

REPUBLIC OF SLOVENIA
MINISTRY OF THE ECONOMY
ENERGY DIRECTORATE

**SECOND NATIONAL
ENERGY EFFICIENCY ACTION PLAN
2011 – 2016**

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CONTENTS

1	SECOND NATIONAL ENERGY EFFICIENCY ACTION PLAN	7
1.1	Main points	7
1.2	Energy efficiency in light of development trends	9
1.3	Review of targets and attained energy savings	10
2	PRIMARY ENERGY SAVINGS	12
2.1	Targets and projections for primary energy consumption.....	12
2.1.1	Targets.....	12
2.1.2	Projections of primary energy supply.....	12
2.2	Strategies contributing to primary energy savings.....	13
2.3	Measures for achieving primary energy savings	15
2.3.1	Measures in the area of energy supply.....	15
2.3.2	Measures in the area of energy distribution and transmission	17
2.3.3	Other measures	18
3	END-USE ENERGY SAVINGS	19
3.1	Targets and end-use energy savings achieved.....	19
3.1.1	Target savings and progress in achieving these savings	20
3.1.1.1	Attainment of interim target end-use energy savings for 2010	20
3.1.1.2	Target and expected end-use energy savings in 2016.....	20
3.1.2	Other objectives in the area of end-use energy consumption	21
3.2	Strategies for end-use energy consumption	22
3.3	End-use energy measures and savings	22
3.3.1	Calculation methodology	22
3.3.2	Measures for achieving end-use energy savings	25
3.3.2.1	Measures in households.....	25
3.3.2.2	Measures in the service sector	37
3.3.2.3	Measures in industry.....	38
3.3.2.5	Measures in transport	47
3.3.2.6	Measures in the public sector	58
3.3.2.7	Multisectoral measures	65
3.3.2.8	Horizontal measures.....	71
3.3.3	End-use energy savings	81
3.4	Public sector	85
3.4.1	The public sector as a model.....	85
3.4.2	Public procurement measures	87
3.5	Providing advice and information.....	87
3.6	Obligations of energy companies to promote end-use energy savings	90
3.7	The energy services market	91
3.8	Strategy of almost zero-energy buildings	92
3.9	Alternative measures in heating and air conditioning	93
3.10	Support measures for achieving energy efficiency in buildings	94
3.11	Energy-efficient spatial planning	96
4	IMPLEMENTATION OF THE NATIONAL ACTION PLAN	97
4.1	Organisational aspects	97
4.2	Financing	99
4.2.1	Estimate of costs for implementing NEEAP 2 measures from 2011 to 2016.....	100
4.2.2	Sources of financing - public funds.....	103
ANNEXES		
ANNEX 1	Report on implementation of the National Energy Efficiency Action Plan 2008 - 2010	106
ANNEX 2	Methods for calculating energy savings in implementing measures to increase energy efficiency and the use of renewable energy sources	107
ANNEX 3:	Review of bottom-up methods used.....	108
ANNEX 4	Estimate of end-use energy savings in industry.....	109
ANNEX 5	Estimate of end-use energy savings in transport	112

TABLES

Table 1:	Target and achieved end-use energy savings and projections	10
Table 2:	Projections of primary energy supply	12
Table 3:	List of programming documents for long-term planning	15
Table 4:	End-use energy saving in 2010	20
Table 5:	End-use energy saving in 2016	21
Table 6:	Measures in households	26
Table 7:	Financial incentives for energy-efficient renovation and sustainable construction of residential buildings (measure G.1)	29
Table 8:	Financial incentives for energy-efficient heating systems (measure G.2)	30
Table 9:	Scheme of energy efficiency for low-income households (measure G.3)	33
Table 10:	Compulsory division and calculation of heating costs in multi-dwelling and other buildings according to actual consumption (measure G.4)	35
Table 11:	Energy advice network for citizens (measure G.5)	36
Table 12:	Measures in the service sector	37
Table 13:	Measures in industry and in small and medium-sized enterprises	39
Table 14:	Financial incentives for efficient electricity consumption (measure I.1)	41
Table 15:	Financial incentives to raise energy efficiency in industry and the services sector and significantly increase the scope of environment-friendly energy production from RES and CHP (measure I.2)	42
Table 16:	Incentives for introducing energy management systems in industry (measure I.3)	43
Table 17:	Schemes for efficient electricity consumption and reduction of GHG emissions (measure I.4)	45
Table 18:	Establishing a development scheme and other incentives for the commercial sector in the entry of green energy products into the market (measure I.5)	46
Table 19:	Measures in transport	48
Table 20:	Promoting the competitiveness of public transport (measure P.1)	51
Table 21:	Supplementing and enhancing measure P.1	52
Table 22:	Promoting sustainable freight transport (measure P.2)	53
Table 23:	Supplementing and enhancing measure P.2	54
Table 24:	Increasing the energy efficiency of road vehicles (measure P.3)	55
Table 25:	Supplementing and enhancing measure P.3	56
Table 26:	Building cycle paths and support structures and promoting cycling (measure P.4)	57
Table 27:	Measures in the public sector	58
Table 28:	Green public procurement (measure J.1)	59
Table 29:	Financial incentives for energy-efficient renovation and sustainable construction of buildings in the public sector (measure J.2)	61
Table 30:	Introducing an energy management system in the public sector (measure J.3)	63
Table 31:	Financial incentives for efficient electricity consumption in the public sector (measure J.4)	64
Table 32:	Multisectoral measures	65
Table 33:	Regulations on the energy performance of buildings (measure V.1)	67
Table 34:	Energy labelling of household appliances and other devices and minimum requirements (measure V.2)	68
Table 35:	Support scheme for electricity generated from RES and CHP (measure V.3)	69
Table 36:	Horizontal measures	71
Table 37:	Energy contracting (measure H.1)	72
Table 38:	Environmental tax for polluting the air with CO ₂ (measure H.2)	73
Table 39:	Design and implementation of a long-term communication programme for households (measure H.3.1)	75
Table 40:	Design and implementation of a long-term communication programme for the public sector (measure H.3.2)	77
Table 41:	Design and implementation of a long-term communication programme for small and medium-sized enterprises (measure H.3.3)	78
Table 42:	Education and training (measure H.4)	80
Table 43:	End-use energy savings	81
Table 44:	Review of earlier activities for households 1995 - 2007	84
Table 45:	Review of earlier activities for industry and the tertiary sector 1995 - 2007	84
Table 47:	Information, awareness-raising and advice to consumers from energy companies	89
Table 48:	Financial incentives for comprehensive energy-efficient renovation of public buildings as part of energy contracting	92
Table 49:	Establishing energy-efficient spatial planning	96
Table 50:	Public funds used 2008 - 2010 and fulfilment of the NEEAP 1	100
Table 51:	Scope of public funds for implementing the NEEAP 2 from 2011 to 2016	101
Table 52:	Public funds required and sources for implementing the NEEAP 2 from 2011 to 2016 (in EUR millions)	102

FIGURES

Figure 1: Trend of end-use energy consumption and by sector from 1992 to 2009	9
Figure 2: Improvement of energy intensity in Slovenia compared to EU-27	9
Figure 3: Energy supply 2000-2008 and projections up to 2020	13
Figure 4: Energy consumption in transformations - proposed scenario of energy development (draft NEP).....	16
Figure 5: Make-up of energy consumption in transformations - proposed scenario of energy development (draft NEP)	17

LIST OF ABBREVIATIONS

NREAP	National Renewable Energy Action Plan
NEEAP	National Energy Efficiency Action Plan
GrPPAP	Green Public Procurement Action Plan
ARSO	Slovenian Environment Agency
BAT	best available technology (Best Available Technology)
DH	district heating
PHE	pumping hydroelectric power plant
COPERT 4	software tool for calculating emissions from road transport
Directive 2006/32/EC	of the European Parliament and of the Council of 5 April 2006 on energy end-use efficiency and energy services and repealing Council Directive 93/76/EEC
ELENA	technical assistance from the European Investment Bank in the area of energy efficiency European Local Energy Assistance
Eco Fund	Slovenian: Eko sklad, Slovenian public environmental fund
EMEEES	(Evaluation and Monitoring for the Directive on Energy End-Use Efficiency and Energy Services)
ENSVET	energy advice for citizens
EPBD	Energy Performance of Buildings Directive (Directive on energy performance of buildings)
EC	European Council
ESCO	Energy Services Company
ES-EEU	energy efficiency services
ETS	Emissions Trading System (Emissions Trading System)
EURO 3.5	European emission standard for private vehicle emissions
EUROSTAT	European Statistical Office
EA	Energy Act
HE	hydroelectric power plant
IPT	Integrated Public Transport 2007 - 2013
WBCA	wood biomass combustion appliance
LCCA	Life Cycle Cost Assessment (Life Cycle Cost Assessment)
LEA	local energy agency
LEC	local energy concept
MLFSA	Ministry of Labour, Family and Social Affairs
MF	Ministry of Finance
ME	Ministry of the Economy
sHE	small hydroelectric plant
MPA	Ministry of Public Administration
MAFF	Ministry of Agriculture, Forestry and Food
MESP	Ministry of the Environment and Spatial Planning
SME	small and medium-sized enterprises
MHEST	Ministry of Higher Education, Science and Technology
MT	Ministry of Transport
NEP	National Energy Programme to 2030
LCS	low-carbon society
NPSta	National Housing Programme
NRP	National Reform Programme 2011 - 2012
OdSPRS	Ordinance on the Spatial Planning Strategy of Slovenia
OECD	Organisation for Economic Co-operation and Development (Organisation for Economic Co-operation and Development)
OP NEC	Operational Programme to Achieve National Emission Ceilings in Slovenia
OP PM10	Operational Programme for the Protection of Ambient Air Against Pollution Caused by PM10
OP ETID	Operational Programme for Environmental and Transport Infrastructure Development 2007–2013
OP RGGE-1	Operational Programme to Reduce Greenhouse Gas Emissions by 2012
RES	renewable energy sources
PE	primary energy
PKM	passenger kilometres
GSU	gas steam unit
RDP	Rural Development Programme
PURES	Rules on Efficient Use of Energy in Buildings
ReNEP	Resolution on the National Energy Programme
ReNPVO	- Resolution on the National Environmental Action Plan 2005 - 2012
ReNRP	Resolution on National Development Projects 2007 - 2023
ReTPRS	Resolution on the Transport Policy of the Republic of Slovenia

ReRIS11-20	Resolution on the Research and Innovation Strategy of Slovenia 2011 - 2020
SCA	Standard Classification of Activities
DNSO	Distribution Network System Operator
TNSO	Transmission Network System Operator
CHP	high-efficiency cogeneration of heat and power
SC	solar collectors
SORS	Statistical Office of the Republic of Slovenia
SVLR	Government Office of the Republic of Slovenia for Local Self-Government and Regional Policy
SVPS	Government Office of the Republic of Slovenia for Climate Change
SVREZ	Government Office of the Republic of Slovenia for Development and European Affairs
GHG	greenhouse gas
EEU	efficient energy use
UREE1	Public tender for cofinancing projects to increase the efficiency of electricity consumption in the commercial sector for the 2011-2013 period

1 SECOND NATIONAL ENERGY EFFICIENCY ACTION PLAN

1.1 Main points

The Second National Energy Efficiency Action Plan (NEEAP 2) contains a review of the targets and implementation of the First National Energy Efficiency Action Plan 2008 - 2010 (NEEAP 1), an assessment of what has been achieved and activities planned for the period 2011 - 2016. The NEEAP 2 also includes the financial sources for implementing programmes and measures to achieve energy efficiency targets.

Evaluation of the measures carried out has shown that between 2008 and 2010 Slovenia achieved and exceeded the planned interim target of saving 2.5% of reference end-use energy consumption. That target was achieved taking into account the earlier activities from 1995 to 2007. Expectations are that the target for 2008 - 2016, set at 9%, will also be successfully reached through consistent implementation of all the activities planned in the NEEAP 2. The planned additional activities are geared primarily towards accelerated development of the energy services market, in the period up to 2013 chiefly in the public sector, which will be a generator of demand, and development of energy-efficient products and production processes, aimed at achieving and exceeding the basic target as well as a range of additional short-term and long-term targets being pursued by the NEEAP 2. These include in particular the accelerated renovation of public sector buildings, achieving the target share of almost zero-energy buildings among new and renovated buildings, increasing the share of renewable energy sources, further reduction of energy consumption and sustainable economic development.

In Slovenia, measures involving efficient energy use (EEU) and renewable energy sources (RES) have been consistently incorporated into strategic energy documents, while currently a climate strategy is being drafted¹. The valid Resolution on the National Energy Programme (ReNEP), which was adopted in 2004 and set out the goals for efficient energy use, envisaged very extensive activities in this area. The financing of these activities came into full swing on the start of EEU promotion using EU Cohesion Policy funds (as part of the development priority tasks for Sustainable Energy in the Operational Programme of Environmental and Transport Infrastructure Development 2007–2013) for measures in the public sector, and through the entry into force of the Decree on the Efficient Use of Energy Savings at Final Customers in January 2010, for which reason there was a significant increase in the level of grant funding to stimulate EEU in households.

In the long term, ambitions in this field will be raised further - as envisaged in the new National Energy Programme up to 2030 (NEP), which is being drafted - owing to the exceptional importance of energy efficiency in ensuring all the energy policy targets as well as the wider development goals of the state, especially given the potential for improving the competitiveness of society, green growth and employment potential. Efficient energy use makes a major contribution to ensuring the strategic reliability of supply by reducing dependence on imported fossil fuels. The total annual cost of fuel on the national level in 2008 has been estimated at around EUR 1.92 billion or around 5% of GDP. Energy efficiency is one of the most cost-effective measures for achieving the goals of reducing greenhouse gas (GHG) emissions and achieving the 25-percent target share of renewable energy sources in the consumption balance of gross end-use energy by 2020. Energy efficiency is also vital for households in controlling costs, boosting their purchasing power and improving their standard of living, particularly in the context of adapting to climate change.

The NEEAP 2 rests on the established methods of promoting efficient energy use in Slovenia, and ensures their continuation and expansion:

- ensuring the leading role of the public sector as a model of energy efficiency: renovation of buildings will continue. In order to ensure the smallest possible burden on public finances, this measure will also be financed from EU funds in the financial perspective from 2014 to 2020, while cofinancing from private funds will also be established. The measure of contractual guarantees of energy savings will be especially important for municipalities, since it will enable the rehabilitation of structures without any additional borrowing, through the repayment of investments out of savings made in energy costs. Here the emphasis will be on the comprehensive rehabilitation of buildings, which will be achieved through a combination of public and private financial sources, wherein financial stimuli will be intended primarily for the renovation of building shells. We will introduce a system of energy management in the public sector, for identifying cost centres and for taking steps and identifying the most energy-efficient public authorities. Adequate technical support will be organised for the implementation of this ambitious plan.

¹ Strategija prehoda Slovenije v nizkoogljično družbo do leta 2050 (Strategy for Slovenia's transition to a low-carbon society by 2050)

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- energy efficiency is that segment of green public procurement (GrPP) where alongside environmental objectives, significant savings can be achieved on public spending, so upon the introduction of GrPP envisaged in 2012, we will systematically include all areas of EEU measures that are not covered in the rules on the energy performance of buildings. Appropriate instructions and technical guidelines will also be formulated to reduce the administrative costs of the measure.
- direct financial incentives for household EEU allocated by the Eco Fund will continue, while additionally these activities will be taken over by energy suppliers, which will implement stimulus programmes for efficient energy use at final customers, in particular programmes in the public and service sectors, while additional programmes will be set up for socially disadvantaged households. Measures that reduce energy poverty are incorporated into all the programmes for promoting EEU and for generating heat from RES in households.
- measures in the commercial sector will be significantly expanded relative to the current scope. The effectiveness of implementing EEU measures in this sector from 2008 to 2010 and the scope of financial incentives were inadequate. In addition to direct financial incentives for EEU investments as part of the services provided by energy suppliers and Cohesion Policy, we envisage new measures proposed in consultation with the commercial sector: support in introducing systems for energy management in companies along the lines of the successful support for introducing other process standards, and establishing schemes for exempting payment of the contribution for raising the efficiency of electricity use, of surcharges for heat and fuel for increasing energy efficiency and CO₂ taxes. Special attention will be devoted to small and medium sized enterprises, which require adequately adapted measures.
- the commercial sector is also being targeted by measures for systematically promoting the development of energy-efficient products, production processes and services, especially on entering the market, and these measures will rely on established instruments in the area of enterprise development, promotion of SMEs and so forth. A new support scheme will be designed, along with a fund for carrying out demonstration projects. Energy companies will be required to reinvest part of their profits in development for the field of sustainable energy. This will ensure the measurable effects of programmes in the energy field on employment and green growth.
- a legal and technical basis for energy-efficient spatial planning will be formulated;
- we will continue and where necessary enhance the established support scheme for electricity generation from renewable energy sources and for high-efficiency cogeneration;
- the current informational and promotional activities will be enhanced, with a major role continuing to be played by the energy advice network ENSVET and the Eco Fund for promoting EEU in households, along with the new agent Borzen, to promote EEU in the area of electricity, local energy agencies in municipalities and the Government's Climate Change Office and the Ministry of the Economy (ME) in the general promotion of EEU and in providing information on state incentives. Their activities will be enhanced through systematic promotional schemes for various target groups, and through support for linking up their activities.

The level of public funds necessary for implementing the new NEEAP 2 from 2011 to 2016 is estimated at EUR 798 million, which is considerably more than first envisaged in the NEEAP 1. In the period following adoption of the first action plan, new guidelines were adopted in the area of RES and EEU on both the European Union and Slovenian levels, and these require additional activities in implementing EEU and RES measures to achieve the new EEU targets and to achieve a 25% share of renewable energy sources in end-use energy consumption by 2020. A larger measure of incentives has been planned for socially disadvantaged households, for the public sector owing to the new requirements of the directive on the energy performance of buildings and for the commercial sector, owing to the major contribution that EEU measures could make to an exit from the current financial and economic crisis and owing to the anticipated positive effects on the competitiveness of the economy, and also so that parallel to promoting EEU, other national developmental goals might be achieved. The programme also includes and presents measures that are common to both the NREAP and NEEAP 2 programmes, and additional public funds are not needed.

The public funds secured for financing the NEEAP 2 are supplements and contributions for energy efficiency, EU Cohesion Fund financing of EUR 190 million for 2007 - 2013, and a supplement for promoting electricity generation from RES and CHP. Additional new sources of funding for the NEEAP 2 are envisaged in EU Cohesion Policy funds in the 2014 to 2020 financial perspective, the climate fund or revenue from actions as part of the European Emissions Trading

System and a new supplement to promote heat generation from renewable energy sources (measure under the NREAP).

1.2 Energy efficiency in light of development trends

From 1992 to 2009, end-use energy consumption in Slovenia increased by 43%, Figure 1. The biggest contributing factor in the growth of end-use energy consumption was transport, which increased by 110% in the same period. Today the share of transport in end-use energy consumption stands at 40 percent. Transport has recorded constant growth, with the exception of a decline in consumption in 1998 owing to Italian measures to reduce local cross-border fuel purchases. The increased consumption of end-use energy in transport was spurred in particular by Slovenia's EU accession in 2004 and by EU enlargement in 2007, along with the associated increase in transit traffic.

In 1992 the biggest consumer of end-use energy was the industrial sector (manufacturing and construction), at 36%, while in 2009 it was in second place with a 27-percent share. End-use energy consumption in the industrial sector has been declining since 2006, and is now 8% higher than in 1992. Households have shown a marked trend of falling end-use energy consumption since 2003.

End-use energy total (EUROSTAT)
Manufacturing and construction
Transport
Households
Other consumption
End-use energy consumption [ktoe]

Figure 1: Trend of end-use energy consumption and by sector from 1992 to 2009

Energy intensity in Slovenia has improved slightly faster than the EU-27 average. While total primary energy consumption increased by 14% between 1995 and 2009, gross domestic product increased by almost 60 percent (59% in that period, 3.4% on average annually), Figure 2. A clear divergence was achieved in the growth of economic activity and the growth of total primary energy consumption. Energy intensity in Slovenia improved faster than EU-27 in that period (in Slovenia by 2.4% a year, while the EU-27 averaged 1.7% a year).

1995 = 100
Energy supply (TPES)
GDP (fixed 2000 prices)
TPES/GDP
EU-27
Year

Figure 2: Improvement of energy intensity in Slovenia compared to EU-27

1.3 Review of targets and attained energy savings

Energy efficiency is exceptionally important, in part because it ensures other energy policy targets as well as the wider development goals of the state, especially given the potential for improving the competitiveness of society, green growth and quality of life. Energy efficiency is one of the most cost-effective measures for achieving the goals of reducing greenhouse gas emissions and achieving the 25-percent target share of renewable energy sources in the consumption balance of gross end-use energy. The objective of the National Energy Efficiency Action Plan 2008 - 2016 complies with Article 4 of Directive 2006/32/EC in seeking a 9-percent saving of end-use energy through implementation of the planned instruments, which cover measures for efficient energy consumption, energy services and the development of energy-efficient technologies and products. The targets are harmonised with the valid Resolution on the National Energy Programme and other national policies.

The target 9-percent end-use energy saving amounts to 4,261 GWh in 2016 based on past end-use energy consumption. It was set out in the NEEAP 1 in line with the requirements of the directive, and has been preserved in the NEEAP 2. The average annual saving of end-use energy in the nine-year period amounts to 473 GWh. The interim target saving of end-use energy in the period 2008 - 2010, specifically 1,184 GWh or 2.5%, was defined as one of the indicators of success for implementing the NEEAP 1, Table 1.

Table 1: Target and achieved end-use energy savings and projections

Savings	Target		Saving achieved	
	[GWh]	[%]	[GWh]	[%]
End-use energy saving 2008 - 2016	4,261	9		
Interim end-use energy saving up to 2010	1,184	2.5	1,174	2.5
- savings 2008 - 2010			831	1.7
o households, tertiary sector, multisectoral measures (bottom-up method for 2008 - 2010)	726 ²	1.5	531	1.1
o transport and industry (top-down method for 2008 - 2009)	458 ³	1.0	300 ³	0.6
- earlier activities (bottom-up method for 1995 - 2007)			343	0.7

In 2010 an end-use energy saving of 1,174 GWh was achieved, and this amounts to almost the planned 2.5% reference end-use energy consumption. The savings estimate is very conservative and rigorous, since in large part, as recommended in Directive 2006/93/EC, it is based on savings that are a direct consequence of active policies and measures⁴; specifically through the bottom-up method it has captured savings in households, the service and public sectors and savings achieved through implementation of multisectoral measures that represent 45% of the average end-use energy consumption in the reference period 2001 - 2005⁵. Within the industry and transport sector the value of savings has been estimated through the top-down method, which has used data for 2009, since statistical data for 2010 were not yet available at the time the calculations were made.

The interim target for 2010 was achieved taking into account the earlier activities from 1995 to 2007. Expectations are that the target for 2016 will be reached through consistent implementation of all the activities planned in NEEAP 2.

² The NEEAP 1 contains estimated indicative levels of savings that do not have the status of sectoral targets.

³ Calculation based on statistical data for 2009.

⁴ The effects of certain measures between 2008 and 2010 have not been estimated (e.g. savings from measures carried out by public companies supplying heat as part of their regular business, the effect of taxes on pollution through emissions of CO₂ on broad consumption energy use, efficient energy consumption measures in local communities and other public sector organisations carried out without any financial incentives for EEU etc.).

⁵ Annex IV to the Directive contains a general framework for measurement and verification of energy savings, and as part of this, in the first phase through the bottom-up method 20 to 30% of annual energy consumption covered by the directive should be captured.

The proposed new National Energy Programme up to 2030 (NEP) recognises energy efficiency as one of the priority fields of energy development, as is the case in the draft document Climate Strategies up to 2050, where EEU is recognised as an important element of adaptation to climate change. The draft NEP envisages very concrete targets, orientations and measures to improve energy efficiency in line with EU ambitions. The following targets are set for Slovenia up until 2020:

- a 20% improvement in energy consumption efficiency;
- reduced end-use energy consumption, excluding transport, of 7% relative to 2008;
- holding end-use energy consumption growth at no more than 7% relative to 2008;
- ensuring a 100-percent share of almost zero-energy buildings among new and renovated buildings by 2020, and in the public sector by 2018;
- ensuring an annual 3-percent share of renovation for buildings in the public sector starting in 2014.

2 PRIMARY ENERGY SAVINGS

2.1 Targets and projections for primary energy consumption

2.1.1 Targets

Energy policy in Slovenia is defined by the EA, the Resolution on the National Energy Programme (ReNEP) and other strategic documents (see chapter 2.2). Public deliberation is now focused on the new National Energy Programme (NEP), which is set to be adopted in 2011.

Slovenia's development objectives in the field of energy are to ensure: (1) environmental sustainability and action against climate change, (2) reliability of energy supply and energy services, (3) competitiveness of the economy and society and of available and accessible energy and (4) ensuring social cohesion, as proposed in the draft new NEP.

Slovenia's operational goals to improve energy efficiency are set out on the end-use energy level. Slovenia is not setting the objective of a quantitative limiting of primary energy consumption, since this could limit the choice of energy mix, and especially the choice of low-carbon technologies⁶.

2.1.2 Projections of primary energy supply

After peaking in 2008, primary energy supply has fallen owing to the economic crisis, and in 2009 it amounted to 289 PJ, Figure 3. Projections indicate⁷ that from 2008 to 2020 energy supply will fall at an average rate of -0.5% a year, Table 2. Expectations are that in 2020 the value of 302 PJ will be attained, this being 5.7% less than in 2008.

In 2000 - 2008 the annual growth of energy supply averaged 2.3%, which is significantly higher than the projected growth.

Table 2: Projections of primary energy supply

Primary energy consumption [PJ]				Annual growth			Index of consumption growth	
2008	2010 ⁸	2016	2020	2008-2010	2008-2016	2008-2020	2016/2008	2020/2008
323.0	291.7	297.8	302.0	-4.6 %	-0.9 %	-0.5 %	93.0	94.3

Source: IJS-CEU

⁶ Any target on the primary energy level would limit the further development of energy supply within the country in terms of the choice of energy mix, and would impede businesses operating in the single energy market. Given the fact that the Slovenian electrical power system is notable for its small size (total net electrical output at all power stations amounted in 2010 to just 3.34 GW_e), with three predominant sources in the energy mix, each individual source accounts for around 1 GW_e of power. So limiting primary energy consumption could directly affect the choice of sources in the energy mix and also directly affect decisions on the size of new units, thus affecting the viability of generation (it would limit the choice of equipment suppliers etc.), while impeding the operation of businesses in the single EU market. For certain technologies, no commercially accessible small units are available. In its development strategy, Slovenia is therefore setting no quantitative limits on primary energy consumption, in order not to limit the choice of low-carbon technologies for generating electricity. Slovenia has defined its objectives on the level of end-use energy. On the primary energy (PE) level, targets could only be set under certain conditions, for instance where the primary energy balance uses a corrected value of PE supply (corrected in terms of the basic definition of primary energy according to the OECD/EUROSTAT), whereby electricity exports are taken into account using the appropriate correction factor (or are dealt with on the primary energy level).

⁷ IJS CEU, Long-term energy balance for the NEP up to 2030 - Resultats, 2011, http://www.mg.gov.si/fileadmin/mg.gov.si/pageuploads/Energetika/Zelena_knjiga_NEP_2009/NEP_2010_2030/NEP_DB_Rezult.pdf

Energy supply [PJ]
Projection PE
Statistics
Year

Figure 3: Energy supply 2000-2008 and projections up to 2020

Projections indicate that consumption of solid and liquid fuels will fall, while consumption of natural gas and RES will rise. According to projections, relative to 2008 we will consume 52% more natural gas and 72% more RES in 2020. This will also contribute to a reduction in the share of solid and liquid fuels, while on the other hand it will spur an increase in the share of natural gas and RES.

2.2 Strategies contributing to primary energy savings

The programming documents for long-term planning in Slovenia that contribute significantly to efficient primary energy consumption are set out by sector as follows: energy, transport, spatial planning and buildings, environment and development, Table 3.

The Government is implementing the energy policy defined in the Resolution on the National Energy Programme of 2004 (ReNEP), and a draft new programme is already subject to public deliberation. The cornerstone of long-term planning of targets, orientations and activities in the area of EEU is the Energy Act, in which the basic orientations of national energy policy include ensuring priority is given to efficient energy consumption and the use of renewable energy sources over supply from non-renewable energy sources. The targets and mechanisms in the ReNEP to promote EEU were supplemented and enhanced through the NEEAP 1, adopted in 2008. The area of energy efficiency is also extremely important for the cost effectiveness of implementing the NREAP and attaining the target of a 25-percent share of RES by 2020.

Implementation of the ReNEP has in fact lagged behind, but by 2010 all the implementing regulations were in place to enable implementation of the planned mechanisms to promote EEU under the ReNEP, while we still lack adequate provision for the area of green public procurement and promoting the energy services planned in the NEEAP 1. Financing the promotion of EEU in the planned scope was established only through the financing of EEU measures from the EU Cohesion Fund, in the amount of EUR 190 million for 2007 - 2013⁸, through an overhaul of the support scheme for generating electricity from RES and in CHP in 2009 and through the new scheme for implementing energy supplier programmes for EEU at final customers.

⁸ The Operational Programme of Environmental and Transport Infrastructure Development 2007–2013 ensures funds for financing measures in the following fields: energy rehabilitation and sustainable construction of buildings in the public sector, efficient use of electricity in industry, households and the public sector; innovative systems for local energy supply, demonstration and model projects and programmes of energy advice, information and training for energy consumers, potential investors, those offering energy services and other target groups, and certain measures to promote energy efficiency in transport - all the measures relating to energy end-use were incorporated in their entirety into the NEEAP 1 up to 2010.

The draft new National Energy Programme to 2030 - Active Energy Management, which is in preparation, sets out targets, guides development and plans implementing activities in a scope that will enable a 20-percent improvement in energy efficiency by 2020 and a 27-percent improvement by 2030. In order to increase the reliability of supply and the competitiveness of society, as well as the gradual transition to a low-carbon society, the proposed NEP defines priorities for energy development: energy efficiency, exploitation of renewable energy sources and developing active electricity grids.

For EEU measures in transport that relate to selecting the mode of transport, promoting public transport and controlling growth of the transport segment, the strategic and programming basis in Slovenia is decidedly weak, despite the fact that energy efficiency and a clean environment are high on the priority list of the general objectives in the Resolution on Transport Policy in the Republic of Slovenia. This gap will be filled in part under the climate policy now being formulated.

A strategy for Slovenia's transition to a low-carbon society by 2050 is being drawn up, and this will define the orientations and sectoral targets up to 2050. It should ensure a framework for reducing GHG emissions, for sustainable use of resources and for green growth. The National Assembly declaration on the active role of Slovenia in shaping a new global policy towards climate change charges the Slovenian Government, through the drafting of the Slovenian Development Strategy to 2020, with setting the transition to a low-carbon society and a society of sustainable development as the main development goal. In the Slovenian Exit Strategy 2010 - 2013, EEU and RES measures are recognised as an element of social policy and of raising the competitiveness of specific activities, which has also enabled the securing of funds for implementing EEU programmes. The National Reform Programme 2011-2012 defines the national strategy for fulfilling the Europe 2020 strategy as wise, sustainable and incorporating growth, and defines the programme measures that are included in budgets for 2011 and 2012. It defines national development priorities, and in energy policy these are: energy efficiency, modernising the electricity grid and generating electricity and heat from RES and in CHP processes, in all sectors.

High-quality orientations for energy-efficient spatial planning are provided by the Ordinance on the Spatial Planning Strategy of Slovenia, regarding both the development of energy infrastructure and in the renewal and revitalisation of urban areas, development of urban areas and other settlements and the countryside, while there are markedly less robust guidelines for development towards sustainable mobility.

Towns, cities and local communities have for the most part adopted their own local energy concepts, with major emphasis on energy efficiency and renewable energy sources, and in the future still greater links will be established between local energy concepts and spatial planning on the municipal level.

A new housing programme is being drawn up, and it is envisaged that one of the key points of emphasis in the programme will be energy-efficient construction. The Strategy for Managing State Real Estate of 2009 focuses on energy efficiency in state-owned buildings to reduce the costs of energy consumption, but the legal documents drafted pursuant to that strategy are not adequately pursuing that focus.

The Green Public Procurement Action Plan 2009 - 2012 plans the drafting of a decree on green public procurement and activities in support of its implementation, but the draft legal documents currently still do not cover adequately the potential in the area of energy efficiency.

Table 3: List of programming documents for long-term planning

ENERGY	
Documents adopted	- Resolution on the National Energy Programme (ReNEP), National Assembly, 2004, implementation headed by: ME
Being drafted	- National Energy Programme to 2030 - Active Energy Management (NEP), in charge of drafting: ME - Strategy for Managing State Capital Investments, in charge of drafting: AUKN and Sectoral Policy for Managing State Capital Investments - Energy, in charge of drafting: ME
Operational programmes	- National Energy Efficiency Action Plan 2008 - 2016 (NEEAP 1), Slovenian Government, January 2008, implementation headed by: ME - OP ETID – Operational Programme for Environmental and Transport Infrastructure Development 2007 - 2013 (OP ETID), priority area of sustainable energy, Slovenian Government, February 2007, sustainable energy implementation headed by: ME - National Renewable Energy Action Plan 2010 - 2020 (NREAP), Slovenian Government, 2010, implementation headed by: ME
TRANSPORT	
Documents adopted	- Resolution on the Transport Policy of the Republic of Slovenia (ReTPRS) (Intermodality: time for synergy), National Assembly, May 2006, implementation headed by: MT
SPATIAL PLANNING AND BUILDINGS	
Documents adopted	- Ordinance on the Spatial Planning Strategy of Slovenia (OdSPRS), National Assembly, June 2004, implementation headed by: MESP - National Housing Programme (NPSta), National Assembly, 2000, implementation headed by: MESP - Strategy for Managing State Real Estate, Ministry of Public Administration, 2009, implementation headed by: MPA
Being drafted	- Housing Programme, in charge of drafting: MESP
THE ENVIRONMENT	
Documents adopted	- Resolution on the National Environmental Action Plan 2005 - 2012 (ReNPVO), National Assembly, 2004, implementation headed by: MESP
Being drafted	- Strategy for Slovenia's transition to a low-carbon society by 2050, drafting headed by: SVPS
Operational programmes	- Operational Programme to Reduce Greenhouse Gas Emissions by 2012 (OP RGGE-1), Slovenian Government, July 2010, implementation headed by: MESP - Operational Programme to Protect Ambient Air from Pollution by PM10 (OP PM10), Slovenian Government, November 2009, implementation headed by: MESP - Operational Programme to Achieve National Emission Ceilings in Slovenia – Revised version of the national emission ceiling operational programme of 2005 (OP NEC), Slovenian Government, January 2007, implementation headed by: MESP - Green Public Procurement Action Plan 2009 - 2012 (GrPPAP), Slovenian Government, May 2009, implementation headed by: SVREZ
DEVELOPMENT	
Documents adopted	- National Reform Programme 2011 - 2012 (NRP), April 2011, Slovenian Government, implementation headed by: SVREZ - Slovenian Exit Strategy 2011 - 2013, February 2010, Slovenian Government, implementation headed by: SVREZ - Resolution on the research and innovation strategy of Slovenia 2011 - 2020 (ReRIS11-20), National Assembly, 2011, implementation headed by: MHEST
Being drafted	- Slovenian Development Strategy 2013 - 2020, drafting headed by: SVREZ

2.3 Measures for achieving primary energy savings

In its development to date of the electricity sector, Slovenia has been able to achieve a balanced structure of primary sources for electricity generation (coal, hydroelectric and nuclear) and retains options for further diversification of sources. In the future, the biggest challenge in electricity generation will be the gradual transition to low-carbon sources in energy supply. Owing to obsolescence and consequently low efficiency, in the coming years we will need to replace the majority of existing thermal power installations with more modern and efficient units using cleaner fuels.

2.3.1 Measures in the area of energy supply

Electricity

Electricity generation at thermal power stations with a capacity over 10 MW is performed at four energy locations in Slovenia: Šoštanj, Brestanica, Trbovlje and Ljubljana. Construction of new production units will prioritise the existing locations of thermal power stations, heating plants and industrial locations, which in terms of use of the physical space, available infrastructure, human resources, social acceptability and integration into the electricity transmission grid, are most suitable for electricity generation.

The NEP prioritises the orientation of newly constructed facilities towards exploiting RES, high-efficiency CHP and the exclusive use of BAT. In the area of electricity generation in thermal power stations and thermal heat and power stations, Slovenia's strategic orientation, as taken from the proposed NEP, is to set up replacement generation facilities that will use environmentally acceptable fuels (chiefly through the partial transfer to natural

gas), prioritising high-efficiency combined heat and power generation.

Another objective is the greater use of wood biomass, with priority given to CHP and also co-incineration. The NEP sub-programme objectives also include ensuring a 18-percent share of CHP in gross energy end-use by 2020, and a 23-percent share by 2030, plus a 40-percent share of electricity generation from RES in gross energy end-use by 2020 and a 53-percent share of RES by 2030, which will also contribute to improving the efficiency of energy consumption in transformations.

The exploitation of hydro energy has a very rich and long tradition in Slovenia. While the energy of the Drava and Soča rivers has already been suitably harnessed, the River Sava remains one of the major potentials for increasing electricity generation from renewable energy sources. In line with the orientation towards priority exploitation of RES, the proposed new NEP envisages the refurbishing of three existing hydroelectric plants (HE) - an additional 36 MW_e from 2013 - 2022, completion of the series of three HE on the Lower Sava (110°MW_e from 2013 - 2018), construction of a pumping hydroelectric power plant (PHE) of 400 MW_e in 2018, series of HE on the Middle Sava (78 MW_e by 2020 and an additional 162 MW_e by 2030).

In the proposed scenario of energy development, taken from the draft new NEP, energy consumption in transformations increases up to 2025 in order to increase generation of electricity and district heating, which is also a consequence of increased end-use energy consumption, Figure 4. In 2030 owing to the shutting down of block 5 at TEŠ, energy consumption in transformations falls slightly relative to 2025. The average annual growth of energy consumption in transformations up to 2020 amounts to 0.4%, and 0.3% annually to 2030. It is important to point out that in the entire period from 2010 to 2030, owing to the construction of new and shuttering of old and inefficient electricity and district heat generating units, there is a significant increase in the efficiency and environmental variability of energy conversion in transformations. In the proposed scenario of energy development, taken from the proposed new NEP, relative to 2008 total energy generation increases up to 2020 by 25%, and at the same time owing to the increased efficiency of energy conversion, energy consumption in transformations only increases by around 5%.

Energy consumption in transformations [PJ]

Figure 4: Energy consumption in transformations - proposed scenario of energy development (draft NEP)

In the proposed scenario, taken from the draft new NEP, relative to 2008 the make-up of energy consumption in transformations changes markedly up to 2020. In the proposed scenario of electricity supply, alongside a gradual reduction in the share of coal and nuclear fuel, there is an increase in the share of natural gas (to around 14% by 2020 and around 16% by 2030) and RES (to around 19% by 2020 and around 26% by 2030), so that by 2020 the make-up is more balanced relative to the base year of 2008 (coal, nuclear, natural gas and RES), and by 2030 the share of natural gas and RES rises to 42% (16% in 2008), as can be seen in Figure 5.

Make-up of energy consumption in transformations

Waste (non-RES)
Nuclear
Renewable energy sources
Natural gas
Petroleum and derivatives
Solid fuels

Figure 5: Make-up of energy consumption in transformations - proposed scenario of energy development (draft NEP)

In order to achieve the above-described scenario, the most important factors are the effective physical locating of new energy facilities and the transparent implementation of adopted investment programmes to replace production facilities that will shut down.

2.3.2 Measures in the area of energy distribution and transmission Electricity

The draft new NEP ranks the development and construction of active electricity distribution networks in support of greater consumption efficiency and diffuse generation of electricity as one of its priorities. According to data from 2008, losses in transmission and distribution of electricity amounted to 810 GWh⁹ or 6% of end-use electricity consumption in Slovenia. The proposed NEP sets out guidelines and measures that should ensure the further development of the electricity transmission and distribution network, and despite greater electricity generation, they should facilitate the containment of losses in the network and at least the maintenance of the situation attained in 2008. The Transmission Network System Operator and the Distribution Network System Operator will operationalise the proposed NEP guidelines and measures through their own development plans.

Heat

According to data from 2008, losses in the distribution of district heating amounted to 368 GWh⁵ or around 14% of gross heat generated in Slovenia's district heating systems. The draft NEP sets out the guidelines and measures that will ensure the conditions for effective implementation of all activities with the aim of reducing losses in district heating systems. Local suppliers of district heating will operationalise the proposed NEP guidelines and measures through their own development plans. The development plans will need to define methods of financing measure to remedy losses in district heating distribution systems that will not be passed on to the final customer.

⁹ Report on the state of energy in Slovenia in 2008, Slovenian Energy Agency, 2009

2.3.3 Other measures

On the strategic level, possible measures under the National Energy Programme to reduce energy consumption and GHG emissions in industry (ETS sector) include introducing systems for energy management, employing energy managers and financial incentives or relief on the payment of taxes and contributions. These mechanisms, together with the emissions trading mechanism, are expected to promote the following technological measures of EEU in the ETS sector:

- thermal processes in paper production - reducing the specific heat consumption (lowering the average intensity by more than 30%) and introducing additional measures - waste heat recovery, increased production (lowering specific consumption owing to greater occupancy of equipment), technological modernisation (replacing and modernising paper machines) and other organisational measures;
- industrial boilers - carrying out measures to increase efficiency by 2 to 6% and replacement of boilers (replacing old and installation of new wood biomass boilers, maintaining the current market share of district heating (15%), recovering waste heat and use of various heat pumps);
- increased scope of industrial high-efficiency cogeneration of heat and power - replacement of the existing old steam assemblies, with the additional installation of gas turbines and new assemblies with gas turbines and engines and new technologies (ORC, fuel cells etc.);
- reducing the energy intensity of all other processes by 0.5% annually through the implementation of organisational measures, active energy management (Standard EN 16001, energy accounting and targeted monitoring of energy consumption), greater capacity utilisation and technological modernisation of production facilities etc.

3 END-USE ENERGY SAVINGS

3.1 Targets and end-use energy savings achieved

The objective of the National Energy Efficiency Action Plan 2008 - 2016, set out in the NEEAP 1, complies with Article 4 of Directive 2006/32/EC in seeking a 9-percent saving of end-use energy through implementation of the planned instruments, which cover measures for efficient energy consumption and energy services. The target value of end-use energy saving is estimated with regard to the reference average annual consumption of end-use energy in the statistical period 2001-2005, which amounted to 47,349 GWh¹⁰. The reference consumption of end-use energy does not take into account consumption in plants that can trade in greenhouse gas emission rights (they are included in the emissions trading system). The end-use energy savings achieved from 2008 to 2010 as part of the implementation of planned activities under the NEEAP 1 are evaluated in two reports¹¹. The second report, the Report on implementation of the National Energy Efficiency Action Plan 2008 - 2010 (

¹⁰ Data on energy end-use are based on data from the Statistical Office of the Republic of Slovenia (SORS).

¹¹ Report on implementation of the Action Plan in 2008, MESP, 2009, and the Report on implementation of the National Energy Efficiency Action Plan 2008 - 2010, ME, 2011

ANNEX 1) was the basis for drawing up the NEEAP 2.

3.1.1 Target savings and progress in achieving these savings

The interim target saving of end-use energy in the period 2008 - 2010, specifically 1,184 GWh or 2.5%, was defined as one of the indicators of success for implementing the NEEAP 1, Table 1.

3.1.1.1 Attainment of interim target end-use energy savings for 2010

In 2010 the end-use energy saving amounted to 1,174 GWh¹², meaning that Slovenia achieved the interim target saving of end-use energy for the 2008 - 2010 period, Table 4. In evaluating the savings achieved, account has been taken of the long-term effects of earlier activities in the 1995 - 2007 period.

Table 4: End-use energy saving in 2010

	Target saving		Saving achieved	
	[GWh]	[%]	[GWh]	[%]
2010 (interim period)	1,184	2.5	1,174	2.5

3.1.1.2 Target and expected end-use energy savings in 2016

The target 9-percent saving of end-use energy will be achieved in the 2008 - 2016 period and amounts to 4,261 GWh, Table 5. Following the first period of NEEAP implementation the target has not changed¹³. The target 9-percent saving of end-use energy in 2016 will be achieved through implementation of enhanced measures from the NEEAP 1 and new measures planned in the NEEAP 2. Achieving this will be further facilitated by a raft of measures being implemented under the NEEAP, especially horizontal measures whose effect cannot as yet be evaluated in any simple way.

¹² The estimated saving does not yet include savings achieved in 2010 for the industry and transport sector, since at the time the NEEAP 2 was in preparation, we did not have access to the statistical data necessary to evaluate the effects under the top-down method.

¹³ The input statistical data for calculating the 9% target value of end-use energy saving were modified after 2008, but the changes are minimal and do not affect the set target.

Table 5: End-use energy saving in 2016

	Target end-use energy savings	
	[GWh]	[%]
2016 (entire period)	4,261	9

3.1.2 Other objectives in the area of end-use energy consumption

The key energy policy targets are defined in the Energy Act, while a more detailed definition of the strategy covering end-use energy consumption is provided in the National Energy Programme. The draft NEP sets out several operational targets, which will strengthen efforts to improve energy efficiency. Energy efficiency will contribute significantly to other energy policy targets, and especially to improving competitiveness, reliability and environmental impact.

The operational targets in the NEP that will - in addition to the target of a 20-percent improvement in energy efficiency by 2020 - contribute most directly to efficient energy management in Slovenia up to 2030 are:

- 27-percent improvement in the efficiency of energy consumption by 2030 relative to 2008;
- 25-percent share of CHP in gross energy end-use by 2020, and a 30-percent share by 2030 will contribute to improving the efficiency of energy conversions in transformations and end-use energy consumption;
- 9.5-percent reduction in greenhouse gas (GHG) emissions from fuel combustion¹⁴ by 2020 and an 18-percent reduction by 2030 relative to 2008;
- reduction of energy intensity of 29 percent by 2020 and of 46 percent by 2030 relative to 2008;
- ensuring a 100-percent share of almost zero-energy buildings among new and renovated buildings by 2020, and in the public sector by 2018;
- reduced import-dependence to a level of 45% by 2030 and diversification of sources of energy supply at the same or a better level than at present;
- further improvement of Slovenia's international energy links for greater diversification of energy sources, supply routes and suppliers, and further integration with neighbouring energy markets.

The draft NEP sets out targets for the sub-programmes of efficient end-use energy consumption, energy consumption in transport, local energy supply, heat and power cogeneration and electricity generation.

Efficient end-use energy consumption:

- reduction of end-use energy consumption, excluding transport, of more than 7 percent by 2020 relative to 2008, and zero growth of end-use energy consumption in the period from 2020 to 2030;
- consistent implementation of EEU as a development priority for Slovenia, and promoting economic growth and job creation in the area of energy efficiency;
- controlling growth of electricity consumption, excluding in transport, to keep it below 5% up to 2020 and less than 7% up to 2030 relative to consumption in 2008.

Energy consumption in transport:

- reduction of energy consumption and GHG emissions by improving the efficiency of vehicles and driving in line with Regulation (EC) No. 443/2009;
- ensuring a 50-percent share of RES for charging battery-powered vehicles and hydrogen-powered vehicles by 2015 and a 100-percent share of RES by 2020 at public charging locations;

¹⁴ The GHG emission reduction target includes all emissions from fuel combustion, both from sources that are the subject of Slovenia's adopted international obligations (Kyoto Protocol and Decision 406/2009/EC) and from sources that reduce emissions under the European Emissions Trading System (Directive 2009/29/EC). The above target reduction relates to measures within Slovenia.

- development of energy and charging infrastructure for efficient use of modern, environmentally friendlier vehicles, specifically for electric vehicles and for vehicles powered by hydrogen and gas fuels.

Local energy supply:

- increased coverage by district heating systems;
- gradual transfer to sources with low carbon dioxide emissions in local energy supply, with an 80-percent share of low-carbon sources by 2020: RES, high-efficiency CHP and waste heat;
- development of district cooling supply: establishing at least five district cooling systems by 2015.

Cogeneration of heat and power:

- ensuring an 18-percent share of CHP in gross energy end-use by 2020, and a 23-percent share by 2030;
- achieving the target share of CHP in district heating systems;
- ensuring that new and renovated buildings source their heat from district heating, RES, CHP or waste heat.

Electricity generation:

- in the refurbishing of existing thermal energy facilities, the NEP steers electricity generation towards the use of BAT and energy products with lower specific emissions of GHG, thereby contributing to achieving the EU target under the ETS;
- ensuring a 40-percent share of electricity generation from RES in gross energy end-use by 2020 and a 53-percent share of RES by 2030, which will also contribute to improving the efficiency of energy consumption in transformations.

The set RES targets will make an important contribution to reducing import dependence, lower energy intensity in the commercial sector and thus to its greater competitiveness.

3.2 Strategies for end-use energy consumption

Strategies in the area of end-use energy consumption are included in chapter 2.2 in the description of strategies contributing to primary energy savings.

3.3 End-use energy measures and savings

3.3.1 Calculation methodology

The savings achieved through individual measures to increase energy efficiency are laid down in accordance with Article 4 of Directive 2006/32/EC, 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 the individual measure is thus taken into account only if it ensures a saving that accords with Annex IV, is clearly measurable or estimable and its effect on energy savings is not already included in other special measures (double counting).

The savings from individual measures are evaluated using either the top-down method or bottom-up method. The data used to calculate the savings using the two methods include data and calculations based on measurements and data and calculations based on estimates.

The top-down method has been used to evaluate savings of end-use energy in the 2008 - 2010 period in households, the service and public sectors and savings achieved through multisectoral measures. The same method has been used to evaluate end-use energy savings in the 1995 - 2007 period, which are the result of implementing earlier activities. End-use energy savings in households, the service and public sectors account for 65% of the savings achieved in 2010. The top-down method has been used to evaluate savings of end-use energy in the 2008 - 2010 period in industry and transport. End-use energy savings in industry and transport represent 35% of the savings achieved up to 2010.

Bottom-up methods

In preparing the methods for individual measures, we heeded to the greatest possible extent the recommendations and guidelines of the draft accounting methods of the European Commission¹⁵. Here it should be pointed out that some of these methods are suitable for application in Slovenia in their original form, but others only on the basis of appropriate adjustment (e.g. the use of national values for certain calculation parameters).

The majority of bottom-up methods used are our own, since the selection of European Commission methods is limited, or rather in some cases we are dealing with measures or instruments that are specific to Slovenia.

A general overview of the status of methods used, the selected methods of calculation and their conformity to the European Commission recommendations and guidelines for evaluating individual measures, is given in the table (ANNEX 3). A detailed description of the calculation and parameters applied for each method used, with respect to the proposals or guidelines of the European Commission, is given in the final report "Methods for calculating energy savings in implementing measures to increase the efficiency of energy consumption and for greater use of renewable energy sources".

¹⁵ Annex C (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)

ANNEX 1

The main sources of data for calculating the savings from individual measures according to bottom-up methods used in the NEEAP 2, are as follows:

- ministries: MESP, ME and MES;
- Eco Fund;
- ARSO;
- local energy agencies;
- Customs Administration of the Republic of Slovenia and
- the energy efficiency research REUS 2011.

Data have been obtained either on the basis of required inputs in tender applications received, from obligatory reports on the effects of measures carried out by applicants, statistical sales data or research. A more detailed description of sources and data is given in the Report on implementation of the National Action Plan 2008 - 2010.

There is a danger of duplicated counting especially in the methods of energy advice, although in the equations they already contain correction factors that balance out potential double counting of the effects of a measure. Furthermore there is also the potential for major errors from double counting in the combination of calculations for individual sectors in the case of combining bottom-up methods with top-down methods. In the household and services sectors, therefore, all measures are evaluated using the bottom-up method, and in industry and transport using the top-down method. All earlier activities were assessed using the top-down method.

Top-down methods

The top-down methods for estimating energy savings are based on aggregated data on the national level, the sector or sub-sector of the specific activity in question. The entire energy saving includes savings from independent advances, the effect of price changes, structural changes, the effect of prior measures and the effect of retroactive functioning of measures. The top-down methods are formulated using indicators of energy efficiency that were previously developed as part of European projects (Odyssee - Mure). The methods were deliberated and harmonised within an expert group for top-down methods under the aegis of the Committee of the ESD Implementation Commission. The selection of methods is based on the (current) availability of data in Slovenia which enables their use.

Individual methods are described in detail in the final report "Methods for calculating energy savings", and cover the following savings:

- energy savings in households;
- energy savings in the service sector;
- energy savings in transport;
- energy savings in manufacturing;

The calculation of energy savings according to the top-down method uses data from the Slovenian Statistical Office (SORS). In certain cases this uses data calculated from models for determining energy consumption on a lower level (e.g. use of fuel in transport by type of vehicle: private, freight, consumption of energy in households by purpose: heating, cooking, household appliances etc.).

The top-down methods and the data necessary for calculating energy savings in the industry and transport sectors are given in the annexes, ANNEX 2,

ANNEX 4 and ANNEX 5. The selection of top-down methods for evaluating end-use energy savings in the industry and transport sectors was dictated by the limited scope of available input data on the implementation and effects of measures carried out in these sectors, and this did not allow an evaluation of the individual measure.

3.3.2 Measures for achieving end-use energy savings

3.3.2.1 Measures in households

The potential for efficient energy consumption in households lies in the consumption of energy for heating and in the consumption of electricity. In this sector the range of measures for energy efficiency are cost-effective, but their implementation is held back by a number of barriers. These are in particular financial barriers in providing funds for investment, coupled with lack of user knowledge regarding the possibilities and benefits of energy efficiency. The proposed selection of measures (Table 6) is therefore geared towards targets in such a way as to maximise the exploitation of opportunities for efficient energy consumption in this sector. The package of financial incentives covers the following programmes:

- Incentives for energy-efficient renovation and sustainable construction of buildings. The programme covers the promotion of energy rehabilitation of buildings (thermal insulation of facades, thermal insulation of lofts, replacing windows), construction of low-energy buildings and construction of passive buildings (measure G.1);
- Incentives for energy-efficient heating systems (measure G.2).
- Scheme of energy efficiency for low-income households (measure G.3).

An important part in promoting efficient energy use in the households sector is played by legislative measures, specifically multisectoral measure V.3 "Energy labelling of household appliances and minimal requirements" and horizontal measure H.1 "Regulation on efficient energy use in buildings" (these measures are presented in chapters 3.3.2.7 and 3.3.2.8). An important measure in multi-dwelling buildings is measure G.4 "Compulsory division of costs for heating in multi-dwelling buildings" - under the Energy Act. Achieving EEU targets in households is additionally facilitated by the provision of advice and information (measure G.5 "Energy advice network for citizens").

The effects of measures in the households sector were assessed according to the bottom-up method. The effect of financial incentives was evaluated on the basis of data on promoted measures of the Eco Fund, Ministry of the Environment and Spatial Planning and the Ministry of the Economy using the prescribed methods. In certain cases, division into measures G.1 and G.2 was impossible. In the case of complete renovation of a residential building, the effects of building renovation and replacement of the heating unit are assessed together. In this case the overall effect of the measure was ascribed to measure G.1. The effect of the compulsory system of dividing heating costs has been estimated on the basis of the current share of multi-dwelling buildings that have this system in place relative to the base year. The saving from implementing measures in households in the 2008 - 2010 period amounts to 247 GWh, and taking into account the effect of energy labelling of household appliances, other appliances and minimal requirements, the saving amounts to 396 GWh.

The calculation of savings can also take into account what are termed "earlier activities". Within this context we took into account the savings from measures carried out on the basis of grant incentives for investment in EEU (from 1996 to 2007), in RES (from

2002 to 2007), low-interest loans (from 2002 to 2006) and energy advice from 1995 to 2005. The total saving from these measures amounts to 210 GWh.

The total saving from measures implemented in households, taking into account “earlier activities”, in 2016 amounts to 1,558 GWh.

Projections indicate that by 2016 an additional saving of 1,101 GWh will be achieved relative to 2010. Almost half the saving will come from financial incentives for energy-efficient heating systems, and 27% from financial incentives for energy-efficient renovation and sustainable construction of residential buildings.

Table 6: Measures in households

Ref:	Name of measure	Target end-use energy consumption	Duration	Energy savings achieved in 2010 [GWh]	Expected energy savings in 2016 [GWh]
G.1	Financial incentives for energy-efficient renovation and sustainable construction of residential buildings	Energy consumption for heating in residential buildings	1 Jan. 2008 - 31 Dec. 2016	earlier activities: 61 measures 2008-2010: 76 ¹⁶	439
G.2	Financial incentives for energy-efficient heating systems	Energy consumption for heating and hot water in residential buildings	1 Jan. 2008 - 31 Dec. 2016	earlier activities: 48 measures 2008-2010: 68	629
G.3	Scheme of energy efficiency for low-income households	Energy consumption for heating and hot water in residential buildings	1 Jan. 2010 - 31 Dec. 2016	/	64
G.4	Compulsory division and calculation of heating costs in multi-dwelling and other buildings according to actual consumption	Energy consumption for heating in multi-dwelling residential buildings	1 Jan. 2008 - 31 Dec. 2016	measures 2008-2010: 51	88
G.5	Energy advice network for citizens	Energy consumption in households	1 Jan. 2008 - 31 Dec. 2016	earlier activities: 99 measures 2008-2010: 52	337
Total				457	1,558

A comparison of total savings achieved up to 2010 with those envisaged in the NEEAP 1 shows that the envisaged savings were exceeded by 21%¹⁷, wherein there were variances among individual measures. For 2010 the NEEAP 1 anticipated a saving of 326 GWh, specifically with financial incentives for energy-efficient renovation and sustainable construction of buildings saving 84 GWh, financial incentives for energy-efficient heating systems 17 GWh, financial incentives for efficient electricity consumption 153 GWh, schemes of energy efficiency for low-income households 6 GWh and energy labelling of household appliances and other appliances saving 66 GWh. The effect of compulsory division and calculation of heating costs in multi-dwelling and other buildings according to actual consumption and of the energy advice network for citizens was not assessed. The most noticeable thing was the variance in the measure of financial incentives for efficient electricity consumption, which according to the NEEAP 1 should have contributed most to savings in households, but this never got up and running since no funds were provided. This measure is not envisaged in the NEEAP 2, since the estimated effects of energy labelling and of the minimal requirements are sufficient for planning the dynamic of achieving the ultimate target, so that additional incentives for

¹⁶ The effects of the two measures intertwine, since financial incentives for complete renovation of buildings and construction of low-energy or passive buildings include replacement of boiler, installation of solar system etc.

¹⁷ The comparison looks at the effect of measures carried out 2008 - 2010, since the NEEAP 1 does not take into account savings from “earlier activities”.

early replacement of appliances are not necessary, except for vulnerable households. However, measure G.3 “Scheme of energy efficiency for low-income households” will start to be implemented in its entirety with a time lag.

Financial incentives for energy-efficient renovation and sustainable construction of residential buildings (measure G.1)

The financial incentives are in the form of low-interest loans and grant subsidies, Table 7. From 2002 to 2010 the Eco Fund published several calls for applications¹⁸ for loans to citizens for environmental investments. Loans were intended for: installation of modern appliances and heating systems, use of renewable energy sources, reducing heat losses in the renovation of residential buildings, buying energy-efficient appliances, new construction of low-energy and passive houses, extensive renovation of residential buildings, generation of electricity from renewable energy sources and buying environment-friendly vehicles. Measures carried out on the basis of loans prior to 2008 were taken into account as savings from what are termed "earlier activities". The total effect of these measures amounts to 32.2 GWh, while the effect of measures carried out through loans from 2008 to 2010 totals 39.2 GWh. Grant subsidies were awarded by the Eco Fund in 2008, 2009 and 2010, and before that by the Energy Efficiency Agency (AURE) and the Ministry of the Environment and Spatial Planning. The effect of measures owing to "earlier activities" amounts to 78.4 GWh. The measures covered are those carried out from 1996 to 2007 through incentives for investments in energy efficiency measures. The incentives for investments in energy efficiency yielded 30.0 GWh of savings, while incentives for investments in renewable energy sources (solar collectors, heat pumps, wood biomass boilers) yielded 48.4 GWh. Eco Fund grant subsidies were available in 2008 only for solar heating systems, complete renovation of existing residential buildings¹⁹ and new construction of low-energy and passive houses. In 2009 the scope of measures was expanded to the installation of wood biomass heating appliances for central heating, complete insulation of the facade in the renovation of existing residential buildings and replacement of exterior building fixtures. The selection of promoted measures was further expanded in 2010 to the installation of heat pumps for preparing sanitary hot water and/or central heating, installation of central heating systems in the renovation of residential buildings in the event of connection to district heating running on renewable energy sources, thermal insulation of roofs or lofts in the renovation of single or two-dwelling buildings, thermal insulation of the facade in the renovation of a single or two-dwelling building, installation of a ventilation system with the recovery of heat from waste air, installation of thermostat valves, hydraulic balancing of heating systems and installation of a system of dividing costs for heat. The effect of all measures carried out in 2008, 2009 and 2010 amounts to 105.4 GWh.

The Decree Ensuring Energy Savings for Final Customers, adopted in 2009, provides a systematic source of funds for awarding grant subsidies, wherein the range of awarding organisations is extended from the Eco Fund to include major suppliers of electricity, heat from the distribution network, natural gas and liquid fuels to final customers²⁰.

Financial incentives for energy-efficient heating systems (measure G.2).

A description of incentives for investment in energy-efficient heating systems is included in the description of measure G.1. In addition to the grant subsidies mentioned in the description of measure G.1, in 2008 and 2009 calls for applications were issued for funding investment in increased energy efficiency of existing multi-dwelling buildings, specifically for systems of dividing and calculating the costs of heat according to actual use, installation of thermostat valves and hydraulic balancing of heating systems in multi-dwelling buildings with construction started prior to 2003 and thermal insulation of multi-dwelling buildings with construction started prior to 1981, Table 8. The total saving from these measures in 2010 amounted to 5.4 GWh.

¹⁸ The description relates to calls for applications for financial incentives for energy-efficient renovation and sustainable construction of residential buildings (G.1) and financial incentives for energy-efficient heating systems (G.2), with both measures being covered under one tender.

¹⁹ 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).

²⁰ Suppliers of heat from the distribution network that supply at least 75 GWh of heat annually, and suppliers of electricity, gas and liquid fuels that supply at least 200 GWh annually.

Table 7: Financial incentives for energy-efficient renovation and sustainable construction of residential buildings (measure G.1)

Description	
Type of measure	Financial instruments, Obligations of energy companies, Funds
Time scale for implementation	Start: 1 Jan. 2008; End: 31 Dec. 2016
Target/presentation	The measure is intended for energy rehabilitation and construction of low-energy and passive residential buildings. In connection with the energy rehabilitation of buildings, this measure will serve to promote the thermal insulation of facades, lofts and other building elements, replacement of fixtures and other measures. Comprehensive rehabilitation works will be given progressive incentives.
Target end-use energy consumption	- energy consumption for heating in residential buildings
Target group	- owners of residential buildings, building managers and investors in new constructions and building renovations
Implementation	
Key activities	According to the Decree Ensuring Energy Savings for Final Customers, large liable entities that supply heat from the distribution network, natural gas and liquid fuels, and the Eco Fund ²¹ , are bound to implement efficient energy use measures whereby an annual energy saving is achieved in the amount of at least 1 percent a year relative to the energy or fuel supplied to final customers in the previous year. The measures are set out in the programmes to improve energy efficiency, which must be drawn up for each year separately. Implementation of the programmes is checked by the Eco Fund, on the basis of reports.
Financial means and sources	The value of public funds necessary for implementing the measure from 2011 to 2016 is estimated at EUR 113 million. Sources of financing: funds from the contribution for raising the efficiency of electricity consumption and surcharges for heat and fuel to raise energy efficiency.
Provider	- large liable entities that supply heat from the distribution network, natural gas and liquid fuels, and the Eco Fund
Supervisory institution	- Ministry of the Economy
Energy savings	
Evaluation method for effects	Savings are calculated using the bottom-up method, based on actual data on measures carried out. Methods are used for the complete renovation of buildings, construction of low-energy and passive buildings and partial renovation of buildings (renovation of individual elements of the exterior shell).
Savings achieved in 2010	76 GWh
Expected energy savings in 2016	377 GWh
Expected energy savings in 2020	579 GWh
Assumptions	In the period from 2010 up to and including 2016, financial incentives will be used to completely rehabilitate an additional 3.7 million m ² of residential space in single-dwelling and 1.2 million m ² in multi-dwelling buildings, and to construct 0.2 million m ² of low-energy or passive residential buildings. Renovated buildings represent 8% of the surface area of the entire buildings fund of 2010, and newly constructed buildings a 3-percent growth of the area from 2011 to 2016. Comprehensive rehabilitation works will be given progressive incentives.
Overlapping, multiplication effects, synergy	The measure is enhanced with standards of energy consumption in newly constructed and renovated buildings (PURES), and the effect is bolstered by information campaigns and the advice network (ENSVET). Another important effect is produced by raising the prices of fuel through surcharges/fees or taxes.

²¹ Official Gazette of the Republic of Slovenia (Off. Gaz. RS) No. 114/2009

Table 8: Financial incentives for energy-efficient heating systems (measure G.2).

Description	
Type of measure	Financial instruments, Obligations of energy companies, Funds
Time scale for implementation	Start: 1 Jan. 2008; End: 31 Dec. 2016
Target/presentation	This measure is intended to promote steps to reduce energy consumption for heating in residential buildings, specifically: <ul style="list-style-type: none"> • replacement of unsuitable boiler capacities with high-efficiency installations: use of condensing and modular boilers; installation of special high-efficiency biomass boilers burning logs, pellets and woodchips; • optimisation of heating systems through investments in the following technologies: thermostat valves, regulation and hydraulic balancing of heating systems: e.g. automatic regulation valves for balancing aerial lines in multi-dwelling buildings, replacement of heating sub-stations in district heating systems; promoting the installation of ventilation systems with high-efficiency heat recovery from waste air; • promoting the use of RES in buildings (compulsory share of end-use energy for system operation in buildings); promoting the installation of heat pumps for central heating that use heat from the air, groundwater and surface water, or heat accumulated in the earth and stone masses.
Target end-use energy consumption	- energy consumption for heating and hot water in residential buildings
Target group	- owners of residential buildings, building managers and investors in new constructions and building renovations
Implementation	
Key activities	According to the Decree Ensuring Energy Savings for Final Customers, large liable entities that supply heat from the distribution network, natural gas and liquid fuels, and the Eco Fund, are bound to implement measures of EEU and RES promotion, such that annually they achieve an energy saving of at least 1 percent relative to the energy or fuel supplied to final customers in the previous year. The measures are set out in the programmes to improve energy efficiency, which must be drawn up for each year separately. Implementation of the programmes is checked by the Eco Fund, on the basis of reports.
Financial means and sources	The value of public funds necessary for implementing the measure from 2011 to 2016 is estimated at EUR 164 million. Sources of financing: funds from the contribution for raising the efficiency of electricity consumption and surcharges for heat and fuel to raise energy efficiency, and funds from the new surcharge to promote heat production from renewable energy sources.
Provider	- large liable entities that supply heat from the distribution network, natural gas and liquid fuels, and the Eco Fund
Supervisory institution	- Ministry of the Economy
Energy savings	
Evaluation method for effects	Savings are calculated using the bottom-up method, based on actual data on measures carried out using the prescribed methods. Methods are used for the replacement of hot water boilers with new ones, the installation of heat pumps for heating buildings and installation of solar collectors (SC).
Savings achieved in 2010	68 GWh
Expected energy savings in 2016	586 GWh
Expected energy savings in 2020	850 GWh
Assumptions	In the period from 2010 up to and including 2016, existing boilers will be replaced with 14,000 modern gas boilers, 11,000 heat pumps and 29,000 modern wood biomass boilers. The replaced boilers represent 12% of the existing boilers in 2010. Furthermore, an addition 134,000 m ² of solar collectors will be installed, representing an increase in the surface area of installed systems of almost 90% relative to 2010.
Overlapping, multiplication effects, synergy	The measure is enhanced with standards of energy consumption in newly constructed and renovated buildings (PURES) - 25% share of renewables in overall end-use energy for system operation in buildings. ²² , and the effect is bolstered by information campaigns and the advice network (ENSNET). Another important effect is produced by raising the prices of fuel through surcharges/fees or taxes.

²² This can also be achieved with at least 25 percent from solar radiation, at least 30 percent from gaseous biomass, at least 50 percent from solid biomass, at least 70 percent from geothermal energy, at least 50 percent from ambient heat, at least 50 percent from high-efficiency CHP installations compliant with the regulation governing support for electricity generated in high-efficiency cogeneration of heat and electricity, and the building is supplied to at least 50 percent from a system of energy-efficient district heating or cooling.

Scheme of energy efficiency for low-income households (measure G.3).

The NEEAP 1 envisaged the formulation of a scheme of energy efficiency for low-income households, Table 9. 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. In line with the ME order, in 2010 the Eco Fund published a call aimed at promoting investments in multi-dwelling buildings for the following measures: thermal insulation of facades, insulation of roofs and lofts, replacement of exterior building fixtures in common areas, installation of wood biomass central heating boilers, installation of thermostat valves, hydraulic balancing of heating systems and installation of a system of dividing heating costs. For all investments, the level of grant incentives was up to 25% of the granted investment costs. The level of the financial incentive for socially disadvantaged citizens²³ that submitted adequate proof amounted to 100% of the granted investment costs. 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.

Compulsory division and calculation of heating costs in multi-dwelling and other buildings according to actual consumption (measure G.4)

The division and calculation of heating costs in multi-dwelling and other buildings according to actual consumption became compulsory under the amended Energy Act of 2008²⁴ for all residents in multi-dwelling buildings and other buildings with at least four separate sections provided with heat from a communal heating system, on 1 October 2011. By calculating costs according to actual use, users of buildings will pay for the costs of heating according to use, and will be 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, Table 10.

For the installation of measuring devices that enable the division and calculation of heat 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 and 2011 stimulus grants of up to 30% or 25%.

In 2011, an information campaign entitled *I pay for what I use [Plačam kolikor porabim]* was run by the Ministry of the Economy, and as part of this all households living in multi-dwelling buildings received a brochure with information on the legal basis for dividing and calculating costs, on the actual implementation of the division and calculation of costs, information on efficient energy management and on financial incentives.

Energy advice network for citizens (measure G.5)

The programme of providing energy advice to citizens, ENSVET, was started in 1993. Today, free advice on energy is provided to households/citizens at 36 advice offices throughout Slovenia by around 60 authorised advisers. From 2008 to 2010 advice involving written reports was provided more than 18,000 times, and more than 37,000 times in the form of brief pieces of advice. The average annual saving of end-use energy is estimated at 3.1 MWh/piece of advice, with a time lag of around two years from project implementation²⁵,

²³ A socially disadvantaged person is any owner or floor owner of a dwelling in a multi-dwelling building who, at the time of submitting an application to this public call or at any time in the preceding 18 months was eligible for cash social assistance or at that time received supplementary benefit.

²⁴ Off. Gaz. RS No. 70/2008, EZ-C

²⁵ The calculation of savings from the advice takes into account the following factors: the implementation of measures, which takes account of the share of surveyed citizens who have carried out measures suggested by advisers (0.62), existing buildings, which takes account of the share of existing buildings relative to all buildings for which advice was provided (0.75), the factor of those returning for (extra) advice (0.95), duplication through the incentive scheme (0.95) and the factor of other influences of VSS (0.80). The baseline saving per piece of advice is 9.23 MWh.

ANNEX 1 For the 2008 - 2010 period the end-use energy saving is therefore 51.6 GWh. The measure is being implemented by the ZRMK Construction Institute of Ljubljana, Table 11.

The savings resulting from advice given from 1995 to 2005 were also estimated in the context of what are termed "earlier activities". The savings were estimated to be 31.2 GWh.

The NEEAP 1 envisaged that between 2008 and 2016 more than 100,000 pieces of advice would be provided to citizens, which at current estimates of savings would amount to around 310 GWh a year at the end of 2016. With the current scope of operation, by 2016 ENSVET could realistically expect to provide around 60,000 pieces of advice, and expansion of the network would require additional funding.

The envisaged measure is aimed at achieving the set target of 10,000 pieces of advice a year, which requires the professional training of new advisers and additional promotion of ENSVET operations. In order to maintain the expertise of advisers, they need to be provided with continuous professional training, and owing to obsolescence the informational materials for citizens would need to be revised. Given that demand for advice exceeds the available capacities, and its effective provision is to a large extent hampered by irregular funding, it would make sense for ENSVET funding to introduce a regular budget item (independently or as part of implementing the communication strategy for households).

In the future, as part of implementing the long-term communication strategy for households (measure H.3.1, chapter 3.3.2.7) ENSVET should also take on some tasks in the area of providing information and awareness-raising for citizens, which are not covered under this measure.

Table 9: Scheme of energy efficiency for low-income households (measure G.3).

Description	
Type of measure	Financial instruments, Obligations of energy companies, Providing information and obligatory information
Time scale for implementation	Start: 1 Jan. 2010; End: 31 Dec. 2016
Target/presentation	<p>This scheme should 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.</p> <p>Statistical data indicate that in 2009 barely 6% of people in Slovenia received cash social assistance. Data on the share of household expenditures in apartments indicate that households in the 1st income quintile allocate over 15% of their expenditure on energy (electricity, heating and hot water). Moreover Slovenia has a very high share of privately owned apartments. It follows, therefore, that these households lack sufficient funds either to ensure appropriate living conditions or even to carry out measures that yield savings. The existing scheme must therefore continue to be implemented in the future, and vulnerable households must be enabled to be involved in the process of renovation to improve living conditions. The scheme needs to be expanded with additional activities.</p>
Target end-use energy consumption	- consumption of energy for heating and hot water in residential buildings and of electricity
Target group	- households with income in the first quintile
Implementation	
Key activities	<p>As part of this measure, special emphasis should be placed on information activities:</p> <ol style="list-style-type: none"> The ministry competent for social affairs draws up a public call for applications for cofinancing implementation of promotional and information campaigns on services and financial support available to low-income households to carry out energy efficiency measures. A pilot project is being carried out that will be aimed at seeking new approaches in communicating with at-risk groups (especially pensioners and the disabled) and raising awareness among them. The project is being implemented via societies that operates actively in the area of protection for pensioners and other vulnerable groups (e.g. Association of Pensioner Societies of Slovenia, Caritas, Red Cross). <p>A programme of assistance is being set up to establish the distribution of energy-efficient household appliances, heating systems (especially heat pumps, if the household is heated using electricity) and the use of energy-saving light bulbs to at-risk households. The tender for purchase of a large number of energy-efficient household appliances is being prepared by the Eco Fund, while the distribution of assistance is organised via charitable organisations (e.g. Caritas, Red Cross) that have good access to at-risk groups and extensive networks for distributing such appliances.</p> <p>The Eco Fund is continuing the scheme of assistance for at-risk households, but assistance needs to be expanded to at-risk households in single-dwelling houses. Support is still being provided for priority and cheaper measures (facade insulation, loft insulation, replacement of exterior building fixtures, installation of thermostat valves, hydraulic balancing of heating systems and implementation of a system of dividing heating costs). Large liable entities will also be involved in the future²⁶, but measures in at-risk households will need additional stimulus. An appropriate promotional mechanism will need to be established for the measures to become more attractive in this group of users. For large liable entities a special evaluation of savings actually achieved is therefore envisaged for cases where they have been made through measures in low-income households. The evaluation of savings made through factor 3 is proposed. This is an incentive mechanism that enables large liable entities to achieve more rapidly the target savings they must attain on the basis of annual programmes.</p>
Financial means and sources	The value of public funds necessary for implementing the measure from 2011 to 2016 is estimated at EUR 47 million. Sources of financing: climate fund.
Provider	- Eco Fund and large liable entities
Supervisory institution	- Ministry of the Economy

²⁶ Large liable entities pursuant to the Decree Ensuring Energy Savings for Final Customers.

Table 9: Scheme of energy efficiency for low-income households (measure G.3), continued

Energy savings	
Evaluation method for effects	Savings are calculated using the bottom-up method, based on actual data on measures carried out using the prescribed methods.
Savings achieved in 2010	Savings are already included in the evaluation of measures G.1 and G.2.
Expected energy savings in 2016	64 GWh
Expected energy savings in 2020	99 GWh
Assumptions	In the period from 2010 up to and including 2016, financial incentives intended for at-risk households will be used to refurbish 315,000 m ² of surface area (8% of surfaces from 2010), replace 4,000 boilers with modern gas boilers, heat pumps and modern wood burning boilers ²⁷ (14% of installed boilers in 2010), install 8,950 m ² of solar panels, purchase 195,000 energy-saving bulbs (18% of newly purchased light bulbs in 2011-2016) and replace 43,000 refrigerators and washing machines (representing almost 50% of appliances in low-income households in 2010).
Overlapping, multiplication effects, synergy	In addition to reducing energy consumption and the costs of energy, as well as reducing carbon dioxide emissions, the scheme will facilitate a reduction in living costs and consequently an increase in purchasing power for these households, and in that way it will serve to reduce social transfers and the costs of healthcare, and should create new jobs.

²⁷ For single-dwelling buildings it is assumed that only log burning boilers will be promoted, while boilers burning pellets and woodchips will be promoted for multi-dwelling buildings.

Table 10: Compulsory division and calculation of heating costs in multi-dwelling and other buildings according to actual consumption (measure G.4)

Description	
Type of measure	Regulations Information Financial instruments
Time scale for implementation	Start: 1 Jan. 2008; End: 31 Dec. 2016
Target/presentation	Payment of costs for heating according to actual use is a very important condition in implementing energy efficiency measures, since it has immediately noticeable effects. This is particularly true of changes in behaviour. We envisage that the introduction of calculating costs by actual use provides households with an incentive to reduce their energy consumption by 5% owing to a change in behaviour.
Target end-use energy consumption	- energy consumption for heating in multi-dwelling and other buildings with at least four separate sections where heat is provided from a common heating system
Target group	- owners of multi-dwelling buildings and other buildings with several separate sections, caretakers, accounting providers, suppliers of split meters, companies supplying heat from the network
Implementation	
Key activities	The information campaign will continue, especially in terms of providing information on energy efficiency measures.
Financial means and sources	The value of public funds has not been estimated. Sources of financing: - funds from the surcharge for heat and fuel to raise energy efficiency, - budget funds for information programmes.
Provider	- Ministry of the Economy, Eco Fund
Supervisory institution	- Ministry of the Economy
Energy savings	
Evaluation method for effects	Savings are calculated using the bottom-up method, based on actual data on measures carried out using the prescribed methods. It is assumed that installation of split meters contributes to a change in behaviour that will achieve at least a 5% energy saving.
Savings achieved in 2010	51 GWh
Expected energy savings in 2016	88 GWh
Expected energy savings in 2020	89 GWh
Assumptions	It is assumed that by 2016 all apartments in multi-dwelling buildings will have split meters for dividing heat costs installed.
Overlapping, multiplication effects, synergy	The measure is enhanced with standards of energy consumption in newly constructed and renovated buildings (PURES) - 25% share of renewables in overall end-use energy for system operation in buildings ²⁸ , and the effect is bolstered by information campaigns and the advice network (ENSVET). Another important effect is produced by raising the prices of fuel through surcharges/fees or taxes.

²⁸ This can also be achieved with at least 25 percent from solar radiation, at least 30 percent from gaseous biomass, at least 50 percent from solid biomass, at least 70 percent from geothermal energy, at least 50 percent from ambient heat, at least 50 percent from high-efficiency CHP installations compliant with the regulation governing support for electricity generated in high-efficiency cogeneration of heat and electricity, and the building is supplied to at least 50 percent from a system of energy-efficient district heating or cooling.

Table 11: Energy advice network for citizens (measure G.5)

Description	
Type of measure	Providing information and obligatory information
Time scale for implementation	Start: 1 Jan. 2008; End: 31 Dec. 2016
Target/presentation	The network of energy advice offices, founded on a partnership between the state and self-governing local communities, provides citizens with free advice, information and assistance in preparing applications for the acquisition of financial incentives for investments. This ensures a more rational approach to energy from citizens and increases interest in investing in measures for efficient consumption and renewable sources of energy.
Target end-use energy consumption	- energy consumption for heating in residential buildings
Target group	- households/citizens
Implementation	
Key activities	<ul style="list-style-type: none"> • The programme of energy advice for citizens, which was started in 1993, is provided by around 65 authorised advisers in 34 advice offices. Energy advice in the scope envisaged in the NEEAP 1 - advice provided in 10,000 cases a year. Over the entire period more than 100,000 pieces of advice envisaged for citizens. • Help in preparing applications for grants to make investments. • Professional training of new advisers and additional training for already authorised advisers. • Promotion and information for citizens on the functioning of ENSVET (lectures, fairs, ENSVET activities outside the offices: fairs, retail centres/mobile unit. • Annual reporting on activities.
Financial means and sources	The value of public funds necessary for implementing the measure from 2011 to 2016 is estimated at EUR 6 million. Sources of financing: <ul style="list-style-type: none"> - funds from the contribution for raising the efficiency of electricity consumption and - the surcharge for heat and fuel to raise energy efficiency.
Provider	- Ministry of the Economy, Eco Fund, ENSVET (ZRMK Construction Institute)
Supervisory institution	- Ministry of the Economy
Energy savings	
Evaluation method for effects	The energy savings are estimated on the basis of the number of times advice was given from 1995 to 2008.
Savings achieved in 2010	52 GWh
Expected energy savings in 2016	238 GWh
Expected energy savings in 2020	362 GWh
Assumptions	It is assumed that advice will be provided in 10,000 instances annually, leading to measures that would achieve a saving of 3.1 MWh/consultation.
Overlapping, multiplication effects, synergy	The measure is enhanced by all other measures in this sector.

3.3.2.2 Measures in the service sector

The service sector covers retail trade, the catering and hospitality industry, financial services, real estate brokerage, recreational, cultural, sports and other activities. Office buildings are by far the most prevalent buildings. For 2008, energy consumption in the service sector was estimated at 4,151 GWh. This accounts for 8% of total end-use energy consumption. Electricity consumption excluding heating and hot water preparation represents as much as 57% of energy consumption in this sector. Lighting accounts for 44% of consumption.

There are no specific measures geared towards raising energy efficiency just in this sector, but the sector is also covered by the industry sector measure, specifically the cofinancing of measures for efficient electricity consumption, financial incentives for raising energy efficiency in industry and the service sector, a significant increase in the scope of environmentally friendly energy production from RES and CHP systems, and schemes for efficient electricity consumption and reduction of GHG emissions, Table 12. A detailed description of these measures is provided in chapter 3.3.2.3. An important contribution towards energy saving is also made by two multisectoral measures: the regulations on the energy performance of buildings and energy labelling of household appliances and other appliances, and the minimum requirements, which will have a major effect on the consumption of electricity by office and IT equipment and lighting. Given the dominant share of offices, which are for the most part in buildings with several sections, we should also mention the compulsory division and calculation of costs for heat since 1 October 2011.

Based on data from the Eco Fund on loans made²⁹ in the service sector, the effects of EEU measures carried out as part of the Rural Development Programme and the reports on the effects of energy management by local energy agencies, the saving of end-use energy made in the service sector from 2008 to 2010 is estimated at 12 GWh. An additional 2.4 GWh of savings were made in the context of exemptions on payment of the environmental charge for polluting the air with carbon dioxide emissions, on the basis of a contract on reduction of air pollution from emissions of CO₂, where those liable undertook to reduce specific emissions of CO₂ by 2.5%.

Table 12: Measures in the service sector

Ref.	Name of measure	Target consumption of end-use energy	Duration	Energy savings achieved in 2010 [GWh]	Expected energy savings in 2016 [GWh]
(I.1)	Cofinancing measures for efficient electricity consumption	Electricity consumption for lighting	1 Jan. 2008 - 31 Dec. 2016		31 ³⁰
(I.2.)	Financial incentives to raise energy efficiency in industry and the services sector and significantly increase the scope of environmentally friendly electricity generation from RES and CHP systems	Heating, cooling and electricity in the service sector	1 Jan. 2008 - 31 Dec. 2016 (annual tenders)	13	251 ³¹
(I.4)	Schemes for efficient electricity consumption and reduction of GHG emissions	- fuels - electricity	1 Jul. 2013 - 31 Dec. 2016	2	2 ³²
Total				15	285

²⁹ Loans are available for legal persons, sole traders, individuals and private operators (see also chapter 3.3.2.3).

³⁰ The saving was estimated on the assumption that lighting will be replaced on 350,000 m² of surface area. The saving in 2020 amounts to 53 GWh.

³¹ Savings were calculated on the assumption that the measure would stimulate the renovation of 0.5 million m² of surface area (3% of surfaces from 2010), the purchase of 1,400 new modern gas boilers, 3,900 modern wood biomass boilers and 800 heat pumps (15% of boilers installed in service sector buildings in 2010) and the installation of 8,400 m² of solar collectors. The saving in 2020 amounts to 425 GWh.

³² The effect of the measure from 2010 to 2016 has not been estimated.

3.3.2.3 Measures in industry

Up until the onset of the global economic crisis in 2008, end-use energy consumption in industry was constantly growing. The growth in consumption of electricity was especially alarming. Since the greatest share of electricity is used in industry for electric motor drives (around 50%, of which almost half is used in pumps and ventilators), for the production of compressed air (around 10%), lighting (around 8%), preparation of cooling (around 5%), ventilation and air conditioning (around 5%) and other use for miscellaneous purposes (such as technological processes), the NEEAP 1 devised and instrument for improving the efficiency of electricity consumption in industry (measure I.1 "Cofinancing measures for efficient electricity consumption").

Measure I.1 thus supports technologies such as:

- energy-efficient electric motors,
- frequency regulation of motor revolutions,
- energy-efficient pumps and ventilators,
- energy-efficient systems for preparing compressed air,
- energy-saving lighting.

Since the end of 2010 the measure has been carried out as part of the public call for applications for cofinancing operations to raise the efficiency of electricity consumption in the commercial sector for the period 2011 to 2013 (UREE1), which envisages incentives for improving energy efficiency in industry and services.

For industry and especially small and medium-sized enterprises, loans for investments in environmental protection provided by the Eco Fund,³³ and the allocation of grants as part of the public tenders under the OP ETID, measure I.2, are important. In order to achieve a greater scope of end-use energy saving in industry, three new measures are planned, specifically incentives for introducing energy management systems in industry (measure I.3), schemes for efficient electricity consumption and reduction of GHG emissions (measure I.4) and establishing a fund and other incentives for the commercial sector in the entry of green energy products into the market (measure I.5). A review of measures in industry is provided in the table below, Table 13.

The promotion of energy efficiency in industry is also supported by multisectoral and horizontal measures. Among the multisectoral measures, special attention should be drawn to the support scheme for electricity generated from RES and CHP, measure V.3. In addition to the aforementioned measures, the National Renewable Energy Action Plan for 2010 - 2020 already provides three measures that indirectly contribute to increased energy efficiency in industry, by promoting CHP and district heating, specifically:

- Measure 25 - establishing a support scheme for producing heat from RES for heating, with the introduction of a system of operating incentives for connection/production of heat from renewable energy sources and definition of financial sources for the incentives;
- Measure 28 - Financial mechanisms for energy services using RES - introduction of financial instruments that are established for promoting energy saving for the field of district heating and connection of RES to existing networks of energy products for heating and for heating systems that use RES:
 - financing by third parties,
 - contractual provision of energy savings,
 - external energy supply:

Measure 28 in the NREAP supplements the horizontal measure H.1 "Energy contracting", which is described in chapter 3.3.2.8. Additional measures in industry identified by Slovenia's industrial sector as suitable for promoting energy efficiency, or that have been shown to be successful in the implementation of the NREAP in other European countries, are based primarily on the introduction of organised changes and energy management, and on the implementation of measures as part of schemes for exempting payment of the CO₂ tax, the contribution for raising the efficiency of electricity consumption and the surcharge on heat and fuels for raising energy efficiency:

³³ Public call for loans for environmental investments 46PO11 (Off. Gaz. RS No. 29/2010)

- introduction of a system of energy use comparison for major consumers (including sectoral) - measure I.3;
 - promoting organisational measures in industry for energy savings;
 - financial incentives for introducing energy management systems that would cover the costs of introduction and training (modelled on the support for introducing ISO 14000);
- schemes for exemptions modelled on the CO₂ tax, which is described in greater detail in chapter 3.3.2.8, where there is a definition of verifiable quantitative targets (e.g. a reduction of specific energy consumption per value added), which also build upon the “earlier activities” for efficient energy consumption;
- subsidised energy audits in industry;
- package services as part of supplier programmes for small and medium-sized enterprises;
- standardisation of contracts and design of a model for energy contracting as part of eco-management in the contractual provision of energy savings in industry (compressed air, lighting, heating, ventilation and cooling);
- schemes for exemption from payment of the contribution for raising the efficiency of electricity consumption and surcharges for heat and fuel to raise energy efficiency, measure I.4.

Table 13: Measures in industry and in small and medium-sized enterprises

Ref.	Name of measure	Target end-use energy consumption	Duration	Energy savings achieved in 2010 [GWh]	Expected energy savings in 2016 [GWh]
I.1.	Financial incentives for efficient electricity consumption	electricity	17 Dec. 2010 - 31 Dec. 2016	/	/
I.2.	Financial incentives to raise energy efficiency in industry and the services sector and significantly increase the scope of environmentally friendly electricity generation from RES and CHP systems	heating and cooling, electricity	1 Jan. 2008 - 31 Dec. 2016 (annual tenders)	54 Earlier activities 123 Total 177	/
I.3.	Incentives for introducing energy management systems in industry	energy consumption in industry	1 Sep. 2012 - 31 Dec. 2016	/	/
I.4.	Schemes for efficient electricity consumption and reduction of GHG emissions	energy consumption in industry	1 Sep. 2012 - 31 Dec. 2016	13	/
I.5.	Establishing a development scheme and other incentives for the commercial sector in the entry of green energy products into the market	end-use energy consumption in all sectors	1 Jul. 2012 - 31 Dec. 2016	/	/
			Total	190	/
		(bottom-up method)			
Indicator of end-use energy savings [GWh]		2008	2009	2010	2016
P14	Method A (top-down method)	474	144	35 ³⁴	1,634

³⁴ Savings for 2010 are not estimated (no statistical data for 2010 were available).

Financial incentives for efficient electricity consumption (measure I.1)

The public tender for cofinancing operations to raise the efficiency of electricity consumption in the commercial sector for the period 2011 to 2013, UREE1³⁵, involves the awarding of grants for cofinancing projects to raise the efficiency of electricity consumption as part of the Operational Programme for Environmental and Transport Infrastructure Development 2007–2013, the development priority Sustainable Energy Use and the priority orientation Efficient Electricity Consumption. The financial incentives are aimed at investors in the commercial sector for investment in the installation of new, efficient electrical devices and regulators and controlling and regulating equipment, Table 15. The level of cofinancing amounts to 30 - 50% of the eligible costs of investment, and in accordance with the Rules on the Promotion of Efficient Energy Use and the Use of Renewable Energy Sources³⁶ it is allocated as state aid. The existing tenders for energy efficiency in industry from Cohesion Fund financing are intended for major projects (investment value of at least EUR 120,000 excluding VAT), which has been shown to be a hindrance in the use of funds that needs to be eliminated. In the current economic situation, the industrial sector is capable of carrying out primarily smaller projects.

Financial incentives to raise energy efficiency in industry and the service sector and significantly increase the scope of environmentally friendly power generation from RES and CHP (measure I.2)

Under this measure, financial incentives are allocated in the form of favourable loans and grants, Table 15. The Eco Fund offers favourable loans with a subsidised interest rate for industry and the service sector, and these loans are intended for financing various investments in environmental protection. In 2008, 2009, 2010 and 2011 the Eco Fund thus issued public calls³⁷ for loans to legal entities of private law, sole traders, societies and institutions in the amount of EUR 79 million, intended for financial investments or a project in defined phases of investment for: (A) Reduction of greenhouse gas emissions; (B) Reduction of air pollution; (C) Waste management; (D) Water protection; (E) Removal of waste water or supply of drinking water; (F) Initial investment in environmental technology. Favourable loans for financing investments that are directly reflected in a reduction of end-use energy consumption can be obtained, primarily for reducing greenhouse gas emissions. Owing to the wide selection of investments for which favourable Eco Fund loans can be obtained, the measure represents an important incentive for improving EEU in industry in the future. With regard to the calls for applications carried out in previous years, the number of companies taking advantage of Eco Fund loans has been growing each year, and this is significantly expanding the scope of EEU investment in the industrial sector. In the 2008-2010 period industry was allocated EUR 7.7 million in Eco Fund loans for implementing EEU projects, which involved end-use energy savings of 16.9 GWh. The other form of financial incentive was available in the form of grants (OP ETID calls for applications³⁸). These were intended to promote the installation of wood biomass boilers, heat pumps and installation of solar collectors. In the 2008 - 2010 period, financial incentives from this source were intended for investment in the installation of new wood biomass boilers, for expanding capacities in wood biomass boiler rooms and for replacing boilers using fossil fuel sources. In 2009 and 2010, on the basis of two tenders, stimulus grants were awarded for the installation of biomass boilers with a total capacity of 30.9 MW, and the estimated end-use energy saving amounts to 30 GWh (including the tertiary sector).

Incentives for introducing energy management systems in industry (measure I.3)

Energy management systems offer a systemic approach to controlling and reducing energy consumption in industrial companies, since they enable the promotion of organisational measures and effective planning and management of investment, while adhering to standards SIST EN 16001:2009 and ISO 50001:2011. These standards are based on the methodology of sequential steps for planning, implementation, checking and action, and require the formulation of an energy policy with specific targets, the establishing of activities to reduce and control energy consumption, verify savings and plan improvements. For this reason incentives for introducing energy management systems in industry will be prepared as a measure that will be tied in terms of implementation to measure I.4, Table 16.

³⁵ The UREE1 public tender was published on 17 Dec. 2010 and closes on 6 Mar. 2013.

³⁶ Off. Gaz. RS No. 89/2008 and 25/2009

³⁷ Public call for loans to legal persons and sole traders, Off. Gaz. RS, No. 25/2008; Public call for loans to legal persons and sole traders, Off. Gaz. RS, No. 40/2009 and 60/2009; Public call for loans to legal persons, sole traders and private operators, Off. Gaz. RS, No. 29/2010; Public call for loans to legal persons, sole traders and private operators, Off. Gaz. RS, No. 32/2011

³⁸ Public calls for applications for grants: 2009 - Off. Gaz. RS, No. 36/2009; 2010 - Off. Gaz. RS, No. 40/2010

Table 14: Financial incentives for efficient electricity consumption (measure I.1)

Description	
Type of measure	Financial instruments: investment grants, loans with subsidised interest rates.
Time scale for implementation	Start: 1 Jan. 2008; End: 31 Dec. 2016 Implementation of the measure in the form of specific financial instruments is also envisaged following closure of the public tender UREE1 (2011 - 2013).
Target/presentation	Individual targets are expected to yield the following effects: <ul style="list-style-type: none"> • replacement of electric motors with high-efficiency motors (EU standard IE3) and replacement of oversized motors with smaller ones will enable a 4% saving of electricity, which produces greater effects in motors with a higher number of operating hours. • frequency inverters to regulate motor revolutions - enable at least a 20% saving of electricity. • replacing pumps with energy-saving ones (with frequency inverters) achieves a 2% saving of electricity. • replacing ventilators with energy-saving ones (with frequency inverters) achieves a 25% saving of electricity. • by eliminating leaks, regulating the distribution of compressed air and optimising regulation, electricity consumption is reduced by at least 10%, and by replacing compressors, by around 25%. • the installation of energy-efficient lights (fluorescent and electronic control gears) and optimising regulation of lighting etc. reduces electricity consumption by around 45%.
Target end-use energy consumption	- electricity consumption (electric motors, pumps, ventilators, compressed air preparation systems, lighting)
Target group	- company managers, energy managers, equipment suppliers
Implementation	
Financial means and sources	The value of public funds necessary for implementation of the measure between 2011 and 2016 is estimated at EUR 12 million (EUR 9 million as incentives for industry and EUR 3 million for service companies). Sources of financing: <ul style="list-style-type: none"> - Cohesion funds, tender UREE1: EUR 6.5 million (funds to cover eligible costs), of which EUR 0.2 million in 2011, 3.8 million in 2012 and 2.5 million in 2013), - for activities after 2014 we also envisage the securing of Cohesion Fund finance from 2014-2020 financial perspective.
Provider	- Ministry of the Economy
Supervisory institution	- Ministry of the Economy
Energy savings	
Evaluation method for effects	In evaluating individual projects of cofinancing via UREE1, account will be taken of the technical calculation of expected savings, which will be prepared using methods in accordance with the Rules on the Methods for Determining Energy Savings at Final Customers ³⁹ and on the basis of actual parameters for specific application. In this way we will acknowledge actually expected savings that are calculated using the parameters of the specific application on the part of the professional advisory institution or in line with prior analysis, which is the obligation at least for all applications of electric motor systems and equipment with drive power equal to or greater than 15 kW _e . In the case of devices with power less than 15 kW _e or in the event of an assessment of deficiency in the calculation, savings will be determined in the process of assessing applications using the general minimum standards for the use of energy-efficient equipment. Savings in industry are captured in the cumulative effects that are calculated for the industrial sector using the top-down method.
Savings achieved in 2010	The first UREE1 tender was published on 17 Dec. 2010.
Expected energy savings in 2016	Savings are evaluated on the level of the entire sector (all measures in industry) using the top-down method, and amount to 1,634 GWh.
Expected energy savings in 2020	Savings are evaluated on the level of the entire sector (all measures in industry) using the top-down method, and amount to 2,486 GWh.

³⁹ Off. Gaz. RS No. 4/2010, as amended

Table 15: Financial incentives to raise energy efficiency in industry and the service sector and significantly increase the scope of environmentally friendly power generation from RES and CHP (measure I.2)

Description	
Type of measure	Financial instruments: loans with subsidised interest rates, grants (subsidies)
Time scale for implementation	Start: 1 Jan. 2008; End: 31 Dec. 2016 Implementation of the measure is continued in the form of annual public Eco Fund calls for applications for the awarding of favourable loans, public calls for applications for Cohesion Fund grants and implementation of large liable entity programmes.
Target/presentation	The measure aims to increase energy efficiency and significantly increase the scope of environmentally friendly energy production from renewable energy sources and combined heat and power systems in industry and in the service and public sectors.
Target end-use energy consumption	- industry: heating and cooling and electricity (pneumatic and hydraulic generators, electric motor drives, lighting, new facilities, technological lines); service sector: heating and cooling and electricity (lighting)
Target group	- company managers, energy managers, equipment suppliers, legal persons of private law, sole traders, societies and institutions
Implementation	
Key activities	The financial incentives are in the form of loans with favourable interest rates awarded by the Eco Fund, and they may be obtained for a wide selection of measures (setting up a biomass, solar or geothermal heating system, setting up a CHP unit, setting up a unit for generating electricity from RES, reconstruction or replacement of heating, cooling and ventilation systems, refurbishment of lighting, energy refurbishing of existing structures, construction of new structures with low-energy or passive technology) and electric and hybrid vehicles. The other form of financial incentive is in the form of grants (OP ETID). These are intended to promote the installation of wood biomass boilers, heat pumps and installation of solar collectors. The third form of financial incentive is in the framework of large liable entity programmes.
Financial means and sources	The value of public funds necessary for implementing the measure from 2011 to 2016 is estimated at EUR 54 million. Sources of financing: - funds from the surcharge for heat and fuel to raise energy efficiency, - funds from the new surcharge to promote heat production from renewable energy sources, - Cohesion funds, public tenders for awarding grants to cofinance projects of installing wood biomass boilers for the 2009 - 2011 period: EUR 3 million for 2009 - 2010, EUR 4.4 million for 2010 - 2011, and for activities after 2014 we also envisage the securing of Cohesion Fund finance from 2014 - 2020 financial perspective.
Provider	- Eco Fund, Ministry of the Economy, large liable entities that supply heat from the distribution network, gas and liquid fuels
Supervisory institution	- Ministry of the Economy
Energy savings	
Evaluation method for effects	Applications for obtaining loans are evaluated according to environmental criteria in respect of the anticipated environmental and energy effects of the investment, specifically on the basis of data on the anticipated measurable effects of the investment and on the situation prior to implementation of the investment.
Savings achieved in 2010	In industry: 54 GWh; earlier activities 122 GWh; total 177 GWh.
Expected energy savings in 2016	In industry: Savings on the level of the entire sector (all measures in industry) using the top-down method amount to 1,634 GWh.
Expected energy savings in 2020	In industry: Savings on the level of the entire sector (all measures in industry) using the top-down method amount to 2,486 GWh.
Assumptions	In order to determine energy savings in the current year through the allocation of Eco Fund loans for industry and the service sector, account is taken of investments concluded in the current year for which the final portion of the loan was paid out in the current year.
Overlapping, multiplication effects, synergy	Promoting the use of renewable energy sources, new technological processes, development initiative, standards of energy consumption in newly built and renovated buildings (PURES). Another important effect is produced by raising the prices of fuel through surcharges/fees or taxes.

Table 16: Incentives for introducing energy management systems in industry (measure I.3)

Description	
Type of measure	Regulation
Time scale for implementation	Start: 1 Sep. 2012; End: 31 Dec. 2016
Target/presentation	Financial incentives that will cover part of the costs of the project to introduce energy management systems in companies (SIST EN 16001:2009; ISO 50001:2011) and the costs of training, and expert support in introducing this along the lines of introducing other process standards in Slovenia).
Target end-use energy consumption	- energy consumption in industry
Target group	- industrial companies (company managers, energy managers, quality management departments) that are involved in the scheme for exemption from payment of the contribution and surcharge for heat and fuel to raise energy efficiency
Implementation	
Key activities	- financial incentives and advice for the preparation of EEU investment projects; - upgrading the methodology for energy audits for companies in such a way as to promote contractual assurance of energy savings; - promoting the training of energy managers.
Financial means and sources	The level of public funds has not been estimated. Sources of financing: - funds from the contribution for raising the efficiency of electricity consumption and from the surcharge for heat and fuel to raise energy efficiency (exemption from payment of fees).
Provider	- Borzen under authorisation of the Ministry of the Economy
Supervisory institution	- Ministry of the Economy
Energy savings	
Evaluation method for effects	Savings are estimated using the bottom-up method based on actual incentives allocated for introducing energy management.
Savings achieved in 2010	The measure has not yet been implemented.
Expected energy savings in 2016	Savings are evaluated on the level of the entire sector (all measures in industry) using the top-down method, and amount to 1,634 GWh.
Expected energy savings in 2020	Savings are evaluated on the level of the entire sector (all measures in industry) using the top-down method, and amount to 2,486 GWh.
Overlapping, multiplication effects, synergy	The measure is supplemented with financial incentives for EEU in the commercial sector.

Schemes for efficient electricity consumption and reduction of GHG emissions (measure I.4)

The use of the instrument of exempting payment of taxes for polluting the air with carbon dioxide emissions ended on 31 December 2008. A new measure is being prepared for efficient electricity consumption and reduction of GHG emissions, Table 17. Based on experiences with the previous scheme of exemption from payment of taxes for polluting the air with carbon dioxide emissions, and according to the opinion of the industrial sector, in Slovenia it is more appropriate to continue using the scheme of exemptions than to introduce sectoral agreements. Since the measures for achieving the target are therefore not prescribed and their selection is not limited, the administrative burden is reduced, and cost-effectiveness for companies is increased.

Establishing a development scheme and other incentives for the commercial sector in the entry of green energy products into the market (measure I.5)

Slovenia is not yet undertaking many activities that would promote economic development in the fields of EEU and RES. With the aim of promoting development projects for the commercial sector in the field of energy-efficient products, production processes, services and solutions, we are establishing a development scheme and other incentives for the commercial sector in the entry of green energy products into the market, Table 18. Comprehensive support for the commercial sector (industry and services) needs to be provided through the promotion of research, development, demonstrations and market penetration of technologies, products, materials and services that affect energy use. Such activities are of key importance because they link up the implementation of EEU programmes founded on energy policy targets (competitiveness, reliability, the environment) with the objectives of economic growth and employment.

Irrespective of the absence of targeted and integrated incentives, in various EEU segments in Slovenia there is superlative knowledge and competitive, globally oriented companies that are capable of developing technology, new concepts, systems and services in the field of energy efficiency. For further development, the Development Group for Energy and Sustainable Sources of Energy has found⁴⁰ the following to be the greatest areas of interest: energy efficiency in transport (electric vehicles) and energy-efficient construction of active buildings or almost zero-energy buildings whose energy supply is based mainly on the use of renewable energy sources, plus support technologies in this area (information and communication technology, measurement technology etc.). The key opportunities and competence of Slovenia lie in the development of integrated systems. The global markets are seeing the successful operation of energy-efficient device manufacturers (household appliances, electric motors etc.) and their active involvement in developing technologies (CHP etc.).

Specific activities in support of development in this field are being pursued as part of the promotion of centres of excellence and competence centres. Other instruments intended to promote innovation, the purchase of technological equipment and other incentives for the development of small and medium-sized enterprises generally do not define priorities, nor do they stimulate additional objectives such as those relating to the environment.

⁴⁰ Strategic document of the sectoral development group on Energy and Sustainable Sources of Energy, Council of the Slovenian Government for Competitiveness, November 2008, <http://www.in-wheel.com/media/website/energetika-in-trajnostni-viri-energije/strateskidokumentsvetzakonkurenconstskupinaenergetika.pdf>

Table 17: Schemes for efficient electricity consumption and reduction of GHG emissions (measure I.4)

Description	
Type of measure	Financial instruments: - scheme of tax exemptions
Time scale for implementation	Start: 1 July 2013; End: 31 Dec. 2016
Target/presentation	The aim is to establish and implement two schemes: - schemes to reduce GHG emissions tied to tax exemptions on pollution of the air with CO ₂ emissions and exemption from the surcharge on heat and fuel for increasing energy efficiency for commercial companies liable to pay CO ₂ taxes; - schemes for efficient energy consumption, with emphasis on reducing electricity consumption for commercial entities that are not liable to pay CO ₂ taxes tied to incentives for entry into the scheme (for exemption from payment of the contribution for raising the efficiency of electricity consumption and surcharges for heat and fuel to raise energy efficiency).
Target end-use energy consumption	- fuel electricity
Target group	- those liable to pay taxes for polluting the air with CO ₂ emissions, those liable to pay the contribution for raising the efficiency of electricity consumption and from the surcharge for heat and fuel to raise energy efficiency
Implementation	
Key activities	<ul style="list-style-type: none"> • preparation of the legal and expert technical basis for a new scheme for efficient electricity use in companies (ME). The level of exemptions will be tied to the electricity savings set and achieved, and measures will not be prescribed; • start-up of the scheme to reduce electricity consumption at the provider institution (Borzen under ME authorisation); • preparation of the legal and expert technical basis for a scheme to reduce GHG emissions in companies (MESP); • implementation of a scheme to reduce GHG emissions (ARSO under MESP authorisation); • ensuring the exchange of experiences between the two schemes and the possibility of linking schemes (e.g. uniform contract);
Financial means and sources	The value of public funds necessary for implementing the measure from 2011 to 2016 is estimated at EUR 4 million (this sum represents the value of exempted payments or the reduction in funds collected through the contribution for raising the efficiency of electricity consumption and the surcharge on heat and fuel to raise energy efficiency. Sources of financing: - funds from the contribution for raising the efficiency of electricity consumption and from the surcharge for heat and fuel to raise energy efficiency.
Provider	- Ministry of the Economy and Borzen under its authorisation
Supervisory institution	- Ministry of the Economy
Energy savings	
Evaluation method for effects	Use of the top-down method is planned.
Savings achieved in 2010	Under the old scheme, 13 GWh.
Expected energy savings in 2016	Savings are evaluated on the level of the entire sector (all measures in industry) using the top-down method, and amount to 1,634 GWh.
Expected energy savings in 2020	Savings are evaluated on the level of the entire sector (all measures in industry) using the top-down method, and amount to 2,486 GWh.
Overlapping, multiplication effects, synergy	The measure is linked to the introduction of certified systems for energy management in the public sector.

Table 18: Establishing a development scheme and other incentives for the commercial sector in the entry of green energy products into the market (measure I.5)

Description	
Type of measure	Financial incentives; Direct subsidies to the commercial sector for introducing new EEU products, production processes and services to the market
Time scale for implementation	Start: 1 July 2012; End: 31 Dec. 2016
Target/presentation	The measure aims to promote commercial sector development projects in all phases of developing energy-efficient products, production processes, services and solutions, and is especially geared towards providing incentives for businesses in demonstration projects and in introducing these products to the market. The level of incentives for demonstration projects may be higher compared to other incentives that ensure cost-effectiveness and the implementation of EEU measures. The aim is to link the EEU effects to economic growth and employment targets.
Target end-use energy consumption	- energy consumption in all sectors (indirect and long-term effects)
Target group	- commercial sector, large companies, small and medium enterprises, research and development organisations
Implementation	
Key activities	<ul style="list-style-type: none"> • incentives for inclusion in European programmes (e.g. EUREKA); • additional incentives as part of existing tenders and programmes to promote entrepreneurship that are financed from EU funds and other public sources (incentives for SMEs, technological development, promoting innovation etc.) for products and services in the EEU field; • establishing development schemes and schemes for financing pilot and demonstration projects for technology and services in the fields of EEU and RES, drawing up the legal, strategic, administrative and technical basis for the operation of the fund and the scheme; [climate fund and other sources]; • strengthening capacity in the area of technological development and competitiveness (incentives for training personnel as part of existing tenders); • incentives to raise the quality of what is offered and the planning and management of systems, products and services in the area of energy management; • incentives for mutual networking to offer integrated solutions and presence in international markets; • development incentives for companies as part of tax policy; • introducing multi-disciplinary research and development programmes and projects in all areas of efficient energy management; • introducing the obligation of all state-owned or co-owned production or trading companies in the energy field operating in the free market, to allocate at least 15% of their annual profits for EEU research and development and the generation of electricity and/or heat from RES and CHP.
Financial means and sources	The value of public funds necessary for implementing the measure from 2011 to 2016 has not been estimated. Sources: <ul style="list-style-type: none"> - EU programmes (EUREKA etc.), - Climate fund, Cohesion funds (demonstration projects).
Provider	Ministry of the Economy, Ministry of Higher Education, Science and Technology, Slovenian Research Agency
Supervisory institution	
Energy savings	
Evaluation method for effects	Savings are indirect and long-term
Savings achieved in 2010	This is a new measure.
Expected energy savings in 2016	Savings are evaluated on the level of the entire sector (all measures in industry) using the top-down method, and amount to 1,634 GWh.
Expected energy savings in 2020	Savings are evaluated on the level of the entire sector (all measures in industry) using the top-down method, and amount to 2,486 GWh.
Overlapping, multiplication effects, synergy	The measure has an impact on employment and economic growth.

3.3.2.5 Measures in transport

The range of measures to improve energy efficiency in transport is geared towards resolving key issues in this sector: alongside the rapid growth of road freight, there is a growing number of private vehicles and at the same time a dwindling of public transport and the number of passenger kilometres travelled on public transport. The measures are condensed into four substantive fields that are defined through the following measures:

- **Promotion and competitiveness of public transport (measure P.1)**
The construction and modernisation of existing transport infrastructure (especially the rail and road network) is vital to achieving the desired effects in the area of public passenger transport, Table 20. This measure envisages the additional activities needed to establish the competitiveness of public transport, whereby it will be able to compete against the use of private cars, and also education and awareness-raising to spur changes in the fixed habits of private transport users, for the benefit of public transport.
- **Promoting sustainable freight transport (measure P.2)**
In sustainable freight transport the emphasis is on co-modality (intermodality), for which the construction and modernisation of existing transport infrastructure (especially railway) is of vital importance, Table 22.
- **Increasing the energy efficiency of road vehicles (measure P.3)**
Since Slovenia has no direct sway in terms of increasing energy efficiency in the manufacturing of private vehicles, we may only influence, through additional measures, the vehicle market and the consumer choice (raising consumer awareness) to opt as much as possible for hybrid vehicles and vehicles with the latest standards (EURO) that save more energy and emit less greenhouse gas, Table 24.
- **Building cycle paths and support structures and promoting cycling (measure P.4)**
The construction of cycle paths and accompanying promotional activities are intended to promote cycling as an alternative mode of transport, which particularly in association with other modes of public transport represents an efficient alternative to private transport with minimal environmental impact, Table 26.

The energy savings achieved in the transport sector in 2010 have been evaluated using the top-down method. The calculation of end-use energy savings in transport is thus formulated on the basis of four indicators, consumption of end-use energy in road transport for private and goods vehicles and consumption of end-use energy in goods and passenger rail transport (see ANNEX 5). The methodology does not allow any dissection of the evaluation of effects regarding the individual measure, but offers a combined estimate of energy savings in the transport sector. Only for the measure of increasing the energy efficiency of private vehicles is the bottom-up method used indicatively (see ANNEX 5). Measure P.3 is the only one for which we have relevant data that enables the use of this method. Evaluation of other measures using bottom-up methods will require for the future the systematic gathering of relevant data, as recommended for the individual measure, ANNEX 5.

The estimate of fuel consumption in transport by domestic (Slovenian-registered) vehicles is based on the ARSO data that are used in calculating emissions of greenhouse gases and atmospheric pollutants. For the breakdown of energy consumption in road transport by type of vehicle, ARSO uses the COPERT 4 model.

Table 19 shows the measures, the estimate of savings achieved in 2010 for the measure Increasing the energy efficiency of private vehicles and the anticipated energy savings in 2016. The table also shows the achieved and envisaged savings calculated on the basis of selected indicators using the top-down method. Greater savings were made in 2008 chiefly owing to the reduction in road freight resulting from the onset of the economic crisis. What is particularly unsatisfactory is the negative trend of savings in rail transport, where we envisage for the future an appropriate restructuring, as set out in the measure "Promoting sustainable freight transport". The total savings of end-use energy in transport for the 2008 - 2016 period envisaged through the implementation of NEEAP 1 measures are estimated at 721 GWh. The projection of savings for 2016 is significantly higher under the top-down method, and amounts to 1,713 GWh.

Table 19: Measures in transport

Ref.	Name of measure	Target end-use energy consumption	Duration	Energy savings achieved in 2010 [GWh]	Expected energy savings in 2016 [GWh]
P.1	Promotion and competitiveness of public transport	private vehicle transport	1 Jan. 2008 - 31 Dec. 2016	/	/
P.2	Promoting sustainable freight transport	freight transport by road	1 Jan. 2008 - 31 Dec. 2016	/	/
P.3	Increasing the energy efficiency of road vehicles	road motor vehicles	1 Jan. 2008 - 31 Dec. 2016	45	/
P.4	Building cycle paths and support structures and promoting cycling	private vehicle transport	1 Jan. 2008 - 31 Dec. 2016	/	/
		Total (bottom-up method)			
Indicators of end-use energy savings [GWh]		2008 2009 2010 2016			
P8a-1	Private road vehicles	18	60		
P9-1	Freight road vehicles	217	98		
P10	Rail freight	-0	1	3	
P11	Rail passenger transport	-0	-3	11	
Total (P8a-1 + P9 + P10 + P11) (top-down method)		234	156	⁴¹	1,731

The description of implementing the individual measure includes recommendations for enhancement through support activities within the individual measure.

Promotion and competitiveness of public transport (measure P.1)

Between 2008 and 2010 the focus of this measure was on implementation of the project Integrated Public Transport 2007 - 2013 (IPT), which serves to promote the development of public transport in such a way that it can compete with the use of private cars.

The IPT 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 and 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.

Furthermore, 2010 saw the initiation of a range of tasks for effective introduction of IPT:

- in the education system (development of study courses);
- in the area of spatial planning (fulfilment of urban transport plans etc.);
- in the area of information provision (a complete range of notification and awareness-raising for the public).

Under the Decree Ensuring Energy Savings for Final Customers⁴², battery-powered electric vehicles and vehicles running on compressed natural gas or biogas intended for public transport have been added to the range of energy services and measures to improve energy efficiency aimed at achieving energy savings that large liable entities can include in their programmes. This will serve to promote the use of the aforementioned energy products in public transport.

⁴¹ Savings for 2010 are not estimated (no statistical data for 2010 were available).

⁴² Off. Gaz. RS No. 57/2011

To ensure more appropriate organisation of public transport, the Ministry of Transport is working in accordance with the Road Transport Act (ZPCP-2)⁴³ to prepare everything necessary for setting up a public transport authority (directorate), which should be established on 1 January 2012.

A programme is also being devised for subsidising public transport, specifically on the purchase of buses running on compressed natural gas. Plans call for the Eco Fund to subsidise part of the difference in the price between the "classic bus" and compressed natural gas buses.

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, since in addition to more efficient energy use it pursues the goal of ensuring sustainable mobility.

Proposals for enhancing/supplementing measure P.1

In future implementation, enhancement of the measure may be found in the experiences and best practices of other Member States in the area of promoting the use of public transport through additional support activities, Table 21.

Promoting sustainable freight transport (measure P.2)

In the area of sustainable freight transport there is still 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. The problem of increased transit traffic is even greater since Slovenia has no influence on the economic growth of other countries as a primary generator of transit traffic. Moreover Slovenia is bound to observe the adopted internationally binding rules of the EU and other international groupings (Alpine Convention, CEMT etc.). For this reason, transit traffic is excluded from the top-down method of assessing savings in the transport sector, and its influence is not taken into account.

The establishing of realistic alternatives to road freight, covering the entire transport route, is vital to achieving the energy efficiency targets in freight transport; in the form of rail freight as part of the projects under the Resolution on National Development Projects 2007 - 2023 (ReNRP, area of Modernising the rail network). This involves a target that is not attainable solely within one country, and one that cannot 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 already drawing up the relevant strategic documents for the area of maritime transport and railways. The budgets for 2010 and 2011 were the first 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, within the measure we will be limited to promoting improvement of the environmental characteristics of the domestic fleet of goods vehicles.

With the aim of modernising the domestic fleet of goods vehicles, in 2009 around EUR 4 million were distributed by the Eco Fund as part of the subsidies for acquiring environmentally more appropriate vehicles (EURO 5), on the initiative of the Ministry of Transport. The road toll system was upgraded in 2010 for vehicles in road toll classes R3 and R4, whereby tolls are calculated relative to the EURO emission class of the vehicle.

Proposals for enhancing/supplementing measure P.2

Future enhancement of measure P.2. is proposed in terms of the continued observation of data on the actual state of transit traffic through Slovenia (CAFT) and an expansion of sustainable management of the goods vehicle fleet through integration into the telematic information system of monitoring and controlling traffic, Table 23.

Increasing the energy efficiency of road vehicles (measure P.3)

The activities under this measure are based essentially on raising awareness and on the use of fiscal measures to stimulate the purchasing of environmentally more friendly and more energy-efficient road motor vehicles, and also on the introduction of new regulations to reduce CO₂ emissions in exhaust gases and to raise vehicle efficiency.

⁴³ Off. Gaz. RS No. 49/2011

The Decree on Consumer Information on Fuel Economy and CO₂ Emissions in Respect of New Passenger Cars was adopted in 2010⁴⁴. 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 private vehicles on the market in Slovenia together with data on fuel consumption and CO₂ emissions.

In the area of fiscal measures, with the aim of promoting the purchase of environmentally more acceptable private vehicles, a differentiation in the tax on private vehicles has been devised in respect of CO₂ emissions. The Act Amending the Motor Vehicles Tax Act (ZDMV-C)⁴⁵ thus defines the tax bracket for motor vehicles depending on emissions of CO₂ for combined travel and on the type of fuel. Electric vehicles and hybrids are governed by the scale that applies to petrol vehicles. Furthermore the tax rate also depends on the emission levels for EURO 3 to EURO 5 engines, which in extreme cases can increase the tax rate by ten percentage points.

Another fiscal measure envisages the level of vehicle road tax depending on CO₂ emissions and the engine emissions class for private vehicles. The year 2008 saw the issuing of the Annual Fee on the Use of Motor Vehicles Act⁴⁶ and the Decree on the Dealings and Amount of Annual Fee on the Use of Motor Vehicles⁴⁷. For goods vehicles and buses the Decree also sets the annual taxes depending on the emission class of the engine, which does not in fact take account of 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.

Proposals for enhancing/supplementing measure P.3

In addition to existing activities, which promote the procurement of energy-efficient vehicles, the promotion can be linked in synergy to the progressive planning of urban mobility, which should stimulate the use of efficient and low-emission vehicles in urban centres, Table 25.

Building cycle paths and support structures and promoting cycling (measure P.4)

Projects to implement national cycle connections are carried out under the national budget allocations to the Slovenian Roads Directorate. Funds intended for cycle projects have been constantly growing since 2008.

In 2011 the Roads Directorate budget there are 18 active projects exclusively for cycling. Of these, six projects have been cofinanced by EU Structural Funds. In addition to independent cycling projects, cycling surfaces have also been built within other projects implemented by the Roads Directorate (such as arranging roads through settlements and reconstruction).

⁴⁴ Off. Gaz. RS No. 81/2010

⁴⁵ Off. Gaz. RS No. 9/2010

⁴⁶ Off. Gaz. RS No. 57/2008

⁴⁷ Off. Gaz. RS No. 100/2008

Table 20: Promoting the competitiveness of public transport (measure P.1)

Description	
Type of measure	Information and mandatory advertising measures: - Promotion, awareness-raising and information provision on the advantages of public transport Financial instruments: - Financial incentives and stimulus subsidies for public transport (direct subsidies from budget funds and taxes on private vehicles) - Cross financing
Time scale for implementation	Start: 1 Jan. 2008; End: 31 Dec. 2016 Important milestones: 2008 - expert basis devised for IPT tariff and zone system; 2009 - legal basis established for integration of IPT; 2013 - conclusion of IPT project; 2012 - envisaged establishment of Public Transport Directorate.
Target/presentation	- increase the scope of public transport and achieve energy savings through a reduction in private vehicle traffic. By highlighting intermodality (train, bus, bicycle etc.) and high-quality public transport, promotional activities and measures to increase their competitiveness, the aim is to achieve by the end of the implementation period the level and occupancy of public transport from 1990.
Target end-use energy consumption	- private vehicle transport
Target group	- users of private passenger transport, providers of public transport, expert and educational institutions, NGOs, general public
Implementation	
Key activities	Modal shift in the choice of private transport: - single (combined) ticket and affordability, - coordinating timetables, increasing accessibility, frequency, punctuality, speed and quality of public transport services, raising parking fees, - establishing intermodal terminals and information centres, - introducing education programmes (kindergartens, primary schools). Providing incentives for public transport providers to adapt their operations appropriately in order to increase their passenger kilometres (PKM): - subsidy stimulus for public road transport with regard to the number of PKM and no longer involving the number of kilometres travelled on the individual route, - introduction of cordoned zone charges and payment stickers, - incentivised tariff and zone systems. Providing incentives for public transport providers to purchase compressed natural gas vehicles: - subsidising part of the difference in the price between the "classic bus" and compressed natural gas buses, Systemic measures under the OP RGGE-1: - Cross financing - employers provide employees with a ticket (annual/monthly) for transport to and from work, which in turn means financing public transport and encourages employees to actually use it. - Partial cross financing via additional public transport subsidies (lowering the price of monthly/annual tickets or even introducing free public transport), which in turn reduces costs for employers, while for the state, which is the biggest employer, the effect is neutral, since part of the reduced expenditure (public sector) on paying for transport to and from work could be used for subsidising the reduction in prices, and any leftover could be used to promote public transport and develop appropriate infrastructure.

Table 20: Promoting the competitiveness of public transport (measure P.1), continued

Financial means and sources	The value of public funds necessary for implementing the measure from 2011 to 2016 is estimated at EUR 10 million. Sources of financing: - budget funds (IPT project); 2011 - EUR 2.38 million; 2012 - EUR 2.50 million; 2013 - EUR 3.62 million, 2014 - EUR 0.1 million (Source: NRP 2011)
Provider	Ministry of Transport, local communities
Supervisory institution	Ministry of Transport
Energy savings	
Evaluation method for effects	Savings are captured in the cumulative effects that are calculated for the sector using the top-down method, ANNEX 5.
Savings achieved in 2010	The savings achieved are calculated on the basis of the proposed indicators for calculating savings in the transport sector using the top-down method, which was drawn up as a recommendation by the European Commission, while total savings are shown in Table 19.
Expected energy savings in 2016	Savings are evaluated on the level of the entire sector (all measures in transport) using the top-down method, and amount to 1,731 GWh.
Expected energy savings in 2020	Savings are evaluated on the level of the entire sector (all measures in transport) using the top-down method, and amount to 2,545 GWh.
Overlapping, multiplication effects, synergy	- Ensuring sustainable mobility; - Positive environmental impacts, especially through the reduction of private transport in urban centres, which is replaced by efficient public transport.

Table 21: Supplementing and enhancing measure P.1

Support activity	Provider
Relief on the registration of private vehicles and/or relief on the annual road tax for vehicle users in the event of buying (and using) an annual/season ticket for public transport.	MF, MT, local communities, insurance companies
Commercial centres and industrial zones with more than 500 employees must have an integrated mobility plan that ensures the possibility of competitive public transport for employees.	local communities (municipalities), commercial centres, industrial zones

Table 22: Promoting sustainable freight transport (measure P.2)

Description	
Type of measure	Financial instruments: - fiscal instruments for road freight, - financial incentives for establishing intermodality and increasing freight transport by rail.
Time scale for implementation	Start: 1 Jan. 2008; End: 31 Dec. 2016
Target/presentation	The main objective of the measures is to limit the growth of transit road freight and to ensure the greatest possible transfer of freight to the railways. In the long term at least half the current freight transiting Slovenia should be transferred to the railways.
Target end-use energy consumption	- road (transit) freight
Target group	- providers of freight transport (Slovenske železnice/Slovenian Railways, transport companies etc.)
Implementation	
Key activities	Competitiveness of rail freight and intermodality: - development of logistics centres, transshipment terminals and intermodal hubs, - use of piggy-back trains, - inclusion of external costs in road tolls and other fees for freight. Increasing the efficiency of freight transport: - subsidies for acquiring environmentally more appropriate vehicles (EURO 5), - educating drivers and goods vehicle fleet operators.
Financial means and sources	The value of public funds necessary for implementing the measure from 2011 to 2016 is estimated at EUR 6.7 million (NEEAP 1). Sources of financing: - direct subsidies from budget funds and fees for road freight vehicles.
Provider	- Ministry of Transport, Ministry of the Economy, Slovenske železnice
Supervisory institution	- Ministry of Transport

Table 22: Promoting sustainable freight transport (measure P.2), continued

Energy savings	
Evaluation method for effects	Savings are captured in the cumulative effects that are calculated for the sector using the top-down method, ANNEX 5.
Savings achieved in 2010	The savings achieved are calculated on the basis of the proposed indicators for calculating savings in the transport sector using the top-down method, which was drawn up as a recommendation by the European Commission, while total savings are shown in Table 19.
Expected energy savings in 2016	Savings are evaluated on the level of the entire sector (all measures in transport) using the top-down method, and amount to 1,731 GWh.
Expected energy savings in 2020	Savings are evaluated on the level of the entire sector (all measures in transport) using the top-down method, and amount to 2,545 GWh.
Overlapping, multiplication effects, synergy	The development of transport telematics and dynamic control of transport signalling has positive impacts on the efficiency of all those involved in road transport. Aside from freight, this includes public and private transport, with lower environmental burdens (air pollution, noise), lower use of roadways and fewer jams.

Table 23: Supplementing and enhancing measure P.2

Support activity	Provider
Prescribed energy efficiency of new delivery and goods vehicles: <ul style="list-style-type: none"> • standardisation of economies, • voluntary or mandatory programmes to promote economical delivery and goods vehicles (replacing the fleet with the aim of achieving specific energy economies). 	MESP
Transport telematics and IT - enhancing planned measures to promote co-modality (intermodality)	MT
Dynamic control of transport signalling (in connection with the above activity)	MT

Table 24: Increasing the energy efficiency of road vehicles (measure P.3)

Description	
Type of measure	Regulations: - regulations on the energy labelling of private vehicles, - regulations on the implementation of green public procurement. Information and mandatory advertising measures: - financing promotional and educational activities. Financial instruments: - fiscal instruments for taxing private and goods vehicles and buses, - cofinancing.
Time scale for implementation	Start: 1 Jan. 2008; End: 31 Dec. 2016
Target/presentation	- reducing CO ₂ emissions from private motor vehicles and economical fuel consumption. Appropriate labelling, promotion, education and proportional taxation of vehicles regarding their energy efficiency serve as an incentive for buyers of new vehicles to make more appropriate choices and at the same time to replace earlier their environmentally less appropriate old vehicles. The prescribed indicators of efficiency for individual types of vehicle in carrying out public procurement will have an important influence in acquiring energy-saving vehicles.
Target end-use energy consumption	- motor vehicle traffic on the roads
Target group	- general public, commercial companies, public sector, expert and educational institutions, NGOs
Implementation	
Key activities	- informing consumers about economical fuel consumption and CO ₂ emissions of new private vehicles and labelling the energy efficiency of private vehicles - differentiation of the tax on private vehicles in respect of the environmental standards (EURO) and energy efficiency of vehicles (specific emissions of CO ₂ /km) - introduction of an annual road tax for vehicle use depending on CO ₂ emissions and the engine emissions class for private vehicles - green public procurement for the purchase of energy-efficient and environmentally friendly vehicles; - promotional and educational activities (economical driving school etc.); - cofinancing the purchase of electric and hybrid (plug-in) vehicles.
Financial means and sources	The value of public funds necessary for implementing the measure from 2011 to 2016 is estimated at EUR 12.6 million: Sources of financing: - funds from the contribution for raising the efficiency of electricity consumption and from the surcharge for heat and fuel to raise energy efficiency, - direct budget subsidies for promotional and educational activities.
Provider	- Ministry of the Environment and Spatial Planning, Ministry of the Interior, Ministry of Finance, Eco Fund
Supervisory institution	- Ministry of Transport, Ministry of the Environment and Spatial Planning, Ministry of the Interior, Ministry of Finance

Table 24: Increasing the energy efficiency of road vehicles (measure P.3), continued

Energy savings	
Evaluation method for effects	In order to evaluate the effects of the measure we made indicative use of two bottom-up methods: - the EMEEES method for evaluating the effects of energy-efficient vehicles (EMEEES bottom-up case application 14: Vehicle Energy Efficiency) Method A for calculating energy savings in the use of energy-efficient vehicles on the road, as set out in the methodology of calculating energy savings "Methods for calculating energy savings in implementing measures to increase the efficiency of energy consumption and for greater use of renewable energy sources" (see ANNEX 5).
Savings achieved in 2010	44.3 GWh (EMEEES) or 45.7 GWh (Method A for calculating energy savings in the use of energy-efficient vehicles on the road - "Methods for calculating energy savings in implementing measures to increase the efficiency of energy consumption and for greater use of renewable energy sources")
Expected energy savings in 2016	Savings are evaluated on the level of the entire sector (all measures in transport) using the top-down method, and amount to 1,731 GWh.
Expected energy savings in 2020	Savings are evaluated on the level of the entire sector (all measures in transport) using the top-down method, and amount to 2,545 GWh.
Assumptions	- The bottom-up methods used evaluate the current effects of the measure relative to the previous year. For this reason, the savings for the current year take into account all annual savings since the implementation of the measure - a cumulative evaluation of the effects. - In calculating the energy savings under Method A for calculating energy savings in the use of energy-efficient vehicles on the road, as set out in the methodology of calculating energy savings (Annex 4), the efficiency threshold is taken to be the emission value of 130 gCO ₂ /km, which the other methods also use as an efficiency threshold.
Overlapping, multiplication effects, synergy	

Table 25: Supplementing and enhancing measure P.3

Support activity	Provider
Progressive planning of urban mobility, which should promote energy-efficient and more environmentally acceptable mobility, such as access to city centres only with low-emission private vehicles.	Urban municipalities, local communities;
Systematic gathering of data for a representative estimate of the average number of kilometres travelled each year for private vehicles in the calendar year, which is information necessary for evaluating the effects of the measure using the bottom-up method. Other necessary data are available (source: Ministry of the Interior).	MT
Promoting the use of energy-efficient tyres with low rolling resistance in private transport, and promoting the monitoring of adequate tyre pressure.	MT

Table 26: Building cycle paths and support structures and promoting cycling (measure P.4)

Description	
Type of measure	Financial instruments: - Financial incentives for constructing cycle paths and support structures; Financing promotional and educational activities.
Time scale for implementation	Start: 1 Jan. 2008; End: 31 Dec. 2012
Target/presentation	Cycling is an alternative to private vehicle transport and is a very effective complement to other forms of public transport (combined transport, bike rental etc.). The ultimate target of the measures is at least 10% daily commutes by bicycle in the summer and transitional periods. Additional objectives are: <ul style="list-style-type: none"> - spurring a change in the choice of transport mode, - ensuring adequate traffic safety for cyclists, - reducing the negative impacts on the environment, - ensuring a connection with the international cycling network and contributing to tourism development.
Target end-use energy consumption	- private vehicle transport
Target group	- general public, expert and educational institutions, NGOs
Implementation	
Key activities	<ul style="list-style-type: none"> - construction of 500 km of cycle paths and other cycling infrastructure - removing obstacles to the acceptance of bicycles on trains/buses - promotional and educational activities on the use of bicycles as an alternative mode of transport (modal shift)
Financial means and sources	The value of public funds necessary for implementing the measure from 2011 to 2016 is estimated at EUR 24.1 million. Sources of financing: - direct budget subsidies, local community funding and cofinancing from EU Structural Funds; planned funds for cycling projects (cofinancing from EU Structural Funds): 2011 - EUR 3.87 million; 2012 - EUR 6.27 million; 2013 - EUR 5.76 million; 2014 - EUR 7.48 million, 2014 - EUR 8.17 million. (Source: NRP 2011)
Provider	- Ministry of Transport, local communities, Slovenske železnice, bus operators
Supervisory institution	- Ministry of Transport
Energy savings	
Evaluation method for effects	Savings are captured in the cumulative effects that are calculated for the sector using the top-down method, ANNEX 5.
Savings achieved in 2010	The savings achieved are calculated on the basis of the proposed indicators for calculating savings in the transport sector using the top-down method, which was drawn up as a recommendation by the European Commission, while total savings are shown in Table 19.
Expected energy savings in 2016	Savings are evaluated on the level of the entire sector (all measures in transport) using the top-down method, and amount to 1,731 GWh.
Expected energy savings in 2020	Savings are evaluated on the level of the entire sector (all measures in transport) using the top-down method, and amount to 2,545 GWh.
Overlapping, multiplication effects, synergy	Development of tourism with connections to the international cycling network, lower environmental burdens (air, noise), fewer jams.

3.3.2.6 Measures in the public sector

The range of measures to improve energy efficiency in the public sector comprises four specific measures: green public procurement, financial incentives for energy-efficient renovation and sustainable construction of public sector buildings, introducing an energy management system in the public sector and financial incentives for efficient consumption of electricity in the public sector, Table 27. Just as for the service sector, it is true of the public sector that it covers several multisectoral and horizontal measures. The important multisectoral measures involve support for a significant increase in the scope of environmentally friendly production of energy from RES and CHP systems (measure V.3), regulations on the energy performance of buildings (measure V.1) and energy labelling of household appliances and other devices and minimum requirements (measure V.2).

Table 27: Measures in the public sector

Ref:	Name of measure	Target end-use energy consumption	Duration	Energy savings achieved in 2010 [GWh]	Expected energy savings in 2016 [GWh]
J.1	Green public procurement	end-use energy consumption in the public sector	1 Jan. 2012 - 31 Dec. 2016	/	/
J.2	Financial incentives for energy-efficient renovation and sustainable construction of buildings in the public sector	public sector energy consumption in buildings	1 Jan. 2008 - 31 Dec. 2016	/	116
J.3	Introducing an energy management system in the public sector	end-use energy consumption in the public sector	1 Jul. 2012 - 31 Dec. 2016	/	222
J.4	Financial incentives for efficient electricity consumption in the public sector	electricity	1 Jan. 2008 - 31 Dec. 2016	/	74
Total					413

Green public procurement (measure J.1)

Plans call for the start-up of the substantively enhanced measure from the NEEAP 1, Table 28. Through green public procurement, the public sector is an important player in reducing negative environmental impacts. Energy efficiency measures can also serve at the same time to achieve a significant reduction in public sector costs. Through green public procurement, the public sector can achieve major effects in reducing energy consumption, and indirectly, through greater demand for new “green” products, services and technology, it can spur the development of the market and competitiveness. The Green Public Procurement Action Plan 2009 - 2012 was adopted in 2009, but there have been major delays in implementing the measures that would bring about a shift in public procurement. A proposed Decree on Green Public Procurement was drafted (sent for public deliberation and inter-departmental coordination at the beginning of 2010), but this has not yet been adopted. In the area of human resources training, several training sessions were carried out, along with a large number of workshops and seminars with the participation of international lecturers. The proposed decree only partly incorporated the requirements and measures for the range of products that will promote energy efficiency, specifically for:

- electricity, where plans are to provide incentives for purchasing electricity generated from RES and high-efficiency CHP that has appropriate certification (not receiving support under the valid scheme for new plants);
- electronic office equipment that must have the ENERGY STAR label;
- construction and renovation of buildings and premises will be based on PURES, including in capital and regular maintenance, so in works that are not covered by PURES, the proposed Decree on GrPP requires adherence to PURES requirements for the following equipment: cooling devices and systems, ventilation and air conditioning devices, interior lighting, thermostatic valves and central regulation of the heating system for central heating, heat-insulated pipes, devices for preparing drinking water;
- public lighting - the proposed decree contains its own minimum EEU requirements.

Table 28: Green public procurement (measure J.1)

Description	
Type of measure	Regulations: regulations on green public procurement. Information and education: compulsory education for all public employees performing green public procurement.
Time scale for implementation	Start: 1 Jan. 2012; End: 31 Dec. 2016
Target/presentation	Through green public procurement, the public sector is becoming an important player in reducing negative environmental impacts. Directing purchasing power towards the acquisition of greener products and services can generate major direct environmental benefit, it can help stimulate the market for green products and services and sets an example for companies and private consumers. As part of the regulation of green public procurement, a decree is being drafted for adoption at the beginning of the coming year. This decree binds public institutions to incorporate into public procurement environmental aspects as criteria and conditions for selection, whereby account will be taken of the impact of products and services within the entire lifecycle. The proposed green public procurement decree regulates green public procurement in the above-mentioned areas of EEU. For individual groups of products the decree must establish environmental requirements and criteria that are clear and simple to apply. The expert formulation of the technical requirements and criteria for the decree and the technical guidelines for EEU in GrPP is headed by the ministry competent for energy in cooperation with the MF or its authorised provider institution (e.g. Borzen). Prior to adoption, the proposed decree will be supplemented with all areas of EEU procurement that are simple to implement or where the effects are very big. Green public procurement in the area of EEU will govern in particular orders for smaller-scale capital maintenance and regular maintenance, in other words orders not regulated by PURES (such as lighting in buildings, air conditioning, ventilation, heating and office equipment, reconstruction of smaller buildings etc). PURES (or subsidiary technical guidelines) contains stricter EEU requirements for the public sector. PURES is also supplemented with minimum EEU requirements for the public sector in smaller investments. For typical orders, sample documentation is drawn up (technical annexes to the tender documentation), and this simplifies the application of PURES requirements for frequent measures.
Target end-use energy consumption	- consumption of all forms of end-use energy in the public sector
Target group	- public sector
Implementation	
Key activities	- adoption of the Decree on Green Public Procurement - expansion of GrPP to new product and service groups - amendment of PURES - further training that is compulsory for all public employees performing public procurement, in order to ensure a sufficiently large number of trained personnel to draw up high-quality tender documentation - implementation of green public procurement pilot projects in the area of buildings renovation and maintenance
Financial means and sources	The estimate of public funds was made as part of the GrPPAP.
Provider	- Ministry of Finance, Ministry of the Economy, Ministry of the Environment and Spatial Planning, Ministry of Public Administration, all institutions bound to place orders pursuant to the Public Procurement Act
Supervisory institution	- Ministry of Finance
Energy savings	
Evaluation method for effects	There is no method on the EU level. Savings are direct.
Savings achieved in 2010	The measure has not yet been implemented.

Financial incentives for energy-efficient renovation and sustainable construction of buildings in the public sector (measure J.2)

Activities to promote the energy rehabilitation of buildings in the public sector (Table 29) have been implemented, but in the period up to 2010 the programme effects had not yet been achieved. Individual energy efficiency projects were carried out by public sector organisations and municipalities. In the period up to 2010 the following activities were carried out:

- as part of the Cohesion Policy programme in Slovenia (OP ETID 2007 - 2013) funds were provided to promote EEU in the public sector as part of the development priority Sustainable Energy in the total amount of EUR 95.6 million. In 2010 a call for applications was held for the energy rehabilitation of hospitals valued at EUR 52.6 million (EUR 51.6 million in signed contracts with 20 institutions), while in 2011 a call for applications was opened for the energy rehabilitation of public institution buildings in the area of education under the Ministry of Education and Sports in the amount of EUR 16 million and the MLFSA valued at EUR 20 million.
- the legal basis was formulated for ensuring energy savings under programmes provided by energy suppliers. In 2011, while this measure is still being prepared, all EEU programmes for suppliers are being implemented by the Eco Fund. An Eco Fund call for applications is planned for the energy rehabilitation of public buildings owned by municipalities, valued at EUR 4.5 million in 2011 and 7 million in 2012.

Greater effects in the planned programme will be achieved once the measure of contractual assurance of energy savings enters into force (see measure H.1). Upon the commitment of private funds through this mechanism it will be possible to implement the measure with less intensive public spending on investment in the energy rehabilitation of buildings.

Introducing an energy management system in the public sector (measure J.3)

The measure has not yet been implemented. The legal basis is still being established. The valid Energy Act binds public sector organisations to provide energy accounting in buildings with a surface area over 500 m². Other elements of introducing an energy management system in the public sector are not yet underpinned with a legal and technical basis. This measure is vital to reducing energy costs, high-quality planning and evaluating the implementation of EEU projects in the public sector, Table 30.

Financial incentives for efficient electricity consumption in the public sector (measure J.4)

In the 2008 - 2010 period the measure was implemented in part under the financial incentives for the tertiary sector. In 2011 a tender was held for energy-efficient public lighting in municipalities, valued at EUR 7 million, with finance provided by the Cohesion Fund (OP ETID). In the next implementation period an increase in activities is planned, and also in the financial support and instruments within this measure, Table 31.

Table 29: Financial incentives for energy-efficient renovation and sustainable construction of buildings in the public sector (measure J.2)

Description	
Type of measure	Financial instruments, Obligations of energy companies, Funds
Time scale for implementation	Start: 1 Jan. 2008; End: 31 Dec. 2016
Target/presentation	The measure is intended for energy rehabilitation and construction of low-energy and passive residential buildings in the public sector. In connection with the energy rehabilitation of buildings, this measure will serve to promote the comprehensive energy rehabilitation of buildings and specific elements, replacement of fixtures and other measures such as refurbishing the heating system or interior lighting. The level of incentives in the event of complete rehabilitation, including the building shell, technical systems and installation of devices using RES, will be relatively higher, so it encourages investors to pursue complete rehabilitation. In determining the method of providing incentives and the level of incentives, account is taken of other factors such as environmental protection, especially reducing emissions, nature conservation, use of natural materials, promoting technologies and promoting regional development.
Target end-use energy consumption	- public sector energy consumption in buildings
Target group	- owners of public sector buildings, building managers and investors in construction and renovation of buildings
Implementation	
Key activities	<ul style="list-style-type: none"> • Subsidies for EEU measures in public buildings owned by municipalities - kindergartens, schools, homes for the elderly, health centres, administrative buildings and other public buildings owned by municipalities - allocated through Eco Fund calls for applications, financed from various sources (OP ETID in the 2007-2013 financial perspective, new programme envisaged in the 2014 - 2020 financial perspective, from the contribution for energy efficiency or other sources). - an Eco Fund call for applications valued at EUR 7 million for the energy rehabilitation of buildings owned by municipalities is planned for 2012, wherein priority will be given to promoting implementation of measures with the contractual assurance of energy savings; • Subsidies for EEU measures in hospitals, in public buildings used for higher education and research activities, secondary schools, state administration buildings etc., financed from EU funds (OP ETID in the 2007 - 2013 financial perspective, new programme envisaged in the 2014 - 2020 financial perspective) through calls for applications from the competent ministries or Eco Fund calls for applications financed from the contribution for energy efficiency. Calls for applications are being concluded in a total value of EUR 88.6 million. A MHEST call for applications is planned in the amount of EUR 7 million in 2012. • EEU measures at final customers provided in the public sector by energy suppliers; • Financial incentives intended for those offering the service of contractual assurance of energy savings for the energy rehabilitation of public sector buildings (see measure H.1); • incentives for introducing an energy management system in the public sector (see measure J.3); • Establishing a technical office as part of the Public Fund for Management of Real Estate; • Eco Fund offering additional loans with favourable interest rates; • Activities will be pursued to step up the securing of loans to this end from international financial institutions, including use of sources for project preparation (ELENA); • Financial incentives for technical assistance in drawing up projects, especially for implementing contractual assurance of energy savings (international sources, Eco Fund calls for applications, financing from contributions for EEU etc.); • Demonstration projects (Borzen, SVPS), see measure I.5.
Financial means and sources	The value of public funds necessary for implementing the measure from 2011 to 2016 is estimated at EUR 127 million. Sources of financing: <ul style="list-style-type: none"> - Cohesion funds, - for activities after 2014 we also envisage the securing of Cohesion Fund finance from the 2014 - 2020 financial perspective, - funds from the new surcharge to promote heat production from RES.
Provider	- large liable entities that supply heat from the distribution network, natural gas and liquid fuels, the Eco Fund, Public Fund for the Management of Real Estate and Cohesion policy providers (SVLR; ME, MZ, MES, MHEST etc.)
Supervisory institution	- Ministry of the Economy

Table 29: Financial incentives for energy-efficient renovation and sustainable construction of buildings in the public sector (measure J.2), continued

Energy savings	
Evaluation method for effects	Savings are calculated using the bottom-up method, based on actual data on measures carried out. Methods are used for the complete renovation of buildings, construction of low-energy and passive buildings and partial renovation of buildings (renovation of individual elements of the exterior shell).
Savings achieved in 2010	There were not yet any savings from the measure in 2010.
Expected energy savings in 2016	116 GWh
Expected energy savings in 2020	181 GWh
Assumptions	The period up to 2016 will see the rehabilitation of an additional 1.3 million m ² of heated surface area in the public sector (15% of building surfaces in 2010) and the construction of 38,000 m ² of low-energy and passive buildings (3% growth of surfaces in 2011 - 2016). Incentives will also be provided for the replacement of boilers with 1,000 modern gas boilers, 640 modern wood biomass boilers and 480 heat pumps (24% of boilers from 2010). Additionally a total of 30,400 m ² of solar collectors will be installed.
Overlapping, multiplication effects, synergy	The measure is supplemented with standards of energy consumption in newly constructed and renovated buildings (PURES), green public procurement, contractual assurance of energy savings and development of the energy services market. Another important effect is produced by raising the prices of fuel through surcharges/fees or taxes.

Table 30: Introducing an energy management system in the public sector (measure J.3)

Description	
Type of measure	Regulation
Time scale for implementation	Start: 1 July 2012; End: 31 Dec. 2016
Target/presentation	The measure is intended for efficient end-use energy consumption in the public sector, and specifically for establishing a system of public sector energy management, and within this framework the establishing of cost centres, EEU targets and responsibility for action being taken
Target end-use energy consumption	- public sector energy consumption
Target group	- owners and managers of buildings of public sector organisations (state and municipality authorities and municipal administration, public institutes, public commercial institutes, public funds, agencies, institutions founded by the state or municipality and chambers of commerce with compulsory membership)
Implementation	
Key activities	<ul style="list-style-type: none"> - introducing a system of energy management in all ministries and urban municipalities by 2015; - mandatory energy accounting for all buildings with a useful floor area of over 500 m²; - expert support in introducing energy management (establishing energy accounting and targeted monitoring of energy consumption, including the delineation of cost centres, setting ambitious but attainable annual targets for EEU and defining responsibility for planning, decision-making and implementation of EEU measures); - the obligation to implement energy manager tasks in public sector organisations; - mandatory energy audits in public sector buildings with useful floor area of over 500 m² at least every five years for buildings where an energy management system has not yet been introduced; - upgrading the methodology for energy audits in such a way as to promote contractual assurance of energy savings; - introducing and conducting collective energy accounting on the municipality and national levels; - a project for introducing smart meters in public administration; - establishing a system for ensuring quality preparation and implementation of EEU projects, including energy services; - drawing up documents determining the minimum obligatory content of energy accounting and regulating energy management; - environmentally effective state administration; - formulation of criteria and introduction of a new reward system with an efficiency dividend, based on energy savings achieved.
Financial means and sources	The level of public funds has not been estimated. Sources of financing: budget funds.
Provider	- municipalities, Public Fund for Management of Real Estate (implementing the measure for state-owned real estate and preparation of expert basis), public sector organisations, Ministry of the Economy (drawing up legal basis), SVPS
Supervisory institution	- Ministry of the Economy
Energy savings	
Evaluation method for effects	Savings are calculated through a comprehensive analysis on the national level, using energy accounting data for 2013 and then each year, including drafting of a proposed additional system of measures and publication of a list of the most energy-efficient public sector organisations. Methodology will be formulated.
Savings achieved in 2010	The measure was not yet implemented in 2010.
Expected energy savings in 2016	222 GWh
Expected energy savings in 2020	No estimate.
Assumptions	By 2016 a system will be set up for energy management in buildings with 90% public sector surface area. As for electricity consumption, in line with the methods for calculating savings, a 7% reduction is envisaged, and 10% for heat and fuel.
Overlapping, multiplication effects, synergy	The measure is supplemented with incentives for energy rehabilitation of public sector buildings, green public procurement, contractual assurance of energy savings and other measures in the public sector.

Table 31: Financial incentives for efficient electricity consumption in the public sector (measure J.4)

Description	
Type of measure	Financial instruments Obligations of energy companies, Funds
Time scale for implementation	Start: 1 Jan. 2008; End: 31 Dec. 2016
Target/presentation	The measure is aimed at efficient electricity consumption in public lighting, for commercial public service providers and other measures of efficient electricity consumption in the public sector (such as introducing energy-efficient lighting, energy-efficient electric motors, water supply pumps, district heating etc.).
Target end-use energy consumption	- public sector electricity consumption
Target group	- municipalities, commercial public service providers
Implementation	
Key activities	Subsidies for efficient electricity consumption in public lighting, other commercial public services such as water supply and other municipal services, allocated through calls for applications held by the Ministry of the Economy and Eco Fund, financed from various sources (EU Cohesion Fund - OP ETID programme 2007 - 2013, EEU surcharge); - EEU measures provided by energy suppliers in public lighting and other local commercial public service activities; - additional incentives for carrying out measures with contractual assurance of energy savings in the public sector (see horizontal measures); - introducing an energy management system in the this segment of the public sector (see J.3); - Eco Fund offering additional loans with favourable interest rates; - financial incentives for technical assistance for energy audits and preparation of projects; - demonstration projects;
Financial means and sources	The value of public funds necessary for implementing the measure from 2011 to 2016 is estimated at EUR 32 million. Sources of financing: - Cohesion funds (OP ETID), - for activities after 2014 we also envisage the securing of Cohesion Fund finance from the 2014 - 2020 financial perspective, - contribution for efficient electricity consumption.
Provider	- large liable entities that supply heat from the distribution network, natural gas and liquid fuels, and the Eco Fund
Supervisory institution	- Ministry of the Economy
Energy savings	
Evaluation method for effects	Savings are calculated using the bottom-up method, based on actual data on measures carried out.
Savings achieved in 2010	There were not yet any savings from the measure in 2010.
Expected savings in 2016	74 GWh
Expected energy savings in 2020	96 GWh
Assumptions	Up to 2016 the replacement of lighting in public sector buildings with energy-efficient lighting on 1.3 million m ² of surface area (15% of surface area from 2010). In public lighting, electricity consumption per inhabitant will fall from 70 kWh to 57.3 kWh by 2016, as a result of incentives and adaptation to legislative requirements ⁴⁸ .
Overlapping, multiplication effects, synergy	The measure is supplemented with incentives for energy rehabilitation of public sector buildings, green public procurement, contractual assurance of energy savings and development of the energy services market.

⁴⁸ Decree on Limit Values for Light Pollution of the Environment (Off. Gaz. RS Nos 81/2007, 109/2007, 62/2010).

3.3.2.7 Multisectoral measures

Multisectoral measures to improve energy efficiency have an effect on the level of at least two or all sectors. Multisectoral measures have been designed to target broad consumption (households, service and public sector) and industry, but do not cover the transport sector, Table 32.

Table 32: Multisectoral measures

Ref:	Name of measure	Target end-use energy consumption	Duration	Energy savings achieved in 2010 [GWh]	Expected energy savings in 2016 [GWh]
V.1	Regulations on the energy performance of buildings	- energy consumption for heating in buildings	1 Jan. 2008 - 31 Dec. 2016	108	281
V.2	Energy labelling of household appliances and other devices and minimum requirements	electricity and energy consumption for heating and hot water	1 Jan. 2008 - 31 Dec. 2016	149	514
V.3	Support scheme for electricity generated from RES and CHP	reducing the take-off of electricity from the grid and achieving primary energy savings (CHP)	1 Jan. 2008 (overhauled April 2009) - 31 Dec. 2016	42	711
Total				299	1,506

Regulations on the energy performance of buildings (measure V.1)

The Directive on the energy performance of buildings was transposed into Slovenian law through the Rules on Efficient Use of Energy in Buildings⁴⁹ (PURES), which is the implementing regulation of the Construction Act, and through amendments to the Energy Act, the Environmental Protection Act and implementing regulations.

The Rules on Efficient Use of Energy in Buildings deals with new buildings, reconstructions and all kinds of capital works that affect parts of buildings and influence their energy efficiency. It lays down minimum standards tied to the architectural design of the building and the thermal insulation of its shell. The Rules set out the requirements for heating, cooling and ventilation systems and hot water supply, and also covers the energy aspects of lighting in buildings. It also contains an article that establishes requirements for ensuring at least a part (25%) of the necessary energy comes from RES. That article contains quite a few options and simplifications. It lays down in particular that in the case of constructing a very efficient (i.e. passive) building, the energy source is not important, while for single-dwelling buildings it allows a special simplification.

The calculation of savings in the 2008 - 2010 period took into account savings from the mandatory regular inspection of boilers under the Environmental Protection Act as part of the chimney maintenance service, Table 33. The savings were estimated to be 108.2 GWh. The savings for 2011 to 2016 were calculated as a consequence of implementing the Rules on Efficient Use of Energy in Buildings, which lay down stricter requirements for constructing new buildings relative to the previous rules. The savings amount to 173 GWh.

⁴⁹ Off. Gaz. RS No. 52/2010

Energy labelling of household appliances and other devices and minimum requirements (measure V.2)

Energy labelling of household appliances represents one of the most important measures for reducing electricity consumption in households, Table 34. The energy class of appliances has become an important criterion in purchases, and this is an incentive for manufacturers to pursue intensive development and advertising of energy-efficient appliances. In the 2008 - 2010 period the savings from the purchase of new appliances amounted to 149 GWh. The electricity consumption of an average new refrigerator has fallen by 31% relative to a ten-year-old appliance, of a freezer by 48%, washing machine by 31%, dishwasher by 19% and dryer by 13%. The revision of the framework directive, which introduced energy labelling, expanded the selection of products to other items that use energy and also products that affect energy consumption (e.g. televisions, car tyres, windows). In the future this selection will be expanded further.

In addition to the energy labelling of products, through the directive on the environmental design of products that use energy, the European Commission has taken an active approach towards steering the market, in terms of what appliances can be sold in the EU. The regulations have laid down the minimum requirements that must be met by appliances. Regulations have been adopted for simple TV communicators, televisions, the use of devices in stand-by and off mode, chargers, non-directional lighting, public lighting for offices, refrigerators and freezers, dishwashers and washing machines, pumps, electric motors and ventilators. The current selection of devices will be expanded.

Support scheme for electricity generated from RES and CHP (measure V.3)

The effectiveness of implementation and the effects achieved by the measure (Table 35) can be assessed as very encouraging, since the total electricity generated from RES and high-efficiency cogeneration in new production facilities at final customers (industry, services and households) in 2010 was almost 26 GWh, representing almost 20% of the target production up to 2016 (138 GWh) from the NEEAP 1. Production increased markedly right in the period since 2008, and especially rapidly in 2009 and 2010, when a new support scheme was adopted, so in the coming years we may expect a major increase in the generation of this type of electricity.

In 2009 the overhauled support scheme significantly expanded the promotion of high-efficiency cogeneration (in line with Directive 2004/08/EC) to all sectors (first and foremost in district heating), it laid down the details of support for electricity generation from RES (more sources of RES and size classes for support) and set out clear methodological guidelines for determining the level of support (Methodology of electricity reference costs, coordinating support relative to market conditions etc.), and this distinctly improved the predictability of support and the risks for investors.

Table 33: Regulations on the energy performance of buildings (measure V.1)

Description	
Type of measure	Regulations
Time scale for implementation	Start: 1 Jan. 2008; End: 31 Dec. 2016
Target/presentation	<p>The regulations on the energy performance of buildings serve to raise the efficiency of energy consumption in general-use buildings, which account for around 40% of total end-use energy. The greater part of this energy is used to ensure adequate residential and working conditions, for producing hot sanitary water and for lighting. In order to achieve energy savings it is especially important to improve the heat characteristics of the shells of buildings, and to ensure more energy-efficient systems for heating, ventilation, cooling, production of hot water and interior lighting. The provisions in these regulations that will serve to increase the energy performance of buildings are:</p> <ul style="list-style-type: none"> • a definition of the minimum heat characteristics of construction elements, maximum permitted requirement for heating and cooling and the maximum permitted consumption of end-use energy for new buildings or buildings under reconstruction. The gradual reduction of these limit values is envisaged; • the mandatory production of a feasibility study for alternative systems for supplying energy to buildings (using RES, cogeneration, heat pumps, connection to the district heating system), which is a constituent part of the documentation for obtaining a construction permit; • mandatory energy ID for buildings to obtain a use permit for new buildings or on the sale or rental of buildings; • mandatory display of the energy ID in a visible place in buildings with a surface area greater than 1,000 m² and which house public institutes or institutions performing public services, for which reason they are frequently visited by members of the public; • mandatory regular inspections of boilers and mandatory replacement of old boilers that do not comply with environmental regulations; • mandatory regular inspection of air conditioning systems; • establishing a network of trained and licensed independent experts to produce energy IDs and to inspect air conditioning systems.
Target end-use energy consumption	- energy consumption for heating in buildings
Target group	Project designers, owners of buildings or parts thereof, market investors, issuers and producers of energy IDs, issuers and providers of air conditioning inspections, chimney maintenance companies providing boiler inspections
Implementation	
Financial means and sources	Public funds are not required for implementation of the measure.
Provider	- Ministry of the Environment and Spatial Planning
Supervisory institution	- Ministry of the Economy
Energy savings	
Evaluation method for effects	The effects are evaluated using bottom-up methods.
Savings achieved in 2010	108 GWh (mandatory regular inspections of boilers and mandatory replacement of old boilers that do not comply with environmental regulations)
Expected energy savings in 2016	281 GWh (PURES)
Expected energy savings in 2020	374 GWh (PURES)
Assumptions	The savings for 2016 and 2020 are calculated only for implementation of the Rules on Efficient Use of Energy in Buildings, using the bottom-up method, based on data on newly constructed buildings. The effect of other measures has not been estimated.
Overlapping, multiplication effects, synergy	This measure is supplemented by other measures that contribute to the better energy performance of buildings (financial incentives).

Table 34: Energy labelling of household appliances and other devices and minimum requirements (measure V.2)

Description	
Type of measure	Providing information and obligatory information Regulations Financial instrument
Time scale for implementation	Start: 1 Jan. 2008; End: 31 Dec. 2016
Target/presentation	The aim is to ensure accurate, relevant and comparable data on the specific energy consumption of products associated with energy. This encourages end-users to opt for products which, during use or indirectly, lead to lower consumption of energy and other vital resources. This exerts indirect pressure on manufacturers to develop appliances that are increasingly efficient. The market is also affected, from a different angle than that of labelling, by the regulation of minimum requirements that products on the market must fulfil. The Eco Fund also allocates loans with favourable interest rates for the purchase of energy-efficient household appliances (A or better).
Target end-use energy consumption	- electricity and energy consumption for heating and hot water in residential buildings
Target group	- households, service sector
Implementation	
Key activities	Labelling of products that consume or are associated with the consumption of energy, and setting the minimum requirements, are laid down in legislation. The framework European directives are Directive 2009/125/EC for minimum requirements and Directive 2010/30/EC for labelling. Eco Fund loans are available each year in call for applications.
Financial means and sources	No additional public funding is envisaged beyond the scope of the regular provision of loans from the Eco Fund.
Provider	- European Commission, Ministry of the Economy, Eco Fund
Supervisory institution	- Ministry of the Economy
Energy savings	
Evaluation method for effects	Savings are calculated using the bottom-up method, based on actual data on measures carried out using the prescribed methods.
Savings achieved in 2010	129 GWh (purchase of new appliances in respect of 10-year-old appliances)
Expected energy savings in 2016	514 GWh
Expected energy savings in 2020	746 GWh
Assumptions	In the 2011 - 2016 period, households will buy annually 64,000 refrigerators, 40,000 freezers, 54,000 washing machines, 29,000 dishwashers and 36,000 dryers. In 2016 the electricity consumption of an average new refrigerator will be 16% lower than in 2010, that of a washing machine 9% lower, of a freezer 37%, a dishwasher 5% and dryer 10%.
Overlapping, multiplication effects, synergy	Raising the price of electricity through contributions and taxation, Information and awareness-raising campaign.

Table 35: Support scheme for electricity generated from RES and CHP (measure V.3)

Description	
Type of measure	Financial instruments
Time scale for implementation	Start: 1 Jan. 2008 (overhauled April 2009); End: 31 Dec. 2016
Target/presentation	The measure aims to increase electricity generation from renewable energy sources and for high-efficiency cogeneration at energy final customers.
Target end-use energy consumption	- reducing the take-off of electricity from the grid and achieving primary energy savings (cogeneration)
Target group	- industry, households, service sector
Implementation	
Key activities	<p>The support scheme, with guaranteed purchase prices and operating support for electricity generated from RES and high-efficiency cogeneration, promotes the installation of production facilities also directly at the locations of end-use energy consumers.</p> <p>Support is provided in the form of guaranteed purchase prices for generated electricity (for smaller generation facilities) or operating support (premium on generated electricity).</p> <p>In implementation continued stability of the scheme will need to be ensured through appropriate adjustment to market conditions (optimising the amount relative to market prices for energy and changes in technology costs).</p>
Financial means and sources	The value of public funds necessary for implementing the measure from 2011 to 2016 is estimated at EUR 146 million. Sources of financing: - contribution for providing support to the generation of electricity through CHP and from renewable energy sources.
Provider	- Borzen (Support Centre) and Slovenian Energy Agency
Supervisory institution	- Ministry of the Economy
Energy savings	
Evaluation method for effects	<p>Primary energy savings are calculated using the bottom-up method for production facilities installed at final customers, in line with the methodology based on actual data on the amount of electricity generated:</p> <ul style="list-style-type: none"> • taking a factor of 2.5 in production from RES, • taking the average factor of saving of 1.25 in production from CHP systems.
Savings achieved in 2010	42 GWh (total generation of electricity 26 GWh _e , of which 8 GWh from solar plants and 18 GWh from CHP)
Expected energy savings in 2016	711 GWh (total generation of electricity 438 GWh _e , of which 130 GWh from solar plants and 307 GWh from CHP)
Expected energy savings in 2020	1,397 GWh (total generation of electricity 804 GWh _e , of which 314 GWh from solar plants and 490 GWh from CHP)

Table 35: Support scheme for electricity generated from RES and CHP (measure V.3), continued

Energy savings							
Assumptions	Account is only taken of new production facilities constructed since 2004 at the locations of end-use energy consumers (electricity produced is used at the location):						
	- solar plants installed on structures,						
	- cogeneration units in industry (just smaller units), services and households.						
	The estimate of expected savings in 2016 and 2020 took the projections of electricity generated from RES and cogeneration in these sectors from the draft National Energy Programme (intensive promotion strategy), taking into account the following additional total capacities after 2010 in 2016/2020:						
	- solar power plants: 118 MW _e /303 MW _e ,						
	- CHP: 55 MW _e /92 MW _e ;						
	o industry: 35 MW _e /55 MW _e ,						
	o services and households: 20 MW _e /37 MW _e .						
	Total expected effects - generation of electricity and primary energy savings achieved (ESD) - are shown in the table below.						
	Total electricity generation [GWh]			PE savings (ESD) [GWh]			
		2010	2016	2020	2010	2016	2020
	Solar power plants	8	130	314	20	326	785
	CHP	18	307	490	22	384	612
	Industry	8.8	213	325	11	266	407
	Services	9.1	76	126	11	95	158
	Households		19	39		24	48
	TOTAL	26	438	804	42	711	1,397
Overlapping, multiplication effects, synergy	The measure is supplemented with the requirement for a 25% share of RES in new and renovated buildings (PURES) and other incentives to develop diversified generation of electricity.						

3.3.2.8 Horizontal measures

Horizontal measures to improve energy efficiency have an effect on the level of all sectors. The horizontal measures have been designed to target broad consumption (households, service and public sector) industry and transport, Table 36.

Table 36: Horizontal measures

Ref.	Name of measure	Target end-use energy consumption	Duration	Energy savings achieved in 2010 [GWh]	Expected energy savings in 2016 [GWh]
H.1	Energy contracting	end-use energy consumption in the public sector, service sector, industry and multi-dwelling buildings	1 Jan. 2013 - 31 Dec. 2016	/	/
H.2	Environmental tax for polluting the air with CO ₂	consumption of fuel for heating in buildings, fuel consumption in transport	1 Jan. 2008 - 31 Dec. 2016	/	/
H.3	Informational and awareness-raising activities	end-use energy consumption in households, the public sector, small and medium-sized enterprises	1 Jan. 2012 - 31 Dec. 2016		
H.4	Education and training	end-use energy consumption in all sectors	1 Jan. 2008 - 31 Dec. 2016		
Total					

Energy contracting (measure H.1)

This measure, envisaged in the NEEAP 1, involves greater use of financial instruments for energy saving, primarily the use of contractual assurance of energy savings and contractual assurance of energy supply and other forms of public-private partnership. Despite the commitment that activities will be directed towards accelerated development of the energy services market, there have been no appropriate incentives in this area. The legal barriers remain similar to those of three years ago, and planned activities will need to be implemented - that is, the production of materials (sample contracts, instructions related to procedures) that might ease the preparation of tenders for contractual assurance of energy savings and contractual assurance of energy supply. A range of other envisaged activities also await implementation: expert support needs to be set up for clients in the public sector in the design of projects, conclusion of contracts and evaluation of effects, as well as a financial scheme as an incentive for trained energy services providers, Table 37.

Environmental tax for polluting the air with CO₂ (measure H.2)

The environmental tax for polluting the air with CO₂ emissions was introduced back in 1997, pursuant to the Decree on the Tax for Polluting the Air with Emissions of CO₂. The environmental tax is paid in relation to the use of fuels and combustion of combustible organic matter in solid, liquid or gaseous form (for the purpose of obtaining heat or to drive motors and turbines). The basis for calculating the environmental tax for polluting the air with CO₂ emissions is the sum of units of pollution from the purchased quantity of fuels or the units of pollution from burned combustible organic matter. The unit price of environmental pollution from carbon dioxide emissions is EUR 12.5 per unit of pollution (t CO₂). The internalisation of external costs of polluting the air with CO₂ promotes a reduction in fuel consumption, the use of fuels with lower carbon content and fuels for which no environmental tax is paid (e.g. biomass and biogas), Table 38.

Table 37: Energy contracting (measure H.1)

Description	
Type of measure	Regulations
Time scale for implementation	Start: 1 Jan. 2013; End: 31 Dec. 2016
Target/presentation	The chief aim of energy contracting (contractual reduction of energy costs) is to include private investors in carrying out measures for energy efficiency on the consumption side and energy supply, and to reduce energy costs, including through the use of RES, without committing the public sector's own funds. Energy contracting links together investment and operating processes. The provider (contractor) finances and provides energy-saving measures, and implements them in the agreed period. Since his payment depends directly on the saving generated, which is covered by contractual guarantee, the provider bears the entrepreneurial risk. Pilot projects point to the possibility of lowering energy consumption in public buildings by around 15 - 30%.
Target end-use energy consumption	- end-use energy consumption in the public sector, service sector, industry and buildings
Target group	- public sector (hospitals, homes for the elderly, kindergartens, schools and other public buildings), SMEs, multi-dwelling buildings;
Implementation	
Key activities	<ul style="list-style-type: none"> • Promoting energy services of energy efficiency, specifically contractual assurance of energy savings and contractual assurance of cost-effective energy supply. • Setting up a support environment for implementing energy contracting measures: legal regulation of this field, checking such regulation through demonstration projects, introducing incentives for designing projects, subsidies and assistance for investors and owners of residential buildings in entering into contracts; - Supplementing the methodology for carrying out energy audits in the public sector so that it will support the preparation of tenders for contractual lowering of energy costs; - production of support materials for contractual lowering of energy costs, such as typical contracts, instructions regarding the procedure etc. (BORZEN in cooperation with the Eco Fund and MF); - Formulating tenders for the energy rehabilitation of public buildings so that they encourage the introduction of contractual lowering of energy costs (Eco Fund, Public Fund for the Management of Real Estate); - Ensuring constant, effective and coordinated support from the MF and ME to clients and providers of these services in removing administrative and legal barriers during the fulfilment of this measure; - Concerted and constant information and awareness-raising for target groups regarding services of energy efficiency (promotional campaign), including the promotion of good examples; Providing information to financial institutions on energy services; encouraging financial institutions to offer favourable loans to companies for energy services to implement projects of contractual lowering of energy costs; - Training potential clients, especially from the public sector, to design and manage projects of contractual lowering of energy costs; - Expert support for clients, especially in the public sector, in designing projects, concluding contracts and evaluating effects, preparation of sample contracts (BORZEN, Technical Office within the Public Fund for the Management of State-Owned Real Estate); - Setting up a financial scheme for trained providers of energy efficiency services in the form of incentives for developing products and services intended for financing energy efficiency (green loans).
Financial means and sources	Public funds are not required for implementation of the measure.
Provider	- Ministry of Finance, Ministry of the Economy, BORZEN, Eco Fund, Public Fund for the Management of Real Estate
Supervisory institution	- Ministry of Finance
Energy savings	
Evaluation method for effects	Individually, bottom-up method.
Savings achieved in 2010	The measure was not yet implemented in 2010. Expected savings in 2016 and 2020 have not been estimated.

Table 38: Environmental tax for polluting the air with CO₂ (measure H.2)

Description	
Type of measure	Financial instruments
Time scale for implementation	Start: 1 Jan. 2008; End: 31 Dec. 2016
Target/presentation	The payment of an environmental tax on the use of fuels and combustion of combustible organic matter is a general measure for internalising the external costs of polluting the air with CO ₂ , and it serves to reduce fuel consumption and to promote the use of low-carbon fuels. A tax paid by households, service sector companies, the public sector, companies supplying district heating and industry, apart from industrial operations that are energy-intensive and are in the ETS sector.
Target end-use energy consumption	- consumption of fuel for heating in buildings, fuel consumption in transport
Target group	- households, public sector, small and medium-sized enterprises (in the services sector and industry not involved in the ETS), transport
Implementation	
Key activities	- The level of CO ₂ taxation will remain for the short term at the existing level, while for the medium term it makes sense for the tax to be adjusted to the price of emission coupons in the market. - Establishing a CO ₂ tax on fuels in transport in such a way that the total taxation on fuels remains the same as the current level. The funds collected represent revenue for the climate fund, and are used to implement measures in transport (e.g. promoting public transport), see chapter 3.3.2.5 Measures in transport. - Devising a scheme for exemptions on payment of the CO ₂ tax for industry in the non-ETS sector and the service sector. The scheme must offer incentives for industry and the service sector (requiring a significant increase in the number of companies that will participate in the scheme) and at the same time effective in reducing CO ₂ emissions. Within the scheme it makes sense to design a scale of CO ₂ tax rebates relative to the reduction of specific emissions. See measure I.4 (schemes for efficient electricity consumption and reduction of GHG emissions).
Financial means and sources	Public funds are not required for implementation of the measure.
Provider	Ministry of the Environment and Spatial Planning, Slovenian Customs Administration
Supervisory institution	Ministry of Finance and Ministry of the Economy
Energy savings	
Evaluation method for effects	The end-use energy savings are indirect and cannot be evaluated.

Informational and awareness-raising activities (H.3)

Viewed long-term, for more efficient and sustainable energy use it will be vitally important to change the energy habits of final consumers. This demands the formulation of carefully considered long-term communication programmes that are adapted to specific target groups, and these will be the basis for the coordinated implementation of activities in the area of information, awareness-raising, promotion and training regarding the economic, environmental and developmental potentials of energy efficiency and sustainable use of renewable energy sources. The designing and implementation of such programmes were already envisaged under Instrument 23 in the NEEAP 1, but were not carried out in the 2008 - 2010 period. For this reason, as part of the horizontal measure H.3 "Informational and awareness-raising activities" the NEEAP 2 features the preparation and implementation of three long-term communication programmes for:

- households;
- public sector;
- small and medium-sized enterprises.

Owing to the specific features of individual companies, there are no plans for any long-term communication programme for large industrial companies. Programmes of awareness-raising and information for this target group should be included in schemes for efficient electricity consumption and reduction of GHG emissions (measure I.4).

With the harmonisation and enhancing of existing activities and the delineation of the competences of individual actors, the formulation and implementation of programmes will enable more effective and, in the long term, more successful implementation of informational and awareness-raising activities. Since the success of information provision and awareness-raising is influenced to a large extent by the permanence of implementing planned activities, something that is vital to the implementation of programmes is establishing a regular budget item for informational and awareness-raising activities on energy efficiency and the use of renewable energy sources.

Design and implementation of a long-term communication programme for households (measure H.3.1)

In addition to the ENSVET energy advice network for citizens, which provides free energy advice (chapter 3.3.2.1), limited amounts of information and tips regarding energy efficiency, mostly via websites, are provided to household customers by energy companies, as well as by the Eco Fund and local energy agencies. It is also possible, in principle every year, to apply for funds to implement awareness-raising activities for households within the Ministry of the Economy call for applications for cofinancing awareness-raising, promotional and educational projects in the area of EEU and RES. In this way, from 2008 to 2009 grant funds amounting to EUR 152,000 were received by a total of 48 projects, while there was no call for applications in 2010. Mention should also be made of the awareness-raising campaign intended for the general public entitled *Energija si, bodi učinkovit / You are energy, be efficient*, which was created on the initiative of Holding slovenskih elektrarn. As part of this there is a website aimed at the public entitled *Positive energy - Portal of efficient use and renewable sources of energy [Pozitivna energije - Portal učinkovite rabe in obnovljivih virov energije]*, which features a variety of information and advice, as well as prize games, publications, results of energy efficiency research in Slovenia (REUS 2010) and a carbon footprint calculation. Linked to this campaign, a campaign has been run in 2011 entitled *I pay for what I use [Plačam kolikor porabim]*, which is aimed at the higher-quality and faster implementation of dividing and calculating heating costs in multi-dwelling and commercial buildings.

Implementation of the measure (Table 39) envisages the design and provision of a long-term communication programme of information and awareness-raising for citizens regarding energy efficiency and the use of renewable sources. Programme implementation will fall under the competence of a coordination point for households, whose activities should be carried out in concert by the Eco Fund and ENSVET, while individual activities will also be provided as necessary by other providers.

Table 39: Design and implementation of a long-term communication programme for households (measure H.3.1)

Description	
Type of measure	Providing information and obligatory information
Time scale for implementation	Programme preparation: 2012 Programme implementation: 2013 - 2016
Target/presentation	Coordinated awareness-raising, information, promotion and training in the area of EEU and use of RES
Target end-use energy consumption	- end-use energy consumption in households
Target group	- households/citizens
Implementation	
Key activities	<ul style="list-style-type: none"> • Programme preparation • Programme implementation: <ul style="list-style-type: none"> - setting up the coordination point for activities (Eco Fund in connection with the ENSVET advice network) - website - publication in the media - publications - managed awareness-raising campaigns - demonstration projects and projects of best practices - energy advice - advice and education for implementing EEU projects and use of RES in multi-dwelling buildings; including as part of contractual lowering of energy costs (especially activities for training multi-dwelling building managers and activities for providing information to socially vulnerable citizens) - activities for raising awareness among retailers of household appliances, energy equipment and private vehicles - activities for raising awareness among media houses/journalists - activities for training energy companies - annual reporting on activities
Financial means and sources	<p>Programme preparation: EUR 10,000 Programme implementation: No estimate.</p> <p>Sources of financing: Budget funds (regular budget item for implementing the programme).</p>
Provider	Preparation: ME (in charge), SVPS, Eco Fund, ENSVET, local energy agencies Implementation: Eco Fund / ENSVET / other providers
Supervisory institution	Ministry of the Economy
Energy savings	
Evaluation method for effects	Savings are indirect and cannot be evaluated.
Overlapping, multiplication effects, synergy	Information and awareness-raising have an important indirect influence on the implementation of energy efficiency measures and on the associated energy savings

Design and implementation of a long-term communication programme for the public sector (measure H.3.2)

In the public mind, the public sector should be a model of economical and efficient energy management and of a high level of environmental awareness. Certain informational and awareness-raising activities are already being carried out for this target group by local energy agencies, usually as part of introducing energy accounting or energy management in municipalities, and also within various international projects in which they cooperate. Individual awareness-raising activities, especially for educational institutions, are also carried out by certain energy companies, Slovenski E-forum and some others, and funds for awareness-raising activities for the public sector can also be obtained within the previously mentioned Ministry of the Economy call for applications for cofinancing awareness-raising, promotional and educational projects in the area of EEU and RES. All these activities are pursued without mutual coordination, and often in a limited time scale, which reduces their effectiveness and long-term success in encouraging the public sector to pursue more environmentally friendly and socially responsible use of energy.

Implementation of the measure (Table 40) envisages the design and provision of a long-term communication programme of information, awareness-raising and advice for the public sector regarding energy efficiency and the use of renewable sources, plus energy services. Programme implementation will fall under the competence of the Eco Fund, local energy agencies and the technical office at the Public Fund for the Management of Real Estate (being set up), while individual activities will also be provided as necessary by other providers.

Preparation and implementation of a long-term communication programme for small and medium-sized enterprises (measure H.3.3)

Small and medium-sized enterprises often lack sufficient knowledge, people and funds to be able to pursue to a satisfactory degree of activities that are not their primary line of business, and these usually include energy efficiency, mainly because of the small share that energy represents in their overall costs. For this reason information and awareness-raising, and especially advice, are extremely important for this target group.

A review of the situation in the area of information and awareness-raising has shown that the least amount of activities are aimed precisely at small and medium-sized companies. Specific awareness-raising activities are implemented with funds obtained in the Ministry of the Economy call for applications for cofinancing awareness-raising, promotional and educational projects in the area of EEU and RES, and to a lesser extent certain local energy agencies direct individual activities towards this target group. The activity of energy companies is largely limited to providing data on consumption of energy or the energy product, while advice on EEU is only provided by the bigger suppliers of electricity, specifically as part of advice packages.

Implementation of the measure (Table 41) envisages the design and provision of a long-term communication programme of information, awareness-raising and advice for small and medium-sized enterprises regarding energy efficiency and the use of renewable sources, plus energy services. Programme implementation will fall under the competence of the Eco Fund and local energy agencies, while individual activities will also be provided as necessary by other providers. Here we will need to exploit the established avenues of communication for promoting the development of SMEs.

Table 40: Design and implementation of a long-term communication programme for households (measure H.3.2)

Description	
Type of measure	Providing information and obligatory information
Time scale for implementation	Programme preparation: 2012 Programme implementation: 2013 - 2016
Target/presentation	Coordinated awareness-raising, information, promotion and training in the area of EEU, the use of RES and energy services
Target end-use energy consumption	end-use energy consumption in the public sector
Target group	Public sector
Implementation	
Key activities	<ul style="list-style-type: none"> • Programme preparation • Programme implementation: <ul style="list-style-type: none"> - setting up the coordination point for activities (Eco Fund, local energy agencies, the technical office at the Public Fund for the Management of Real Estate) - website - publication in the media - publications - the newsletter "Učinkovito z energijo" ["Efficiently with energy"] - managed awareness-raising campaigns - demonstration projects for establishing new technologies and financial mechanisms - presentation of projects of best practices - energy advice - providing permanent technical assistance in drawing up investment documentation for project implementation - targeted education and training of public administration for operationalising legislation in the area of sustainable energy and efficient energy management, and for carrying out investments in EEU and use of RES - ensuring quality preparation and implementation of energy rehabilitation projects - energy efficiency rewards - training the providers of energy-efficient services - drafting the legislative foundations for compulsory education for public sector energy managers - activities for raising awareness among media houses/journalists - annual reporting on activities
Financial means and sources	Programme preparation: EUR 10,000 Programme implementation: No estimate Sources of financing: Budget funds (regular budget item for implementing the programme)
Provider	Preparation: ME (in charge), MPA, SVRL, SVPS, Eco Fund, local energy agencies, Public Fund for the Management of Real Estate Implementation: Eco Fund / local energy agencies / Public Fund for the Management of Real Estate / other providers
Supervisory institution	Ministry of the Economy
Energy savings	
Evaluation method for effects	Savings are indirect and cannot be evaluated.
Overlapping, multiplication effects, synergy	Information and awareness-raising have an important indirect influence on the implementation of energy efficiency measures and on the associated energy savings

Table 41: Preparation and implementation of a long-term communication programme for small and medium-sized enterprises (measure H.3.3)

Description	
Type of measure	Providing information and obligatory information
Time scale for implementation	Programme preparation: 2012 Programme implementation: 2013 - 2016
Target/presentation	Coordinated awareness-raising, information, promotion and training in the area of EEU, the use of RES and energy services
Target end-use energy consumption	
Target group	Small and medium-sized enterprises
Implementation	
Key activities	<ul style="list-style-type: none"> • Programme preparation • Programme implementation: <ul style="list-style-type: none"> - setting up the coordination point for activities (Eco Fund, local energy agencies) - website - publication in the media - publications - the newsletter "Učinkovito z energijo" ["Efficiently with energy"] - managed awareness-raising campaigns - demonstration projects and projects of best practices - energy advice - training for efficient energy management, and for carrying out investments in EEU and use of RES - energy efficiency rewards - training the providers of energy-efficient services - activities for raising awareness among media houses/journalists - activities for training energy companies - annual reporting on activities
Financial means and sources	<p>Programme preparation: EUR 10,000 Programme implementation: No estimate</p> <p>Sources of financing: Budget funds (regular budget item for implementing the programme)</p>
Provider	Preparation: ME (in charge), SVPS, Eco Fund, local energy agencies Implementation: Eco Fund / local energy agencies / other providers
Supervisory institution	Ministry of the Economy
Energy savings	
Evaluation method for effects	Savings are indirect and cannot be evaluated.
Overlapping, multiplication effects, synergy	Information and awareness-raising have an important indirect influence on the implementation of energy efficiency measures and on the associated energy savings

Education and training (measure H.4)

Education and training for efficient energy management and sustainable use of renewable energy sources on various levels, which contributes in the long-term to changing society's thinking and behaviour, was included in the NEEAP 1 as Instrument 24. Within this context the Ministry of Higher Education, Science and Technology reported in 2008 on a new member institution of the University of Maribor, the Faculty of Energy, which provides higher education, university and master's studies in Energy. In grammar schools, content in the area of environmental protection, which also includes energy efficiency, are included in the optional subject "Environmental education as education for sustainable development", and it is included in primary school curricula as part of eight different optional subjects. For 15 years now, kindergartens, primary and secondary schools have been able to join the programme "Eco-school as a way of life", which is provided under the aegis of the European Society for Environmental Education in Slovenia (DOVES). This is a programme that introduces concerted and comprehensive environmental education, and one of the fields covered by the programme is energy consumption. In 2011, learning materials for primary schools dealing with EEU and RES were provided under the programme.

As part of the programme overhaul of vocational and professional education, efficient energy management - within the framework of the majority of curricula, and especially the technical field - was included in the subject "Environmental protection and safety at work" or "Sustainable development". In 2011 the Velenje Education Centre opened a developmental/didactic training area for the requirements of education for occupations in the field of energy and sustainable development.

Alongside the formal education programmes, mention should be made of the training for European energy managers, or EUREM, which was first carried out in 2008 as part of the project EUREM.NET - the European Commission's Intelligent Energy programme. The training, which lasts eight months, focuses on acquiring knowledge to implement EEU and RES measures. A total of 94 European energy managers, who have successfully completed the four training sessions to date, envisaged in their project assignments the implementation of EEU measures with a total potential for reducing energy consumption in the amount of 158 GWh, or EUR 12.4 million annually.

The emphasis of this measure (Table 42) is primarily on the continued overhauling of the syllabus in primary and secondary schools and of curricula, and also on teachers/professors and the mentors of circles and extracurricular activities dealing with environmental education, for the use of modern methods and tools for educating about EEU and sustainable use of RES. Moreover the measure includes the implementation of targeted training for energy managers, administrators, project designers, architects, installers, supervisors, decision-makers etc., aimed at improving the practical abilities of specific target groups for the high-quality design and implementation of projects in the area of energy efficiency and green energy technologies and their placement in private and public buildings. In certain sectors, providing training courses overlaps with the measures for preparing and implementing long-term communication programmes for households, the public sector and SMEs (measures H.3.1, H3.2 and H3.3).

Table 42: Education and training (measure H.4)

Description	
Type of measure	Providing information and obligatory information
Time scale for implementation	Start: 1 Jan. 2008; End: 31 Dec. 2016
Target/presentation	Education and training in the areas of EEU and use of RES
Target end-use energy consumption	- end-use energy consumption in all sectors
Target group	- primary and secondary schools, university-level organisations, public administration, energy managers, administrators, project designers, architects, installers, supervisors, decision-makers etc.
Implementation	
Key activities	<ul style="list-style-type: none"> • Supplementing and modifying syllabuses in primary, secondary and higher education (environmental education as a compulsory part of the curriculum) • Continuous revision of concepts, content and tools for education in the areas of EEU and use of RES, in line with current developments • Introducing interdisciplinary curricula for sustainable energy development • Drawing up and implementing training programmes for teachers/professors and circle mentors • Involving educational institutions in international projects in the areas of EEU and use of RES • Lifelong learning with emphasis on vocational training in the fields of sustainable energy • Targeted training for the design and implementation of projects in the area of energy efficiency and green energy technologies for energy managers, administrators, project designers, architects, installers, supervisors, decision-makers etc. - Targeted education and training of public administration for operationalising legislation in the area of sustainable energy and efficient energy management, and for carrying out investments in EEU and use of RES
Financial means and sources	The public funds needed to implement the measure will be provided from the regular budget funds for education and for budget-funded training
Provider	Slovenian Board of Education / Vocational Training Centre / universities, faculties, higher education establishments, institutes / kindergartens, primary, secondary schools and colleges / NGOs etc.
Supervisory institution	Ministry of Education and Sports, Ministry of Higher Education, Science and Technology, Ministry of the Economy, Slovenian Government Climate Change Office
Energy savings	
Evaluation method for effects	Savings are indirect and cannot be evaluated.
Overlapping, multiplication effects, synergy	Education and training of young people are a powerful spur to long-term changes in thinking and behaviour among the general public, and targeted training promotes the actual drafting and implementation of measures in the area of EEU and use of RES.

3.3.3 End-use energy savings

A list of all sectoral, multisectoral and horizontal measures is presented in the table below, Table 43. In addition to the end-use energy savings achieved in 2008 - 2010 (including earlier activities), the table shows the expected end-use energy savings in 2016 and 2020. Estimates indicate that the target end-use energy savings in 2016 and 2020 will be achieved or exceeded.

Table 43: End-use energy savings

End-use energy savings [GWh]								
Ref.	Name of measure	Duration	Earlier activities	2008	2009	2010	2016	2020
HOUSEHOLDS			210	272	330	457	1,558	2,181
G.1	Financial incentives for energy-efficient renovation and sustainable construction of residential buildings	1 Jan. 2008 - 31 Dec. 2016	62	80	99	138	440	642
G.2	Financial incentives for energy-efficient heating systems	1 Jan. 2008 - 31 Dec. 2016	48	71	94	117	629	890
G.3	Scheme of energy efficiency for low-income households	1 Jan. 2010 - 31 Dec. 2016		0	0		64	99
G.4	Compulsory division and calculation of heating costs in multi-dwelling and other buildings according to actual consumption	1 Jan. 2008 - 31 Dec. 2016		3	5	51	88	89
G.5	Energy advice network for citizens	1 Jan. 2008 - 31 Dec. 2016	99	118	132	151	337	461
SERVICES						15	297	459
I.1	Cofinancing measures for efficient electricity consumption	1 Jan. 2008 - 31 Dec. 2016					31	52
I.2	Financial incentives to raise energy efficiency in industry and the services sector and significantly increase the scope of environmentally friendly electricity generation from RES and CHP systems	1 Jan. 2008 - 31 Dec. 2016				13	266	407
I.4	Schemes for efficient electricity consumption and reduction of GHG emissions	1 Jul. 2013 - 31 Dec. 2016				2		
PUBLIC SECTOR							413	499
J.1	Green public procurement	1 Jan. 2012 - 31 Dec. 2016					0	0
J.2	Financial incentives for energy-efficient renovation and sustainable construction of buildings in the public sector	1 Jan. 2008 - 31 Dec. 2016					116	181
J.3	Introducing an energy management system in the public sector	1 Jul. 2012 - 31 Dec. 2016					222	222
J.4	Financial incentives for efficient electricity consumption in the public sector	1 Jan. 2008 - 31 Dec. 2016					74	96

Table 43: End-use energy savings, continued

INDUSTRY, SMALL AND MEDIUM-SIZED ENTERPRISES			122	474	144	144*	1,634	2,486
TRANSPORT				234	156	156*	1,731	2,545
MULTISECTORAL MEASURES			11	57	104	279	1,240	2,111
V.1	Regulations on the energy performance of buildings	1 Jan. 2008 - 31 Dec. 2016				108	281	374
V.2	Energy labelling of household appliances and other devices and minimum requirements	1 Jan. 2008 - 31 Dec. 2016		47	93	129	514	746
V.3	Support scheme for electricity generated from RES and CHP	1 Jan. 2008 - 31 Dec. 2016	11	11	11	42	445	991
HORIZONTAL MEASURES						0	0	0
H.1	Energy contracting	1 Jan. 2013 - 31 Dec. 2016						
H.2	Environmental tax for polluting the air with CO ₂	1 Jan. 2008 - 31 Dec. 2016						
H.3.1; H.3.2; H.3.3	Preparation and implementation of a long-term communication programme for: (1) households, (2) public sector, (3) small and medium-sized enterprises	2013 - 2016						
H.4.	Education and training	1 Jan. 2008 - 31 Dec. 2016						
TOTAL			343	1,038	735	1,174*	6,873	10,281

Note: *In industry and transport, account is taken of savings for 2009, since SORS statistical data for 2010 are still not available.

End-use energy savings with earlier activities

In addition to end-use 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 end-use 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);
- 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;
- 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.

Tables 44 and 45 show a review of financial instruments and measures carried out by sector with energy savings achieved.

Based on data in the tables we may conclude that earlier activities led to savings of fuel and district heating amounting to 294,195 MWh/year, savings of electricity of 9,557 MWh/year and savings of primary energy in the amount of 23,249 MWh/year. In line with Directive 2006/32/EC, electricity savings could be increased by a factor of 2.5. Total end-use energy savings thus amount to 341,336 MWh/year.

Table 44: 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 ⁵⁰ , 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 45: 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	7,589
Total energy savings				101,744	6,909	12,532

⁵⁰ AURE - Energy Efficiency Agency

3.4 Public sector

Promoting energy efficiency measures in the public sector has a major impact in terms of boosting demand, which indirectly promotes the development of the energy services market. Measures in the public sector also have major demonstration effects in other sectors. They are also very important for controlling public sector costs.

The range of measures in the public sector covers financial incentives for energy-efficient renovation of public buildings, energy-efficient heating and ventilation systems and efficient use of electricity.

Additional measures that serve to promote energy efficiency in the public sector are green public procurement, legislative instruments (drafting of regulations), energy management in public buildings and horizontal measures, including most importantly the contractual assurance of energy savings and contractual assurance of energy supply and other energy services.

The requirement under Article 5 of Directive 2006/32/EC is that out of the six proposed requirements from Annex VI, the public sector undertakes to adopt two. The NEEAP 1 therefore envisages measures in four areas:

- use of financial instruments for energy saving (e.g. contractual assurance of energy saving);
- purchase of efficient equipment and vehicles;
- purchase of equipment that is always energy-efficient, even in stand-by mode;
- purchase or rental of energy-efficient buildings.

In accordance with Article 5 of Directive 2006/32/EC, the state has the duty to communicate effectively to citizens and companies regarding activities in the area of energy efficiency in the public sector. Directive 2006/32/EC also requires the state to publish guidelines on energy efficiency and energy savings as a criterion for public procurement, while in public procurement the public sector should pursue the exchange of best practices on the international and national level.

3.4.1 The public sector as a model

Implementation of Directive 2006/32/EC requires that Slovenia ensures its public sector fulfils an exemplary role in the area of energy efficiency measures, especially in new investments, maintenance and spending on equipment that uses energy. The public sector undertakes to pursue cost-effective activities and measures that serve to achieve the greatest energy savings in the shortest time.

Review of activities and situation in the public sector

A review of the situation and activities carried out from 2009 to 2011 has shown that in its activities the public sector has not yet succeeded in becoming a good example and a leading player in the area of implementing energy efficiency measures. In fulfilling the requirements and obligations from Annex VI to Directive 2006/32/EC, the public sector has only been partly successful. The public sector's performance has been as follows:

- 1) Previously the public sector had been ineffective in promoting itself as a leading player in the area of implementing energy efficiency measures. The role of the sector (vision and activities) has not been properly presented to the general public.
- 2) The public sector is implementing just some of the most cost-effective measures. Promotional activities are for the most part directed towards the comprehensive renovation of buildings and energy rehabilitation of public lighting, which is carried out as part of the Operational Programme for Environmental and Transport Infrastructure Development. No record of measures implemented without incentives has been established.

- 3) The public sector has not yet fulfilled the requirements from Annex VI planned in the NEEAP 1:
 - a) In the first action plan the state made a commitment to greater use of financial instruments for energy saving, especially contractual assurance of energy savings and other forms of public-private partnership. Since the adoption of the first action plan, several projects of contractual assurance of energy savings in the public sector were implemented, but the instrument has not yet entered into force. The activities planned in the NEEAP 1 have not yet been implemented, so the NEEAP 2 defines them in a time frame and identifies those responsible, see also chapter 3.3.2.8.

The effects of implementing measures in the public sector have also been unsatisfactory owing to the non-implementation of state activities in promoting the energy services market.

- b) Neither was the public sector effective in fulfilling the other three commitments (purchasing energy-efficient equipment and vehicles, purchasing equipment that is energy-efficient in all modes, and purchase or rental of energy-efficient buildings). The main reason is the excessively slow progress in the area of green public procurement. In 2009 the state adopted the Green Public Procurement Action Plan 2009 - 2012. The proposed Decree on Green Public Procurement, which will regulate the procedures and actions of clients and lay down the environmental requirements and the decision-making criteria for nine groups of public procurement items, was subject to public debate in 2010, but to date the decree has not yet been adopted (see chapter 3.4.2). The proposed decree does not deal adequately with the most cost-effective measures for achieving energy savings and controlling energy costs in public procurement.
 - c) The PURES rules were adopted in 2008, and these require the public sector to secure 10% higher minimum standards for EEU in the public sector than in other buildings where there is major renovation of buildings or parts thereof and in new constructions.
 - d) In 2011 the legal basis has not yet been drawn up to be able to establish energy efficiency and energy savings in products and services as a condition or criterion for selection within public procurement.
- 4) The exchange of best practices within the public sector has not yet taken place.
 - 5) The implementation of EEU programmes and RES use in self-governing local communities based on local energy concepts has been insufficient.

Further activities in the public sector

In the future the public sector must pursue the serious implementation of activities envisaged in the first action plan, which the NEEAP 2 supplements with the following key activities:

- For energy services, especially contractual assurance of energy savings, a system of financial incentives will be set up. The first Eco Fund call for applications for public buildings in municipal ownership (primary schools), which will promote measures with contractual assurance of energy savings, will be held in 2011, with the tendered incentives valued at EUR 6 million.
- Legislation governing the field of public-private partnership has remained unchanged, and certain issues are still subject to varying interpretations, including the question of municipalities taking loans, taxing services and accounting issues. For this reason support will be established for the systematic removal of administrative barriers (coordinated by the ME) and material will be prepared (sample contracts, procedures). This will ease the preparation of tenders for contractual assurance of energy savings, for which the competent ministry will authorise Borzen.
- Expert support for public sector clients in designing projects, concluding contracts and evaluating effects.
- Scheme of financial incentives for trained providers aimed at developing energy services.

The activities planned in the NEEAP 2 represent support for self-governing local communities in the implementation of EEU programmes and RES use in line with local energy concepts.

3.4.2 Public procurement measures

In 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. One of the objectives of the action plan that has not yet been achieved is adoption of the Decree on Green Public Procurement. The proposed decree, which was drafted in 2010, lays down the mandatory actions of clients and defines the fundamental and additional environmental requirements for nine priority areas. The decree lays special emphasis on energy efficiency, which is directly tied to products in four product groups: electronic office equipment, purchase of energy-efficient products and services, construction and vehicles. Following adoption of the decree, there will be a need to ensure continuity in expanding the groups of public procurement items where "green" criteria can be used for new products and services. Prior to adoption, the proposed decree will be supplemented with all areas of EEU procurement that are simple to implement or where the effects are very big. Green public procurement in the area of EEU will govern in particular orders for smaller-scale capital maintenance and regular maintenance, in other words orders not regulated by PURES (such as lighting in buildings, air conditioning, ventilation, heating and office equipment, reconstruction of smaller buildings etc). For typical orders, sample documentation is drawn up (technical annexes to the tender documentation), which significantly reduces the administrative burden of the measure and simplifies the application of requirements for frequent measures. In Slovenia the capacity and training in terms of GrPP is low. In the future the public sector must ensure a sufficiently large number of trained personnel to draw up high-quality tender documentation. In the future the public sector must also provide education that must be compulsory for all public employees conducting public procurement.

In green public procurement the public sector must carry out pilot public procurement that will include the environmental aspects. Examples of tender documentation, experiences of implementation and results will be publicly accessible on the website of the Ministry of Finance and Ministry of Public Administration. The exchanging of experiences and examples of best practices is essential for the successful implementation of green public procurement in the future.

3.5 Providing advice and information

Effective information, awareness-raising and education in the area of energy efficiency, use of renewable energy sources and the impact of energy consumption on the environment can be of major help in raising awareness among target groups and encouraging them towards more environmentally friendly action, and in this way towards achieving energy savings and reducing CO₂ emissions. Within the NEEAP 1 four instruments are aimed at providing advice and information:

- Energy advice network for citizens (Instrument 7);
- Programmes of awareness-raising, information, promotion and training and demonstration projects (Instrument 23);
- Education programmes (Instrument 24) and
- Providing information to users on energy consumption, transparent charging and other information on the part of energy companies (Instrument 25).

Various activities are pursued within the context of these instruments by numerous players (Ministry of the Economy, Eco Fund, local energy agencies, energy companies, NGOs etc.), although their actual contribution to reducing energy consumption cannot be evaluated.

The energy advice network for citizens (measure G.5) is presented in detail in chapter 3.3.2.1.

During the period of implementation of the NEEAP 1, it was observed that informational and awareness-raising activities are pursued in an excessively fragmented fashion, and that in particular Instrument 23 is set out too generally. Moreover the programmes envisaged for specific target groups, which would ensure the constant and coordinated implementation of informational and awareness-raising activities, something that is vital to changing the way society uses energy, were not drawn up. For this reason the NEEAP 2 includes the horizontal measure H.3, which is intended for awareness-raising, information, promotion and training of target groups - households, public sector and small and medium-sized enterprises, chapter 3.3.2.8. This measure is based on Instrument 23 from the NEEAP 1, although there is a detailed definition in a larger number of segments, taking into account the characteristics of the target groups and the analysis of the existing situation.

Instrument 25, "Providing information to users on energy consumption, transparent charging and other information on the part of energy companies", from the NEEAP 1, aimed at implementing the mandatory measure of providing information to consumers on energy consumption, transparent charging and other information on the part of energy companies, is already provided by energy suppliers on the basis of the Energy Act of 1999. At least once a year, suppliers of electricity, natural gas or heat must provide information to consumers on the trends and characteristics of energy consumption.

A review of activities carried out has shown that the larger suppliers of electricity and natural gas have been most active in their introduction, having introduced a comprehensive energy account and a comparison of consumption with that of the previous period and with reference consumption, and on their websites they also provide information on actual prices and various services such as the possibility for households of renting electricity consumption meters and data packages for monitoring energy consumption, which are also available to corporate consumers. The majority of websites also make available, in a limited scope, tips on energy saving, while there are advice packages available to corporate customers, including advice on EEU and RES, but there is no data on the actual scope in which such advice is in fact provided. We should also highlight the DNSO research on electricity consumption in 2009 and 2010 and the Modri Jan [Wise Jan] campaign from Holding slovenskih elektrarn aimed at raising awareness among children about EEU and RES.

Suppliers of natural gas and district heating generally provide their customers with data on consumption of the energy product or energy, but for the most part they are still not implementing in practice any other activities for awareness-raising and information provision about EEU.

In the period up to 2016 there is a need to ensure that elements of this instrument (Table 46) will actually be implemented by all energy companies, which should expand the scope of information about EEU and use of RES for their customers, and enhance their data services for monitoring energy consumption with an analysis of consumption and with advice on possible EEU measures for its reduction, which is a requirement of the Energy Act⁵¹. This measure will need to be expanded with the inclusion of data on actual energy consumption that will be available through the use of smart meters and accounting devices.

⁵¹ The Energy Act requires the following: Suppliers of electricity to final customers are bound to publish, on issued electricity bills and in their advertising materials, the proportions of individual product sources in the entire breakdown of electricity from the specific supplier in the previous year. Equally, they are bound to state in bills and advertising materials all the addresses of websites or other sources of information where information can be obtained on the impact of the existing structure of production sources on the environment, especially regarding emissions of carbon dioxide (CO₂) and the issue of radioactive waste.

Table 46: Information, awareness-raising and advice to consumers from energy companies

Description	
Type of measure	Information programme - mandatory
Time scale for implementation	Start: 1 Jan. 2008; End: 31 Dec. 2016
Target/presentation	<ul style="list-style-type: none"> • Through familiarisation with the diagram of consumption, prices and costs of energy and mutual comparison, consumers can balance their energy consumption, while also obtaining expert information on the available measures and other ways of improving energy efficiency. • The obligations of suppliers of energy and fuel from networks to final customers must be supplemented in such a way that they will be bound at least once a year to provide final customers, in an easily readable form, information on current actual prices and data on where information can be obtained regarding EEU, RES and CHP as well as technical specifications about devices and products that use energy. • Implementation of the obligation to provide information related to consumer protection regarding rights, duties and other relevant information.
Target end-use energy consumption	- natural gas, heat, electricity
Target group	- providers: distributors, distribution network system operators, energy retail companies, recipients: final customers
Implementation	
Key activities	<ul style="list-style-type: none"> • Drawing up the necessary legal basis for accelerated introduction of active networks, introduction of smart meters and accounting devices at electricity consumers, and ensuring the leading role of electricity distribution network administrators in merging the measurements of consumption of electricity, natural gas, district heating and water (mandatory share of smart meters and accounting devices at electricity consumers, which the DNSO must provide - 20% by 2012, 80% by 2014, 100% by 2016). • accelerated introduction of smart metering and charging devices at electricity consumers;
Financial means and sources	Public funds are not required for implementation of the instrument.
Provider	- distribution network system operators, transmission network system operators, energy companies, energy suppliers
Supervisory institution	- Ministry of the Economy, Ministry of the Environment and Spatial Planning
Energy savings	
Evaluation method for effects	The end-use energy savings are indirect. There is no EU-level methodology for evaluation.

3.6 Obligations of energy companies to promote end-use energy savings

The obligations of energy suppliers and other energy companies regarding energy efficiency, as defined by Directive 2006/32/EC, were transposed into Slovenian law in 2008 through the Act Amending the Energy Act⁵². For system operators and for suppliers of electricity, heat from the distribution network and gaseous and liquid fuels to final customers, the Act lays down 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. For smaller energy suppliers and suppliers of motive fuels, the Act provides just the collection of funds, while in their place the Eco Fund draws up and implements programmes to improve energy efficiency.

The obligations of energy companies to promote efficient consumption of end-use energy are set out in detail in the Decree Ensuring Energy Savings for Final Customers⁵³, which was adopted at the end of 2009, and the Rules on the Methods for Determining Energy Savings at Final Customers, adopted in January 2010⁵⁴. The Rules provide the basis for evaluating the effects of energy efficiency measures carried out at final customers.

The Decree lays down the minimum level of energy savings for final customers (achieving energy savings in the amount of at least 1 percent annually relative to the energy or fuel supplied to customers in the preceding year), the types of energy service and the energy efficiency improvement measures for achieving energy savings, the scope and compulsory elements of energy efficiency improvement programmes, and the deadlines for and scope of reporting on the implementation of energy efficiency improvement programmes. The mandatory components of the programme must cover the amount of energy savings at final customers, the types of energy services and measures, the planned reduction in greenhouse gas emissions and an estimate of the costs of programme implementation. The annex to the Decree also lays down the level of the contribution for raising the efficiency of electricity consumption and the surcharge on fuel to raise energy efficiency.

With regard to the amendment of the Decree in 2010, large liable entities (suppliers of heat from the distribution network that supply at least 75 GWh of heat annually, and suppliers of electricity, gas and liquid fuels that supply at least 300 GWh annually) are now able to draw up three-year programmes and in that way to gradually achieve the required target of 1 percent savings at final customers. In this way, large liable entities can plan in the first year of programme implementation a 0.3 percent saving, in the second year a 0.6 percent saving and in the third year a saving of 1 percent at final customers. For this reason the annex, which sets the level of contributions for raising the efficiency of electricity consumption and surcharges for heat and fuel to raise energy efficiency, also lay down the values for 2013 and 2014.

The Decree Ensuring Energy Savings for Final Customers requires energy suppliers (large liable entities) to offer their customers additional energy services in the area of energy saving. In addition to selling energy products, their activities must include the provision of energy services that enable their customers to make energy savings. Income from providing these energy services will thus make up for the lower income from the sale of energy products. The contributions and surcharges for raising energy efficiency can be used as incentives for introducing a new business relationship with consumers.

Suppliers will need to pay special attention to dealing with energy poverty in low-income households. Owing to the specific structure of that group of consumers, in order to stimulate additional energy services in the area of energy savings, these effects in verifying the achieved goals of suppliers will need to be treated with a higher, two or threefold factor. In this way, suppliers will have a greater interest in drawing up appropriate annual (or three-year) plans that will cover this group of consumers.

⁵² Off. Gaz. RS No. 27/2007, 70/2008, 22/2010

⁵³ Off. Gaz. RS No. 114/2009, 57/2011

⁵⁴ Off. Gaz. RS No. 4/2010

One of the basic energy services from energy companies for businesses is drawing up programmes to perform customer energy audits, which are set out in the Decree Ensuring Energy Savings for Final Customers in the range of measures and services that large liable entities can include in programmes of energy services and measures to improve energy efficiency.

3.7 The energy services market

Despite numerous efforts and even legislation, such as Directive 2006/32/EC on energy end-use efficiency and energy services (ESD), the energy services (ES) market in the European Union is not developing in line with expectations. It is limited in particular to the public sector, and is relatively well developed only in certain countries, for instance in Germany, Belgium and Denmark, while elsewhere it is developing much more slowly than anticipated. Slovenia, where the first energy services emerged over a decade ago, now ranks among those countries with a poorly developed market, limited just to a few companies offering complex forms of energy services, such as energy contracting (contractual reduction of energy costs). Predominant among projects carried out are those involving contractual assurance of energy supply, which usually contribute to reducing primary energy consumption, but not necessarily to reducing end-use energy consumption, since they do not always include energy efficiency measures on the part of consumers. As on the EU level, Slovenia is dominated by projects in the public sector (municipalities, hospitals, schools etc.). Lately increasing attention has been focused on providing energy efficiency services (ES-EEU). These are ES that ensure a reduction in energy consumption through the performance of an energy audit, the formulation and implementation of EEU measures and monitoring of savings achieved.

Contractual reduction of energy costs was included in the NEEAP 1 as Instrument 21 among the multisectoral measures, and in the NEEAP 2 as measure H.1 in chapter 3.3.2.8, where it is also stated that the majority of planned activities intended to promote development of the ES market are still awaiting implementation. The measure is extended through additional activities, which should step up the implementation of ES and contribute to overcoming the existing barriers, such as a lack of information about ES among potential clients and financial institutions, a lack of financing, especially for projects of contractual assurance of energy savings provided by smaller energy services companies, the limited number of those offering ES, which also contributes to the slow market growth, the poor availability of data on energy consumption and its costs, the lack of trained personnel to prepare and head such projects on the part of the client, and there would also be a need to improve existing legislation, which would facilitate lower contractual and financial risk, a reduction in transaction costs and establishing ES-friendly public procurement and accounting standards. The cooperation of the MF is of vital importance, particularly in removing the last of the aforementioned barriers.

In line with the new European energy efficiency action plan, each year the public sector should renovate at least 3% of public buildings (by surface area), where following renovation the buildings should be ranked among the best 10% of all public buildings starting in 2014. Public funds alone will certainly not suffice for carrying out the necessary measures for energy efficiency in order to achieve this objective, so promoting public-private partnership in the public sector is especially appropriate. In this context, mention should also be made of introducing more progressive forms of energy efficiency services, such as energy contracting plus and integrated contractual assurance of energy savings. The first case involves contractual assurance of energy savings with the included implementation of EEU measures on the building shell, which owing to the excessively long payback periods are not normally part of the usual contractual assurance of energy savings that would enable just the partial implementation of energy-efficient building renovation. In addition to energy efficiency measures, integrated contractual assurance includes the provision of appropriate solutions to energy supply (new energy product, new system for producing heat/cooling etc.). In both cases the savings achieved are not enough to repay the investor's cost of investment, so clients must cover part of the investment with their own funds, or rather it would be appropriate to promote this through grant funds (e.g. from the Cohesion Fund for the public sector), with various forms of promotion possible for energy services:

- on the completely energy-efficient renovation of a public building, energy efficiency measures on the building shell (thermal insulation, replacement of building fixtures etc.) are financed through grant incentives (Cohesion Fund), while for all other EEU measures mandatory financing as part of the contractual assurance of energy savings will be prescribed. With such a method of financing the energy-efficient renovation of buildings, in order to ensure the proper reimbursement of the contractor, it will be necessary to appropriately separate the savings brought by the measures carried out on the building shell from other savings;

- the contractor provides integrated contractual assurance of energy savings (energy consumption, including measures on the shell, and energy supply), while grant incentives (e.g. from the Cohesion Fund) are used to cover a certain share of the investment, e.g. 25%, or that part of the investment that cannot be repaid from savings achieved in some acceptable period of the project duration (e.g. 15 years).

Horizontal measure H.1 - Energy contracting - from chapter 3.3.2.8 thus enhances appropriately the introduction of targeted financial incentives for performing the comprehensive renovation of the stock of public buildings as part of projects for contractual assurance of energy savings. These incentives reduce the amount of public funds needed for the comprehensive energy-efficient renovation of public buildings, since they envisage the financing of EEU measures that are necessary to attain the set funds, through a combination of public funds (grant incentives from the Cohesion Fund etc.) and public-private partnership, while at the same time they promote the development of the energy services market.

Table 47: Financial incentives for comprehensive energy-efficient renovation of public buildings as part of energy contracting projects

Description	
Type of measure	Financial instruments
Time scale for implementation	Start: 1 Jan. 2012; End: 31 Dec. 2016
Target/presentation	Effective use of public funds to ensure the comprehensive energy-efficient renovation of public buildings.
Target end-use energy consumption	- end-use energy consumption in the public sector
Target group	- public sector
Implementation	
Key activities	<ul style="list-style-type: none"> • Financial incentives for comprehensive energy-efficient renovation of public buildings as part of energy contracting projects in the form of: <ul style="list-style-type: none"> - direct financial incentives for EEU measures on the building shell in combination with mandatory implementation of other EEU measures as part of contractual assurance of energy savings, OR - financing a portion of the investment (e.g. 25%) as part of a project for integrated contractual assurance of energy savings, OR - financing that portion of the investment as part of the integrated contractual assurance of energy savings that cannot be repaid from savings achieved in some acceptable period of the project duration (e.g. 15 years).
Financial means and sources	The necessary funds have not been estimated. Sources of financing: Cohesion Fund
Provider	Public Fund for the Management of Real Estate
Supervisory institution	Ministry of the Economy, Ministry of Finance
Energy savings	
Evaluation method for effects	Savings will be evaluated in the context of public sector measures.

3.8 Strategy of almost zero-energy buildings

Almost zero-energy buildings are defined in the proposed new Energy Act as buildings with very high energy efficiency or very low quantities of energy needed for such buildings to function, where the energy needed is produced to a large degree from renewable energy sources at the actual location or nearby. The proposed act also contains a requirement that the ministry competent for the building of structures provides regulations ensuring that from 31 December 2020 all new buildings, and from 31 December 2018 new buildings used or owned by public sector organisations, are almost zero-energy buildings. The Public Fund for the Management of Real Estate, competent ministries and local communities must ensure that starting on 31 December 2018, all new buildings owned by or all buildings used by public sector organisations are almost zero-energy buildings. Here it is also laid down that the ministry competent for the building of structures must adopt a national action plan to increase the number of almost zero-energy buildings. The National Action Plan to Increase

Almost Zero-Energy Buildings will be drafted separately from the process of drafting the NEEAP 2. The annual rate of renovation for existing buildings will be prescribed.

The mandatory share of renewable energy sources in new buildings is already laid down in the Rules on Efficient Use of Energy in Buildings, and is 25% of total end-use energy consumption necessary for the operation of systems in the building. This requirement is also met in the event that the share of end-use energy for heating and cooling of buildings and preparation of hot water is obtained in one of the following ways: at least 25 percent from solar radiation, at least 30 percent from gaseous biomass, at least 50 percent from solid biomass, at least 70 percent from geothermal energy, at least 50 percent from ambient heat, at least 50 percent from high-efficiency CHP installations compliant with the regulation governing support for electricity generated in high-efficiency cogeneration of heat and electricity, or the building is supplied to at least 50 percent from a system of energy-efficient district heating or cooling.

Construction of low-energy and passive buildings is already stimulated through grant subsidies and loans. More data on this are in the descriptions of measures G.1 and J.2

3.9 Alternative measures in heating and air conditioning Measures in heating

Improving the efficiency of heating appliances is carried out by means of regular inspections of combustion devices, energy advice and promoting investment in this area through earmarked loans and grants.

Mandatory inspections of combustion appliances for households and small industrial combustion appliances

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, provided by the chimney maintenance service. This has been enacted in the Decree on the manner and subject of, and conditions for performing the mandatory public utility service of measuring, checking and cleaning of combustion plants, flue ducts and ventilation devices for the purposes of environmental protection and efficient energy use, human health protection and fire protection. The operation of this service comprises inspection of appliances, measuring flue gas emissions, mechanical cleaning of appliances and keeping chimney maintenance records. This measure covers 99% of all combustion appliances (408,650 out of a total of 412,759 appliances).

Measure of advice in selecting, optimising and using heating systems

The ENSVET programme covers free advice and help for members of the public in carrying out measures for more efficient energy consumption in households, and has operated continuously since 1992. The programme is supported by the MESP, and is provided by the ZRMK Construction Institute with trained energy advisers at energy advice offices. Advice also extends to help in choosing a heating system and heating appliances and in replacing heating appliances.

Energy audits for industry, the public and service sectors covers auditing the company or building in respect of energy use and supply, identification of possible measures for effective energy management and analysis of the technical and economic feasibility of measures by determining attainable savings and the necessary investment. The production of energy audits is subsidised by the MESP for up to 50% of the value of the energy audit under contract between the applicant (energy consumer) and provider of the energy audit. Energy audits were carried out up until 2008.

Promoting investment: in energy-efficient combustion appliances

From 2008 to 2010 the Eco Fund held public call for applications for subsidies or the allocation of grant funds for the purchase of energy-efficient small biomass boilers and small condensing boilers (Report on Implementation of the National Action Plan 2008 - 2010, measure I.1).

Measures in air conditioning

Pursuant to the Energy Act, regular inspections must be performed on all air conditioning systems with a rated capacity of over 12 kW. The purpose of the inspection is to facilitate proposals for raising the energy efficiency of air conditioning devices or possibly their replacement, plus alternative solutions. Regular inspections of air conditioning systems will be carried out every five years. Inspections of air conditioning systems can be performed by independent professionals with a licence to perform inspections.

In 2008 the MESP adopted the Rules on Regular Inspections of Air Conditioning Systems⁵⁵. In accordance with Directive 2002/91/EC, these Rules lay down the content, method of performance and timetables for regular inspections of air conditioning systems with a rated capacity of over 12 kW.

In order to facilitate the training and awarding of licences to professionals, the Rules on training, licences and the register of licences of independent professionals for regular inspection of air conditioning systems was adopted⁵⁶. The start of training for these professionals is anticipated for the first half of 2012.

3.10 Support measures for achieving energy efficiency in buildings Measures and instruments carried out

Promotion

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 and greater use of renewable energy sources. The project is being carried out via a network of energy advice offices, founded on a partnership between the state and self-governing local communities.

Low-interest loans from the Eco Fund for households

From 2008 to 2010 the Eco Fund issued a series of tenders to provide low-interest loans for environmental investments by members of the public⁵⁷.

Loans were intended for: 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, generation of electricity from renewable energy sources and installation of ventilation systems with heat recovery from waste air.

Allocation of Eco Fund grant incentives for households

Calls for applications issued in the 2008–2010 period⁵⁸ were intended for the allocation of grant incentives for the use of renewable energy sources and greater energy efficiency in residential buildings.

Eligibility for grants was awarded to measures such as installation of solar heating systems or heat pumps, installation of central heating combustion appliances using wood biomass, installation of central heating systems in the renovation of residential buildings in the event of connection to district heating using renewable energy sources, rehabilitation of the exterior shell and fixtures of single or two-dwelling buildings, installation of a ventilation system with heat recovery from waste air, construction or purchase of low-energy and passive residential buildings, purchase of a unit in a multi-dwelling building constructed or renovated in the passive energy class.

Furthermore, a special call 5SUB-OB10 was aimed at promoting investments in multi-dwelling buildings for the measures of rehabilitation of the exterior shell, replacement of exterior building fixtures in common areas, installation of wood biomass central heating boilers, installation of thermostat valves, hydraulic balancing of heating systems and installation of a system of dividing heating costs.

⁵⁵ Off. Gaz. RS No. 35/2008

⁵⁶ Off. Gaz. RS, No. 6/2010

⁵⁷ Off. Gaz. RS No. 12/2008, 79/2008, 21/2009 and 7/2010

⁵⁸ Off. Gaz. RS No. 53/2008, 42/2009 and 40/2010

Allocation of MESP grant incentives to raise the energy efficiency of multi-dwelling buildings

In 2008 and 2009 the MESP published a call for applications for financial incentives to invest in raising the energy efficiency of existing multi-dwelling buildings⁵⁹. The call or applications was intended to promote the energy efficiency of existing multi-dwelling buildings with at least nine units or separate sections, specifically for systems of dividing and calculating the costs of heat according to actual use, installation of thermostat valves and hydraulic balancing of heating systems in multi-dwelling buildings with construction started prior to 2003 and thermal insulation of multi-dwelling buildings with construction started prior to 1981.

Allocation of MESP grant incentives to increase the use of renewable energy sources

In 2007 the MESP issued a public call for applications for financial incentives for investment measures to promote the use of renewable energy sources in households for 2007 and 2008⁶⁰. The subject of the public call for applications was the allocation of grant funds to promote investment measures for the installation of solar systems and heat pumps, installation of photovoltaic systems and special wood biomass combustion appliances for central heating.

Possible additional support measures for achieving energy efficiency in buildings

Regulatory instruments:

- Certification of advisers, providers and administrators (introduction of certificates for advisers and their promotion in households);
- Abolishing the required consent of multi-dwelling building owners for performing energy renovation;
- Changing the methodology of producing point-based records for determining non-profit rents by taking into account the effects of energy renovation of residential buildings owned by non-profit housing organisations;
- Financing the renovation of residential buildings from EU funds (ERDF), which may be secured by non-profit housing organisations (housing funds);
- Greater adaptability in the legislative regulation of energy contracting, which would enable non-profit housing organisations, as part of the public sector, to use this instrument.

Improving the level of information, awareness and range of advisory services to increase energy efficiency at final consumers:

- Training administrators;
- Free advice in multi-dwelling houses (on-site);
- Introduction of informational calculators for the outline calculation of energy savings and demonstration presentations;

Possible enhancement of existing measures and new measures based on market mechanisms:

- Limiting Eco Fund subsidies to projects designed by certified project designers and providers;
- A higher proportion of subsidies for measures in the complete renovation of buildings;
- Promoting the exploitation of a reserve fund as a collateral instrument for loans intended for the energy renovation of buildings;
- Promoting other financial instruments such as green loans;
- Tax incentives for the energy rehabilitation of buildings in the context of property tax (relief based on energy rehabilitation carried out and on the energy ID).

⁵⁹ Off. Gaz. RS No. 20-21/2008 and 94/2008

⁶⁰ Off. Gaz. RS No. 26/2007

3.11 Energy-efficient spatial planning

The fundamental spatial planning document in Slovenia is the Ordinance on the Spatial Planning Strategy of Slovenia, which incorporates energy efficiency and use of renewable sources into spatial planning and use of the physical environment.

The implementation of energy-efficient spatial planning, which was not included in the NEEAP 1, was introduced in the NEEAP 2 owing to the major impact that the planning of buildings and settlements has on energy efficiency and use of RES. The basis for establishing energy-efficient spatial planning is in the amendments to the Spatial Planning Act and the Construction Act, along with implementing regulations (Rules on Efficient Use of Energy in Buildings etc.), which will facilitate improvement of energy efficiency and use of RES in the complete planning of buildings and settlements (new and under renovation) for optimal satisfaction of user needs and taking into account the principle of sustainable construction in the entire lifecycle of the building (building lifecycle cost analysis - LCCA) or settlement. Low or zero consumption of energy in buildings and settlements is based on the appropriate positioning and distribution of buildings (solar urban planning), the architectural design (e.g. improved building design, progressive materials - e.g. natural - complete design of low-energy building with low CO₂ emissions, taking account of LCCA) and so forth.

Furthermore, we need urban technical guidelines for spatial planners in planning commercial and residential areas to establish energy efficiency and use of RES for heating and cooling, supplementation of the spatial regulatory system with criteria for providing charging infrastructure for electric vehicles, enshrining the implementation of local energy concepts in general and specific acts of self-governing local communities, the drafting of municipal spatial plans based on guidelines from local energy concepts or prescribed methods of heating, cooling and preparation of hot sanitary water, and guidelines for energy efficiency and the use of locally available renewable sources for energy supply.

Table 48: Establishing energy-efficient spatial planning

Description	
Type of measure	Regulations
Time scale for implementation	Amendments to legislation: Permanent activity Implementation of other activities: 2012
Target/presentation	Complete planning of buildings and settlements taking into account the guidelines for energy efficiency and use of RES.
Target end-use energy consumption	- end-use energy consumption in all sectors
Target group	- spatial planners and decision-makers
Implementation	
Key activities	<ul style="list-style-type: none"> • Amendment of laws and implementing regulations for energy-efficient spatial planning and exploitation of RES. • Formulation of urban technical guidelines for spatial planners. • Formulation of legal basis for the mandatory provision of charging infrastructure for electric vehicles. • Incorporating local energy concepts into municipal spatial plans.
Financial means and sources	Necessary funds: No estimate Sources of financing: Budget funds
Provider	- Ministry of the Environment and Spatial Planning, Ministry of the Economy, municipalities
Supervisory institution	- Ministry of the Environment and Spatial Planning
Energy savings	
Evaluation method for effects	Savings are indirect and cannot be evaluated.
Overlapping, multiplication effects, synergy	Adequately energy-efficient spatial planning makes an important contribution to effective energy management and appropriate use of renewable sources.

4 IMPLEMENTATION OF THE NATIONAL ACTION PLAN

4.1 Organisational aspects

Status

The key tasks involved in further development of energy efficiency on the government level are the responsibility of the Ministry of the Economy, Ministry of the Environment and Spatial Planning and Ministry of Transport. Alongside the ME and MESP, in terms of those active on the government level, an important part is also played by the Ministry of Finance, the Government Climate Change Office and the Government Office for Local Self-Government and Regional Development.

The following tasks fall under the competence of the Ministry of the Economy:

- selecting relevant data and formulating energy balances and energy policy;
- in the context of energy policy, ensuring priority is given to energy efficiency and use of renewable energy sources over supply from non-renewable sources, defining methods of promoting more environmentally appropriate fuels, regulations for promoting energy efficiency and renewable energy sources and incentives for EEU and RES;
- draw up proposals and conduct part of the national promotion of EEU;
- draft regulations promoting EEU, including through CHP;
- monitor energy efficiency, the realisation of energy-saving potentials, the exploitation of renewable energy sources and reductions of greenhouse gas emissions associated with this;
- define the mandatory content and methodology for local energy concepts (LEC), consent to LEC and monitor their implementation;
- programmes to promote entrepreneurship, competitiveness, internationalisation of companies and the influx of foreign direct investment.

The tasks of the Ministry of the Environment and Spatial Planning with relevance to promoting EEU are:

- the formulation of housing policy and housing legislation that spurs the promotion of EEU in that sector;
- drafting legislation and regulations governing the conditions for building structures, including regulations on the energy performance of buildings;
- formulating policies and programmes for environmental protection and monitoring them;
- formulation of spatial policy and within it, energy-efficient spatial planning;
- deciding on the need for integrated environmental protection assessments, assessing the acceptability of environmental impacts, cooperation in procedures linked to transboundary environmental impacts and managing them, as well as prescribing procedures for assessing environmental impacts and issuing environmental permits and consent;
- cofinancing activities for awareness-raising, notification and education.

The tasks of the Ministry of Transport with relevance to promoting EEU are:

- drafting legislation and formulating and conducting transport policy in this area (passenger and goods transport and transport infrastructure);
- expert/technical, organisational and developmental tasks in the area of transport;
- development of public transport and planning and promoting commercial public services in this area;
- regulating and steering the development of public transport through instruments such as standards of minimal access to public transport, concessions and financing of commercial public services in the area of public transport, the single ticket project for public transport, harmonising and setting public transport timetables and so forth;
- performing tasks in the area of financing commercial public services and development of the public rail infrastructure.

The tasks of the MF are:

- drafting regulations for green public procurement;
- drafting legal acts regulating the field of energy contracting (contractual financing of EEU) as part of public-private partnerships and public procurement;
- fiscal policy;
- regulations and consent for state aid schemes.

Local communities implement programmes for efficient energy use and the exploitation of renewable energy sources within their spheres of competence on the basis of local energy concepts. For the implementation of these programmes, local communities may obtain public funds. They work to ensure the development of local commercial public energy services in their area.

Electricity suppliers draw up and implement programmes that ensure energy savings at final customers. To achieve energy savings, they must collect the fee referred to in the first paragraph and the surcharge referred to in the fourth paragraph of Article 67 of the Energy Act, and draft and implement energy efficiency improvement programmes.

As a state institution managed by the Government, the Eco Fund plays an important part on the level of Government actors, drawing up and conducting call for applications for awarding public funds for environmental infrastructure, promoting the EEU and combined heat and power generation, and carrying out expert tasks to allocate EU funds for such purposes, while also for such purposes holding calls for applications for awarding loans and promoting environmentally friendly products and services. The Eco Fund confirms and monitors the implementation of EEU programmes by energy suppliers at final customers, and carries out programmes for smaller energy suppliers and suppliers of liquid motive fuels.

Energy advice for efficient use in broad consumption is provided through the ENSVET network of energy advice offices.

Local energy agencies carry out activities to promote sustainable regional energy development, particularly educational, promotional, advisory and other activities of expert support to promote EEU and RES. One important role is involving and linking together actors on the local and regional level in promoting and pursuing activities in the areas of EEU and RES. LEAs link up into a Consortium of Local Energy Agencies.

Based on the projects of ministries and international projects, environmental NGOs occasionally carry out campaigns to raise awareness, provide information and monitor policy implementation.

Enhancing the institutional framework for EEU

Introducing schemes for efficient electricity consumption and reduction of GHG emissions for industry will require enhanced organisation for implementation. Account will be taken of experiences from agreements in the context of the CO₂ tax. A scheme is envisaged for reducing GHG emissions in association with the new scheme for relief on CO₂ taxes, and is currently being drawn up, and on the implementing level the assignment will be taken over by ARSO.

Owing to the multidisciplinary nature and technical complexity, we will need to ensure interdepartmental coordination for the following activities:

- as part of the drafting of regulations for green public procurement, the ME is formulating criteria for EEU for “green public procurement” in cooperation with the MESP;
- setting up an interdepartmental project group of the MF, ME etc., which will be coordinated substantively by the ME, for continuous removal of administrative barriers in the area of energy contracting, and in support of those offering and ordering such services during the implementation of the instrument;
- the MFLSA will cooperate with the ME in planning and implementing the promotion of EEU for vulnerable households, so as to enable the transfer of experiences and a link to other forms of social assistance for these population groups, and as part of social assistance policies and projects for at-risk individuals, families and groups it will involve efforts to prevent energy poverty;
- ensuring interdepartmental coordination (coordination point) for promotion and awareness-raising about EEU to coordinate activities (ME, SVPS, Eco Fund, ENSVET, MESP, LEA). We envisage the establishing of a coordination point for

promotion of EEU, which in the first phase will mutually link the activities of a range of actors: the ME, SVPS, Eco Fund, Borzen, Local Energy Agencies in promotion aimed at achieving greater synergy effects. One task will involve monitoring and providing information about the activities of all actors in this field (establishing a single calendar of events, list of awareness-raising projects, informational material, news etc.).

Also envisaged is the establishing of a technical office as part of the Public Fund for Management of Real Estate, the purpose of which will be to set up a system of energy management and energy rehabilitation of buildings with the following tasks:

- introducing a system of energy management in all ministries by 2014, in urban municipalities by 2015 and in all municipalities by 2020;
- introducing a system of energy management in the public sector (modelled on SIST EN 16001:2009 and in this context energy accounting, annual targets and plans for measures);
- implementation of energy rehabilitation measures as part of annual investment plans;
- carrying out measures of contractual reduction of energy costs as one of the options for performing energy rehabilitation;
- a project for introducing smart meters in public administration buildings;
- ensuring quality preparation and implementation of energy rehabilitation projects;
- providing permanent technical assistance in drawing up investment documentation: project design assignments for construction design documentation, execution design, auditing of project documentation;
- supervision of projects that use public funds for the energy renovation of buildings;
- training for efficient energy management, and for carrying out investments in EEU in the public sector;
- monitoring the implementation and establishing of a central register for energy accounting;
- conducting demonstration projects for establishing new financial mechanisms and technologies;
- cooperation in drafting documents relating to the aforementioned measures.

In the future, local communities will ensure implementation of the LEC through the harmonisation of their development documents, including spatial acts, with the adopted LEC. They will introduce systems for energy management in buildings that they own, and this will include collective energy accounting. The LEC will set out the local community targets and the measures to achieve them, in line with the national energy policy targets (such as renovation of 3% of buildings each year and a 25% share of RES in gross end-use energy consumption).

Local energy agencies will take on a more active role in promoting and implementing EEU programmes in municipalities. Under authorisation from the local community, they will be able to ensure implementation of the local energy concept, EEU programmes and energy accounting, as well as other energy management tasks in local communities.

The Borzen Support Centre will carry out tasks in the area of promoting energy efficiency, particularly electricity in the commercial sector (incentives for introducing energy management systems, a scheme for efficient electricity consumption in industry, expert technical support for introducing contractual assurance of energy savings in the public sector, promotion of efficient electricity consumption and so on).

In the long term there are plans to establish a powerful, independent, expert agency to promote EEU, with the long-term aim of its active involvement in the international sphere.

4.2 Financing

The value of public funds for implementing NEEAP 1 measures (investments) in the 2008 - 2016 period has been estimated at EUR 352 million (of which EUR 117 million in the 2008 - 2010 period). In the 2008 - 2010 period, EUR 46 million of public funds were used for implementation of the envisaged measures, and this represents 13 percent fulfilment of the planned activities under the Action Plan and 39% of fulfilment with regard to what was planned in the first three years. For the first third of implementation of the measures there is clearly a sizeable divergence between the planned and used public funds. The public funds used were EUR 71 million below what was planned. The remainder of the financing will need to be fulfilled in the 2011 - 2016 period.

Table 49: Public funds used 2008 - 2010 and fulfilment of the NEEAP 1

Sector / Measures	Public funds used 2008-2010	Public funds planned 2008-2010	Public funds planned 2008-2016	Fulfilment 2008- 2010 / envisaged public funds	Fulfilment 2008- 2010 / envisaged public funds
	[EUR million]	[EUR million]	[EUR million]	2008-2010 [%]	2008-2016 [%]
Households	25.6	40	120	64	21
Tertiary sector	0.3	36	109	1	0
Industry	2.8	5	15	57	19
Transport	10.9	13	39	84	28
Multisectoral measures	5.7	13	38	45	15
Horizontal measures	0.6	10	31	6	2
TOTAL	46.0	117	352	39	13

4.2.1 Estimate of costs for implementing NEEAP 2 measures from 2011 to 2016

The value of public funds necessary for implementing NEEAP 2 measures from 2011 to 2016 is estimated at EUR 798 million. The scope of public funds that will need to be allocated for the implementation of Action Plan measures from 2011 to 2016 is much higher than the scope of public funds first envisaged in the NEEAP 1. In the period following adoption of the first action plan, new guidelines were adopted in the area of RES and EEU on both the European Union and Slovenian levels, and these require additional funds aimed at implementing EEU and RES measures, in line with the targets for 2020:

- a 20% improvement in energy consumption efficiency;
- reduced end-use energy consumption, excluding transport, of 7% relative to 2008;
- holding end-use energy consumption growth at no more than 7% relative to 2008;
- a 100-percent share of almost zero-energy buildings among new and renovated buildings by 2020, and in the public sector by 2018; the public sector implementing earlier activities on the start of securing Cohesion Fund finance under the new financial perspective (2014 - 2020);
- ensuring a 3-percent share of renovation for buildings in the public sector starting in 2014;
- achieving a 25% share of renewable energy sources in end-use energy consumption by 2020.

The additional implementation of measures will at the same time yield positive effects in other national development targets. Particularly important are economic and employment growth, and they require gradual introduction and stable implementation of schemes in a multi-year period. There are also plans for a greater scope of incentives for socially disadvantaged households. Set on a much bigger scale than in the NEEAP 1 is the scope of measures in the public sector, specifically owing to the requirements of the new directive on the energy performance of buildings. A larger measure of incentives has been planned for the commercial sector, owing to the major contribution that EEU measures could make to an exit from the current financial and economic crisis and owing to the anticipated positive effects on the competitiveness of the economy. The NEEAP 2 also incorporates all the measures from the NREAP where energy savings will be achieved that do not represent an added burden on public finances, as they are already envisaged in the NREAP.

The value of public funds necessary for implementing NEEAP 2 measures (2011 to 2016) is estimated at EUR 798 million. This estimate represents a combination of funds for promoting energy efficiency measures, and funds to promote measures for the exploitation of those renewable energy sources where end-use energy savings are achieved. Public funds for carrying out EEU measures may be ascribed to the NEEAP 2, and funds for carrying out the other set of measures to the NREAP. The delineation of the scope of public funds for the two plans is shown in the table below (Table 50).

The dynamic of the necessary and other public funds for implementing the NEEAP 2 is shown in Table 52. The table also shows specific sources of financing. Incentives for implementation are allocated in the amount of 10% to 40% of the investment value for NEEAP 2 implementation in the 2011 - 2016 period. In the public sector the share of grant incentives in investments will be from 35% to 85%. Investments in low-income households will be subsidised in the amount of 100%. This table also shows investor funds, specifically those of the public sector (state, local community) and those of private investors.

Table 50: Scope of public funds for implementing the NEEAP 2 from 2011 to 2016

Measure ref.	Name of measure	Total funds 2011-2016 [EUR million]	Funds for EEU (NEEAP) 2011-2016 [EUR million]	Funds for RES (NREAP) 2011-2016 [EUR million]
	HOUSEHOLDS	387	225	162
G.1	Financial incentives for energy-efficient renovation and sustainable construction of residential buildings	161	161	0
G.2	Financial incentives for energy-efficient heating systems	164	2	162
G.3	Scheme of energy efficiency for low-income households	56	56	0
G.4	Compulsory division and calculation of heating costs in multi-dwelling and other buildings according to actual consumption			
G.5	Energy advice network for citizens	6	6	
	SERVICE SECTOR	54	23	31
(I.1)	Cofinancing measures for efficient electricity consumption	3	3	
(I.2)	Financial incentives to raise energy efficiency in industry and the services sector and significantly increase the scope of environmentally friendly electricity generation from RES and CHP systems	51	20	31
(I.4)	Schemes for efficient electricity consumption and reduction of GHG emissions			
	PUBLIC SECTOR	158	83	75
J.1	Green public procurement			
J.2	Financial incentives for energy-efficient renovation and sustainable construction of buildings in the public sector	127	52	75
J.3	Introducing an energy management system in the public sector			
J.4	Financial incentives for efficient electricity consumption in the public sector	32	32	
	INDUSTRY, SMALL AND MEDIUM-SIZED ENTERPRISES	16	13	2
I.1	Cofinancing measures for efficient electricity consumption	9	9	
I.2	Financial incentives to raise energy efficiency in industry and the services sector and significantly increase the scope of environmentally friendly electricity generation from RES and CHP systems	2		2
I.3	Incentives for introducing energy management systems in industry			
I.4	Schemes for efficient electricity consumption and reduction of GHG emissions	4	4	
I.5	Establishing a fund and other incentives for the commercial sector in the entry of green energy products into the market			
	TRANSPORT	34	34	
P.1	Promotion and competitiveness of public transport	10	10	
P.2	Promoting sustainable freight transport	7	7	
P.3	Increasing the energy efficiency of private vehicles	13	13	
P.4	Building cycle paths and support structures and promoting cycling	5	5	
	MULTISECTORAL MEASURES	148	71	77
V.1	Regulations on the energy performance of buildings			
V.2	Energy labelling of household appliances and other devices and minimum requirements			
V.3	Support scheme for electricity generated from RES and high-efficiency CHP	148	71	77
	HORIZONTAL MEASURES			
H.1	Energy contracting			
H.2	Environmental tax for polluting the air with CO ₂			
H.3	Informational and awareness-raising activities			
H.4	Education and training			
	TOTAL	798	452	349

Table 51: Public funds required and sources for implementing the NEEAP 2 from 2011 to 2016 (in EUR millions)

		2011	2012	2013	2014	2015	2016	2011-2016
1	Necessary public funds	113	120	128	139	154	145	798
2	Public funds provided	49	121	102	90	70	70	502
2a	National budget, Cohesion funds (OP	13	73	45	25	4	0	161
2b	National budget, 415-11-S003 Cycle links	1	1	1	1	1	0	4
2c	National budget, 2411-11-S007 Integrated public transport	2	2	2	2	2	0	8
2d	Contribution of EEU electricity	5	5	5	5	5	6	30
2e	EEU surcharge on fuel and heat	19	25	28	29	24	26	151
2f	Contribution for generating electricity from RES and CHP	10	16	22	28	34	38	148
3	Shortfall in public funds (1-2)	64	-1	26	49	84	74	296
4	Possible other sources for public fund shortfall							
4a	Contribution for generation of heat from RES		10	10	10	10	10	50
4b	Climate fund		6	40	40	40	40	166
4c	Cohesion funds under the new financial perspective (2014 - 2020)		0	0	0	40	40	80
5	Sources of investment cofinancing							0
5a	- national budget and municipality budgets for rehabilitation of buildings	26	28	29	34	43	25	186
5b	- public funds for investment cofinancing (provided and shortfall) (2a+2d+2e+3)	90	92	94	99	109	98	581
5c	- other private sources (own participation, Eco Fund loans)	95	119	147	181	219	271	1,031
6	Total value of NEEAP 2 investments (excluding those in transport)	211	238	270	315	372	393	1,798
7	Total requirement of public funds for implementation of NEEAP 2 (1+5a)	139	148	157	173	198	170	984

4.2.2 Sources of financing - public funds

For implementation of the NEEAP 2, public funds have been provided in the amount of EUR 502 million (for the 2011 - 2016 period), as follows:

- as part of the Operational Programme for Environmental and Transport Infrastructure Development 2007-2013 (OP ETID): funding from the Cohesion Fund and Slovenian own participation (EUR 161 million);
- surcharge on the network fee to support electricity generated from renewable energy sources and in high-efficiency cogeneration of heat and power (EUR 148 million);
- contribution for raising the efficiency of electricity consumption and surcharges for heat and fuel to raise energy efficiency (EUR 181 million)⁶¹;
- as part of regular items in the national budget;
- low-interest loans from the Eco Fund.

With regard to the NEEAP 1, the scope of planned activities and therefore also the necessary financing increased, for the aforementioned reasons. In order to finance the NEEAP 2 from 2011 to 2016, additional funds will be needed in the following framework:

- Cohesion policy, with financing from EU funds in the 2014 - 2020 financial perspective. In the next financial perspective these funds will also finance primarily measures in the public sector, while a new feature will be the more extensive financing of EEU measures in local communities (social housing, local heat supply and so forth);
- the climate fund and revenue from actions as part of the European Emissions Trading System The climate fund will finance in particular activities in the commercial sector (incentives for businesses in placing energy-efficient products and services in the market, demonstration projects and support for EEU for socially disadvantaged households with the aim of preventing climate change and adapting to it);
- reimbursing the contribution for raising the efficiency of electricity consumption and surcharges for heat and fuel to raise energy efficiency and of the CO₂ tax to businesses as part of schemes for efficient electricity consumption and reducing GHG emissions;
- a new supplement to promote heat generation from renewable energy sources (measure under the NREAP);
- the obligation of all state-owned or co-owned production or trading companies in the energy field operating in the free market, to allocate at least 15% of their annual profits for EEU research and development and the generation of electricity and/or heat from RES and CHP.
- encouragement will also be provided for greater use of European programme funds for EEU (European Energy Programme for Recovery/in preparation, the EU 7th Framework Research Programme, Intelligent Energy for Europe, Eureka and so forth).

Intensiveness of grant incentives and private sources for carrying out investment

Public funds amounting to EUR 581 million will finance, through grant incentives, investments in the amount of 10% to 40% of the investment value for NEEAP 2 implementation in the 2011 - 2016 period. In the public sector the share of grant incentives in investments will be from 35% to 85%. Investments in low-income households will be subsidised in the amount of 100%. To carry out the investments, the public sector (the state and local communities) will have to provide an additional EUR 186 million of public funds from the budget or through public-private partnership.

The implementation of measures in the public sector will involve rolling out the instrument of energy contracting (chiefly integrated and comprehensive contractual assurance of energy savings). This instrument will facilitate a range of measures in the public sector. These projects will require lower public investment funds and incentives, so the burden on public finances will be lower than it would be without this instrument.

⁶¹ No tax is levied on companies involved in the carbon dioxide emissions trading system.

The remaining funds for carrying out investments in the commercial sector and households will be provided from private sources. The total volume of privately sourced funds for investment is expected to be EUR 1,031 million. The NEEAP 2 also envisages instruments for strengthening the capacity of private investors in businesses and households (green loans, loans tied to the reserve fund etc.) and/or enabling the financing of EEU measures by third partners as part of energy contracting.

The total value of implementing the NEEAP 2 from 2011 to 2016, taking into account total funds for investment (excluding transport) thus amounts to around EUR 1,798 million, of which the necessary public funds amount to around EUR 984 million⁶².

⁶² On the assumption that energy contracting is not pursued in the public sector.

ANNEX 1 Report on implementation of the National Energy Efficiency Action Plan 2008 - 2010

ANNEX 2 Methods for calculating energy savings in implementing measures to increase energy efficiency and the use of renewable energy sources

ANNEX 3: Review of bottom-up methods used

Method (No.)	Name/title of method	Selected equation and additional parameters ⁶³	Source of input data	Harmonisation with the European Commission proposal ⁶⁴
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 HP 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	Eco Fund	partly (EC: measure 3)
5	Replacing hot water boilers with new ones	Equation 39	Eco Fund	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	no EC method
8	New installation of solar collectors (SC)	Equation 135 and 100 m ² - average surface area	Eco Fund	partly (EC: measure 7)
9	Optimisation of heating system in multi-dwelling buildings with several separate sections	Equation 76, assumed 33% local preparation of hot water and 9% DH	MESP	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 ⁶⁵	MESP	no EC method
12	Energy audits in industry and the service sector	Equation 86 ⁶⁶	MESP	no EC method
13	New private vehicles with specific emissions up to 130 gCO ₂ /km	Equation 91 ⁶⁷	MESP, ME	no EC method
14	Systems for cogeneration of heat and power (CHP)	Equation 94 ⁶⁸	BORZEN	no EC method
15	Photovoltaic power plants	Equation 101 ⁶⁹	BORZEN	no EC method
16	Energy-efficient household appliances	Equation 122		partly (EC: measure 8), detailed treatment
17	Systems for exploiting waste heat	Equation 133	Eco Fund	no EC method
18	Providing relief on payment of CO ₂ tax	Equations 137, 138 ⁷⁰	ARSO, Customs Administration of the Republic of Slovenia	no EC method
19	Introducing an energy management system	Equation 142 ⁷¹	MŠS, ENERGAP	no EC method

⁶³ Methods for calculating energy savings in implementing measures to increase energy efficiency and the use of renewable energy sources, IJS-CEU, September 2011

⁶⁴ 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)

⁶⁵ Report on implementation of the National Action Plan 2008 - 2010 (Instrument 17)

⁶⁶ Report on implementation of the National Action Plan 2008 - 2010 (Instrument 19)

⁶⁷ Report on implementation of the National Action Plan 2008 - 2010 (Instrument 7)

⁶⁸ Report on implementation of the National Action Plan 2008 - 2010 (Instrument 20)

⁶⁹ Report on implementation of the National Action Plan 2008 - 2010 (Instrument 20)

⁷⁰ Report on implementation of the National Action Plan 2008 - 2010 (Instrument 28)

⁷¹ Report on implementation of the National Action Plan 2008 - 2010

ANNEX 4 Estimate of end-use energy savings in industry

Energy savings under method A based on the index of industrial output have been achieved in industrial sectors where the growth of the index of output is higher than the growth of energy consumption in the observed year relative to 2007.

Energy savings under method B based on added value have been achieved in industrial sectors where the growth of added value is higher than the growth of energy consumption in the observed year relative to 2007.

The results of calculating energy savings in manufacturing in 2009 (Tables 1 and 2) show that the savings achieved amount to over 144 GWh under method A and 247 GWh under method B.

Under method A, energy savings were achieved in 2009 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 (20) in the amount of 109 GWh and manufacturing of computers and electronic and optical products (C26) in the amount of 104 GWh. In the remaining eight subsectors, energy savings of less than 52 GWh were achieved by individual subsector.

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.

Under method B (based on added value), energy savings were achieved in 15 subsectors in the total amount of 501 GWh. Increased specific energy consumption with negative savings was calculated in seven subsectors with a total increased energy consumption (negative saving) of -254 GWh.

The greatest energy saving was achieved in metals manufacturing (C24), in the amount of 120 GWh, followed by manufacturing of other machinery and appliances (C28) in the amount of 93 GWh, manufacturing of computers and electronic and optical products (C26) in the amount of 76 GWh and production of chemicals and chemical products (C20) in the amount of 58 GWh. In the remaining 11 subsectors, energy savings of less than 40 GWh were achieved by individual subsector.

The most serious deterioration in energy intensity with negative savings was calculated in foodstuffs manufacturing (C10) at -180 GWh and production of electrical devices (C27) at -23 GWh.

Table 1: 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 share [GWh] saving ⁷²
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 %

⁷² In energy consumption in the base year.

Table 2: Energy savings in manufacturing in 2009 relative to 2007, determined using added value

	Energy consumption			Non-ETS shares 2007 K_2007 [%]	Added value (VA)			Method B (M8)			
	E 2007 [GWh]	E_2009 [GWh]	Relative change (E ₂₀₀₉ - E ₂₀₀₇)/E ₂₀₀₇ [%]		2007 VA_2007 [EUR million]	2009 VA_2009 [EUR million]	2009 Relative change (VA ₂₀₀₉ -VA ₂₀₀₇)/VA ₂₀₀₇ [%]	2007 E/VA_2007 [GWh/EUR million]	2009 E/VA_2009 [GWh/EUR million]	2009 Energy saving	
										[GWh]	share of savings ⁷³
C	17,750	13,409	-24.5	0	5.884	4.951	-15.9	3.0	2.7	247.3	1.4 %
C 10	749	815	8.8	83	307.3	240.3	-21.8	2.4	3.4	-190.1	-25.4 %
C 11	211	180	-14.5	37	88.9	106.5	19.8	2.4	1.7	26.7	12.6 %
C 13	431	273	-36.6	43	163.5	114.1	-30.2	2.6	2.4	11.7	2.7 %
C 14	92	56	-39.4	59	118.2	82.6	-30.1	0.8	0.7	5.0	5.4 %
C 15	126	25	-79.8	43	81.0	65.9	-18.6	1.6	0.4	33.4	26.5 %
C 16	891	598	-32.9	66	224.5	151.2	-32.7	4.0	4.0	1.3	0.1 %
C 17	2,232	2,065	-7.5	3	229.2	206.6	-9.9	9.7	10.0	-1.4	-0.1 %
C 18	92	75	-17.8	100	186.2	174.0	-6.6	0.5	0.4	10.3	11.2 %
C 20	1,717	1,261	-26.6	44	302.0	245.0	-18.9	5.7	5.1	57.9	3.4 %
C 21	367	565	53.7	10	508.2	535.3	5.3	0.7	1.1	-17.8	-4.8 %
C 22	722	598	-17.1	61	267.8	214.7	-19.8	2.7	2.8	-11.9	-1.6 %
C 23	3,176	2,104	-33.8	20	237.9	162.9	-31.5	13.3	12.9	14.4	0.5 %
C 24	3,965	2,561	-35.4	16	272.9	229.3	-16.0	14.5	11.2	119.5	4.7 %
C 25	866	688	-20.5	71	752.6	639.5	-15.0	1.2	1.1	33.4	3.9 %
C 26	128	40	-68.5	100	511.2	465.5	-8.9	0.3	0.1	76.3	59.5 %
C 27	566	457	-19.2	92	571.0	436.5	-23.6	1.0	1.0	-22.8	-4.0 %
C 28	438	260	-40.6	83	391.2	332.4	-15.0	1.1	0.8	92.8	21.2 %
C 29	432	393	-9.0	41	319.8	289.7	-9.4	1.4	1.4	-0.8	-0.2 %
C 30	33	13	-60.0	100	27.9	17.9	-35.8	1.2	0.7	7.9	24.2 %
C 31	366	253	-30.9	98	172.4	122.6	-28.9	2.1	2.1	7.1	1.9 %
C 32	70	66	-6.5	53	67.0	46.8	-30.1	1.0	1.4	-8.7	-12.4 %
C 33	80	59	-25.5	34	83.6	71.7	-14.2	1.0	0.8	3.1	3.9 %

⁷³ In energy consumption in the base year.

ANNEX 5 Estimate of end-use energy savings in transport

Table 1: Calculated savings

Indicators - end-use energy savings [GWh]		2008	2009	2010
P8-a1	Private road vehicles	17.7	59.9	
P9-1	Freight road vehicles	216.7	97.9	
P10	Rail freight	-0.3	-2.8	
P11	Rail passenger transport	-0.5	1.2	
Total (P8a-1 + P9 + P10 + P11)		233.6	156.2	

The data needed to calculate the savings shown in the previous 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 vehicle⁷⁴. Data on ton kilometres travelled by goods vehicles and trains and 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 take 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 cabotage⁷⁵ and international transport⁷⁶), 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.

A comparison of the entire quantity of fuel sold in Slovenia, with an estimate of consumption in domestic transport, is shown below.

⁷⁴ Data are available on the website: http://cdr.eionet.europa.eu/si/un/colrftjsw/envta0nnq/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).

⁷⁵ Cabotage is international transport of goods abroad where both the point of loading and point of unloading are in the same country.

⁷⁶ International transport is the carriage of goods where either the point of loading or point of unloading or both are abroad.

Fuel consumption in road transport [TJ]

Excluding transit Petrol
 Excluding transit Diesel
 Including transit Petrol
 Including transit Diesel

Figure 1: Fuel consumption trend in road transport for the entire quantity sold in Slovenian territory and for the estimated fuel consumption of vehicles registered in Slovenia

Table 1: Energy consumption by fuel and in private and goods vehicles, taking into account transit (total sales of fuel in Slovenian territory) and taking into account just domestic transport

[TJ]	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
TOTAL ENERGY CONSUMPTION (incl. transit)										
Petrol	34,630	34,676	33,100	32,332	29,019	28,604	27,789	26,980	28,259	25,991
Diesel	15,291	17,065	18,756	21,439	26,711	30,834	34,712	43,853	55,627	46,993
LNG	0	0	0	0	0	0	46	92	92	184
Private vehicles	38,277	38,716	37,997	38,476	37,746	41,522	42,912	46,018	52,824	46,991
Goods vehicles	10,154	11,673	12,470	13,964	16,570	16,279	18,056	23,142	29,067	24,474
ONLY DOMESTIC VEHICLES (excl. transit)										
Petrol	34,630	34,676	33,100	32,332	29,019	27,610	26,939	25,990	25,342	24,105
Diesel	15,291	17,065	18,756	21,439	26,711	27,985	30,735	34,554	37,725	37,618
LNG	0	0	0	0	0	0	46	92	92	184
Private vehicles	38,277	38,716	37,997	38,476	37,746	38,566	40,966	42,429	43,958	44,917
Goods vehicles	10,154	11,673	12,470	13,964	16,570	15,610	15,255	16,620	17,583	15,446

SAVING - PRIVATE ROAD VEHICLES (P8-A1)

This saving is a result of the improved average efficiency of all private vehicles, since it compares the average specific fuel consumption with consumption in the base year. This means that in addition to increased efficiency owing to the purchase of new vehicles, the saving takes into account the increase in the share of diesel vehicles, which are on average more efficient than petrol vehicles. This saving is comparable with the calculated saving from improvements to the energy efficiency of private vehicles using the bottom-up method, which on the assumption that they are efficient vehicles with emissions below 130 g/km, amount to 27 GWh for 2010. At this point it should be noted that the bottom-up calculation is missing the effect of the greater share of diesel vehicles.

Average private vehicle consumption in 2007 amounted to 7.38 l/100km, and in 2009 to 7.35 l/100km. The share of diesel fuel in private road transport increased between 2007 and 2009 from 41% to 48%.

SAVING - GOODS ROAD VEHICLES (P9)

This saving is a result of the improvement in the efficiency of goods vehicles (reduction in specific fuel consumption per km travelled) and at the same time the improvement in company logistics (increased occupancy of goods vehicles). The saving is calculated using data from two different sources - the source of fuel consumption is ARSO, and ton-kilometres completed is SORS, taking into account just ton-kilometres in internal and international transport with the point of loading or unloading in Slovenia.

Specific fuel consumption of goods vehicles fell from 5.68 TJ/million km in 2007 to 5.63 TJ/million km, in other words by 1%, while goods vehicle occupancy increased from 3.48 tons per kilometre to 3.53, a rise of 2%. We may therefore conclude that the greater part of the saving is the result of an improvement in capacity utilisation of goods vehicles.

SAVING - RAIL TRANSPORT (P10 AND P11)

In rail passenger transport the savings are negligible, since the efficiency of passenger trains has not improved, either in terms of carriage occupancy or specific energy consumption. The story is different for freight transport, where savings are the result both of a reduction in specific energy consumption of trains per km travelled relative to 2007 and an increase in the average occupancy of trains (increasing the average load per wagon)⁷⁷.

SAVING FROM MEASURE P.3 - USE OF ENERGY-EFFICIENT VEHICLES ON THE ROAD (BOTTOM-UP METHOD)

The energy saving amounting to 45 GWh is determined on the basis of the difference between the average emissions of all new private vehicles in a specific year and the average emissions of new private vehicles in emission classes up to 130 gCO₂/km for the same year⁷⁸.

SAVING FROM MEASURES P.1 AND P.4 (BOTTOM-UP METHOD)

To evaluate the effects of measures P.1 and P.4 under the bottom-up method, the recommendation is to use the EMEEES method for changes in the behaviour of those using private transport⁷⁹. Estimates of the effects of these measures using the bottom-up method in the NEEAP 2 cannot be provided owing to the lack of data. There is a need for the systematic gathering of the following data:

- ADTb** - annual km travelled for local bus transport [km/year]
- ADTr** - annual km travelled for train passenger transport [km/year]
- ADTp** - annual km travelled for private vehicles [km/year]
- ADTc** - annual km travelled for bicycles [km/year]
- N** - number of persons transferring to the use of a more energy-efficient form of transport

⁷⁷ Slovenske železnice, Summary of Annual Report 2009, Accessible at: http://www.slo-zeleznice.si/uploads/pictures/gallery/file/lp09_malo_slo.pdf

⁷⁸ Methods for calculating energy savings in implementing measures to increase energy efficiency and the use of renewable energy sources, in accordance with the requirements and guidelines deriving from Directive 2006/32/EC on energy end-use efficiency and energy services, IJS-CEU for ME, September 2011.

⁷⁹ Evaluation and monitoring for the Directive on Energy End-Use Efficiency and Energy Services, EMEEES bottom-up case application 15: Modal shifts in Passenger Transport