469	9.970	17.329
	estimated level of investments	[EUR million]	5.100	33.044	48.120	86.264
	savings of fuel and district heating	[MWh/year]	3,417	32,793	47,781	83,991
	electricity savings	[MWh/year]	0	0	431	431
	primary energy saving*	[MWh/year]	0	181	2,530	2,711

* primary energy saving calculated for all heat pumps except heat pumps that replaced electric heating elements for water

4.1.3 Allocation of Ministry of the Environment and Spatial Planning grant incentives to raise the energy efficiency of multi-dwelling buildings (Instruments 1 and 2)

2008

In 2008 the Ministry of the Environment and Spatial Planning (MESP) published a tender for financial incentives to invest in raising the energy efficiency of existing multi-dwelling buildings²³. The tender, valued at EUR 190,000, was intended to promote energy efficiency in existing multi-dwelling buildings with at least 9 flats, and specifically:

- systems for the division and calculation of heating costs according to actual consumption,
- installation of thermostat valves and hydraulic balancing of heating systems in multi-dwelling buildings with construction started prior to 2003,
- thermal insulation of multi-dwelling buildings with construction started prior to 1981,

2009

In October 2008 an²⁴ extension was published to the aforementioned call for applications for financial incentives to invest in raising the energy efficiency of existing multi-dwelling buildings. Moreover, additional funds amounting to EUR 210,000 were provided from the Slovenian budget for 2009.

²³ Off. Gaz. RS No. 20-21/2008

²⁴ Off. Gaz. RS No. 94/2008

The collective results for 2008 and 2009 are shown in the table below, Table 5.

Table 5: The effects of allocating MESP grants to households for measures in multi-dwelling buildings in 2008 and 2009

No.	Type of measure	Units	2008	2009	Total
1	replacement of building fixtures	[m ²]	1,002	884	1,886
2	thermal insulation of building shell	[m ²]	36,477	35,210	71,687
3	systems for the division and calculation of heating costs	[m ² heated surface]	91,000	162,080	253,080
4	thermostat valves and hydr. balancing	[m ² heated surface]	18,000	22454	40,454
5	measures 3 and 4 together	[m ² heated surface]	27,600	0	27,600
	level of grant funds	[EUR million]	0.191	0.210	0.401
	estimated level of investments	[EUR million]	1.60	2.82	4.42
	savings of fuel and district heating*	[MWh/year]	2,808	2,573	5,381

* Energy savings achieved through systems of dividing and calculating heating costs and through installation of thermostat valves and hydraulic balancing of heating systems are covered in instrument 6 (chapter 4.1.7).

4.1.4 Allocation of Ministry of the Environment and Spatial Planning grant incentives to increase the use of renewable energy sources (Instrument 2)

In March 2007 the MESP issued a public call for applications for financial incentives for investment measures regarding the use of renewable energy sources in households for 2007 and 2008²⁵ in the amount of EUR 2.9 million, of which EUR 1.2 million was for 2007 and EUR 1.9 million for 2008.

The subject of the public tender was the allocation of grant funds to promote the following investment measures:

- installation of solar systems for heating water,
- installation of heat pumps for central heating of rooms,
- installation of photovoltaic systems to generate electricity and
- installation of special wood biomass combustion appliances for central heating, specifically for log, pellet and woodchip burners.

In 2008, grant incentives were allocated for:

- 708 solar systems with a total surface area of 4,493 m² of solar collectors.
- 246 heat pumps,
- 6 photovoltaic systems with a total power of 8 kW,
- 300 log combustion appliances with a total power of 8.2 MW,
- 137 pellet combustion appliances with a total power of 3.4 MW and
- 33 woodchip combustion appliances with a total power of 1.4 MW.

²⁵ Off. Gaz. RS No. 9/2010, ZDMV-C

The collective results of the call for applications for financial incentives for investment measures regarding the use of renewable energy sources in households for 2008 are shown in the table below, Table 6.

Table 6: The effects of allocating MESP grants to households for using RES in 2008

No.	Type of measure	Units	2008
1	installation of solar collectors	[m ²]	4,493
2	heat pumps	number	246
3	solar power plant	[kW]	8
4	wood biomass boilers (logs, pellets, woodchips)	[MW]	13
	level of grant funds	[EUR million]	1.699
	estimated level of investments	[EUR million]	4.248
	savings of fuel and district heating	[MWh/year]	9,801
	primary energy saving*	[MWh/year]	2,395

* primary energy saving calculated for all heat pumps except heat pumps that replaced electric heating elements for water

4.1.5 Scheme of energy efficiency for low-income households (Instrument 4)

The NEEAP 1 envisaged the formulation of a scheme of energy efficiency for low-income households. This scheme was designed to offer to low-income households support in carrying out priority and cheaper measures to reduce energy costs and increase comfort in the home, such as loft insulation, sealing windows and doors, thermal insulation in critical places, energy-saving light bulbs and so forth. This would enable socially disadvantaged households to be involved in the process of renovation to improve living conditions and achieve minimum standards of efficient energy use in buildings. In addition to reducing energy consumption and the costs of energy, as well as reducing carbon dioxide emissions, the scheme would facilitate a reduction in health costs and the creation of new jobs.

In 2009 the MESP drew up a proposed scheme for low-income households, whereby the social security component is included in tenders for the allocation of grants to citizens for energy rehabilitation of older multi-dwelling buildings inhabited by a large number of low-income households. The proposed scheme was supported by the Ministry of Labour, Family and Social Affairs and the Government Office for European Affairs and Development.

Under instruction from the Ministry of the Economy (ME), the Eco Fund has included elements of the scheme for low-income households in the public call 5SUB-OB10²⁶, which was intended to promote investments in multi-dwelling buildings. This call is presented in chapter 4.1.2.

In this call, for all investments the level of grant incentives was up to 25% of the approved investment costs. The level of financial incentives for socially disadvantaged citizens that submitted adequate proof amounted to 100% of the approved investment costs. In 2010, financial incentives were allocated to two socially disadvantaged households.

The Eco Fund published a similar call in 2011. In this way, socially disadvantaged households have also been afforded inclusion in the process of buildings renovation aimed at reducing heating costs and improving living conditions.

²⁶ Off. Gaz. RS No. 9/2010, ZDMV-C

The effects of this scheme are evaluated as part of the evaluation of Eco Fund calls for allocating grant incentives to households.

4.1.6 Energy labelling of household appliances and other devices (Instrument 5)

The 2008-2010 period also witnessed the implementation of eight implementing regulations regarding the energy labelling of household appliances and other devices, which are based on Council Directive 92/75/EEC on the indication by labelling and standard product information of the consumption of energy and other resources by household appliances, specifically for: electric refrigerators, freezers and combinations thereof, household washing machines, household electric dryers, household washer-dryers, household dishwashers, light bulbs for household use and household electric ovens and air conditioning appliances. In addition to these regulations, two EU regulations - which are fully binding and are applied directly in Slovenia - were being implemented for the energy labelling of TV sets and the labelling of tyres regarding fuel efficiency and other critical parameters.

Mention should also be made of the application of the EU Regulation on a Community energy-efficiency labelling programme for office equipment, which was recast in 2008. This regulation lays down the rules for the Community programme of energy-efficiency labelling for office equipment (computer equipment, photocopiers, printers etc.), as defined in the Agreement of 20 December 2006 between the Government of the USA and the European Community.

According to data on sales of new household appliances in Slovenia, obtained from GfK Slovenija, in the 2008-2010 period there was a continued trend of purchasing appliances with increasing energy efficiency. The purchase of household appliances by specific energy class, savings of electricity through replacement of household appliances and reduced CO₂ for individual years in the 2008-2010 period are shown in the tables below (Tables 7, 8 and 9).

Table 7: Number of household appliances bought in 2008, and effects of replacing old appliances

Type of household appliance	A++	A+	A	B	C	D	Total
Refrigerators	86	11,400	45,596	8,952	56	0	66,090
Freezers	889	11,744	13,308	3,377	826	0	30,144
Washing machines	558	37,423	29,223	1,796	2,398	53	71,451
Drying machines	0	0	439	8,329	8,353	39	17,160
Dishwashing machines	0	25	31,627	422	250	0	32,324
Electricity savings		[MWh/year]		18,685			
Reduction of CO ₂ emissions		[t/year]		10,277			

Table 8: Number of household appliances bought in 2009, and effects of replacing old appliances

Type of household appliance	A++	A+	A	B	C	D	Total
Refrigerators	279	17,736	39,731	5,091	119	0	62,956
Freezers	1,336	12,854	13,402	2,860	177	0	30,629
Washing machines	2,854	44,424	19,892	9	0	0	67,179
Drying machines	2,099	0	0	10,987	2,874	9	15,969
Dishwashing machines	59	440	29,815	346	179	18	30,857
Electricity savings		[MWh/year]		18,621			
Reduction of CO ₂ emissions		[t/year]		10,242			

Table 9: Number of household appliances bought in 2010, and effects of replacing old appliances

Type of household appliance	A++	A+	A	B	C	D	Total
Refrigerators	942	22,090	30,024	2,073	19	0	55,148
Freezers	1,435	11,704	8,841	1,808	1	0	23,789
Washing machines	4,247	35,120	14,002	0	0	0	53,369
Drying machines	2,465	0	0	11,515	1,684	16	15,680
Dishwashing machines	101	1,950	27,543	329	99	1	30,023
Electricity savings		[MWh/year]		14,156			
CO ₂ emission reduction		[t/year]		7,787			

The calculation of energy savings took into account the proportions of new appliances that replaced old appliances. These proportions depend on the type of appliance and change from year to year. They are highest for freezers (99 to 100%), and lowest for dryers (39 to 48%). These proportions are calculated from a model based on data regarding newly purchased appliances and the growth in the total number of appliances. These savings were boosted to a certain extent by the energy labelling of household appliances.

By purchasing new household appliances in the 2008-2010 period and thereby replacing old appliances, annual savings of around 51,464 MWh of electricity were achieved, along with reductions of CO₂ emissions of 28,305 t.

4.1.7 Compulsory division and calculation of heating costs in multi-dwelling and other buildings with several separate sections according to actual consumption (Instrument 6)

This instrument was introduced through the Act Amending the Energy Act²⁷. By amending Article 94 of the Energy Act, this Act introduced the compulsory division and calculation of heating costs according to actual consumption in multi-dwelling buildings and other buildings with at least four separate sections, which are supplied with heat from a common heating system. The costs of heating and hot water are calculated for the most part on the basis of actual consumption of heat, determined with meters that enable the indication of actual consumption of heat by the individual section of the building. The division and calculation of heating costs is carried out according to rules issued by the minister competent for

²⁷ Off. Gaz. RS No. 9/2010, ZDMV-C

energy. The deadline for installation of metering systems and the introduction of compulsory division and calculation of costs according to actual consumption is 1 October 2011.

By dividing and calculating costs according to actual use, users of buildings pay for the costs of heating according to use, and are more motivated to adapt their consumption of heat for heating and hot water to their needs and to carry out measures to reduce their consumption and costs of energy. We anticipate that through this instrument, without any major input from the owners of individual sections of buildings, consumption of heat in those sections of buildings will fall by 20 to 30 percent.

Pursuant to Article 94 of the Energy Act, the Rules on the Methodology of Sharing and Consumption-based Billing of Heating in Residential and Other Buildings of Several Parts were issued in January 2010²⁸. These Rules lay down the method of measuring heat and the method of dividing and calculating heating costs in multi-dwelling and other buildings with at least four separate sections.

In 2010 a communication plan was devised and a public tender prepared for an information campaign for the division and calculation of heating costs according to actual consumption.

For the installation of measuring devices that enable the division and calculation of heating costs, citizens who own individual parts of multi-dwelling buildings could receive from the MESP in 2009 and, under certain conditions, from the Eco Fund in 2010, stimulus grants of up to 30% or 25% respectively.

The basis for determining energy savings was data from a SORS survey on the state of households conducted in 2010, and data from the REUS survey on energy efficiency in 2011. According to SORS, the entire surface area of multi-dwelling buildings with four or more units amounts to 14.106 million m². A total of 77.4% of all multi-dwelling buildings have central heating. Of these buildings, 71.9% are connected to a district heating system, while the rest have their own boiler rooms. According to the REUS 2011 survey, split meters for dividing the costs of heating are installed in 19% of multi-dwelling buildings, and 35% of multi-dwelling buildings are furnished with thermostat valves.

Based on these data we estimate the effects of this instrument as follows:

- savings of fuel and district heating: 54,204 MWh/year
- reduction of CO₂ emissions: 13,134 t/year.

The energy savings in multi-dwelling buildings do not take into account heat saved for making hot water, and commercial buildings are not included.

4.1.8 Energy advice network for citizens (Instrument 7)

From 2008 to 2010 the MESP and ME continued implementing the project of ENSVET - energy advice for citizens, which is aimed at providing advice and raising awareness and the level of information for the public regarding sensible use of energy. The programme also serves to raise interest in investments in measures for efficient consumption and greater use of renewable sources of energy.

The programme is being carried out via a network of energy advice offices, founded on a partnership between the state and self-governing local communities. Energy advice, which is provided free of charge to the public, is provided by around 60 authorised advisers in 36 advice offices, under the leadership and supervision of the ZRMK Construction Institute. The latest analysis of the effects of the energy advice network was performed in 2009 on the basis of surveying citizens who had visited the energy advice offices. The analysis showed that those citizens who after their consultation had carried out replacements of specific elements of the shell or

²⁸ Off. Gaz. RS No. 9/2010, ZDMV-C

energy rehabilitation of their buildings, reduced their consumption of heat for heating by an average of around 25%. According to the method for calculating savings achieved by households by implementing measures after obtaining advice under the ENSVET programme, the average annual saving of end-use energy is around 3.1 MWh/piece of advice, with a time lag of around two years from the advice being given. The determination of savings took into account the fact that some households obtained financial incentives from the Eco Fund for investments.

The type and scope of activities performed in this period by energy advisers is shown in the table below, Table 10. Furthermore, as part of continuing training, each adviser took part each year in one to three professional seminars.

Table 10: Type and scope of activities and effects achieved in the ENSVET programme 2008-2010

Activities of the ENSVET network		2008	2009	2010	Total
number of instances of advice with written reports		6,065	6,159	6,381	18,605
number of instances tips given		> 10,000	> 12,000	> 15,000	> 37,000
participation in RTV broadcasts		260	160	220	640
number of lectures		150	120	150	420
number of expert articles		310	201	268	779
budget funds	[EUR/year]	605,500	489,480	624,892	1,719,872
end-use energy saving*	[MWh/year]	18,454	14,328	18,802	51,584
reduction of CO ₂ emissions	[t/year]	3,137	2,436	3,196	8,769

* owing to the lag in implementation, the energy saving is calculated on the basis of advice given in the 2006-2008 period (number of instances of advice with written reports: 5973 in 2006, 4622 in 2007 and 6065 in 2008).

Savings of electricity and additional generation of heat and power from RES have not been estimated.

4.2 Energy savings in the tertiary sector

4.2.1 Low-interest loans from the Eco Fund for the tertiary sector (Instruments 8 to 10)

2008

In 2008 the Eco Fund issued a public call for providing loans for legal persons and sole traders, 40PO08A,²⁹ valued at EUR 14 million, intended to provide loans for various investments in environmental protection.

In the area of reducing greenhouse gas emissions, loans could be obtained for the following types of investment:

- installation of modern devices for heating spaces and producing sanitary hot water, using renewable energy sources,
- setting up or reconstructing facilities for electricity generation or cogeneration of heat and power from renewable energy sources,
- setting up or reconstructing facilities for high-efficiency cogeneration of heat and power from fossil fuels,
- purchasing electric or hybrid vehicles,
- energy efficiency measures in production, commercial and public premises,

²⁹ Off. Gaz. RS No. 9/2010, ZDMV-C

- refurbishing of existing public lighting that achieves at least 30% electricity savings,
- complete renovation of existing structures and
- investments in the construction of new low-energy structures.

Investors could receive loans valued at up to 90% of the approved investment costs. The upper limit of the individual loan was EUR 2 million. Loans were approved under the “de minimis” rule. The interest rate for the loans was the three-monthly EURIBOR +0.3%. The maximum repayment period for the loans was 15 years, and this could include a one-year moratorium on repayment of the principal.

In order to determine energy savings in 2008 through the allocation of Eco Fund loans for the tertiary sector, account was taken of investments concluded in 2008 in two organisations (installation of condensing boilers and ground/water heat pump) for which the final portion of the loan was paid out in 2008. Loans were provided for two investments based on tenders for loans to legal persons and sole traders, published in 2007 and 2008: tender 38PO07A³⁰ and tender 40PO08A.

2009

In 2009 the Eco Fund issued a public call for providing loans for legal persons and sole traders, 42PO09,³¹ valued at EUR 20 million, intended to provide loans for various investments in environmental protection. Owing to the exceptionally high interest from potential loan recipients, the tendered amount was increased in July 2009 to EUR 25 million. The tender was closed on 18 December 2009.

In the area of reducing greenhouse gas emissions, relative to 2008 the call was expanded through investments in passive buildings.

Investors could receive loans valued at up to 90% of the approved investment costs. The upper limit of the individual loan was EUR 2 million, and the minimum loan allowable was EUR 50,000. Loans were approved under the “de minimis” rule. The interest rate for the loans was the three-monthly EURIBOR + 1%. The maximum repayment period for the loans was 15 years, and this could include a one-year moratorium on repayment of the principal.

In order to determine energy savings in 2009 through the allocation of Eco Fund loans for the tertiary sector, account was taken of investments concluded in 2009 in 12 organisations for which the final portion of the loan was paid out in 2009. Investments related to energy rehabilitation of buildings, installing wood biomass boilers, installing solar collectors and heat pumps, installing ventilation systems with heat recovery, construction of low-energy buildings, district cooling and replacement of diesel engines to drive drag lifts. Loans were provided for investments based on three tenders for loans to legal persons and sole traders, published in 2007, 2008 and 2009: tender 38PO07A³², 40PO08A³³ and call 42PO09³⁴.

2010

In April 2010 the Eco Fund issued a public call for providing loans for legal persons, sole traders and private operators, 44PO10,³⁵ valued at EUR 20 million, intended to provide loans for various investments in environmental protection.

³⁰ Off. Gaz. RS No. 36/2007

³¹ Off. Gaz. RS No. 40/2009 and 60/2009

³² Off. Gaz. RS No. 36/2009

³³ Off. Gaz. RS No. 25/2008

³⁴ Off. Gaz. RS No. 40/2009 and 60/2009

³⁵ Off. Gaz. RS No. 29/2010

Given that the tendered loan funds were not distributed by the close of the public call, the call was extended up to 31 March 2011.

In the area of reducing greenhouse gas emissions, loans could be obtained for the same types of investment as in 2009.

Investors could receive loans valued at up to 90% of the approved investment costs. The upper limit of the individual loan was EUR 2 million, and the minimum loan allowable was EUR 50,000. Loans were approved under the “de minimis” rule. The interest rate for the loans was the three-monthly EURIBOR + 1.5%. The maximum repayment period for the loans was 15 years, and this could include a one-year moratorium on repayment of the principal.

In order to determine energy savings in 2010 through the allocation of Eco Fund loans for the tertiary sector, account was taken of investments concluded in 2010 in one organisation (energy rehabilitation of building) for which the final portion of the loan was paid out in 2010. Loans were provided for investments based on a public call for applications for loans to legal persons and sole traders, published in 2008: tender 40PO08A³⁶. The collective results of Eco Fund tenders for providing loans to tertiary sector organisations in the 2008-2010 period are shown in the table below, Table 11.

Table 11: The effects of Eco Fund loans to tertiary sector organisations 2008-2010

	Units	2008	2009	2010	Total
amount of loans	[EUR million]	0.320	6.268	0.253	6.841
amount of subsidy included	[EUR million]	0.001	0.055	0.019	0.075
amount of approved investments	[EUR million]	0.402	13.419	0.483	13.304
savings of fuel and district heating	[MWh/year]	809	4,998	202	6,009
reduction of CO ₂ emissions	[t/year]	99	1,463	46	1,608

4.2.2 Grant funds from the Rural Development Programme (Instrument 9)

As part of the Rural Development Programme 2007-2013 (RDP) the Ministry of Agriculture, Forestry and Food (MAFF) is also promoting investment in the exploitation of renewable energy sources, specifically in the 3rd axis, through measures 311 - Diversification into non-agricultural activities and 312 - Support for the establishment and development of micro companies. The essential difference between them lies in the fact that investments under measure 311 are made on farms, while those under measure 312 are made outside farms.

In the 2008-2010 period, the MAFF provided RDP cofinancing for 65 projects in which renewable sources (biomass, solar and hydro energy) are used to produce heat or electricity. The largest amount of investments was in photovoltaic power plants (40). The total amount of cofinancing funds was EUR 5.283 million.

In this chapter, of 65 projects evaluated, only eight involved the construction of wood biomass boiler units on farms that produce heat for their own needs. The boiler units were supported under measure 311 in the amount of EUR 263,741. The overall value of investments in these boiler units amounted to EUR 699,543. We estimate that the installation of eight biomass boilers with a total capacity of 1.6 MW served to achieve fuel savings of 909 MWh/year and a reduction in CO₂ emissions of 191 t/year.

³⁶ Off. Gaz. RS No. 9/2010, ZDMV-C

Investments in systems to generate electricity from RES are evaluated as part of instrument 20 - System of guaranteed purchase prices (chapter 4.5.4). However, in accordance with Directive 2006/32/EC, energy savings from wood biomass boiler units where the produced heat is sold, cannot be taken into account, since this does not involve end-use energy.

4.2.3 Energy management of public buildings

In 2010 the Act Amending the Energy Act³⁷ introduced a new Article 66.č, which provides that for buildings used by state authorities, self-governing local community authorities, public agencies, public funds, public commercial institutes and other persons of public law that are indirect users of the national budget or local community budget, the Slovenian Government may adopt annual energy efficiency targets. This applies to buildings with a useful total floor area of over 500 m².

For these buildings, building managers must conduct energy accounting that covers data on the types, prices and quantities of energy used. Rules on the obligatory content, type of data and method of conducting energy accounting, to be issued by the minister competent for energy, are being drafted.

In June 2010 the Slovenian Government adopted the programme Environmentally Efficient Public Administration with recommendations for measures. It entrusted the Government Climate Change Office with coordinating and steering the implementation of this programme. In this way Slovenia joined numerous EU Member States and certain international organisations that have set themselves specific targets, through which they intend to set up the public sector as a model of efficient use of energy, products and services, increasing use of renewable energy sources and environment-friendly management of waste and drinking water.

The purpose of the adopted recommendations is to begin systematically to introduce environmental and energy management into the entire state administration, and later to expand this process to all public administration. The adopted measures cover identifying targets for reducing the negative impacts on the environment on the level of all state authorities, introducing environmental management in individual authorities, drawing up a selection of recommended measures for individual authorities and awareness-raising, training and education for state authorities. Moreover it will be important to provide coordination, transfer of experience and communication between state authorities via the training programme and the website Slovenia reduces CO₂ (www.slovenija-co2.si).

According to these recommendations, one of the first measures is the introduction of energy accounting, on the basis of which energy management can serve, without any major investment, to reduce energy consumption by around 10%. In October 2011 the first training session was provided for coordinators from state authorities to implement the project of environmentally efficient state administration. Moreover a public tender was held for web energy accounting, which has already been started in several bodies. Other activities are also under way, and 11 state administration bodies are now involved in the programme.

The highest number of specific results were achieved in secondary schools, where the Ministry of Education and Sports, in cooperation with the Velenje School Centre, is carrying out energy accounting in 40 buildings with a heated surface area of around 200,000 m². Consumption of energy for heating, which initially stood at around 18,000 MWh/year, fell by 11%, or by 1,980 MWh/year.

In self-governing local communities, local energy agencies started introducing energy accounting and energy management, particularly the agency ENERGA in the Maribor City Authority, KSSENA in the Velenje City Authority and the agency LEAD in Krško. So for instance the Maribor City Authority has included in energy accounting 103 public buildings with 282,616 m² of heated surface area. Consumption

³⁷ Off. Gaz. RS No. 9/2010, ZDMV-C

of energy for heating, which prior to the introduction of energy management stood at around 21,790 MWh/year, fell by 12%, or by 2,615 MWh/year, on the introduction of energy management based on energy accounting.

4.2.4 Green public procurement (Instrument 11)

In May 2009 the Slovenian Government adopted the Green Public Procurement Action Plan 2009-2012, which pursues the European Commission guidelines and expectations related to ordering environmentally friendly goods, services and constructions - i.e. by 2010 as much as 50% of public procurement will be awarded using criteria and conditions for green public procurement. In order to achieve the targets, the action plan sets out a range of measures, including adoption of the Decree on Green Public Procurement, which is in the final phase of drafting. A great many comments were made regarding the proposed wording of the decree during the public debate and interdepartmental coordination, and the Ministry of Finance is still studying these comments. Moreover, during this time certain EU regulations have been adopted or amended, and they need to be taken into account in the wording of the decree and its annexes.

The Decree on Green Public Procurement will define the minimum environmental requirements and recommendations for 10 groups of products, services and constructions, specifically for: electricity, foodstuffs and catering services, electronic office equipment, office paper, white goods, appliances and other products that carry energy labels, construction and renovation of buildings and premises, outside lighting, furniture, cleaning agents and cleaning services and private and transport vehicles and transport services.

Given the complexity of the issues covered by the decree, and the diversity of the areas on which it touches, the time needed for drafting the decree has been dragged out, but expectations are that it will be adopted by the end of this year. A large portion of the comments given during the interdepartmental coordination and public debate relate to Annex 6 of the decree, which lays down environmental requirements for construction. That annex is also the most extensive and is vital precisely in terms of energy efficiency, since it relates to several phases of a construction project (conceptual design, project design and regular and capital maintenance), it covers major and long-term investments and sets out the great potential for improving the energy performance of buildings that are owned or rented by the public sector. Furthermore, something that is vital in the area of energy efficiency is green public procurement for outside lighting, road vehicles, household appliances and electronic office equipment.

The Decree on Green Public Procurement will transpose into Slovenian law the part of Directive 2006/32/EC relating to the obligation of Member States to ensure that the public sector takes over implementation of at least two measures from the list in Annex VI of the Directive, which includes the obligatory purchase of energy-efficient equipment and vehicles. Furthermore, the decree will also serve to transpose Directive 2009/33/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of clean and energy-efficient road transport vehicles, which are expected to have a direct effect in improving the energy efficiency of the public sector. Directive 2009/33/EC will be transposed into Slovenian law by public clients having to take into account external costs and the aspect of energy efficiency (fuel consumption) in purchasing road vehicles.

In accordance with the requirements of Directive 2009/33/EC, in 2010 common public procurement was conducted for the purchase of cars. This procedure was carried out by the Ministry of Public Administration for the needs of state authorities, and represents an example of good practices. The procedure for awarding the public procurement order applied the methodology of estimating costs in the lifecycle, which enables the purchase of more energy-efficient and environment-friendly vehicles.

Statistics on public procurement indicate that in 2010 a total of 334 green public procurement orders were made, in a total value of EUR 203.92 million. The proportion of green public procurement in 2010 amounted to

11.23% of the value of all public procurement orders, or 8.46% of all public procurement procedures. Compared to 2009, the proportion of green public procurement orders did not increase relative to the value of public procurement contracts, but relative to the number of procedures carried out it rose by 0.87 percentage points.

4.3 Energy savings in industry (Instrument 12) 4.3.1 Low-interest loans from the Eco Fund for industry 2008

In 2008 the Eco Fund issued a public call for applications for providing loans for legal persons and sole traders, 40PO08A, valued at EUR 14 million, and intended for loans to make various investments in environmental protection. This tender is presented in point 4.2.1.

In order to determine energy savings in 2008 through the allocation of Eco Fund loans for industry, account was taken of investments concluded in 2008 for which the final portion of the loan was paid out in 2008. Loans were provided for investments in five organisations based on three calls for applications for loans to legal persons and sole traders, published in 2006, 2007 and 2008: call for applications 35PO06A³⁸, call for applications 38PO07A³⁹ and call for applications 40PO08A⁴⁰. Investments related to energy rehabilitation of buildings, installing wood biomass boilers, installing a condensing boiler, setting up a cogeneration system, installation of a heat pump and optimisation of technological processes.

2009

In 2009 the Eco Fund issued a public call for providing loans for legal persons and sole traders, 42PO09, valued at EUR 25 million, and intended for loans to make various investments in environmental protection. This call is presented in point 4.2.1.

In order to determine energy savings in 2009 through the allocation of Eco Fund loans for industry, account was taken of investments concluded in 2009 in four organisations for which the final portion of the loan was paid out in 2009, specifically as part of public calls for applications or the call for providing loans to legal persons and sole traders, issued in 2007, 2008 and 2009: call for applications 38PO07A⁴¹, 40PO08A⁴² and call 42PO09⁴³. The following measures were carried out: construction of a low-energy commercial building, renovation of an old and construction of a new low-energy production hall, setting up a wood biomass boiler unit and reconstruction of limestone silos.

2010

In 2010 the Eco Fund issued a public call for providing loans for legal persons, sole traders and private operators, 44PO10,⁴⁴ valued at EUR 20 million, intended to provide loans for various investments in environmental protection. Given that the tendered loan funds were not distributed by the close of the public call, the call was extended up to 31 March 2011. This call is presented in point 4.2.1.

³⁸ Off. Gaz. RS No. 2/2006 and 55/2006

³⁹ Off. Gaz. RS No. 37/2007

⁴⁰ Off. Gaz. RS No. 25/2008

⁴¹ Off. Gaz. RS No. 37/2007

⁴² Off. Gaz. RS No. 25/2008

⁴³ Off. Gaz. RS No. 40/2009 and 60/2009

⁴⁴ Off. Gaz. RS No. 29/2010

In order to determine energy savings in 2010 through the allocation of Eco Fund loans for industry, account was taken of investments concluded in 2010 in seven organisations for which the final portion of the loan was paid out in 2010, specifically as part of two public calls for providing loans to legal persons and sole traders, 42PO09⁴⁵ and 44PO10. The following measures were carried out: construction of low-energy commercial buildings, energy rehabilitation of a low-energy class building, setting up a wood biomass boiler unit, setting up a wood biomass boiler unit and district heating for a residential neighbourhood, installation of a wood biomass boiler with fluidised bed combustion.

The collective results of Eco Fund calls for applications for providing loans to industry organisations in the 2008-2010 period are shown in the table below, Table 12.

Table 12: The effects of Eco Fund loans to industry organisations 2008-2010

	Units	2008	2009	2010	Total
amount of loans	[EUR million]	1.269	3.700	2.707	7.676
amount of subsidy included	[EUR million]	0.032	0.024	0.195	0.251
amount of approved investments	[EUR million]	1.682	7.746	4.983	14.411
savings of fuel and district heating	[MWh/year]	607	7,732	8,543	16,882
electricity savings	[MWh/year]	19	0	0	19
use of renewable energy sources	[MWh/year]	314	11,968	5,932	18,214
reduction of CO ₂ emissions	[t/year]	81	717	899	1,697

4.3.2 Grant incentives from the Operational Programme for Environmental and Transport Infrastructure Development

The 2008-2010 period saw the implementation of the development priority Sustainable Energy Use (SEU), which is part of the Operational Programme for Environmental and Transport Infrastructure Development 2007-2013 (OP ETID). Funds for implementation of the operational programme have been provided to a level of 85% from the European Cohesion Fund, and the remainder from the national budget. The purpose of SEU is to increase energy efficiency in industry, services and the public sector, and significantly increase the scope of environmentally friendly energy production from renewable energy sources and combined heat and power systems (cogeneration).

As part of the priority orientation Innovative Measures for Local Energy Supply, two calls for applications were issued for cofinancing individual wood biomass heating systems⁴⁶.

The subject of the first call for applications was the allocation of grants to cofinance projects of installing wood biomass boiler plants for 2009 and 2010. Financial incentives could be obtained by legal persons of private law, sole traders, societies and institutions. A total of EUR 3 million in grant funds was available for cofinancing investments.

Grant incentives could be obtained for the installation of wood biomass boiler plants with capacity of 150 kW to 5 MW, and for upgrading district heating microsystems. The value of the investment had to be a minimum of EUR 70,000 (excluding VAT). Financial incentives in the form of grants for carrying out specific investments could amount, in percentages of the approved investment costs, to a maximum of 30% for large companies, 35% for medium-sized companies and 40% for micro/small companies and for societies and institutions. The maximum financial incentive was EUR 200,000.

⁴⁵ Off. Gaz. RS No. 40/2009 and 60/2009

⁴⁶ Off. Gaz. RS No. 36/2009 and 40/2010

The subject of the second call for applications was the allocation of grants to cofinance projects of installing wood biomass boiler plants for 2010 and 2011. A total of EUR 4.4 million in grant funds was available for cofinancing investments. In contrast to the first call for applications, in the second call for applications it was possible to obtain grants for solar systems for hot water, intended for making hot sanitary water during the summer, on the condition that the exploitation of solar power as an addition source contributed to improving the economics of heat production. The value of the investment had to be a minimum of EUR 45,000 (excluding VAT). The other conditions were the same as in the first tender.

In 2009 and 2010, on the basis of these calls for applications, stimulus grants were awarded for the installation of biomass boilers with a total capacity of 30.9 MW.

The main results of the two tenders for 2009 and 2010 are shown in the table below, Table 13.

Table 13: The effects of allocating grant incentives from the OP ETID to industry organisations for biomass boilers in 2009 and 2010

	Units	2009	2010	Total
Capacity of wood biomass boilers	[MW]	11.6	19.3	30.9
Level of grant funds	[EUR million]	1.021	1.765	2.786
Estimated level of investments	[EUR million]	3.138	6.353	9.491
Fuel saving	[MWh/year]	7,830	22,140	29,970
Use of renewable energy sources	[MWh/year]	23,458	66,503	89,961
Reduction of CO ₂ emissions	[t/year]	4,975	16,100	21,075

4.4 Energy efficiency in transport

4.4.1 Promoting the competitiveness of public transport (Instrument 13)

In the context of instrument 13, Promoting the competitiveness of public transport, the focus of work was on implementing the project of Integrated Public Transport (IPT). The IPT project pursues the goal of promoting the development of public transport in such a way that it can compete with the use of private cars. Given that the use of public transport is more energy-efficient than using a private vehicle, in the long term this is perhaps the most important measure within the competence of the Ministry of Transport, not just in terms of more efficient energy use, but also of ensuring long-term mobility.

The project was initiated in 2007 with the first preliminary studies. The project involved the formulation in 2008 of the expert basis for a tariff and zone system. In 2009 the legal basis was established for the actual integration. In that year, too, preparations were carried out for the implementation of public tenders for an economic analysis of zones and an information portal. The tenders were carried out in 2010, and tasks based on them are in progress.

On the expert level, cooperation was established with the City of Ljubljana and the Regional Development Agency for the Ljubljana urban region. Work is under way on setting up links for all three levels (state, region, city) and on drawing up the expert basis for public tenders.

Then in 2010 came the initiation of a range of tasks for effective introduction of IPT: in the area of the education system (developing courses), in the area of spatial planning (firming up urban

transport plans etc.) and in the area of information provision (a complete range of notification and awareness-raising for the public).

The use of budget funds was as follows: EUR 170,400 in 2008, EUR 211,600 in 2009 and EUR 30,000 in 2010.

In 2010, expenditure amounting to EUR 2.27 million was planned, but there was a delay in the implementation of envisaged tasks owing to the urgent prior resolving of complex legal and systemic issues associated with the transition to IPT.

The IPT project will be concluded in 2013.

4.4.2 Promoting sustainable freight transport (Instrument 14)

It should be stressed at the outset that within the area of sustainable freight transport, there is the particular problem of energy efficiency in road transit freight, and this problem increases or declines in close connection with economic growth in the regions served by the transit corridors. In Slovenia's case, these are corridors V and X. Moreover Slovenia is bound to observe the adopted internationally binding rules of the EU and other international groupings (Alpine Convention, CEMT etc.).

In terms of transport policy, the energy efficiency goal is closely tied to establishing realistic alternatives to road freight; thus for instance the railways are only an alternative to road freight if they are just as fast, flexible and cheaper. If that is not the case, we cannot talk of a serious alternative, but just of some other, non-competitive form of transport. There is no doubt that the transport of goods by rail and sea is more energy-efficient, but the alternative must be properly established throughout the transport route. So this involves a target that is not attainable solely within one country, let alone one that can be fulfilled in a short time-frame.

Slovenia is pursuing the targets of co-modality and on the basis and within the remit of the Resolution on Transport Policy it is drawing up the relevant strategic documents for the area of maritime transport and railways. The budgets for 2010 and 2011 were the first in the history of independent Slovenia to provide more funding for the construction and modernisation of the railways than for the motorway programme. Until serious alternatives to road transit are established, Slovenia has limited scope for action, involving improvements to the environmental dimensions of the domestic fleet of goods vehicles, and the introduction of additional mechanisms for transit traffic, such as heightened controls, more expensive road tolls and partly also higher fuel prices.

In 2009, as part of a public tender for grant assistance for procuring more environment-friendly heavy goods vehicles, which was carried out under authorisation of the Ministry of Transport by the Eco Fund, the Ministry allocated financial assistance for the purchase of 1,122 vehicles with EURO 5 engines. Grant funds of EUR 4 million were distributed. According to Eco Fund data, emissions of NO_x into the atmosphere fell by 666 t a year.

In August 2009 an agreement was signed between the Ministry of Transport and representatives of the road haulage sector regarding systemic adjustments in the area of the road haulage sector in order to reduce the consequences of the economic and financial crisis. One of the commitments in the agreement was the upgrading of the road toll system for vehicles in road toll classes R3 and R4, thereby ensuring the possibility of calculating the adjustment of tolls relative to the EURO emission class of the vehicle. This commitment was implemented on 1 January 2010, and represents a major incentive in ensuring sustainable freight transport in Slovenia.

In terms of energy efficiency, major savings can be achieved in a relatively short time through economical driving. The Civil Engineering Faculty at the University of Maribor collaborated in the international project "RECODRIVE", which was carried out as part of the "Intelligent Energy - Europe" programme. The project began in October 2007 and lasted 30 months. The purpose of the "RECODRIVE" project was to train employees and then test out and introduce possible solutions for energy-saving driving and management of vehicle fleets, and to encourage companies towards sustainable and systematic use of such measures. The target group for the project was transport companies and companies involved in the transport of goods and passengers alongside their primary mission. The project showed that it was possible while training was under way to reduce fuel consumption by around 8%, and in the period of six months after the training, the fuel saving falls to around 5%. The success rate for achieving savings over the longer term depends on the capacity of companies to adequately motivate their employees.

The Faculty of Civil Engineering, together with certain Slovenian companies, is developing a system for data collection on vehicles and analysis of the data, and in a user-friendly way this will show and assess the conformity of the way analysed vehicles are being used (the style of driving) with the principles of economical driving. This kind of simple indicator will enable companies to reward drivers for economical habits, while it can also be used to identify the most common errors that arise while driving. In this way companies can provide targeted notification to their drivers and help them towards more efficient driving and lower fuel consumption - and consequently towards reduced CO₂ emissions.

A study is being carried out by CAFT (Cross Alpine Freight Transport), and based on this we anticipate specific data on transit traffic flows through Slovenia. These data will serve as an important guide in the further planning of measures to ensure the sustainability of freight transport. Spending of budget funds on this study in 2010 amounted to EUR 37,285.

4.4.3 Increasing the energy efficiency of private vehicles (Instrument 15)

Informing consumers about economical fuel consumption and CO₂ emissions of new private vehicles

In 2008 monitoring was set up for implementation of the Rules on Informing Consumers about Economical Fuel Consumption and CO₂ Emissions from New Private Vehicles⁴⁷. Under the provisions of these rules, at the point of sale, sellers or suppliers of new private cars must adequately label all new models of cars with a label that provides the buyer with information on fuel consumption and specific CO₂ emissions. In addition to these labels, information on fuel consumption and specific CO₂ emissions must be noted down in all promotional brochures, posters and screen displays. These rules transposed into Slovenian law Directive 1999/94/EC relating to the availability of consumer information on fuel economy and CO₂ emissions in respect of the marketing of new passenger cars.

Inspections have shown that the provisions of these rules are being broken by suppliers and sellers of new private vehicles. Owing to amendments to the Environmental Protection Act of 2006, it has no longer been possible to impose fines pursuant to the rules.

For this reason the Ministry of the Environment and Spatial Planning drafted a decree that substituted for the rules. The Decree on Consumer Information on Fuel Economy and CO₂ Emissions in Respect of New Passenger Cars⁴⁸, was adopted on 15 October 2010, and entered into force on 18 May 2011. The purpose of the decree is to raise consumer awareness, and through it we are seeking to promote the awareness that in purchasing vehicles, fuel consumption and CO₂ emissions are also important. The decree also contains penalty provisions. A long transitional period

⁴⁷ Off. Gaz. RS No. 86/2003, 133/2003, 41/2004-ZVO-1 and 43/2004

⁴⁸ Off. Gaz. RS No. 81/2010

was needed in order for suppliers to have sufficient time to prepare advertising material and to design manuals on fuel economy and CO₂ emissions.

An annex to the decree contains a proposed label that would indicate the CO₂ emissions for specific vehicle models. The proposed label design is already in use in other European countries. In line with the Decree, suppliers are bound to make up a standard manual on fuel economy and CO₂ emissions, where consumers can find a list of all new cars on the market in Slovenia, together with data on fuel consumption and CO₂ emissions, and it will also contain tips for economical driving and an explanation of why greenhouse gases together with CO₂ are what cause climate change.

The decree envisages all promotional material (leaflets, advertisements, posters, electronic media etc.) setting out clearly and in proportion to the rest of the text (at least 10% of the advertising surface) the fuel consumption and CO₂ emissions of new cars on sale in Slovenia.

We estimate that implementation of the aforementioned rules and decree in the 2008-2010 has led to savings of 44.99 GWh/year. A portion of these savings may also be ascribed to the Act Amending the Motor Vehicles Tax Act, which is described below.

Differentiation of the tax on private vehicles in respect of emissions of CO₂

In relation to the task set out in the NEEAP 1, whereby a differentiation is required for the tax on private vehicles relative to CO₂ emissions, or rather that the energy efficiency of such vehicles should be increased, the Act Amending the Motor Vehicles Tax Act entered into force in March 2010⁴⁹. The amendments relate to the determining of the tax rate for private motor vehicles in respect of CO₂ emissions, and to the differentiation between petrol and liquefied petroleum gas on the one hand and diesel fuel on the other hand. Taking into account the EURO standards, other pollutants such as solid PM₁₀ particles, sulphur oxides, NO_x and the lack of data on CO₂ emissions for motor vehicles with diesel engines, the basic tax rates have been additionally increased. Equally, motor vehicle taxation also includes motor cycles and mopeds. At the same time, taxation of end-of-life motor vehicles already registered in Slovenia has been abolished.

We estimate that the amendments to tax legislation have spurred the buying of more environment-friendly vehicles. The total number of registered private motor vehicles was higher in 2010 than in 2009, but there were fewer registrations of private vehicles with higher CO₂ emissions, and a rise in the number of registered vehicles with lower CO₂ emissions (Table 14).

⁴⁹ Off. Gaz. RS No. 9/2010, ZDMV-C

Table 14: Number of first registered private motor vehicles in Slovenia in terms of CO₂ emissions (only petrol and diesel engines)

CO ₂ emissions [g/km]	2009		2010	
	petrol	diesel	petrol	diesel
less than 110	407	386	1,006	1,696
between 110 and 120	925	3,056	1,194	6,388
between 120 and 130	1,656	3,621	5,547	3,819
between 130 and 150	14,998	9,077	19,476	10,467
between 150 and 170	10,003	10,041	8,827	7,734
between 170 and 190	3,641	4,213	3,038	3,212
between 190 and 210	1,271	2,038	807	1,800
between 210 and 230	648	1,643	312	837
between 230 and 250	206	781	98	354
over 250	420	533	241	251
TOTAL	34,175	35,389	40,546	36,558
no data	1,366	2,764	145	120

Source: Ministry of the Interior

National budget revenue from motor vehicle tax amounted to EUR 71.444 million in 2008, EUR 40.86 million in 2009 and EUR 40.068 million in 2010).

Annual vehicle road tax

The year 2008 saw the issuing of the Annual Fee on the Use of Motor Vehicles Act⁵⁰ and the Decree on the Dealings and Amount of Annual Fee on the Use of Motor Vehicles⁵¹. For goods vehicles and buses, the decree sets the level of the annual fee depending on the emission level of the drive engine, but this does not take into account CO₂ emissions.

In 2009 an amendment to this decree was drafted, and this would also set the level of annual tax depending on CO₂ emissions and the emission class of the engine for private vehicles, but owing to the predicted social consequences at a time of economic crisis, the proposal was not enacted.

Revenue from the annual vehicle road tax amounted to EUR 109.7 million in 2008, EUR 108.81 million in 2009 and EUR 109.2 million in 2010.

4.4.4 Building cycle paths and support structures and promoting cycling (Instrument 16)

Projects to implement national cycle connections are carried out under the national budget allocations to the Slovenian Roads Directorate (DRSC). Following adoption of the Public Roads Act in 1997, greater demands were presented for technical and regulatory provisions for a national cycle network. The DRSC was tasked with carrying out expert, technical, developmental, organisational, administrative and other assignments set out in the Act and relating to the planning, construction, maintenance and protection of the national cycle network.

⁵⁰ Off. Gaz. RS No. 57/2008

⁵¹ Off. Gaz. RS No. 100/2008

In the first phase there was a need to provide information and raise awareness about the importance of such projects, and to draw up the analytical, planning and technical basis for development in this area. This involved the production of a draft strategy for developing the national cycle network, instructions for project design of cycle areas and a model of short-term, medium-term and long-term investment needed to construct the entire network. The course of the network was strategically laid mapped out along the entire length of approximately 2,700 km of links, and a draft DKP categorisation was formulated.

In 1999 the first two KOLE cycle projects were included in the budget: MMP Rateče- Kranjska Gora-Jesenice and: MMP Vič-Dravograd-Trbonje. New sections of such projects, which have provided the character of travel, tourism and sports cycle links, have been met with a very positive response.

In the 2011 DRSC budget there are currently 18 active projects exclusively for cycling. Of these, six projects are cofinanced from EU structural funds. In addition to independent cycling projects, cycling surfaces have also been built within other group projects that the DRSC has on its list of activities (such as arranging roads through settlements and other reconstructions).

Despite the constant lack of funds that the DRSC needs to implement all the other activities, funds for cycle projects are gradually increasing. In 2008 a total of EUR 1.259 million was spent, in 2009 EUR 1.904 million and in 2010 EUR 3.314 million, giving a total of EUR 6.477 million. According to data from the Ministry of Transport, funds will also be increased in the 2011-2013 period.

4.5 Multisectoral instruments in broad consumption and industry

4.5.1 Regulations on the energy performance of buildings (Instrument 17)

From 2008 to 2010 activities relating to the energy performance of buildings were tied primarily to the transposition and implementation of Directive 2002/91/EC on the energy performance of buildings and its successor, Directive 2010/31/EU on the energy performance of buildings (recasting).

Minimum requirements for the energy performance of buildings and the methodology of calculating the energy characteristics of buildings

In 2010, pursuant to the Construction Act and in accordance with Directive 2010/31/EU, the MESP adopted new Rules on Efficient Use of Energy in Buildings⁵², which replaced the Rules on Thermal Insulation and Efficient Energy Use in Buildings⁵³. The rules cover new construction, reconstruction and also a range of capital works that intervene in parts of buildings and affect their energy performance.

The rules set out the technical requirements that must be met for efficient use of energy in buildings in the area of thermal insulation, heating, ventilation, cooling, air conditioning, hot drinking water and lighting in buildings, and the method of calculating the design energy characteristics of a building. In the renovation of parts of buildings, these rules are applied as appropriate, taking into account the external climatic and local conditions and the internal climatic requirements and cost effectiveness, for all systems, sub-systems and elements that affect the energy performance of buildings and are being refurbished.

The provisions in these rules that will serve to increase the energy performance of buildings are:

- taking into account the entire lifecycle of the building, its purpose, climate data, materials of construction and shell, its aspect and orientation and the architectural design,

⁵² Off. Gaz. RS No. 52/2010, PURES-2

⁵³ Off. Gaz. RS No. 42/2002

- limit values for thermal insulation of the building shell, requirements for the systems of heating, cooling, ventilation and hot water supply, and attention to the energy aspects of lighting in buildings,
- a definition of the maximum permitted requirement for heating and cooling, the maximum permitted consumption of end-use or primary energy and the minimum heat characteristics of construction elements for new buildings or buildings under reconstruction. The gradual reduction of these limit values has been implemented, with the threshold in 2015;
- stricter energy requirements for public buildings - i.e. non-residential buildings with a gross ground surface area larger than 250 m², which are at least partly financed from public funds and where the investor is bound to commission construction in accordance with the act governing public procurement,
- relative to the rules from 2002, the conditions for thermal insulation on the building shell have been tightened up by at least 40%,
- the requirement that at least part (25%) of the energy required for the building is provided from renewable energy sources,
- mandatory use of the Technical Guideline TSG-1-004:2010 Efficient Use of Energy, which sets out the methodology for calculating the energy properties of buildings and is based on adopted European standards that were drawn up especially to support Member States in implementing Directive 2010/31/EU. This methodology will also be used in formulating energy IDs.

Feasibility study regarding alternative systems for supplying energy to buildings

In 2008, pursuant to the Energy Act the MESP adopted the Rules on the Feasibility Study Regarding Alternative Systems for Supplying Energy to Buildings⁵⁴. These rules set out the methodology for and the obligatory content of feasibility studies regarding alternative systems for supplying energy to buildings with a useful ground floor area of more than 1000 m², where this involves the construction of new buildings or reconstruction of buildings where the energy supply system is being changed.

In accordance with Directive 2010/31/EU we count the following as alternative systems for supplying energy to buildings: decentralised systems based on renewable energy sources, systems for cogenerating heat, cooling and electricity, district or communal heating or cooling and heat pumps.

Formulating and issuing energy IDs

With regard to the formulation and issuing of energy IDs, pursuant to the Energy Act, in 2009 the MESP adopted Rules on the Methodology of Formulating and Issuing Building Energy IDs⁵⁵. The rules lay down the detailed content and form of energy IDs, the methodology for formulating energy IDs and the content of data, the method of keeping the register of energy IDs and the method of submitting an issued energy ID for entry in the register. It also prescribes the types of buildings governed by the obligation to post an energy ID in a visible place, in accordance with Directive 2002/91/EC.

In 2010, pursuant to the Energy Act the ME adopted the Rules on Training, Licences and the Register of Licences of Independent Professionals for the Issuing of Energy IDs⁵⁶, which defines the training programme for independent professionals for formulating energy IDs, the detailed conditions for organisations providing training for independent professionals, the form and content of the licence for independent professionals and the detailed content and method of keeping the register of licences for independent professionals.

In 2010 a call for applications was issued for the selection of an organisation to provide training and testing of independent professionals who will issue energy IDs.

⁵⁴ Off. Gaz. RS No. 35/2008

⁵⁵ Off. Gaz. RS No. 77/2009

⁵⁶ Off. Gaz. RS No. 6/2010

Regular inspections of air conditioning systems

In 2008 the MESP adopted the Rules on Regular Inspections of Air Conditioning Systems⁵⁷. In accordance with the Energy Act, these rules define the content, method of implementation and the deadlines for regular inspections of air conditioning systems with rated capacity of over 12 kW.

In 2010, pursuant to the Energy Act the ME adopted the Rules on Training, Licences and the Register of Licences of Independent Professionals for the Inspection of Air Conditioning Systems⁵⁸, which defines the training programme for independent professionals providing regular inspections of air conditioning systems, the detailed conditions for organisations providing training for independent professionals, the form and content of the licence for independent professionals and the detailed content and method of keeping the register of licences for independent professionals.

In 2010 a call for applications was issued for the selection of an organisation to provide training and testing of independent professionals who will perform inspections of air conditioning systems.

Regular inspections of boilers

Between 2008 and 2010 there was continued mandatory provision of the national commercial public service of measuring, inspecting and cleaning of combustion appliances, chimney pipes and vents, for environmental protection and energy efficiency, protection of human health and protection from fire (hereinafter: the chimney maintenance service), covering inspection of plants, measuring flue gas emissions, mechanical cleaning of plants and keeping records of the chimney maintenance service.

In this period, MESP activities were focused chiefly on awarding concessions for providing the services of chimney maintenance. In this period the number of chimney maintenance areas with awarded concessions increased from 113 to 193, and only one area remained without a concession. In this way, 408,650 out of a total of 412,759 combustion plants were included (99%).

In determining energy savings achieved in 2010 through the chimney maintenance service, the following assumptions were made:

- level of coverage of combustion plants by concession: 99%
- owing to variations in data, for consumption of gaseous, liquid and solid fuels, we used SORS data for broad consumption, specifically the average level of fuel consumption in 2007, 2008 and 2009,
- coverage with mechanical cleaning of combustion, flue and ventilation devices for the concession areas was assumed to be 80%,
- coverage with measurements of the emission of flue gases from combustion devices was assumed to be 70%,
- the potential fuel saving from mechanical cleaning of combustion plants averages 0.5% for gas-fired plants, 2% for oil-fired plants and 4% for solid fuel plants,
- the potential fuel saving from the measurement of flue gas emissions and settings averages 2% for gas-fired plants, 2% for oil-fired plants and 0% for solid fuel plants (measurements not performed in practice).

The estimated fuel saving does not take into account:

- the energy saving from the chimney maintenance service for combustion plants producing heat for heating in industry (approximately 10% of fuel consumption in industry),

⁵⁷ Off. Gaz. RS No. 35/2008

⁵⁸ Off. Gaz. RS No. 6/10

- the energy saving achieved through the replacement of combustion and flue installations resulting from provision of the chimney maintenance service owing to excessive emission values.

Based on the above assumptions, and taking into account the proportionate share of energy savings through regular boiler inspections in the 2008-2016 target period, we estimate that the provision of the chimney maintenance service in 2010 led to energy savings of 108.2 GWh and a reduction in CO2 emissions of 16,917 t.

4.5.2 Requirements on the minimum energy efficiency of products (Instrument 18)

From 2008 to 2010, activities related to the regulations governing the minimum energy efficiency of products were focused on transposing and implementing Directive 2005/32/EC establishing a framework for the setting of ecodesign requirements for energy-using products, its successor Directive 2009/125/EC establishing a framework for the setting of ecodesign requirements for energy-related products (recast) and regulations issued on the basis of these two directives.

The Act Amending the Energy Act was adopted in June 2008⁵⁹. This act served to transpose the part of Directive 2005/32/EC relating to the ecodesign requirements for products that require fuel, heat or electricity to operate, and including the minimum energy efficiency of products.

The other requirements of Directive 2005/32/EC were transposed through the Decree on the Establishment of a Framework for the Setting of Ecodesign Requirements for Energy-Related Products⁶⁰, the Technical Requirements for Products and Conformity Assessment Act⁶¹ and the Consumer Protection Act⁶². This has enabled the transposition of future implementing regulations under this directive.

The 2008-2010 period saw the implementation of three implementing regulations based on the transposed EU directives. This involved the Rules on Efficiency Requirements for New Hot-water Boilers Fired with Liquid or Gaseous Fuels throughout the period⁶³, the Rules on the Energy Efficiency Requirements for Electrical Household Refrigerators and Freezers and Combinations Thereof in 2008 and part of 2009⁶⁴ and the Rules on Minimum Energy Efficiency Requirements for Ballasts for Fluorescent Lighting.

In 2009 we began implementing Commission regulations, issued on the basis of Directive 2005/32/EC, on the energy efficiency requirements for the following products that use energy:

- electrical and electronic household and office equipment in stand-by and shut-off mode,
- simple TV-communicators,
- non-directional lighting in households,
- fluorescent lights without installed ballasts, high-intensity lights and ballasts and lamps for the operation of these lights (the regulation replaced the aforementioned rules on ballasts)
- external power supply units,
- electric motors,
- circulation pumps,

⁵⁹ Off. Gaz. RS No. 70/2008

⁶⁰ Off. Gaz. RS No. 19/2008

⁶¹ Off. Gaz. RS No. 59/1999

⁶² Off. Gaz. RS No. 20/1998

⁶³ Off. Gaz. RS No. 107/2001

⁶⁴ Off. Gaz. RS No. 58/2003

- televisions and
- household refrigeration appliances (the regulation replaced the aforementioned rules on household refrigerators).

Commission regulations on household washing machines and dishwashers started to be implemented in 2010.

4.5.3 Cofinancing energy audits (Instrument 19)

In the 2008-2010 period this instrument was carried out only in 2008. In that year the MESP issued two calls for applications to promote the conducting of energy audits⁶⁵, as follows:

- a public call for the allocation of grant incentives to carry out energy audits and draw up investment documentation in the planning phase of projects for energy efficiency and use of renewable energy sources, intended for the public sector, amounting to EUR 65,000 and
- a public call for the allocation of grant incentives under the “de minimis” rule to carry out energy audits and draw up investment documentation in the planning phase of projects for energy efficiency and use of renewable energy sources, intended for enterprises, amounting to EUR 70,000.

Based on calls issued in 2007 and 2008, in 2008 a total of nine energy audits were performed on public buildings with combined energy consumption of 22,528 MWh/year, of which 8,796 MWh/year is in the form of electricity. The identified potential for reducing energy consumption through EEU measures with a payback period of up to five years amounted to 14.6% or 3,289 MWh/year, and the potential reduction of CO₂ emissions to 1,221 t/year.

Moreover in 2008 a total of 12 energy audits were performed in enterprises with combined energy consumption of 224,536 MWh/year, of which 100,782 MWh/year is electricity. The identified potential for reducing energy consumption through EEU measures with a payback period of up to three years amounted to 12.3% or 27,651 MWh/year, and the potential reduction of CO₂ emissions to 8,714 t/year.

Spending of budget funds in 2008 amounted to EUR 125,231.

We estimate that the performance of energy audits served to reduce fuel consumption in 2008 by 3,343 MWh/year and consumption of electricity by 2,089 MWh/year, and to reduce CO₂ emissions by 1,984 tons/year.

4.5.4 System of guaranteed purchase prices for electricity (Instrument 20)

Between 2008 and 2010 the ME continued the support scheme to promote investments in plants for generating electricity from renewable energy sources and from high-efficiency cogeneration of heat and power, which was introduced in 2003.

Under the Commission’s interpretation, the framework of Directive 2006/32/EC only includes diffuse electricity generation facilities that are located at the end-use energy consumer, and that reduce the consumer’s take-off of electricity, as energy efficiency measures. Heeding these criteria, the following types of electricity generation facilities were taken into account: plants for the cogeneration of heat and electricity (cogeneration) in industry and broad consumption, solar power plants on buildings with capacity between 0 and 1,000 kW and wind farms with capacity of 0 to 50 kW. Taking these criteria into account, a total of 349 new power plants were included in the support scheme in the 2008-2010 period:

- 10 cogeneration plants with capacity of 3,136 kW,
- 336 solar plants with capacity of 12,280 kW and
- 3 wind farms with capacity of 21 kW.

⁶⁵ Off. Gaz. RS No. 56/2008

The total combined capacity of these plants amounts to 15.437 MW. In 2010 these facilities generated a total of 17,784 MWh of electricity, of which 10,320 MWh were produced through cogeneration. The support paid out from the surcharge on the network fee for the compulsory purchase of electricity and payment of the premium on electricity that system operators buy from qualified producers, amounted in 2010 to EUR 4.041 million for these facilities, and the actual amount of support to a little over EUR 3 million.

We estimate the total energy saving owing to electricity generated in 2010 to be 31,560 MWh/year, of which 12,900 MWh/year were from cogeneration (using the factor for gas engines of 1.25), and through the operation of wind and solar power plants 18,633 MWh/year (using the factor of saving for electricity of 2.5). We estimate that the operation of these facilities served to reduce CO₂ emissions by 7,201 t/year in 2010.

4.5.5 Contractual reduction of energy costs (Instrument 21)

The instrument of contractual reduction of energy costs is implemented pursuant to the Public-Private Partnership Act⁶⁶ and the Rules on the Eligibility Content for the Implementation of Projects Modelled on Public-Private Partnership⁶⁷, wherein project documentation must be drawn up in accordance with the Decree on a Uniform Methodology for the Preparation and Treatment of Investment Documentation in the Field of Public Finance⁶⁸.

The Ministry of Finance participates on the national or local level in the selection of private partners and in evaluating and implementing public-private partnership projects. Moreover it supplies persons of public law with information on the implementation of such projects. The Ministry produced a report on concluded forms of public-private partnership in Slovenia for 2008 and 2009, which shows that no contracts were concluded in the areas of EEU and RES under the public-private partnership model.

In 2008 a study was commissioned by the MESP on "The drawing up of reports, terms and rules for implementing public-private partnerships and contracting in calls for applications from Cohesion funds under the OP ETID".

Despite the promising potential for developing the market for contractual reduction of energy costs, especially in the public sector, the market remains poorly developed, with few providers and projects. Projects for contractual reduction of energy costs were carried out at the Brežice General Hospital (refurbishing of boiler unit), Acroni d. o. o. in Jesenice (refurbishing lighting), at the municipalities of Gorje and Slovenska Bistrica (refurbishing public lighting), at the Ljubljana Technology Park (new energy system with cogeneration), the Urban Municipality of Kranj (refurbishing the pool complex), the refurbishing of boiler units in schools and other public buildings (installation of wood biomass boilers) and so on.

The key obstacles in implementing projects for contractual reduction of energy costs in the public sector stem from the regulations and their interpretation. Here we might point out the following obstacles:

- the "erroneous interpretation" of accounting standards in dealing with these projects. An obstacle arises particularly in cases where auditors, dealing with an individual contract, identify that contract as financial or commercial leasing, since in certain respects, contractual reduction of energy costs does indeed have some similar characteristics. A problem arises because owing to a lack of experience and adequate instructions/guidelines in this area, established accounting practices do not treat these projects as special cases, which they indeed are, given that their essential feature is creating savings on energy costs, through which the services of the private partner are paid back.

⁶⁶ Off. Gaz. RS No. 127/2006

⁶⁷ Off. Gaz. RS No. 32/2007

⁶⁸ Off. Gaz. RS No. 60/2006

- problems in accounting. Discrepancies and complications arise regarding the appropriate way of accounting individual items in the relationship between client and contractor (capital assets, amortisation and depreciation etc.).

In general, no major adjustments of existing legislation are necessary, but in the initial phase we will need to provide or ensure adequate instructions for dealing with these projects (accounting standards).

4.5.6 Energy consumption management programmes at final consumers (Instrument 22)

Amendments to the Energy Act

The Act Amending the Energy Act was adopted in June 2008⁶⁹, and through the amendments of Articles 66 b and 67, in accordance with Directive 2006/32/EC, for system operators and for suppliers of electricity, heat from the distribution network and gaseous and liquid fuels to final customers, the Act introduced the obligation to ensure energy savings at final customers. This obligation extends to the collection of funds from the contribution for raising the efficiency of electricity consumption and from the surcharge for other energy products, and to the formulation and implementation of programmes to improve energy efficiency. The aforementioned articles were amended and adopted in the Act Amending the Energy Act⁷⁰.

For smaller energy providers the Act requires just the collection of funds, while in their place the Eco Fund draws up and implements programmes to improve energy efficiency. This ensures the additional funds needed for implementation of the NEEAP.

The Government prescribes the targets for liable entities and the Eco Fund regarding energy savings, types of energy services and measures, the scope and mandatory content of programmes and the content of reports on programmes carried out. The Government also determines the level of the contribution for electricity and the surcharge for other energy products.

Liable entities draft energy efficiency improvement programmes, which in turn are approved by the Eco Fund. The methods for determining energy savings achieved through specific energy efficiency improvement programmes are prescribed by the minister responsible for energy.

Funds for the implementation of programmes to improve the efficiency of electricity consumption are provided by final electricity customers through a contribution to increase efficient electricity consumption. Funds for the implementation of programmes to improve the efficiency of the consumption of heat from the distribution network, of gas and of liquid fuels are provided by final customers through a surcharge for heat and fuels to improve energy efficiency.

The Decree Ensuring Energy Savings for Final Customers was issued in relation to the obligation of energy suppliers to ensure energy savings at final customers⁷¹. This decree prescribes the minimum level of energy savings at final customers, the types of energy service and the energy saving measures, the scope and mandatory elements of energy efficiency improvement programmes and the deadlines for and scope of reporting on the implementation of energy efficiency improvement programmes that must be drawn up and implemented by energy suppliers.

A constituent part of the decree is a table that sets out by year, up to and including 2014, the level of the contribution to raise the efficiency of electricity consumption and surcharges to raise the efficiency of using district heating and liquid and gaseous fuels. Collection of funds pursuant to the decree began in

⁶⁹ Off. Gaz. RS No. 70/2008, EZ-C

⁷⁰ Off. Gaz. RS No. 22/2010, EZ-D

⁷¹ Off. Gaz. RS No. 114/2009 and 57/2011

February 2010. In this way a total of EUR 18.1 million was charged in 2010, and EUR 15.8 million was collected. A total of EUR 7 million of these funds was used in 2010 for grant incentives to citizens for the use of renewable energy sources and greater energy efficiency in residential buildings, as allocated by the Eco Fund on the basis of the programme adopted by the Slovenian Government.

Issued in addition to the decree were the Rules on the Methods for Determining Energy Savings at Final Customers⁷², which lay down the methods for calculating savings achieved through specific energy efficiency improvement measures. For individual measures the rules also lay down the method of calculating possible consumption of renewable energy sources and the reduction of carbon dioxide emissions.

Activities of energy companies

In 2009 and 2010 the Electricity Distribution Network System Operator [Sistemski operator distribucijskega omrežja z električno energijo, d.o.o.] (DNSO) conducted two surveys of the views of commercial electricity customers, which consume around 70% of all electricity in Slovenia taken from the distribution network. In these surveys the DNSO sought to obtain answers regarding the perception of the electricity price and the price of networks, the methods of energy consumption, the attitude of companies to environmental protection and the attitude to various methods of producing electricity. The results of the surveys were intended to formulate the strategic decisions and operational tasks of DNSO management. They were presented in Slovenian energy and business media and at several conferences. Furthermore, in 2010 a survey was conducted on the awareness of electricity consumers in households regarding the use of energy-saving light bulbs.

In 2010 the DNSO produced a study, "Analysis of the effects of a system of electricity metering (AMI - Advanced Metering Infrastructure) in the Slovenian distribution network", in accordance with the requirements of Directive 2009/72/EC, which requires that by 2020 Member States provide advanced metering systems to at least 80% of customers for whom economic analysis shows positive results. The study presents one of the basic steps in developing active networks (Smart Grids), for which the DNSO is responsible. The study has shown that AMI systems enable the development of above-standard services for customers. The positive economic effects of such systems will be felt by both customers and suppliers, and there will also be a positive effect on the environment.

In Slovenia, pilot systems for advanced metering have already been operated for several years, and gradually in certain electricity distribution companies, while Elektro Gorenjska took the decision to pursue mass introduction of the AMI system. In order to standardise the further introduction of advanced metering, the DNSO called on all electricity distribution companies to heed the conclusions of the study in introducing advanced metering systems.

In the area of energy consumption management at customers, Holding Slovenske elektrarne (HSE) was active in the 2008-2010 period chiefly with two campaigns, specifically through the promotion of Blue Energy [Modra energija], which HSE is running, and the campaign You are energy - be efficient [Energija si - bodi učinkovit], where HSE is supporting the campaign.

Blue Energy is energy from hydroelectric plants on which the Blue/Wise Energy project was based back in 2004 in cooperation with distribution companies. Its purpose is to promote the development of energy from renewable sources, the formation of a market for such energy the selling of it in Slovenia. Electricity from renewable sources under the Blue Energy label is sold in Slovenia by Holding Slovenske elektrarne (HSE) together with distribution companies. Through their purchases, all buyers of Blue Energy contribute to the Blue Fund, and in this way contribute to protecting the environment and health and to the greater reliability of electricity supply. The Blue Fund

⁷² Off. Gaz. RS No. 56/2008

is intended to promote the supply of energy from renewable sources, research in the field of stepping up the securing of energy from renewable sources and the refurbishing and construction of units that generate electricity from renewable sources.

The aims of the campaign You are energy - be efficient, which is intended primarily for households and has been in operation since 2007, are: encouraging individuals towards efficient energy consumption and environmental protection, and by raising awareness among the public of energy efficiency to facilitate prosperity in the form of savings of money and energy and raising the quality of life. These aims are achieved through various activities, prominent among which are television, radio, print and web advertising, internal communication, a website with accessible tips on economical energy use, prize games and so forth. To date a total of 26 actions have already been carried out. The action "Heat Pumps", for instance, which seeks to promote the use of heat pumps for heating residential buildings and will run up until the end of 2011, involves the participation of HSE, Elektro Maribor, Elektro Celje, Elektro Gorenjska, Elektro Primorska and 10 heat pump suppliers.

GEN-I d.o.o. carried out numerous activities in the area of informing target groups about EEU measures. It cooperated in the Energy-Saving School project. It encouraged numerous industrial and commercial customers to draw up planned measures for the coming medium-term period.

Electricity distribution companies provide various incentives for their customers to pursue efficient use and savings of electricity. On the back of bills they regularly post advice on energy saving. They have published leaflets with practical advice on energy saving. They offer their household customers free energy advice about how their behaviour can serve to lower their energy bills. They offer households the loan of meters that measure the electricity consumption of household appliances. Some companies encourage customers to use electricity during the lower tariff period.

Some electricity distribution companies are cooperating with bigger customers in the joint exploitation of renewable energy sources, the installation of modern plants with better yield and analysing daily diagrams of electricity consumption. Through these analyses, the redeployment of energy sources and the adjustment of daily diagrams they are seeking to significantly reduce the peak load from customers, which would mean at the same time easing the load on certain distribution transformer stations and parts of the network. In this connection they have formulated special offers.

One of the more recent forms of support is projects for energy production at customers where the companies participate with investments of knowledge and capital. Examples of such projects include setting up a cogeneration system in an industrial zone, refurbishing a boiler unit with a wood biomass boiler in a primary school, heating a primary school using a ground/water heat pump and setting up a photovoltaic power plant.

In 2007 Elektro Gorenjska presented Reenergija, the market brand of electricity generated from small hydroelectric and solar power plants. Reenergija is intended for all household customers supplied with electricity. By offering Reenergija they are promoting the generation of electricity from renewable sources along with the use of renewable energy sources. In cooperation with partners, they designed a range of services in the area of solar collectors and heat pumps.

Geoplin d.o.o., a supplier of natural gas to a small circle of large, mainly industrial customers, has also been focusing its activities on projects for using natural gas with the use of modern technology and promoting efficient consumption of energy and use of the gas pipeline networks. Here it joins business partners in projects for combined heat and power generation, combined use of gas for heating and cooling, use of gas in transport and so forth.

Energetika Ljubljana d.o.o. provides information to its customers about energy efficiency, the possibilities for connection to district heating and natural gas, and about financial incentives on its website, through its own information material, in the public media, the City of Ljubljana newsletter, at trade fairs (e.g. Nature and Health), expert consultations, guided tours and so forth. In the 2008-2010 period, by connecting existing buildings to the district heating and gas supply system, they reduced end-use energy consumption by around 30 GWh a year. Energetika Ljubljana offers final customers low-interest loans for a first connection of existing buildings or reconstruction of facilities for more efficient energy use, or a financial leasing instrument for a period of 10 years.

Energetika Maribor d.o.o. provides information to final customers in an annual newsletter published on its website. The newsletter also provides information about the possibilities for achieving energy savings through improvements to heating systems, thermal insulation of buildings, replacement of building fixtures and so forth. Since 2009 they have periodically enclosed with bills "Energy Tips", in which they inform customers about possible solutions for reducing energy consumption. Three years ago Energetika Maribor concluded an extensive project to set up remote monitoring of the operation of around 98% of heat stations, whereby on the primary side they replaced in their entirety, and on the secondary side in the majority of cases, the obsolete electronic regulation of heat stations.

In connection with the management of energy consumption at final customers, Petrol Energetika d.o.o. has been implementing a range of programmes and projects based on the company's action plan of 2009. Through this they have undertaken to raise energy efficiency and the share of renewable energy by 20% and reduce CO₂ emissions by 20% by 2020. In the contiguous commercial zone of the Ravne and Štore ironworks, they have provided energy advice plus awareness-raising and education for energy consumers, on a monthly basis they monitor the specific consumption of energy and carry out projects for the exploitation of waste heat. For multi-dwelling buildings and other buildings with several units, in 2009 they started charging according to use and in this connection, regular inspections and regulation at heat stations, installation of thermostat valves and so forth. They carried out several projects based on contractual assurance of reducing energy costs, with energy savings of 15 to 20%. They gave a large number of talks for primary and secondary schools and a workshop for commercial users from Koroška and Zasavje.

Several energy suppliers (GEN-I, Elektro Maribor, Elektro Primorska, Geoplin, Energetika Ljubljana and others) that have the status of large liable entities under the Decree Ensuring Energy Savings for Final Customers, drew up programmes in 2010 for raising energy efficiency at final customers for 2011, although owing to the necessary amendments to the Decree, they have not yet been implemented.

4.6 Horizontal instruments in broad consumption and industry

4.6.1 Programmes of awareness-raising, information, promotion and training and demonstration projects (Instrument 23)

Cofinancing projects of awareness-raising, information and promotion

In 2007 the MESP published a call for applications for cofinancing awareness-raising, promotional and educational projects for energy efficiency and renewable energy sources in 2007 and 2008⁷³ in the amount of EUR 60,000 for 2007 and EUR 80,000 for 2008. The MESP published an identical call in 2008 for

⁷³ Off. Gaz. RS No. 56/2008

cofinancing projects in 2009⁷⁴ amounting to EUR 80,000. The level of cofinancing amounted to 50% of the project value.

The calls for applications were focused on:

- promoting efficient consumption and renewable energy sources in education programmes that facilitate a better understanding of such subjects and promote more attractive methods of learning,
- promotional projects that motivate local communities to use local energy sources and energy efficiency in public buildings,
- informing potential investors about advanced energy technologies for energy efficiency, cogeneration, using solar energy, wind energy and other renewable energy sources and
- promoting energy efficiency in transport.

A total of 24 informational, educational, awareness-raising and promotional projects, valued at EUR 78,132 were cofinanced in 2008. The same number of projects, valued at EUR 73,920, were cofinanced in 2009.

The quantitative effects of awareness-raising, promotional and educational projects is hard to estimate. The effects of these projects can be expected through the more rational use of energy and the use of modern energy technologies. It is generally true that through the intensive provision of awareness-raising, promotional and educational programmes, energy savings of around 5% can be achieved.

“Efficiently with Energy” newsletter

Alongside the ME website aimed at EEU and RES, the newsletter “Efficiently with Energy” [“Učinkovito z energijo”] is the main communication tool for providing information to various target groups. The main target groups of the newsletter are: energy consumers in industry, services and the public sector and in multi-dwelling buildings, state administration, local communities, energy supply companies, consulting, project design and engineering organisations, energy equipment suppliers, financial institutions, developmental, research and educational institutions, non-governmental organisations and others.

The “Efficiently with Energy” newsletter presents new developments related to energy and environmental policies, regulations and standards and regarding programmes, projects and calls for applications from ministries, the European Commission and other topical content associated with EEU and RES. The newsletter carries information about the development of the energy market, international and bilateral programmes and projects, energy-efficient technologies, activities of energy consumers, energy supply companies, local communities, local energy agencies, financial institutions and others.

The newsletter’s concept was revised in autumn 2010. The newsletter is set to become a key communication tool chiefly for providing information about the activities of the state administration and self-governing local communities and European Union institutions in the area of energy efficiency and use of renewable energy sources, with stress on presenting the implementation of national action plans for energy efficiency and renewable energy. In the future the newsletter will come out ten times a year, ensuring greater currency of the content.

In 2008 a total of 8 issues were published, and in 2009 there were 5 covering 8 pages in a print run of 4,500 copies. The newsletter can also be accessed in electronic form. In 2010, in line with the new concept, two issues were published, and the transition was made to purely electronic publishing.

⁷⁴ Off. Gaz. RS No. 56/2008

Energy efficiency competition

In 2008, 2009 and 2010, the MESP and ME together with the newspaper Finance held a competition for energy efficiency (for the 14th time in 2010), intended to promote energy efficiency among larger consumers of energy in industry, the public and service sectors, as well as to promote the use of renewable energy sources. The competitions involve the selection of the most energy-efficient company, the energy manager and best project in the area of energy efficiency and use of renewable energy sources. The award and prize presentation ceremony was held during the annual Energy Days conference.

Cofinancing international EEU and RES projects

In 2008 and 2010 the MESP and ME issued calls for applications to cofinance international projects in the area of efficient consumption and renewable sources of energy⁷⁵. The calls were intended to cofinance the work of Slovenian partners, who as members of international consortiums participated in projects as part of the Intelligent Energy Europe Programme.

The Intelligent Energy Europe Programme (IEE), which is one of three pillars of the EU Competitiveness and Innovation Framework Programme 2007-2013, is intended primarily to remove non-technological barriers to EEU and RES, with emphasis on the promotion and spreading of information. The IEE, whose budget amounts to around EUR 725 million, covers the following areas:

- energy efficiency and rational use of resources: energy-efficient buildings, industrial excellence in energy consumption, energy-efficient products,
- renewable energy sources: electricity generation, heating and cooling production, small RES systems in buildings, biofuels,
- energy in transport: alternative fuels and clean and energy-efficient vehicles, energy-efficient transport, training up existing local and regional transport agencies,
- integrated initiatives: establishing local and regional energy agencies, European networking for local actions, sustainable energy communities, commercial initiative for biofuels, energy services initiative, intelligent energy education initiative, product standardisation initiative, combined heat and power generation initiative,
- support for projects to establish market presence of innovative technology, processes, products and services.

Projects are aimed at supporting Member States in transposing and implementing European directives, promotion of advanced energy technology and processes, introduction of new models of financing, establishing local energy agencies, training energy consumers, project designers, installation engineers etc.

Owing to limited budget funds, in 2008 the MESP only cofinanced projects to establish six local energy agencies. The level of cofinancing funds in 2008 amounted to EUR 147,374. In 2010 the ME cofinanced the implementation of 19 IEE projects amounting to EUR 135,918.40, including two projects to establish local energy agencies.

In their applications in response to calls for proposed projects as part of the IEE programme, Slovenian organisations have enjoyed above-average success. In 2010, for instance, there were 42 international projects being pursued

⁷⁵ Off. Gaz. RS No. 62/2008 and 75/2010)

with cofinancing from the IEE that involved partners from Slovenia. Of these projects, 12 were concluded in 2010.

With regard to the IEE programme, it should be pointed out that calls for applications under the programme regularly involve the participation of international consortiums that include primarily government agencies responsible in Member States for implementing programmes to promote EEU and RES and for transposing and implementing directives in this field. Agencies involved in the European network of energy agencies, EnR, are especially active. In this way, implementation of IEE projects ensures the cofinancing of national development and promotional projects and projects for transposing and implementing directives in the amount of 75% of the IEE programme. Since Slovenia has not had an appropriate institution since 2005, this source of financing remains to a large extent unused.

Activities of local energy agencies

With significant support from the IEE programme and cofinancing from the national budget, seven local energy agencies were established in Slovenia from 2005 to 2009: the Local Energy Agency for Pomurje, ENERGAP for Podravje, KSSENA for Savinjska, Šaleška and Koroška, GOLEA for Goriška, the Local Energy Agent for Lower Podravje, LEAD for Dolenjska, Posavje and Bela krajina and LEAG for Gorenjska. The primary purpose of establishing local energy agencies was to support municipalities in ensuring sustainable energy development, with emphasis on energy efficiency and renewable energy sources.

The founders of these agencies are mainly municipalities, predominant among which are urban municipalities and groups of municipalities. These agencies provide coverage to a large extent of all the regions of Slovenia apart from Central Slovenia and the Notranjska-Karst region.

The majority of agencies cooperate in drawing up municipal energy concepts and implementing the action plans based on them. The agencies produce energy audits and feasibility studies, perform energy management of public buildings and formulate concepts for the refurbishing and rationalisation of public lighting. Some agencies design investment projects (such as the energy rehabilitation of buildings, boiler rooms or district systems using biomass, refurbishing public lighting and photovoltaic power plants) to obtain financial support from the state or from European structural funds, and they cooperate in their implementation. Some agencies (e.g. ENERGAP, KSSENA and GOLEA) are also successfully involved in implementing international projects as part of the IEE programme and other European or bilateral programmes. Another important activity of agencies is providing information and education to various target groups: the public sector, commercial sector, the public and so forth.

The activities of local energy agencies and other organisations involved in implementing IEE projects provide significant enhancement of programmes implemented on the national level.

4.6.2 Education programmes (Instrument 24) Education programmes in primary, secondary and higher education

In primary education programmes, content related to energy efficiency, in association with environmental protection, is included in the following optional subjects:

- electrical engineering,
- human life on Earth,
- researching one's native area and protecting its environment,
- chemistry in the environment,

- materials processing: wood, synthetic substances, metals,
- environmental education,
- projects involving physics and ecology,
- projects involving physics and technology.

All these subjects were adopted prior to 2000. Syllabuses are prepared under the principles of outline syllabuses, and can be updated continuously. For this reason it is vital to train the teachers dealing with these subjects.

In grammar schools, environmental protection is part of the environmental studies subject, while in the music and dance streams of arts grammar schools, the subject of "ecology" is compulsory for pupils within the set of compulsory options. In the case of grammar schools, too, all these course components were adopted prior to 2000. In 2008, as part of the overhauling of grammar school syllabuses, the expert council determined the content of the optional subject "Environmental education as education for sustainable development".

From 2006 to 2008 a revision of the courses took place in Slovenia for vocational and professional education, and this was cofinanced by the European Social Fund. This involved the revision of curricula for obtaining qualifications on the level of lower vocational, secondary vocational, secondary professional and higher professional education. Curricula included generic and key competences including: environmental protection, rational use of energy, occupational safety and sustainable development.

Contents leading to the acquisition of these competences are in the majority of curricula, especially in the fields of technology (civil engineering, mechanical engineering, mechatronics and electrical engineering) and in the area of managing natural resources (agriculture, forestry, food production, nature protection and environmental protection). In these fields the curricula include modules or parts of modules that are especially intended for acquiring competences in the area of energy efficiency and efficient use of natural resources. In other fields they are integrated logically into the subjects of Environmental Protection, Occupational Safety and Sustainable Development.

The curricula were introduced to schools in the 2008-2010 period. This introduction has been supported financially by the European Social Fund. It has been implemented under the supervision of the Slovenian Vocational Education Centre and consortiums of secondary and higher professional schools as part of four project and annual working plans of the Centre.

Recommendations were drawn up for introducing key competences in practice, and training was provided for leaders and professional staff on the secondary and higher professional level to introduce new features and the aforementioned key competences.

In view of the needs of their local environments and sectors, schools could additionally include in vocational and professional curricula the aforementioned content and specifics in the open part of the curriculum (up to 20% of the curriculum).

Higher education programmes

The Ministry of Higher Education, Science and Technology (MHEST) supports and cooperates with universities and university-level institutions in including and integrating energy efficiency and renewable energy sources into courses. Interdisciplinary and research-oriented courses at individual institutions cover subjects that are directly tied to the field of energy and climate change.

In 2008 a new member was entered in the register of higher education institutions at the MHEST - the Faculty of Energy at the University of Maribor, which provides the 3-year university-level course (level I) Energy, and the 3-year university course (level I) Energy at two locations, Krško and Velenje. Furthermore, since the 2008/2009 academic year it has also offered the 2-year master's course (level II) Energy.

In the 2011/2012 academic year the Faculty of Civil Engineering at the University of Maribor will hold a call for applications for level III doctoral studies in Nuclear Energy and Technology.

4.6.3 Providing information to users on energy consumption, transparent charging and other information (Instrument 25)

Amendment to the Energy Act

The Act Amending the Energy Act was adopted in June 2008⁷⁶, and in accordance with Directive 2006/32/EC the new Article 67.a lays down in detail the obligations of energy companies to provide information to energy consumers.

System operators and energy and fuel suppliers to final customers must at least once a year provide to final customers, in a clear and understandable form, information on the prices and consumption of energy, and a comparison of customers' energy consumption with energy consumption in the same period of the preceding year and with the average standardised or reference energy consumer from the same consumer category. In addition to this information, they must also supply to final customers data on the possibilities for obtaining information about energy efficiency and renewable energy sources.

Activities of energy companies

Suppliers of electricity, natural gas and district heating inform final customers about actual prices and price changes and about actual energy consumption. In the case of monthly payments on account, this is carried out annually or monthly, if data on consumption are available. Some energy suppliers encourage customers to do monthly reporting of consumption.

Some suppliers also provide a comparison of customers' energy consumption with energy consumption in the same period of the preceding year and with the average energy consumer from the same consumer category. For the 11th year now Energetika Maribor is publishing data on the specific consumption of heat by individual buildings in a newsletter, and in recent years on its website. Some suppliers (Energetika Celje, Energetika Ravne) provide building managers once a year with data on the specific consumption of heat for individual buildings. In this way they encourage customers to pursue steps to reduce heat consumption.

Energy suppliers use bills, websites and where necessary also the media to provide this information. Some suppliers offer an e-services web application for monitoring energy consumption, they publish meter readings and an informational calculation of energy costs. Larger customers have the option of using the web application to access their energy consumption profile, and in some cases they can also obtain an analysis of energy consumption.

In addition to information about prices and energy consumption, some energy suppliers have provided information on energy efficiency for customers in printed form, or have published it on their websites. Some energy suppliers post data on their websites about organisations that provide information about energy efficiency and renewable energy sources.

4.6.4 Environmental tax for polluting the air with CO₂ (Instrument 26)

The environmental tax for polluting the air with CO₂ emissions is an established instrument that has been implemented since 1997. The environmental tax for polluting the air with CO₂ emissions is paid for heating oil, liquefied petroleum gas, natural gas, blast-furnace gas, petroleum gas, coke gas, anthracite, coke, black and brown coal,

⁷⁶ Off. Gaz. RS No. 56/2008

lignite, ethane, waste oils and urban waste. Since July 2008, an environmental tax has also been payable on the use of fluorinated greenhouse gases.

A person liable to pay the environmental tax is one that uses fuel and in that way burdens the air with CO₂ emissions. Liable persons also include operators of heating plants, industrial ovens or waste incinerators that burden the air with CO₂ emissions by burning combustible organic substances.

The latest Decree on the Environmental Tax for Polluting the Air with Carbon Dioxide Emissions is from 2005⁷⁷.

The following are eligible for refunds of the environmental tax:

- operators of facilities for cogeneration of heat and power,
- liable persons that conclude a contract with the Slovenian Environment Agency for reducing pollution of the air with CO₂ emissions (see chapter 4.6.6, Instrument 28),
- liable persons that are energy-intensive companies (costs of fuel and electricity supply are at least 3% of the value of production) and
- legal persons that have exported fuel.

The price of a unit of burden is set by the Slovenian Government, and in the 2008-2010 period amounted to EUR 12.5/t CO₂.

Payments and refunds and net revenue for the national budget from the environmental tax for polluting the air with carbon dioxide emissions are shown in the table below, Table 15.

Table 15: Payments and refunds and net revenue for the national budget from the environmental tax for polluting the air with carbon dioxide emissions, in EUR millions

	2008	2009	2010	Total
Payments	31.784	30.757	32.333	94.874
Refunds	1.788	1.070	1.237	4.095
Net revenue	29.996	29.687	31.096	90.779

source: Customs Administration of the Republic of Slovenia

Revenue from the environmental tax, which is monitored by the MESP, is for the moment national budget revenue. Targeted use of the funds collected through payment of the environmental tax, in order to achieve Kyoto Protocol targets, is not envisaged at present, save for the use of these funds to fulfil the Kyoto Protocol through flexible mechanisms.

4.6.5 Excise on fuels and electricity (Instrument 27)

The prices of motive fuels are formulated on the basis of the Decree on the Setting of Petroleum Derivative Prices⁷⁸, which is within the remit of the ME, and they shift relative to the trends of global exchange quotations and the dollar rate. Pursuant to this decree, the retail price is formulated by adding to the model price the retail margin, the fee for the special payment for providing the commercial public service, and since February 2010, the surcharge for raising energy efficiency at final customers. This determines the sale price before taxation, and the tax is then added (excise and value added tax), and the price is thereby set for a 14-day period.

⁷⁷ Off. Gaz. RS No. 43/2005, 58/2005, 87/2005, 20/2006, 78/2008, 39/2010 and 13/2011

⁷⁸ Off. Gaz. RS No. 91/2007, 118/2007 and 94/2008

In 2008 and 2009, excise on energy products was set by the Decree Setting the Amount of Excise for Energy Products⁷⁹, and in 2010 it was set by the new Decree Setting the Amount of Excise for Energy Products⁸⁰. Excise on the energy products indicated below was adjusted 19 times in the 2008-2010 period. For other energy products, excluding liquefied petroleum gas, there were no changes. The amounts of excise are shown in the table below, Table 16.

Table 16: Amounts of excise in the 2008-2010 period, in EUR/1000 L

Fuel	1. 1. 2008	1. 1. 2009	1. 1. 2010	31. 12. 2010
NMB	359.00	402.57	489.51	478.01
D2	302.00	382.59	432.00	420.21
ELHO	21.00	62.00	62.00	70.54

From 1 January 2008 to 31 March 2010, excise on electricity for non-commercial use amounted to EUR 1.0/MWh and for commercial use EUR 0.5/MWh. From 1 April 2010 excise for commercial use was raised to EUR 1.0/MWh (revised Excise Act⁸¹). This change was followed by a new amendment to the Excise Act⁸². In order to secure additional budget revenue to eliminate the consequences of the economic and financial crisis, excise on electricity was raised from 1 August 2010 to EUR 3.05/MWh.

From 1 January 2008, excise on natural gas amounted to EUR 0.006 0.0180/m³, and this was increased on 1 August 2010 to EUR 0.0180/m³.

Revenue collected through excise on energy products and electricity amounted to: EUR 1,213 million in 2008, EUR 969 million in 2009 and EUR 957 million in 2010.

4.6.6 Exemption from payment of the environmental tax for polluting the air with CO₂ (Instrument 28)

The scheme "Reducing pollution of the air with carbon dioxide emissions" (hereinafter: the scheme), which includes operating assistance to operators of facilities cogenerating heat and power, and assistance for investments in environmental protection for facility operators who in connection with the operation of their facility have concluded a contract with the Slovenian Environment Agency (ARSO) to reduce pollution of the air with CO₂ emissions, was approved by a decision of the Ministry of Finance in October 2002, and was amended by a European Commission decision in December 2005. The legal basis for this scheme is indent 4, Article 18 of the Decree on the Environmental Tax for Polluting the Air with Carbon Dioxide Emissions⁸³.

The right to exemption or relief on the payment of the environmental tax for facility operators who in connection with the operation of the facility have concluded with ARSO a contract to reduce pollution of the air with CO₂ emission, falls within the range of measures under the programme to reduce greenhouse gas emissions in order to achieve the targets in this area, and as a measure it conforms to the permitted forms of state aid and to the policy on state aid in the area of environmental protection, which is defined in the Community Guidelines on State Aid for environment protection OJ C 37, 3. 2. 2001). The scheme was implemented in the 2005-2009 period. A new scheme is being drawn up.

⁷⁹ Off. Gaz. RS No. 140/2006 and amendments

⁸⁰ Off. Gaz. RS No. 26/2010 and amendments

⁸¹ Off. Gaz. RS No. 19/2010

⁸² Off. Gaz. RS No. 56/2010

⁸³ Off. Gaz. RS No. 43/2005, 58/2005, 87/2005, 20/2006 and 78/2008

Under the contracts, operators have undertaken to carry out all the prescribed measures relating to energy efficiency (mandatory and optional) and at the same time to reduce total (directly from fuel consumption and indirectly from electricity consumption) specific emissions of CO₂ (per unit of quantity of products or services) by at least 2.5% by the end of 2009 relative to the reference year, regarding which operators reported annually. The reference year was taken as the year with the highest total specific emissions in the 1999-2002 period, or the first full operating year in the case of new facilities.

In addition to concluding contracts to reduce pollution of the air with CO₂ emissions, ARSO kept records of facility operators that were eligible for a refund of the environmental tax, and evaluated the implementation and effects of measures under the contracts.

Facility operators entered into the scheme gradually. In the 2005-2009 period, a total of 156 operators consuming end-use energy were included, with a total of 210 facilities. Taking into account energy consumption and the scope of production by individual companies or institutions in 2007 and in the final year of their inclusion in the scheme, we estimate that in the 2008-2009 period this instrument led to savings of 9,319 MWh/year of fuel and 2,232 MWh/year of electricity. Refunds of CO₂ taxes received by facility operators (in 2009 and 2010 - for 2008 and 2009), amounted to EUR 2.307 million, according to Slovenian Customs Administration data.

4.6.7 Financial incentives to support research and development and pilot projects (Instrument 29)

Cofinancing strategic research and development projects in companies

In 2008 and 2009, the MHEST, in cooperation with the Slovenian Technology Development Agency, published a call for applications entitled "Strategic research and development projects in companies". The call is partly financed by the European Union from the European Regional Development Fund. The call is being implemented as part of the Operational Programme for Strengthening Regional Development Potentials 2007-2013, development priorities: Competitiveness of enterprises and research excellence, priority orientations of Improving the competitive capacities of enterprises and research excellence. The subject of the call is the cofinancing of strategic research and development projects in enterprises, which represent the development of new knowledge and the formulation of the initial prototype of a new product and/or service or a significantly improved product and/or service on a new technological basis, via which Slovenian enterprises will more easily integrate into global supply chains and consortiums that will enable enterprises to access and operate in the most promising and current market niches, where it is possible to anticipate greater returns and thereby much greater value added per employee.

The lead enterprise and participating enterprises must ensure environmental protection and thereby promote sustainable development in accordance with Article 17 of Council Regulation (EC) No 1083/2006. Implementation of strategic research and development projects must pursue as applicable the following guidelines: efficient use of natural resources (energy efficiency, efficient use of water and raw materials), environmental efficiency (use of best technologies, use of reference documents, monitoring emissions and risk, reducing quantities of waste, separate collection of waste), sustainable accessibility (promoting more environmentally friendly modes of transport) and reducing environmental impacts (producing reports on environmental impacts and expert assessments of environmental impacts for encroachments where this is necessary). The call also covers the area of Energy and Alternative Energy, which includes solar energy, biomass and biorefineries, hydrogen technologies and smart electricity networks.

The total funds offered for the 2009-2013 period amount to EUR 26.356 million.

Within this call, the MHEST allocated EUR 1.713 million in 2009 for RES and EEU projects.

Promoting technological development projects

In 2009 the MHEST issued a call for applications to promote technological development projects in micro, small and medium-sized enterprises in 2009, with the abbreviated name SMER, in the amount of EUR 21.145 million. A total of 191 projects, valued at over EUR 21 million, were selected for cofinancing.

A review of submitted and approved projects by market area shows that the highest number of submitted projects were those involving the technological field of information technology and electronics, while at the same time, the highest proportion of selected enterprises were involved in that very field. Immediately behind them, with a share of around 20%, were projects related to industrial production and materials. Another surprising and encouraging fact is that the field of energy technology is already in third place, which points to the fact that people in Slovenia, too, have recognised the importance of energy efficiency. We have been grappling actively with this area not just on the government level, but also on the level of innovative, small and medium-sized enterprises. For the field of energy technology a total of 27 projects were selected, including four in the area of energy efficiency.

Financing centres of excellence and centres of competence

For the 2009-2013 period the MHEST issued a call for applications for financing centres of excellence and centres of competence.

As part of Slovenia's science and technology policies, the centres of excellence are a measure intended to promote the concentration of knowledge in priority technological areas and horizontal linking throughout the chain of knowledge development, which is pursued on the foundation of a strategic partnership between the commercial and academic spheres. This is a comprehensive, interdisciplinary research and development programme, with emphasis on the horizontal target of promoting the transition to an energy-efficient economy with low emissions of greenhouse gases and intensive promotion of the transition to a low-carbon society. Under the public call for the development of centres of excellence in the 2009-2013 period, eight centres of excellence were selected, including the Centre of Excellence for Low-carbon Technologies.

The Centre of Excellence for Low-carbon Technologies brings together key Slovenian potentials in the area of new low-carbon energy sources and the use of these sources by stationary and mobile consumers. Solar energy will be converted into electricity and stored in batteries and supercondensators (lithium technologies) or will be converted into hydrogen, which will be used in fuel cells (hydrogen technologies). Lithium and hydrogen technologies comprise a whole that will in the future cover in energy terms a wide range of consumers, such as hybrid and electric cars, energy supply for buildings and so forth. In the transitional period, water energy, biomass and so forth will be used for the same purposes. In the entire period, the Centre of Excellence will receive from the MHEST cofinancing funds amounting to EUR 9.990 million.

Competence centres are defined as research and development centres managed by industrial partners, and they link together partners from the commercial sector and the public research sector. They are geared towards strengthening the capacity for development and use of new technologies to develop new competitive products, services and processes in priority areas of technological development. This instrument complements the instrument of centres of excellence, and together they create a complete whole in the area of research and development. Under the public call for the development of centres of competence in the 2010-2013 period, seven centres of competence were selected, including the competence centre for advanced systems of efficient electricity use.

The main purpose of the competence centre for advanced systems of efficient electricity use (KC SURE) is to build concepts of an active network that will be founded on new technologies and will be tested in parts of the Slovenian electricity network. A precise evaluation of new concepts in real conditions will enable industrial partners to test and arrive at the final specifications of solutions developed. Within the framework of the competence centre, several demonstration projects will be pursued regarding solutions for the active distribution network, such as systemically efficient energy consumption, a virtual power plant, enhancing the existing system of managing the distribution network and automatic management of the consumption of household customers. These solutions will enable the unimpeded inclusion of diffuse sources and systemically efficient use of electricity, with concurrent attention given to production, transmission and end users. In the entire period, the cofinancing of KC SURE by the MHEST will amount to EUR 6.400 million.

Cofinancing the operation of technology platforms

The MHEST, which in the past has cofinanced the establishing of the initial operation of technology platforms, cofinanced their upgrading and linking together in the 2008-2010 period through the Slovenian Technology Development Agency. All Slovenian technology platforms have the aspect of sustainable development included in their strategic development plans. The following technology platforms are particularly active in the area of the environment: The Technology Platform for Water, the Construction Technology Platform, Wood Technology Platform, Slovenian Technology Platform for Vehicles, Roads and Transport and the energy technology platforms: Photovoltaics, Technology Platform for Energy Efficiency, Slovenian Technology Platform for Hydrogen and Fuel Cells, Technology Platform for the Electricity Network, Slovenian Technology Platform for Thermal Energy, the Solar and Thermal Technology Platform and the Technology Platform for Zero Emissions.

EUREKA programme

Within the EUREKA programme, the MHEST is also cofinancing research and development projects that can be ranked in the technology field of "energy technology" or the thematic area of "the environment". Calls for applications were issued in this regard in 2008, 2009 and 2010.

ERA SME international programme

As part of the ERA SME international programme, which supports research and development projects in small and medium-sized enterprises, calls were published each year in the 2008-2010 period. In this period the MHEST cofinanced the projects "Small wind energy hubs" and the "System of combustion units and components for using RES".

Drawing up a programme to promote research and development in the field of energy efficiency and renewable energy sources

At the end of 2008, the Ministry of Higher Education, Science and Technology, in cooperation with other departments (Ministry of the Economy, Ministry of the Environment and Spatial Planning, Ministry of Transport, Slovenian Chamber of Commerce) started in accordance with the Slovenian Government decision regarding implementation of the NEEAP to draw up a Programme to promote research and development in the area of energy efficiency and renewable energy sources in Slovenia for the 2008-2016 period. The fields of EEU and RES are included as priorities in the Research and Innovation Strategy of Slovenia (RISS), which is part of the Bold Slovenia [Držna Slovenija] programme for the 2011-2020 period.

In 2008 and 2009 the MHEST cofinanced the production of two publications for the general public: "Hydrogen leads to a clean energy future", which came out as a supplement with the Delo newspaper, and "Ecoremediation of sewerage-channelled watercourses".

The MHEST estimates that it allocated for EEU and RES EUR 0.585 million in 2008, EUR 3.843 million in 2009 and EUR 3.408 million in 2010.

4.7 Attained energy savings

The energy savings determined using BU methods achieved through instruments and measures described in this chapter amount to:

- savings of fuel or district heating: 459.6 GWh/year
- electricity savings: 63.7 GWh/year
- primary energy savings (cogeneration, heat pumps): 23.5 GWh/year

Using a factor of 2.5 in electricity savings, the energy savings pursuant to Directive 2006/32/EC, estimated using BU methods, amount to 642.4 GWh/year.

In the 2008-2010 period grant incentives and funds used for transport projects were allocated in the amount of EUR 50.475 million. Eco Fund loans, which were allocated in this period in a total of EUR 41.012 million, are viewed in these funds as subsidies (equivalent to reduced-interest loans).

A detailed presentation of savings and funds used is given in the analysis of NEEAP 1 implementation in the 2008-2010 period (chapter 7).

5 ENERGY SAVINGS IN INDUSTRY AND TRANSPORT DETERMINED BY TOP DOWN METHODS

5.1 Energy savings in industry

The method for calculating energy savings in the manufacturing sector is based on the indicator of energy consumption relative to the index of industrial output of specific branches of manufacturing (indicator P14 from the Commission Recommendations⁸⁴ or equation 158 from IJS-DP-10072⁸⁵). Energy savings are determined on the basis of the difference in the specific energy consumption in the base year (2007) and in the observed year (t), the index of industrial output in the observed year (t) and the share of energy consumption of the specific branch in 2007 that was not included in the Emissions Trading System. Consumption of end-use energy by companies included in the Emissions Trading System (ETS) is not taken into account in end-use energy consumption. Energy savings are determined separately for each branch of manufacturing.

Under the Standard Classification of Activities (SKD 2008), manufacturing^{86 87} is divided into sections from C10 to C33 as follows:

- C 10: Manufacture of food products
- C 11: Manufacture of beverages
- C 12: Manufacture of tobacco products
- C 13: Manufacture of textiles
- C 14: Manufacture of wearing apparel
- C 15: Manufacture of leather and related products
- C 16: Manufacture of wood and of products of wood and cork, articles of straw and plaiting materials except furniture
- C 17: Manufacture of paper and paper products
- C 18: Printing and reproduction of recorded media
- C 20: Manufacture of chemicals and chemical products
- C 21: Manufacture of basic pharmaceutical products and pharmaceutical preparations
- C 22: Manufacture of rubber and plastics products
- C 23: Manufacture of non-metallic mineral products
- C 24: Manufacture of basic metals
- C 25: Manufacture of fabricated metal products, except machinery and equipment
- C 26: Manufacture of computer, electronic and optical products
- C 27: Manufacture of electrical equipment
- C 28: Manufacture of other machinery and equipment
- C 29: Manufacture of motor vehicles, trailers and semi-trailers
- C 30: Manufacture of other transport equipment
- C 31: Manufacture of furniture
- C 32: Other manufacturing
- C 33: Repair and installation of machinery and equipment

Section C 19 (Manufacture of coke and petroleum derivatives) does not fall under Directive 2006/32/EC.

Since data on energy consumption in industry for 2010 was not yet available, a calculation of energy savings in manufacturing in 2009 was made relative to the base year of 2007. Energy savings amount to 144.1 GWh. The calculation of savings is given in the table below.

Energy savings were achieved in 2009 relative to 2007 in 12 subsectors in the amount of 542 GWh. In the other ten sectors, energy savings were negative (increased specific energy consumption) in the amount of -397 GWh. The greatest energy saving was achieved in the subsector of metal products manufacturing (C25), in the amount of 111 GW, followed by manufacturing of chemicals and chemical products (C20) in the amount of 109 GWh and manufacturing of computers and electronic and optical products (C26) in the amount of 104 GWh.

On the other hand the specific consumption of energy increased most (negative energy saving) in foodstuffs manufacturing (C10) at -140 GWh, metals manufacturing (C24) at -101 GWh and furniture production (C31) at -69 GWh.

⁸⁴ European Commission - Recommendations on Measurement and Verification Methods in the Framework of Directive 2006/32/EC on Energy End-use Efficiency and Energy Services, preliminary draft, October 2010

⁸⁵ Methods for calculating energy savings in implementing measures to increase energy efficiency and the use of renewable energy sources (IJS-DP-10072, supplemented September 2011)

⁸⁶ A new (revised) Standard Classification of Activities (SKD 2008) entered into force in 2008, and this replaced the previous classification (SKD 2002).

⁸⁷ Decree on the Standard Classification of Activities, Off. Gaz. RS No. 69/2007 and amendments: Off. Gaz. RS No. 17/2008

Table 17: Energy savings in manufacturing in 2009 relative to 2007, determined using the industrial output index

	Index of industrial output [%]			Energy consumption			Non-ETS shares 2007 K_2007 [%]	Method A (P14)			
	IPI_2007	IPI_2009	Relative change (I ₂₀₀₉ -I ₂₀₀₇)/I ₂₀₀₇	2007 E_2007 [GWh]	2009 E_2009 [GWh]	2009 Relative change (E ₂₀₀₉ -E ₂₀₀₇)/E ₂₀₀₇ [%]		2007 E/I_2007	2009 E/I_2009	2009 Energy saving	
	2007=100			[GWh]	share of savings ⁸⁸						
C	100.0	83.4	-16.6	17,750	13,409	-24.5		17,750	16,075	144.1	0.8 %
C 10	100.0	86.3	-13.7	749	815	8.8	83	7.5	9.4	-139.8	-18.7 %
C 11	100.0	88.9	-11.1	211	180	-14.5	37	2.1	2.0	2.7	1.3 %
C 13	100.0	41.9	-58.1	431	273	-36.6	43	4.3	6.5	-39.5	-9.2 %
C 14	100.0	51.8	-48.2	92	56	-39.4	59	0.9	1.1	-4.8	-5.2 %
C 15	100.0	77.9	-22.1	126	25	-79.8	43	1.3	0.3	31.5	24.9 %
C 16	100.0	70.1	-29.9	891	598	-32.9	66	8.9	8.5	17.7	2.0 %
C 17	100.0	80.6	-19.4	2,232	2,065	-7.5	3	22.3	25.6	-7.1	-0.3 %
C 18	100.0	96.0	-4.0	92	75	-17.8	100	0.9	0.8	12.6	13.8 %
C 20	100.0	88.0	-12.0	1,717	1,261	-26.6	44	17.2	14.3	109.4	6.4 %
C 21	100.0	94.4	-5.6	367	565	53.7	10	3.7	6.0	-21.8	-5.9 %
C 22	100.0	91.6	-8.4	722	598	-17.1	61	7.2	6.5	38.4	5.3 %
C 23	100.0	74.2	-25.8	3,176	2,104	-33.8	20	31.8	28.3	51.6	1.6 %
C 24	100.0	48.2	-51.8	3,965	2,561	-35.4	16	39.7	53.1	-100.7	-2.5 %
C 25	100.0	97.7	-2.3	866	688	-20.5	71	8.7	7.0	111.3	12.9 %
C 26	100.0	112.6	12.6	128	40	-68.5	100	1.3	0.4	103.9	81.0 %
C 27	100.0	89.4	-10.6	566	457	-19.2	92	5.7	5.1	44.7	7.9 %
C 28	100.0	57.6	-42.4	438	260	-40.6	83	4.4	4.5	-6.4	-1.5 %
C 29	100.0	89.5	-10.5	432	393	-9.0	41	4.3	4.4	-2.7	-0.6 %
C 30	100.0	85.1	-14.9	33	13	-60.0	100	0.3	0.2	14.7	45.2 %
C 31	100.0	49.9	-50.1	366	253	-30.9	98	3.7	5.1	-68.6	-18.8 %
C 32	100.0	77.8	-22.2	70	66	-6.5	53	0.7	0.8	-5.8	-8.3 %
C 33	100.0	85.1	-14.9	80	59	-25.5	34	0.8	0.7	2.9	3.7 %

⁸⁸ Share of energy savings relative to consumption in the base year

5.2 Energy savings in transport

The method for calculating energy savings in road transport for private vehicles is based on the indicator of the average energy consumption of private vehicles relative to passenger kilometres. The method determines energy savings based on the difference in the average specific consumption of energy by private vehicles in the base year (2007) and the observed year (t) and the annual transport of passengers in private vehicles in the observed year (t).

The method for calculating energy savings in road transport for goods vehicles is based on the indicator of the average energy consumption of goods vehicles in terms of transport of goods in ton-km. The method determines energy savings based on the difference in the average specific consumption of energy by goods vehicles in the base year (2007) and the observed year (t) and the annual transport of goods in ton-km in the observed year (t).

The method for calculating energy savings in rail freight transport is based on the indicator of energy consumption in terms of the scope of goods transport in ton-km. Energy savings are determined based on the difference in the specific consumption of energy for rail freight in the base year (2007) and the observed year (t) and the total transport of goods in ton-km in the observed year (t).

The method for calculating energy savings in rail passenger transport is based on the indicator of energy consumption in terms of the scope of transport in passenger km. Energy savings are determined based on the difference in the specific consumption of energy for rail passenger transport in the base year (2007) and the observed year (t) and total transport in passenger km in the observed year (t).

A review of TD methods used to calculate savings in transport is given in the table below, Table 18.

Table 18: Review of bottom-up methods (BU) used to calculate savings in transport

Method (No.)	Name/title of method	Selected equation and additional parameters ⁸⁹	Source of input data	Compliance with the proposal of the European Commission ⁹⁰
1	Private road vehicles	Equation 152	SORS, ARSO	yes (EC: indicator P8-A1)
2	Road freight vehicles	Equation 155	SORS, ARSO	yes (EC: indicator P9-A2)
3	Rail freight	Equation 156	SORS, ARSO	yes (EC: indicator P10)
4	Rail passenger transport	Equation 157	SORS, ARSO	yes (EC: indicator P11)

Since data on energy consumption in transport for 2010 was not yet available, a calculation of energy savings in transport in 2009 was made relative to the base year of 2007. Energy savings amount to 156.2 GWh and are shown by individual transport sector in the table below, Table 19.

⁸⁹ Methods for calculating energy savings in implementing measures to increase energy efficiency and the use of renewable energy sources (IJS-DP-10072, supplemented September 2011)

⁹⁰ European Commission - Recommendations on Measurement and Verification Methods in the Framework of Directive 2006/32/EC on Energy End-use Efficiency and Energy Services, preliminary draft, October 2010

Table 19: Energy savings in transport in 2009 relative to 2007, in GWh

2009		
P8-A1	Private road vehicles	59.9
P9-A2	Road freight vehicles	97.9
P10	Rail freight	-2.8
P11	Rail passenger transport	1.2
Total		156.2

The data needed to calculate the savings shown in the above table were obtained from various sources. Energy consumption in road transport, distances travelled by type of vehicle and the number of vehicles by types were obtained from the Slovenian Environment Agency (ARSO), where as part of the preparation of records on greenhouse gas and atmospheric pollutant emissions, fuel consumption in road transport is divided by type of vehicle⁹¹. Data on ton kilometres travelled by goods vehicles and trains and rail passenger kilometres were obtained from SORS via the SI-STAT application. Data on the energy consumption of passenger and freight trains were obtained from Slovenske železnice.

In calculating emissions, ARSO must capture the entire quantity of fuel sold in Slovenian territory, so their data are not ideal for calculating savings owing to measures affecting freight transport by domestic vehicles. Fuel consumption by domestic vehicles is estimated on the basis of the following assumptions:

- for private vehicles we assume that the trend of km travelled per year per vehicle since 2004 has been the same as in 2000 - 2004.
- the same applies to buses, except that an extrapolation has been made of the trend in 2001 - 2004.
- for freight transport, the trend since 2005 has been based on the trend indicated by SORS data on km travelled by goods vehicles registered in Slovenia (excluding cabotage⁹² and international transport⁹³), which dovetails approximately with the trend of added value in industry and GDP trends.
- the SORS trend is given only for total freight transport, so it needs to be divided into light and heavy freight and into petrol and diesel. The division uses ARSO figures, these being the share of light goods vehicles in total freight transport, which amounts to 55%, and the km travelled by light petrol-engine and heavy petrol-engine goods vehicles since 2005.

⁹¹ Data are available on the website: <http://cdr.eionet.europa.eu/si/un/colrftisw/envtaQnnq/SVN NIR 2011 Annex 2.pdf> and are part of the Report on the Production of Records for 2009 (Slovenia's National Inventory Report 2011).

⁹² Cabotage is international transport of goods abroad where both the point of loading and point of unloading are in the same country.

⁹³ International transport is the carriage of goods where either the point of loading or point of unloading or both are abroad.

6 ENERGY SAVINGS THROUGH EARLIER ACTIVITIES

In addition to energy savings achieved through the measures that were or will be carried out from 2008 to 2016, in accordance with Directive 2006/32/EC, energy savings from what are termed earlier activities may also be used to show evidence of achieving target energy savings up to 2016. These are measures to improve energy efficiency that were carried out prior to the implementation of Directive 2006/32/EC in the 1995-2007 period or exceptionally measures carried out since 1991.

Between 1995 and 2007 Slovenia implemented numerous promotional programmes that were aimed at removing obstacles that prevent an increase in energy efficiency and greater use of renewable energy sources. Moreover a number of regulations were issued relating primarily to the energy performance of buildings and household appliances and other products.

The main fields of the promotional programmes were:

- information, awareness-raising and training for consumers of energy, investors and other target groups,
- energy advice for citizens,
- promoting the provision of advisory services (energy audits, feasibility studies) and
- promoting investment in EEU and RES.

The main financial instruments for promoting investments were:

- allocation of grants from the national budget and the offer of loans with subsidised interest rates for investment,
- ensuring favourable purchase prices for electricity generated from renewable energy sources or in high-efficiency cogeneration of heat and power from fossil fuels and
- exemption from payment of the CO₂ tax in the event of implementing certain measures.

The financial instruments were aimed at households, industry and the tertiary sector.

In determining energy savings we restricted ourselves to investment measures carried out from 1995 to 2007, which will provide energy savings - taking into account their lifecycle - at least to 2016 or later.

A review of financial instruments and measures carried out by sector with energy savings achieved is given in the tables below, Tables 20 and 21.

Based on data in the tables we may conclude that earlier activities led to savings of fuel and district heating amounting to 294.2 GWh/year, savings of electricity of 9.6 GWh/year and savings of primary energy in the amount of 25.1 GWh/year (cogeneration, heat pumps). In line with Directive 2006/32/EC, electricity savings could be increased by a factor of 2.5. Total energy savings thus amount to 343.2 GWh/year.

Table 20: Review of earlier activities for households 1995 - 2007

Title of earlier activity	Provider	Measures carried out	Duration of activities	Saving of fuel/district heating [MWh/year]	Saving of electricity [MWh/year]	Primary energy savings [MWh/year]
Grant financial incentives for investment in EEU	AURE ⁹⁴ , MESP	insulation of lofts, replacement of windows and panes, thermal insulation of shell, replacement of windows and panes	1996-1997 1999-2002 2003-2007 2003-2007	29,998	0	0
Grant financial incentives for investment in RES	AURE, MESP	solar systems, heat pumps, wood biomass boilers	2002-2007	31,059	2,648	10,717
Low-interest loans for investment in EEU and RES	Eco Fund	energy rehabilitation of building shells, construction of low-energy buildings, modern systems for heating and hot water preparation, including use of RES	2002-2006 2004-2006 2004-2006	31,166	0	0
Energy advice - ENSVET* (free advice)	AURE, MESP	energy rehabilitation of buildings, replacement of boilers	1995-2005**	99,228	0	0
Total energy savings				192,451	2,648	10,717

* takes account of measures implemented by households that received advice from ENSVET; ** advice given in 2006 and 2007 taken into account in the 2008-2010 period

Table 21: Review of earlier activities for industry and the tertiary sector 1995 - 2007

Title of earlier activity	Provider	Measures carried out	Duration of activities	Saving of fuel/district heating [MWh/year]	Saving of electricity [MWh/year]	Primary energy savings [MWh/year]
Grant financial incentives for investment in RES	AURE, MESP	geothermal engineering solar systems, heat pumps	2002-2004 2003-2004	48,085	0	996
Low-interest loans for investment in EEU and RES	Eco Fund	EEU in production processes of energy rehabilitation of buildings	1999-2006 2002 and 2006	6,562	0	0
Energy Efficiency Fund (free advice)	AURE, Bank Austria Creditanstalt	energy rehabilitation of buildings, replacement of boilers, cogeneration, modernisation of technological lines etc.	1997-2007	47,095	6,479	3,947
Support scheme for green electricity	MESP, ME	CHP systems photovoltaic power plants on the roofs of wind farms	2004-2007	0	430	9,486
Total energy savings				101,744	6,909	14,429

⁹⁴ AURE - Energy Efficiency Agency

7 ANALYSIS OF IMPLEMENTATION OF THE NATIONAL ENERGY EFFICIENCY ACTION PLAN 2008-2010

Under the NEEAP 1, in the first three years (2008 - 2010) Slovenia should have achieved energy savings of 1184 GWh or 2.5%. The funds envisaged for implementation of the NEEAP 1 in this period amounted to EUR 112 million, of which EUR 28 million was for 2008, EUR 39.3 million for 2009 and EUR 44.7 million for 2010.

7.1 Energy savings through the implementation of national programmes 2008-2010

Energy savings achieved through the implementation of national programmes described in chapter 4 are shown in the table below, Table 22. Energy savings are determined using BU methods, and amount to:

- savings of fuel or district heating: 449.6 GWh/year
- electricity savings: 63.7 GWh/year
- primary energy savings (cogeneration, heat pumps): 23.5 GWh/year

Using a factor of 2.5 in electricity savings, the energy savings pursuant to Directive 2006/32/EC, estimated using BU methods, amount to 642.4 GWh/year. Implementation of national programmes led to the achievement of 54.3% of target energy savings set for the 2008-2010 period by the NEEAP 1.

Table 22: Energy savings through the implementation of national programmes 2008-2010, determined using BU methods

	Fuel savings [MWh/year]	Electricity savings [MWh/year]	Primary energy savings [[MWh/year]	Savings ESD [MWh/year]	Grants [EUR million]	Loans [EUR million]
Households	235,394	51,895	10,614	375,746	25.638	26.495
Favourable loans - Eco Fund	33,662	0	5,508	39,170	4.489	26.495
Grant incentives - Eco Fund	83,991	431	2,711	87,780	17.329	
Grant incentives for EEU - MESP	5,381	0	0	5,381	0.401	
Grant incentives for RES - MESP	9,801	0	2,395	12,196	1.699	
Energy labelling of HA	0	51,464	0	128,660	0	
Compulsory division and calculation of heating costs	50,975	0	0	50,975	0	
Energy advice	51,584	0	0	51,584	1.720	
Tertiary sector	11,513	12	0	11,543	0.339	6.841
Favourable loans - Eco Fund	6,009	12	0	6,039	0.075	6.841
Grant incentives for RES - MAFF	909	0	0	909	0.264	
Energy management	4,595	0	0	4,595	NE	
Industry	46,852	19	0	46,900	3.037	7.676
Favourable loans - Eco Fund	16,882	19	0	16,930	0.251	7.676
Grant incentives - OP ETID	29,970	0	0	29,970	2.786	
Transport	44,990	NE	NE	44,990	10.923	
Promotion of public transport	NE	NE	NE	NE	0.412	
Promoting sustainable freight transport	NE	NE	NE	NE	4.034	
Increasing the energy efficiency of private vehicles	44,990	0	0	44,990	0	
Construction of cycle paths	NE	NE	NE	NE	6.477	
Multisectoral measures	111,543	9,553	12,900	148,326	7.814	
Regular inspections of boilers - broad consumption	108,200	0	0	108,200	0	
Energy audit programme - broad consumption	580	243	0	1,188	0.040	
Energy audit programme - industry	2,763	1,846	0	7,378	0.085	
Support scheme for green electricity	0	7,464	12,900	31,560	7.689	
Horizontal measures	9,319	2,232	0	14,899	2.724	
Awareness-raising and information programmes	NE	NE	NE	NE	0.568	
Exemption from payment of CO ₂ tax - tertiary sector	1,421	374	0	2,356	0.700	
Exemption from payment of CO ₂ tax - industry	7,898	1,858	0	12,543	1.456	
All instruments	459,611	63,711	23,514	642,403	50.475	41.012

NE - No estimate

In the 2008-2010 period grant incentives and funds used for transport projects were allocated in the amount of EUR 50.475 million. Eco Fund loans, which were allocated in this period in a total of EUR 41.012 million, are viewed in these funds as grants, where the reduced interest rate on these loans was taken into account.

The highest energy savings were achieved in households (375,746 GWh/year or 58.5%), followed by multisectoral measures (148.3 GWh/year or 23.1%), industry (46.9 GWh/year or 7.3%) and transport (45.0 GWh/year or 7%).

Instruments yielding the greatest savings are: energy labelling of household appliances (128.7 GWh/year or 20%; electricity savings multiplied by a factor of 2.5), financial incentives from the Eco Fund for households (126.9 GWh/year or 19.8%), regular inspections of broad consumption boilers (108.2 GWh/year or 16.8%), energy advice for citizens (51.6 GWh/year or 8%) and compulsory division and calculation of heating costs together with thermostat valves in multi-dwelling buildings (51 GWh/year or 7.9%).

With regard to the effect of the instrument (the relationship between the saving and financial incentive), energy audits in industry stand out at 86.8 kWh/(year*EUR) and Eco Fund loans for the tertiary sector at 80.5 kWh/(year*EUR) and industry at 67.4 kWh/(year*EUR).

The planned and achieved energy savings in the 2008-2010 period, as determined using BU methods, are shown for specific sectors and instruments in Table 23. For certain instruments the NEEAP 1 does not provide energy savings, since when the NEEAP 1 was being drawn up there were still no methods available for calculating savings or they could not be estimated.

Table 23: Planned and attained energy savings 2008-2010, determined using BU methods, by sector and instrument

Sector/Instrument	Savings ESD plan [GWh/year]	Savings ESD attainment [GWh/year]	Attainment of savings [%]
Households	326.0	375.7	115.3
I1 – I4: Financial incentives	260.0	144.5	55.6
I5: Energy labelling of HA	66.0	128.7	194.9
I6: Compulsory division and calculation of heating costs	NE	51.0	
I7: Energy advice network for citizens	NE	51.6	
Tertiary sector	219.0	11.5	5.3
I8 – I10: Financial incentives	219.0	6.9	3.2
I11: Green public procurement	NE	NE	
Energy management	NE	4.6	
Industry	336.0	46.9	14.0
I12: Financial incentives	336.0	46.9	14.0
Transport	122.0	45.0	36.9
I13: Promotion of public transport	32.0	NE	
I14: Promoting sustainable freight transport	33.0	NE	
I15: Increasing the energy efficiency of private vehicles	33.0	45.0	136.3
I16: Construction of cycle paths	24.0	NE	
Multisectoral instruments	174.0	148.3	85.2
I17: Regulations on the energy performance of buildings	71.0	108.2	152.4
I18: Requirements on the minimum energy efficiency of products	NE	NE	
I19: Cofinancing energy audits	NE	8.6	
I20: System of guaranteed purchase prices for electricity	11.0	31.6	286.9
I21: Contractual reduction of energy costs	NE	NE	
I22: Programmes for energy use management at final consumers (DSM)	92.0	0	0
Horizontal instruments	7.0	14.9	212.8
I23: Awareness-raising and information programmes	NE	NE	
I24: Education programmes	NE	NE	
I25: Information for consumers on energy consumption	NE	NE	
I26: Environmental tax for polluting the air with CO ₂	NE	NE	
I27: Excise on fuels and electricity	NE	NE	
I28: Exemption from payment of the tax for polluting the air with CO ₂	7.0	14.9	212.8
I29: Financial incentives to support research and development and pilot projects	NE	NE	
Total (all instruments)	1,184.0	642.4	54.3

Excluding horizontal instruments, in households alone more savings were achieved than were planned, and this itself was a result of the significantly increased savings achieved through the instrument of energy labelling of household appliances, and the estimated savings achieved through the compulsory division and calculation of heating costs and through energy advice. Both in the tertiary sector and industry, only a smaller portion of the planned savings were achieved.

7.2 Financial resources for implementation of the NEEAP 1 in the 2008-2010 period

A total of EUR 112 million was envisaged in the NEEAP 1 for the 2008-2010 period. Upon adoption of the NEEAP 1, the sum of EUR 79.739 million was provided for that period (71.2%), and the shortfall in funds would supposedly be provided from the Slovenian national budget and through the surcharge on the network fee to promote EEU and RES in accordance with Article 66.b of the then valid Energy Act.

Part of the shortfall was made up through adoption of the Decree Ensuring Energy Savings at Final Customers (Off. Gaz. RS No 114/09 and 57/11), a constituent part of which is a table that sets out by year, up to and including 2014, the level of the contribution to raise the efficiency of electricity consumption and surcharges to raise the efficiency of using district heating and liquid and gaseous fuels. Collection of funds pursuant to the decree began in February 2010. A total of EUR 18.1 million was charged in 2010, and EUR 15.8 million was collected. A review of the funds planned and provided for implementation of the NEEAP 1 in the 2008-2010 period is given in Table 24. The table shows that of the planned EUR 112 million, a total of EUR 105.8 million or 94.5% was provided.

Table 24: Financial resources planned and provided for implementation of the NEEAP 1 in the 2008-2010 period

Source of funds	Planned funds [EUR million]	Funds provided [EUR million]	Funds provided [%]
Slovenian budget for EEU & RES	7.402	6.669	90.1
OP ETID - TE	48.133	48.133	100
Slovenian budget for transport	9.138	10.923	119.5
Eco Fund loans - subsidies	4.500	4.815	107.0
Contribution for green electricity	3.067	7.689	250.7
Transfer from ELES to the Eco Fund	7.500	7.500	100
Surcharge and contribution for EEU	32.261	15.8	48.4
Rural Development Programme		0.264	
Slovenian budget for the environment		4.0	
Total	112.0	105.793	94.5

In the 2008-2010 period, a total of EUR 50.475 million was spent on implementing the NEEAP 1, accounting for 45.1% of the planned funds or 47.7% of funds provided, and this served to achieve 51.9% of the target energy saving. The main reason for the insufficient spending of funds lies in the fact that both the Energy Efficiency and Renewable Energy Sources Section at the ME, which heads up implementation of the development priority Sustainable Energy Consumption as part of the Operational Programme for Environmental and Transport Infrastructure Development 2007-2013, and the Eco Fund, only filled out their human resources positions in 2010 and 2011. Of the planned funds for Sustainable Energy Consumption, amounting to EUR 48.133 million, only EUR 2.786 million were used.

7.3 Determining overall energy savings achieved 2008-2010

The energy savings determined using BU methods do not represent all energy savings achieved in the 2008-2010 period. In accordance with Directive 2006/32/EC, in determining overall energy savings, a combination of BU and TD methods is used. This means that for measures carried out in specific sectors and subsectors or that relate to a specific energy product, BU methods are used, while for the remainder

of end-use energy consumption, TD methods are used. According to the Commission recommendations, for measures relating to sectors with at least 20 to 30% of end-use energy included in Directive 2006/32/EC, BU methods should be used.

It was determined that the most appropriate system is a combination of BU and TD methods, taking into account energy savings determined by BU methods for households and the tertiary sector, while for industry and transport, energy savings determined by TD methods are used. The reasons for this decision were as follows:

- in the 2008-2010 period the highest energy savings determined using BU methods were achieved in households,
- owing to the imprecise nature of the data deriving from the energy balances of end-use energy, TD methods are not practically applicable to the tertiary sector,
- energy savings in industry determined using BU methods do not offer a true picture of achievements in industry regarding increases in energy efficiency, since they are tied only to measures that were cofinanced,
- energy savings in transport, which is the largest sector in terms of its share of energy consumption, were only partly estimated using BU methods owing to a lack of data.

In this combination of BU and TD methods, and taking into account consumption of end-use energy in the reference year (the 2001-2005 period), BU methods are used to calculate savings from measures relating to 45% of end-use energy included in Directive 2006/32/EC.

Table 22 shows that in the 2008-2010 period, instruments for households and the tertiary sector and multisectoral and horizontal instruments relating to these two sectors led to the following savings:

- savings of fuel or district heating: 357.1 GWh/year
- electricity savings: 60.0 GWh/year
- primary energy savings (cogeneration, heat pumps): 23.5 GWh/year

Using a factor of 2.5 in electricity savings, the energy savings pursuant to Directive 2006/32/EC amount to 530.6 GWh/year or 44.8% of the target savings set for the 2008-2010 period in the NEEAP 1.

Chapter 4 clearly shows that energy savings in industry in 2009, determined using TD **methods and relative to the base year of 2007, amounted to 144.1 GWh/year, and those in transport to 156.2 GWh/year. Taking into account energy savings in households and the tertiary sector (using BU methods) and in industry and transport (using TD methods) total energy savings amount to 830.9 GWh/year or 70.2% of target savings set for the 2008-2010 period by the NEEAP 1, meaning that the target energy saving through measures carried out in this period was not attained.** We anticipate that in the case of calculating savings in industry and transport using TD methods for 2010 relative to the base year of 2007, greater overall energy savings would be achieved.

In addition to energy savings achieved through the measures that were or will be carried out from 2008 to 2016, in accordance with Directive 2006/32/EC, energy savings from what are termed earlier activities may also be used to show evidence of achieving target energy savings up to 2016. Chapter 5 shows that through these actions, in a period of 13 years (1995-2007) measures were carried out that involved energy savings of 343.2 GWh/year.

Taking into account energy savings through earlier activities, overall energy savings amount to 1,174.1 GWh/year, meaning that with the help of earlier activities, the target energy saving for 2008-2010 was achieved in practical terms. Here it should be stressed that the effects of earlier activities may only be taken into account once.