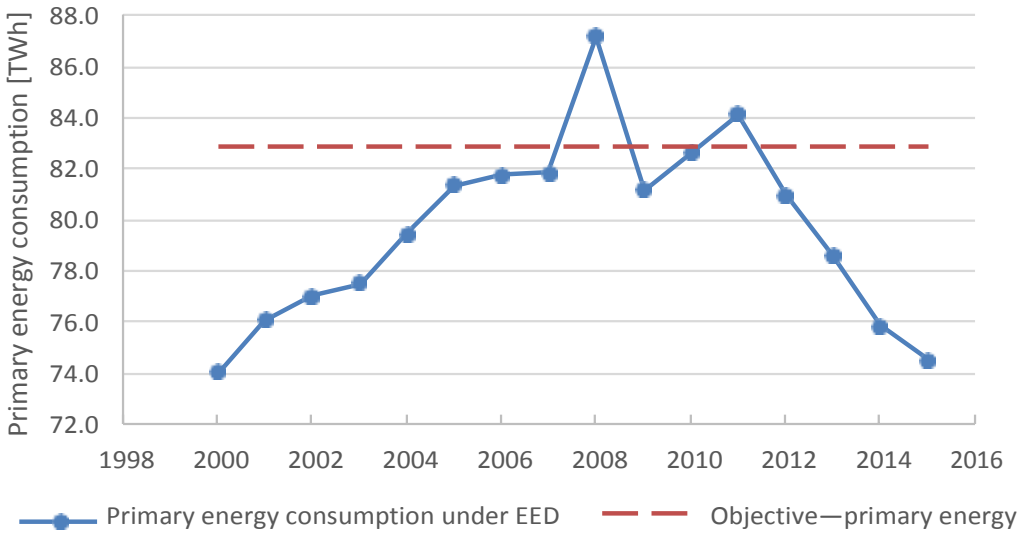
NATIONAL ENERGY EFFICIENCY ACTION PLAN 2020 (AN URE 2020)



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LIST OF ABBREVIATIONS AND SOURCES

Agency	Energy Agency
AN OVE	National Renewable Energy Action Plan
AN URE 1	National Energy Efficiency Action Plan 2008–2016
AN ZeJN	Green Public Procurement Action Plan
ARSO	Slovenian Environment Agency
GDP	Gross domestic product
BAT	Best Available Technology
BU	'Bottom-up' methods for calculating energy savings
DE	Department of Energy
DC	District cooling
DP	Department of Transport
Directive 2006/32/EC	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 93/67/EEC.
Directive 2012/27/EU	Directive 2012/27/EU of the European Parliament and of the Council of 25 October 2012 on energy efficiency, amending Directives 2009/125/EC and 2010/30/EU and repealing Directives 2004/8/EC and 2006/32/EC
Directive 2010/31/EU	Directive 2010/31/EU of the European Parliament and of the Council of 19 May 2010 on the energy performance of buildings (recast)
DH	District heating
DHWB	District heating using wood biomass
DREN	National Energy Development Plan
EES	Electric Vehicle
EFSI	European Fund for Strategic Investments
EIB	European Investment Bank
ELENA	European Local Energy Assistance
ELES	The system operator of the electricity transmission network
EAFRD	European Agricultural Fund for Rural Development
Eco Fund	Slovenian Environmental Fund ('*Eko sklad'*)
ELHO	Extra light heating oil
EMS	Energy Management System
ENSVET	Energy Advisory Network
EA	Energy audit
EPBD	Directive 2010/31/EU
EPO	Energy performance contracting
ESD	Directive 2006/32/EC
ERDF	European Regional Development Fund
ETS	Emission Trading System
EU	European Union
EUROSTAT	European Statistical Office
EZ-1	Energy Act
EV	Electric vehicle
GURS	Surveying and Mapping Authority of the Republic of Slovenia
ICT	Information and communication technologies
IT	Information technology
IEE	Intelligent Energy Europe
JPP	Public transport
KNLB	Wood biomass combustion plant
LEA	Local energy agency
LEK	Local Energy Concept
LCC	Life Cycle Cost
LS2	Public tender for the co-financing of operations for the energy rehabilitation of primary schools, nursery schools, health centres and libraries owned by local communities
MF	Ministry of Finance

MGRT	Ministry of Economic Development and Technology
MLA	Multilateral Agreement
SME	Small and medium-sized enterprise
MzI DE	Ministry of Infrastructure, Department of Energy
MzI DP	Ministry of Infrastructure, Department of Land Transport
NEP	National Energy Programme of the Republic of Slovenia to 2030: 'Active Energy Management'
NRP	National Reform Programme 2011–2012
OdSPRS	Ordinance on the Spatial Planning Strategy of Slovenia
OECD	Organisation for Economic Co-operation and Development)
OP EKP	Operational Programme for the Implementation of European Cohesion Policy 2014–2020
OP PM_{10}	Operational Programme for the Protection of Ambient Air against Pollution Caused by PM_{10}
OP ROPI	Operational Programme for Environmental and Transport Infrastructure Development 2007–2013 OP
TGP-1	Operational Programme for Reducing Greenhouse Gas Emissions by 2012
OP TGP 2020	Operational Programme for Reducing Greenhouse Gas Emissions by 2020 with the Outlook to 2030
OPZG	Framework Programme for the Transition to a Green Economy
RES	Renewable energy sources
PURES	Rules on the Efficient Use of Energy in Buildings
REN	Real estate register
ReNEP	Resolution on the National Energy Programme
ReNPRP	Resolution on the National Programme of Transport Development
RePPRS	Resolution on the Transport Policy of the Republic of Slovenia
RRD	research and development activity
RS	Republic of Slovenia
SEAP	Sustainable Energy Action Plan
SECAP	Sustainable Energy and Climate Action Plan
SODO	Electricity Distribution Network System Operator
SOPO	Transmission Network System Operator
SPS	Slovenian Enterprise Fund
CHP	High-efficiency cogeneration of heat and power
SRP	Strategy of transport development in the Republic of Slovenia
SVRK	Slovenian Government Office for Development and European Cohesion Policy
SURS	Statistical Office of the Republic of Slovenia
TD	'Top-down' methods for calculating energy savings
GHG	Greenhouse gas
UJR1	Public tender for the co-financing of operations for the energy renovation of street lighting for the 2011–2013 period
EE	Energy efficiency
Decree on GrPP	Decree on Green Public Procurement
UREE1	Public tender for the co-financing of projects to raise the efficiency of electricity consumption in the commercial sector for the 2011-2013 period
GrPP	Green public procurement

SUMMARY

The National Energy Efficiency Action Plan 2014-2020 (AN URE 2020)is the second action plan prepared by Slovenia in line with the requirements set out in Directive 2012/27/EU of energy efficiency and the fourth action plan since 2008. The action plan contains essential measures for improving energy efficiency, including expected and achieved energy savings, to achieving the national target to increase energy efficiency by 2020 and to contribute to collective EU target—to increase energy efficiency by 20 %.

This target states that primary energy consumption will not exceed 7 125 Mtoe in 2020, meaning that it may not exceed the 2012 figure by more than 2 %.

The effectiveness of the implementation of AN URE 2020 action plan is vital to achieving objectives of reducing greenhouse gas emissions (GHG) and achieving a 25 % target share of renewable energy sources (RES) in the balance of gross final energy consumption by 2020. Energy efficiency is amongst the most cost-effective measures for achieving these objectives, and it also significantly to contributes to the objectives in the field of air quality.

Slovenia is currently on track to achieve the national objective. In 2015 the primary energy consumption decreased by 8 % compared to 2012. Nevertheless, this trend does not mean long-term control of primary energy use, mainly due to the high volatility of end-use energy in transport. Transport represented 38 % of total energy consumption in 2015, and could seriously undermine the achievement of the primary energy use target.

The assessment of progress towards the objectives, which Slovenia has set for 2016 in regards to Directive 2006/32/EC on energy end-use efficiency and energy services, was also made. Final energy savings achieved up to and including 2015, exceed the target for 2016 by 16 %. It appears, therefore, that the target set in the framework of the first Action Plan in 2016, will be attained.

In AN URE 2020, the implementation of horizontal and cross-sectoral measures to improve energy efficiency and measures in the public sector, buildings, industry, transport, heating and cooling and conversion, transmission and distribution of energy was also reviewed. Most measures represent existing measures, the implementation of which is analysed, evaluated and, if necessary, upgraded. This action plan also brings some new measures, notably in the establishment of financial instruments for comprehensive energy renovation of buildings and the quality of planning and implementation of measures in these renovations, taking into account the fact that the existing building stock represents the sector with the highest potential to achieve energy savings. Also, AN URE 2020 introduces several new measures to promote efficiency in heating and cooling. In this area, in addition to renovating existing buildings, in order to achieve the goals, the efforts to increase the energy efficiency of technologies and the use of renewable energy sources, in particular in district heating and cooling systems, should be strengthened. These measures represent a starting point for the urgently needed accelerated development of sustainable heating and cooling, which is among the priorities of European Union energy. The summary table of measures (Table 1) are measures included in the AN URE 2020 arranged depending on which sector or sectors are implemented. Within each set are preferably subjected to measures taken during the period up to 2020, an essential contribution to achieving the objectives AN URE 2020 include a significant upgrade each action or for them provided significant financial resources.

Table 1: The measures contained in AN URE 2020

No.	Name of measure	Code	Status	Responsible entity	Chapter
	HORIZONTAL MEASURES				
1	**Energy performance contracting**	**H.1**	Existing, upgraded	MzI DE	3.1.6
2	**Energy savings obligation scheme and alternative measures**	**H.6**	Existing, upgraded	Energy suppliers, Eco Fund, MzI DE, Energy agency	3.4.1
3	**Training and licensing of independent specialists**	**H.5**	Existing, upgraded	MzI DE	0
4	**Promotion of training**	**H.4b**	Existing, upgraded	MzI DE, MOP, MzI DP, SVRK	3.1.4
5	**Targeted public information and awareness raising**	**H.3**	Existing, upgraded	MzI DE, Borzen	3.1.4
6	**Integration of EE issues in a broader process of developing education**	**H.4a**	Existing	MZIŠ, MzI DE	3.1.4
7	**An environmental tax for pollution of the air with CO_2**	**H.2**	Existing, upgraded	MOP	3.1.8
	MULTISECTORAL MEASURES				
1	**Changes and amendments to regulations for energy efficiency in buildings**	**V.1**	Existing, upgraded	MzI DE, MOP	3.2.2
2	**Quality assurance scheme for energy audits**	**V.6**	New	MzI DE	3.1.2; 3.2.2
3	**Strategy on heating and cooling, heat map**	**V.5**	New	MzI DE	3.6.1
4	**Support scheme for electricity generated from RES and CHP**	**V.3**	Existing	MzI DE, Energy agency, Borzen	3.6.1
5	**Promoting optimisation of the operation of energy systems (RE-CO)**	**V.7**	Existing, upgraded	MzI DE, MJU	3.2.2
6	**Implementation of energy audits at large companies**	**V.4**	Existing	MzI DE, Energy agency	3.1.2
7	**Energy labelling and minimum standards for products and devices**	**V.2**	Existing	MzI DE, Market Inspectorate of the Republic of Slovenia	3.1.4; 3.2.2
8	**Comprehensive monitoring of energy renovation of buildings**	**V.8**	New	MzI DE	3.2.2
	ENERGY EFFICIENCY MEASURES IN PUBLIC SECTOR				
1	**Energy management system in the public sector**	**J.3**	Existing, upgraded	MzI DE	3.1.2; 3.3.1
2	**Quality management**	**J.8**	New	MzI DE	3.3.1
3	**Financial incentives for comprehensive energy renovation and sustainable construction of buildings in the public sector**	**J.2**	Existing, upgraded	MzI DE	3.3.1
4	**Financial incentives for efficient energy consumption in public sector**	**J.4**	Existing, upgraded	MzI DE	3.3.1
5	**Renovation of cultural heritage buildings and other particular groups of buildings**	**J.6**	New	MzI DE, MK, MOP	3.3.1
6	**Project office**	**J.5**	Existing, upgraded	MzI DE	3.3.1
7	**Green public procurement**	**J.1**	Existing, upgraded	MJU	3.3.1
8	**Production of sustainable criteria for buildings**	**J.7**	New	MOP, MzI DE	3.3.1
9	**Use of information supported design in public tenders**	**J.9**	New	MOP	3.3.1
	ENERGY EFFICIENCY MEASURES IN HOUSEHOLDS BUILDINGS				
1	**Financial incentives for energy efficiency and use of RES in residential buildings**	**G.1, G.2**	Existing, upgraded	MzI DE, Eco Fund, SID bank (*SID banka*)	3.2.2
2	**Energy advice network for citizens – ENSVET**	**G.5**	Existing, upgraded	MzI DE, Eco Fund	3.1.4; 3.2.2
3	**Aid scheme for efficient energy consumption in households, for vulnerable groups of people**	**G.3**	Existing, upgraded	MzI DE, MDDSZ, Eco Fund, ENSVET	3.1.4; 3.2.2
4	**Instruments for financing renovation in buildings with multiple owners**	**G.6**	New	MzI DE	3.2.2
5	**Establishment of a guarantee scheme**	**G.9**	New	MzI DE	3.2.2
6	**The legal basis for decision making in multi-apartment buildings**	**G.7**	New	MzI DE, MOP, MF	3.2.2
7	**Distribution of incentives among owners and tenants in multi-apartment buildings**	**G.8**	New	MzI DE	3.2.2
8	**Division and billing of heating costs in multi-apartment and other buildings according to actual consumption**	**G.4**	Existing	MzI DE	3.2.2
9	**The programme of measures for efficient energy consumption in households to reduce energy poverty**	**G.10**	New	MzI DE	3.2.2
	ENERGY EFFICIENCY MEASURES IN INDUSTRY				
1	**Financial incentives in the form of grants**	**I.1**	Existing, upgraded	Eco Fund, SPS, MzI DE	3.4.1
2	**Financial incentives in the form of reimbursable grants**	**I.2**	Existing, upgraded	Eco Fund	3.4.1; 3.6.1
3	**Financial incentives to raise efficiency and RES use in industry**	**I.3**	New	MGRT, Eco Fund	3.1.2; 3.4.1 3.6.1
4	**Financial incentives for demonstration projects**	**I.4**	Existing, upgraded	Climate Change Fund	3.4.1

ENERGY EFFICIENCY MEASURES IN TRANSPORT					
1	**Promoting sustainable transport in general** • Integrated transport strategy (ITS) of municipalities • Mobility management measures • Incentives for using modern technologies for efficient mobility management • Promoting sustainable transport choices in the context of statement of mission expenses • Promoting sustainable mobility measures / targeted public information and awareness raising • Examining the options for progressive reduction of environmentally harmful incentives • Sustainable mobility in the context of spatial planning • Coordination of the development of sustainable mobility	**P.1**	Existing, upgraded Existing Existing Existing Existing, upgraded Existing Existing Existing	MzI DP, MOP, Eco Fund MzI DP, local communities MzI DP MJU MzI DP MF MOP MzI DP	3.5.1
2	**Promoting public transport** • Transport subsidies in public transport • Concessions for the performance of public service for passenger transport services • A system of integrated public transport (IJPP) • Other measures of mobility management to improve public transport services • Incentives for the creation of infrastructures for public transport and the promotion of multimodality	**P.1a**	Existing Existing, upgraded Existing Existing Existing	MzI DP MzI DP MzI DP MzI DP, local communities MzI DP, local communities	3.5.1
3	**Promoting sustainable freight transport** • Other measures to promote co-modality • Improving the efficiency of road freight transport	**P.2**	Existing Existing	MzI DP MzI DP	3.5.1
4	**Promoting improvements in vehicle efficiency, efficient driving and vehicle occupancy, and fuel consumption with low CO_2 emissions** • Financial incentives for low-emission vehicles • Promoting the efficiency of vehicles and the use of fuels with low emissions within the motor vehicle tax and other duties • Information on the fuel consumption of vehicles and tyre labelling • Promoting energy-efficient driving • Financial incentives for infrastructure for alternative fuels and electromobility • Subsidy schemes for new lorries and voluntary commitments to freight • Green public procurement	P.3	Existing Existing Existing Existing, upgraded Existing Existing Existing, upgraded	MOP MF, MzI DP MOP, MzI DP MzI DP MzI DP, MOP MzI DP MJU	3.5.1
5	**Promoting non-motorised forms of transport** • Promoting construction of cycling infrastructure • Promoting construction of infrastructure for pedestrians	**P.4**	Existing Existing	MzI DP, MOP, Eco Fund MzI DP, local communities	3.5.1
6	**Providing funds for the 2014-2020 period for the development of railway transport**	**P.5**	Existing	MzI DP	3.5.1
HEATING AND COOLING EFFICIENCY MEASURES					
1	**Co-financing of district heating for RES**	**D.1**	Existing, upgraded	MzI	3.6.1
2	**Eco Fund's Financial Incentives for Sustainable Development**	**D.2**	New	Eco Fund	3.6.1
ENERGY EFFICIENCY MEASURES IN TRANSFORMATION, TRANSMISSION AND DISTRIBUTION SECTORS					
1	**Investment incentive grants**	**O.1**	Existing, upgraded	MzI DE	3.7.1

1. INTRODUCTION

This document sets out a national action plan for energy efficiency by 2020, that Slovenia is obliged to submit to the European Commission within the framework of the implementation of the Directive 2012/27/EU on energy efficiency[1,2] (hereinafter referred to as the 'Directive`). AN URE 2020 is the primary programming document of Slovenia in this field.

With AN URE 2020, Slovenia pursues an indicative national objective of improving the energy efficiency by 20 % up to 2020. This target states that primary energy consumption will not exceed 7 125 million toe in 2020, meaning that it may not exceed the 2012 figure by more than 2 %.

This headline target is the baseline for all activities in the field of energy efficiency in Slovenia (URE). The present document has been drafted in full compliance with that template[3] and meets all the requirements stemming from the Directive.

1.1. The objective of improving energy efficiency

Assessment of achievement of the indicative national target of improving energy efficiency by 20 % up to 2020, is currently favourable. Primary energy consumption, as defined in EED[4], amounted to 6 407 Mtoe (74.51 TWh) in 2015 and it decreased by 8 % compared to 2012, when the consumption was 6 963 Mtoe (80.98 TWh). Figure 1.

However, this trend does not indicate long-term containment of primary energy consumption. A short-term, but steady growth of final energy consumption in any of the sectors, for example, traffic, where the final energy consumption is highly variable and accounted for 38 % of the total energy end-use, is enough to seriously jeopardise the attainment of the objective of primary energy consumption. First estimates of the consumption of gasoline and diesel fuel, prepared by monthly reports, show that, compared to 2015, the use of energy in transport in 2016 increased by 6.4 %, which lead to an increase in supply energy (primary energy consumption) of approximately 2 %. The end-use energy consumption in energy supply represents about 70 %.

The end-use energy consumption in 2015 was also lower than the indicative target for 2020, by 8 %. The end-use energy consumption has been decreasing since 2010, Figure 2.

[1] Directive 2012/27/EU of the European Parliament and of the Council of 25 October 2012 on energy efficiency, amending Directives 2009/125/EC and 2010/30/EU and repealing Directives 2004/8/EC and 2006/32/EC, OJ L 315 of 14 November 2012.

[2] Article 24 of the Directive requires that each Member State must submit a national action plan for energy efficiency by 30 April 2014 and every three years thereafter.

[3] Commission Implementing Decision of 22 May 2013.

[4] The Directive defines the primary energy consumption as gross inland consumption, excluding non-energy uses.

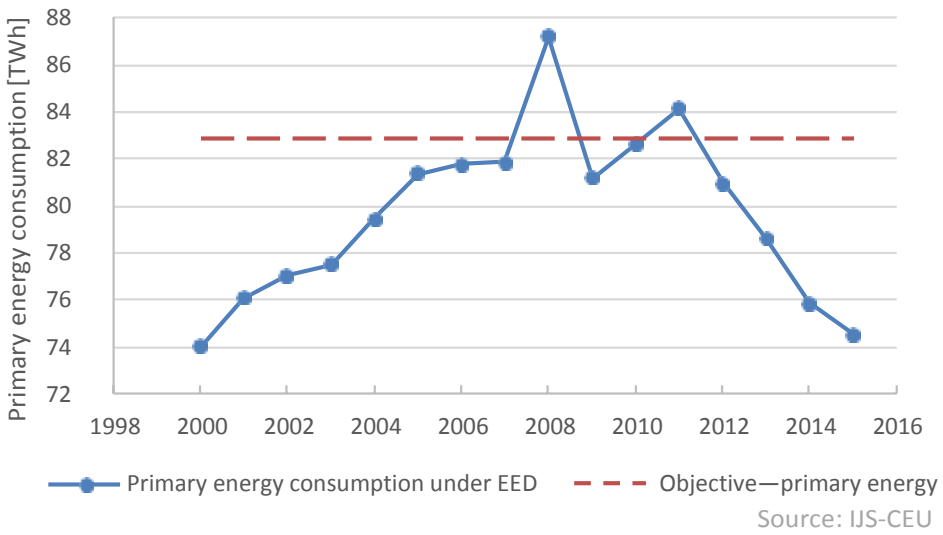

Figure 1: Primary energy consumption trends between 2000 and 2015, under the EED, compared to the indicative target for 2020

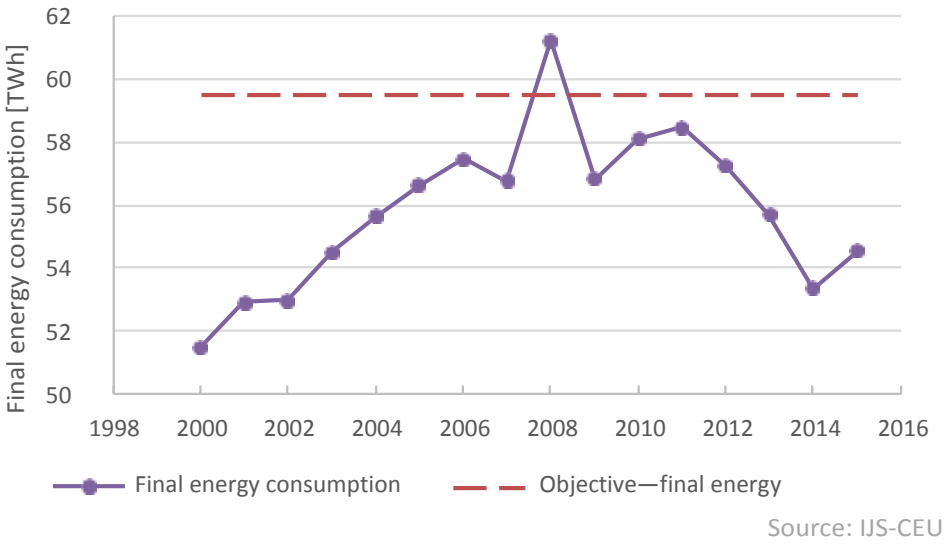

Figure 2: Final energy consumption trends between 2000 and 2015, compared to the indicative target for 2020

1.2. National circumstances

Moreover, an apparent divergence was achieved in Slovenia between the growth of economic activity and the growth of total primary energy consumption. While total primary energy consumption decreased by 1 % between 2000 and 2015, GDP increased by 33 %, Figure 3. The intensity of energy supply was improving until 2007 with roughly the same level as in the EU-28, and then in the period from 2008 to 2011 deteriorated, mainly as a result of the economic and financial crisis. After 2012, energy intensity decreased again, particularly in the years 2014 and 2015. The intensity of energy supply in Slovenia improved by 35 % between 1995 and 2015 and was 54 % higher than the figure for the EU-28 in 2015.

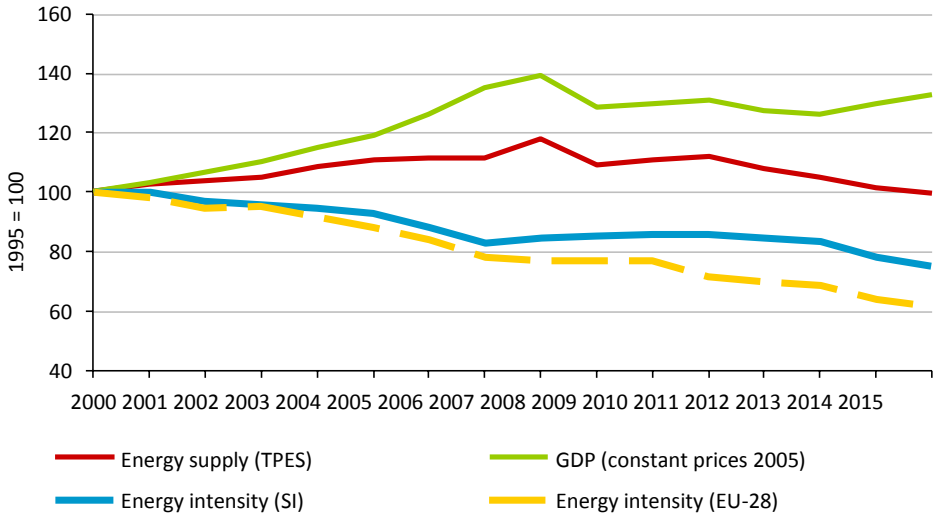

Figure 3: Ratio between the growth in economic activity and total primary energy consumption in Slovenia, and a comparison between energy intensity improvements in Slovenia and the EU

1.2.1. Economic development

Slovenia managed to achieve a relatively high level of economic growth in the period before the economic crisis (Figure 4). The average GDP growth rate was 3.4 % between 2000 and 2003 and 4.9 % between 2004 and 2008. GDP growth slowed with the onset of the economic crisis in 2008 and fell steeply in 2009 (-7.8 %). Fast deterioration in the national and international environment was best reflected in the reduction in the exports and investments, which had been the critical factor in economic growth in previous years. After modest GDP growth in 2010 and stagnation in 2011, Slovenia in 2012 again found itself in a period of negative growth rates, which lasted well in 2013. Positive values of GDP growth were again recorded in 2014 and 2015, which was mainly due to increased exports.

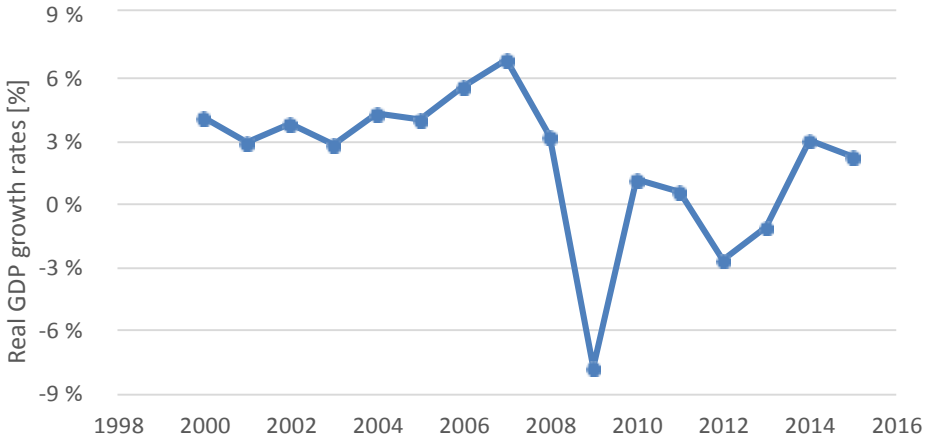

Figure 4: Real GDP growth rates [5]

[5] Source: Eurostat, Statistical Office of the Republic of Slovenia.

With high rates of economic growth in the period before the crisis, Slovenia gradually approached the EU average development level, measured by GDP per capita in purchasing power, and in 2008 lagged behind the European average by just 10 %. Since the beginning of the economic crisis in 2008, in the group of EU Member States Slovenia recorded the sharpest decline in GDP per capita in purchasing power standards. Its gap with the EU average has therefore increased and in 2015 amounted to 17 %, which is the same as in 2003.

In the value-added structure, the share of services is increasing slowly due to the decline in the share of the industry. The share of industry, which in the period from 2000 to 2008 represented between 34 % to 35 % of added value, decreased by three percentage points until 2015, mainly due to a sharp decline in construction activities.

1.2.2. Primary and final energy consumption

In the period from 2000 to 2015, final energy consumption in Slovenia increased by 6 %. The most significant contributing factor was the final energy consumption in transport, which increased by 46 % in the same period. In 2015, the share of transport in final energy consumption was 38 %. Final energy consumption in transport reached its highest share in 2012 and again in 2014. Foreign vehicles have a significant impact on energy consumption in transport. Fuel sales to foreign vehicles, which are by far the largest consumer of energy in transport, reached the highest share of the total fuel consumption in road transport in 2008 (30 %) and again in 2012 (28 %). The share decreased after 2012 and stood at 21 % in 2015. Up until 2008, domestic and foreign vehicles almost equally contributed to the growth of end-use energy consumption, but after 2008 the sales of foreign vehicles decreased, while the fuel sales to domestic vehicles remained almost at the same level, with some fluctuations. In 2000, the most significant consumer of end-use energy was the industrial sector (manufacturing and construction) with 32 %, while in 2015 it was in second place with a 26 % share, almost matching final energy consumption by households (24 %). Final energy consumption in the industrial sector has been declining from 2006 to 2013, in 2004 and 2015 was roughly at the level of the year 2009. In 2015, the consumption of end-use energy in the industrial sector was 12 % lower than in 2000. In 2015, the final energy consumption in households was 1 %[6] lower than in 2000 and 18 % lower in other consumption.

Energy supply totalled 6 454 ktoe in 2015 (Figure 6). Compared to 2014 it was down by 2 % and compared to 2000 by 1 %. The highest total was achieved in 2008: 7 650 ktoe. In the energy supply structure in 2015, liquid fuels accounted for the highest share, with 34 %, followed by nuclear energy (23 %), solid fuels represented a share of 16 % and renewable energy sources (RES) also accounted for 16 %, natural gas 10 % and waste 1 %. Net electricity imports accounted for -0.1 % of total consumption (more electricity was exported than imported). The only fossil fuels that Slovenia produces are solid fuels.

[6] Taking into account, the conversion of electricity consumption for heating and the preparation of sanitary hot water in an average cold winter, total final energy consumption in 2015 was 5 % lower in comparison with 2000. In this regard, it should be noted that the methodology of monitoring the consumption of wood biomass and other renewable energy sources in households changed in 2009, which resulted in the significant increase in consumption of wood biomass. If the use of renewable energy sources between 2000-2008 were estimated using the same methodology as used after 2008, the final energy consumption in this period would increase, which will also result in

a higher reduction of household energy consumption between 2000-2015.

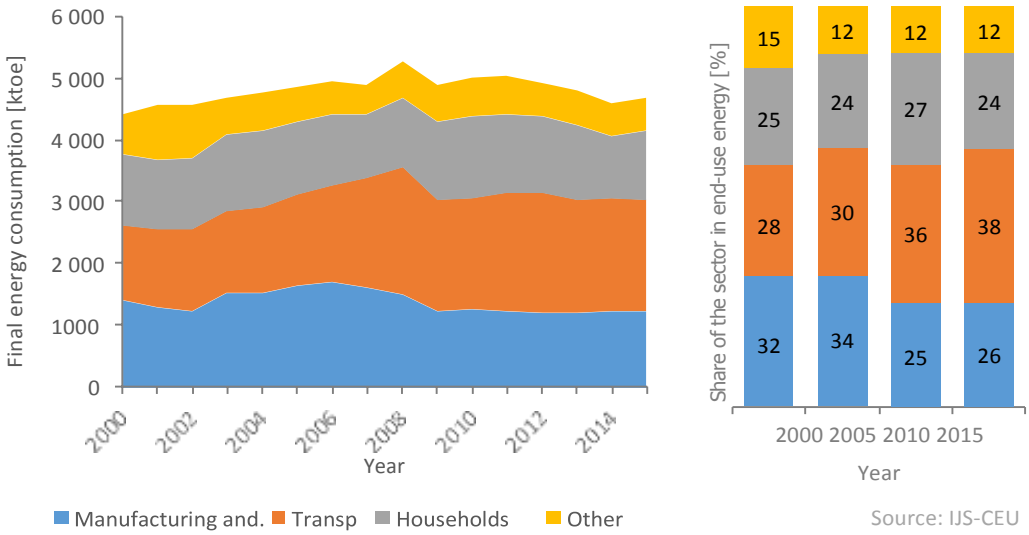

Figure 5: End-use energy consumption by sectors in the period from 2000 to 2015 and the sectoral share in end-use energy consumption in 2000, 2005, 2010 in 2015

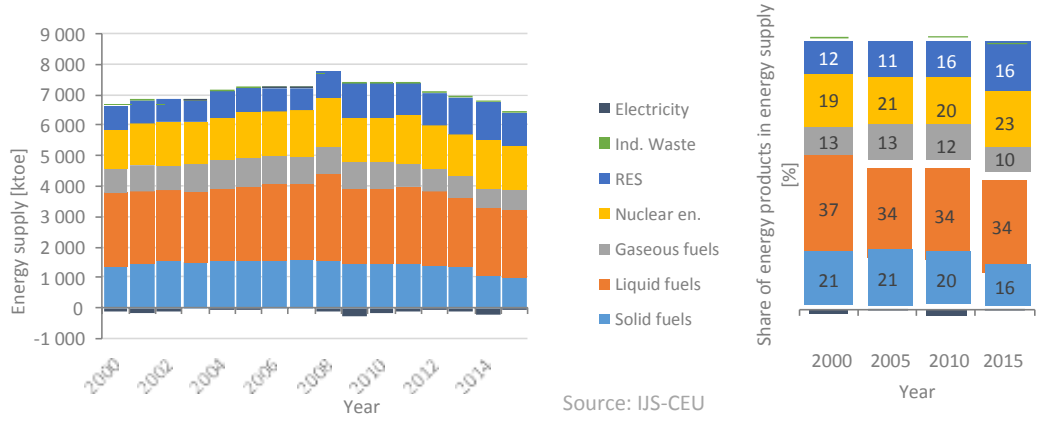

Figure 6: Energy supply by energy product in the period from 2000 to 2015 and the respective shares of energy products in energy supply in 2000, 2005, 2010 in 2015

1.3. A broader strategic framework for energy efficiency improvement planning

The long-term targets of energy and climate policy up to 2020 are also important factors in determining measures to improve energy efficiency by 2020. The measures contained in the National Energy Efficiency Action Plan (AN URE 2020) are therefore designed so that Slovenia is also able to secure the lowest possible costs for the highest possible efficiency in achieving the climate and energy targets in the long term. The climate and energy sector is one of the priority development objectives of Slovenia, due to the exceptional importance of energy efficiency in ensuring all energy policy objectives and broader development goals, mainly because of the potential for improving the competitiveness of society, green growth and employment potential.

[7] *Uradni list RS* (UL RS; Official Gazette of the Republic of Slovenia) No 17/14.

The Slovenian Energy Concept (*Energetski koncept Slovenije*—EKS), which is in preparation and Slovenian Development Strategy, which was adopted in December 2017 are two new documents in the group of overarching national energy and development documents (Table 2).

The Energy Act (EZ-1)7 defines the EKS as the primary development document, which represents the national energy programme. EKS's headline targets are the reduction of greenhouse gas (GHG) emissions related energy use by at least 20% by 2030 compared to 1990 levels and the reduction of TGP-related energy use by target 80% by 2050 compared to the level of the year 1990. The previous strategy was based on the principles of sustainable development and the integration of development policies. The Operational Programme for the Implementation of European Cohesion Policy up to 2020 also defines sustainable development as a horizontal principle. Within the Slovenian Smart Specialisation Strategy – S4 the assessment for the development consent was also conducted.

Slovenia has incorporated the energy efficiency targets into the National Reform Programme 2016-2017 (NRP 2017), while energy efficiency measures are also at the same time measures to promote high-quality economic growth with important development benefits. Energy efficiency measures contribute to improving the competitiveness of society, have a positive impact on economic growth and employment, and reduce environmental impact. The benefits of the measures are not only macroeconomic and social; they primarily bring direct financial and other benefits to investors and end-users of energy.

EE measures also have their funding basis in the Operational Programme for the Implementation of EU Cohesion Policies (OP EKP), which defines the EE funding activities from the resources of EU funds in Slovenia in the period from 2014 to 2020. Some EE and RES activities will also be financed from the European Agricultural Fund for Rural Development as part of the Rural Development Programme of the Republic of Slovenia 2014-2020.

Energy efficiency is one of the most cost-effective measures for achieving the other two targets of the climate and energy package up to 2020: reducing greenhouse gas (GHG) emissions and achieving the 25 % target share of renewable energy sources in the consumption balance of gross end-use energy by 2020. The National Energy Efficiency Action Plan 2014-2020 (AN URE 2020) has therefore been aligned with and complements the following action plans: the Operational Programme to Reduce Greenhouse Gas Emissions by 2020 (OP TGP 2020); Long-Term Strategy for the Promotion of Investments in the Renovation of Buildings (DSEPS); the National Renewable Energy Action Plan 2010-2020 (AN OVE); the Operational Programme for the Protection of Ambient Air against Pollution caused by PM10 (OP PM10); and the National Action Plan for Nearly Zero-Energy Buildings up to 2020 (AN sNES).

Table 2: National strategic documents of importance for the field of energy efficiency

Document title	Status
National Energy Efficiency Action Plan 2014-2020 (AN URE 2020)	adopted by the Slovenian Government in May 2015
Long-Term Strategy for the Promotion of Investments in the Energy Renovation of Buildings	adopted by the Slovenian Government in October 2015
Action Plan for Nearly Zero-Energy Buildings Up to 2020 (AN sNES)	adopted by the Slovenian Government in April 2015
National Renewable Energy Action Plan 2010-2020 (AN OVE)	adopted by the Slovenian Government in 2009
Operational Programme for Reducing Greenhouse Gas Emissions by 2020 (OP GHG 2020)	adopted by the Slovenian Government in December 2014
Transport Development Strategy of the Republic of Slovenia	adopted by the Slovenian Government in April 2015
Resolution on National Programme on Transport Development in the Republic of Slovenia	adopted by the Slovenian Government in September 2016
Operational Programme for the Protection of Ambient Air Against Pollution caused by PM10 (OP PM10)	adopted by the Slovenian Government in 2009
Operational Programme for the Implementation of European Cohesion Policy 2014-2020	approved by the Commission in December 2014
Rural Development Programme of the Republic of Slovenia 2014–2020 (PRP 2014-2020)	approved by the Commission in February 2015
Resolution on the National Housing Programme 2015-2025 (ReNSP15-25)	adopted by the Slovenian National Assembly in November 2015
Ordinance on the Spatial Planning Strategy of Slovenia (OdSPRS)	adopted by the Slovenian National Assembly in 2004
National Reform Programme 2016-2017	adopted by the Slovenian Government in April 2016

Slovenian Smart Specialisation Strategy – S4	adopted by the Slovenian Government in September 2015
Slovenian Industrial Policy (SIP)	adopted by the Slovenian Government in February 2013
Public Administration Development Strategy 2015-2020 (Public Administration 2020)	adopted by the Slovenian Government in April 2015
Climate Change Fund Spending Programme for 2017 and 2018	adopted by the Slovenian Government in December 2016
Slovenian Energy Concept	being compiled
Slovenian Development Strategy 2030	adopted by the Slovenian Government in December 2017
National Renewable Energy Action Plan 2017-2020 (AN OVE 2020)	being compiled
Expert Basis for a Comprehensive Assessment of the Potential for the Application of CHP and DH	being compiled

2. OVERVIEW OF NATIONAL ENERGY TARGETS AND THE SAVINGS ACHIEVED

2.1. Improving energy efficiency by 20 % by 2020

Pursuant to Article 3 of Directive 2012/27/EU, Slovenia has set a target for improving energy efficiency by 2020 such that primary energy consumption will not exceed 7 125 million toe (82.86 TWh) in 2020.

The target is set at the level of primary energy, since transformations also contribute to increasing energy efficiency, with efficiency improvements envisaged as coming from technological upgrades and an increase in RES. The national 2020 target is derived from the long-term energy consumption projections up to 2030, which were produced in 2014. This target does not include the non-energy consumption of fuels and has been based on national energy consumption statistics compiled using the EUROSTAT methodology.

Calculation of the targets is documented in detail in the 'Long-Term Energy Balance up to 2030' (2014) study. The principal categories are presented in Table 3 below.

Table 3: Estimates of the key numbers for national energy production and consumption in 2020

Energy consumption in 2020	[GWh]
Total primary energy consumption in 2020	82 864
Transformation – input (thermal power plants)	15 775
Electricity generation (thermal power plants)	7 251
Transformation – input – CHP	4 820
Transformation – output – CHP (heat)	1 463
Transformation – output – CHP (electricity)	1 568
Distribution losses (all fuels)	949[8]
Total final energy consumption	59 525
Final energy consumption – industry	15 206
Final energy consumption – transport	25 593
Final energy consumption – households	12 103
Final energy consumption – services sector	6 624

2.2. Other targets for increasing energy efficiency

Action Plan for Nearly Zero-Energy Buildings Up to 2020 (AN sNES) was adopted in April 2015. AN sNES assumes that in the standard of almost zero-energy buildings by 2018, 333 000 m2 of buildings in the service sector and 2.9 million m2 of residential buildings will be renovated by 2020. Pursuant to Article 9 of the revised Directive 2010/31/EU on energy efficiency buildings (EPBD) and Article 330 EZ-1, it is also foreseen with the AN sNES that all new buildings owned and used by public authorities will be almost zero-energy from the end of 2018 and in other sectors from the end of 2020 onwards (Table 3).

[8] The loss of distribution and transmission of electricity.

Table 4: National targets for nearly zero-energy buildings

	Target as a percentage of total newly constructed buildings
2016	**16 %**
2021	**100 %**

For a comprehensive energy renovation of buildings in the public sector funds are also provided under the Operational Programme for the Implementation of Cohesion Policy 2014-2020 (OP EKP). It is envisaged, that a total of 1.8 million m^2 of useful floor area in buildings in the wider public sector will have been improved regarding energy performance in the 2014-2023 period. The implementation of five demonstration projects for the complete energy renovation of various building types is envisaged in the public sector and housing sector.

2.3. Energy savings achieved and the target energy savings

Primary energy savings due to the implementation of measures in the period between 2013 and 2015 were estimated at 1 787 GWh. (Table 5) Primary energy savings include savings in the conversion of energy (due to the increased production of electrical energy from renewable sources and the cogeneration of heat and electric power with high efficiency-CHP) and saving of the final energy. Savings due to increased electricity production from RES and CHP is estimated based on the increase of the electricity produced in these plants until 2015, compared to the balance of 2012, and currently amounts to 518 GWh. Only increased production in plants, which are included in the support scheme for electricity generated from RES and CHP, was taken into account. Compared to primary energy savings target for 2015, achieved savings fell by 5 %. Despite that, targeted consumption level was reached (see chapter 3.1.1), mainly as a result of lower activity in transport.

Table 5: **Achieved cumulative savings of primary and final energy consumption compared to 2012[9] and compared to indicative savings target for 2015, 2016 in 2020**

	Primary energy savings [GWh]	End-use energy savings [GWh]
Achieved savings in 2015	1 787	1 269
Target 2015	1 879	1 550
Target 2016	2 485	2 048
Target 2020	4 908	4 040

2.3.1. Methodology for calculating the targeted amount of primary and final energy savings

The estimated primary and final energy savings (Table 5) are calculated as the difference between the projection of energy consumption with a reference level of implementation of EE measures, and a projection that excludes such measures. The estimated savings in household electricity consumption, where the savings are estimated using the methodology for large household appliances (which had been used for the previous estimate of savings under the ESD),[10, 11] are an exception. That is, for households the energy savings are calculated as the difference between the

[9] Savings concerning 2012, which means that savings in 2012 were zero.

[10] 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 93/67/EEC, OJ L 114 of 27 April 2006, p. 64.

[11] The underlying assumption for the calculation was that appliances are replaced on average every ten years; the savings are therefore calculated as the difference between the annual energy consumption of an average new

appliance

reference level and the projection that excludes the measures only for energy consumption for heating and the preparation of hot sanitary water, while the projection that excludes measures was not calculated for electricity consumption, since compiling such a calculation would, given the vast number of appliances, be an extremely time-consuming task. The target energy savings are calculated with reference to 2012.

Preparing a projection of energy consumption that excludes EE measures constitutes a significant challenge since a determination has to be made of the expected developments of the parameters that determine energy consumption if the energy and other policy measures that affect energy consumption are not implemented. The parameters were determined by the historical analysis of the movement of the parameters and an expert assessment. A projection that excludes measures does not mean a 'freezing' of the parameters in the baseline year but presupposes a specific autonomous trend in improvements that would occur regardless of whether the measures were implemented or not. The advantage of this way of calculating savings is that the effects of EE measures cannot be counted twice (a possibility, since some measures overlap).

Energy consumption projections have been calculated for 2015, 2020, 2025 and 2030. The savings for 2016 were calculated using a linear interpolation of savings between 2015 and 2020.

The most considerable saving in 2020 with reference to 2012 will, according to the projections, be achieved in transport (1 481 GWh, 37 % of total savings), followed by households (1 201 GWh, 30 %), industry (935 GWh, 23 %), and with the smallest share, services (423 GWh, 10 %) (Table 6). The effects of horizontal and multi-sectoral measures are divided by sector.

Energy savings for 2016 and 2020 take into account the effect of all the measures, i.e. not only those measures set out in this plan, which is also correct from the point of view of achieving the target, that has been set at the energy supply level[12].

Table 6: Sectoral distribution of end-use energy savings in 2020

	End-use energy savings [GWh]
Industry	935
Transport	1 481
Households	1 201
Services	423
Total	4 040

and the annual energy consumption of an average new appliance ten years previously, multiplied by the number of new appliances that replace the existing appliances. Figures on the energy consumption of appliances are calculated based on market data on appliance sales.
Source: Annex 1: Report on the Implementation of the First National Energy Efficiency Action Plan 2008-2010, September 2010; National Energy Efficiency Action Plan 2010-2016 (draft), October 2011.
http://www.energetika-portal.si/dokumenti/strateski-razvoini-dokumenti/akciiski-nacrt-za-energetsko-ucinkovitost/

[12] The AN URE 1, which was primarily compiled to achieve the target energy savings, was obliged, under the methodology, to assess the effect only of those measures outlined in the plan. This could be done where the 'bottom-up' method was employed; where the 'top-down' method was employed (transport, industry), this could not be done. Also, the methodology for calculating ESD savings prescribed to take into account only a part of the industry that is not included in the ETS, while the Energy Efficiency Directive no longer has this restriction.

2.4. Overview of end-energy savings

The end-use energy savings achieved as a result of the implementation of various measures contained in AN URE 2020 totalled to 1 269 GWh in the period from 2013 to 2015 (Table 7). The most significant share of the total savings, almost 43 %, was achieved in households, followed by industry and private services sector, with a share of 29 %.[13]. The end-energy savings were calculated using the BU methodology, using the appropriate methodologies set out in the Rules on the Methods for Determining End-Use Energy Savings[14] and the Methods for Calculating Energy Savings[15], which replaced before mentioned policy. The savings achieved in the fulfillment of the obligations of Article 7 of the EAA through the implementation of the scheme for the obligatory achievement of final energy savings by final customers and an alternative measure, that is, the program of incentives earmarked for EEU and RES measures by the Eco Fund from the funds collected with the contribution on energy use to increase energy efficiency, accounted for 70 % in 2013 and almost 85 % in 2015 savings. In particular, a broader set of measures had contributed to the increase in the savings (e.g. the measure of adding the additive to the motor fuel), which can be carried out by liable entities under the final energy savings obligation scheme from 2015 onwards in accordance with the Regulation on the provision of energy savings[16] (see chapter 3.1.1).

Table 7: Cumulative end-use energy savings, as a result of the implementation of the envisaged measures between 2013 and 2015 of AN URE 2020, compared to 2012 savings, by sectors

[GWh]	2013	2014	2015
Industry	24.7	55.4	370.5
Private services sector	32.5	105.0	
Public sector	92.6	132.2	157.8
Transport	0.2	0.3	196.5
Households	233.5	400.4	543.7
Total	383.5	693.3	1 268.5
Savings under Article 7 of the EED	268.1	472.4	1 076.9

Compared to indicative target for 2015, that was estimated at 1 550 GWh (Table 5), the savings are lagging behind just over 18 %. It is also important to note that, the indicative target for final energy savings takes into account the effect of all measures, not only the measures provided for in AN URE 2020. The objectives were set appropriately in terms of achieving a common objective, which is set at primary energy level but not entirely comparable with the presented data on the achieved final energy savings, which are based on the available data on the effects of the implementation of the various measures envisaged under AN URE 2020 (e.g. Eco Fund´s programme of financial incentives for energy efficiency and the use of RES in residential, energy renovation of public buildings within the framework of OP EKP, final customer energy saving schemes, etc.). Monitoring of the implementation of the measures envisaged in the AN URE 2020, including by monitoring the final energy savings achieved, is nevertheless essential, both from

[13] Due to the lack of adequate data for 2015, it was not possible to estimate the savings in final energy consumption separately for the industry and the private service sector.
[14] UL RS No 4/10, 62/13, 17/14 – EZ-1 and 67/15.

[15] UL RS No 67/15 and 14/17.

the point of view of monitoring the effectiveness of national schemes for EE and the use of RES, as well as from the point of view of determining the causes of any deviations from the intended objective set under AN URE 2020 at the primary energy use level.

The target of the National Energy Efficiency Action Plan 2008-2016 complies with Article 4 of the ESD in seeking a 9 % saving in end-use energy in 2016 (4 261 GWh) through the implementation of the planned instruments, which cover measures for efficient energy consumption, energy services and the development of energy-efficient technologies and products. By the end of 2015, final energy savings of 4 949 GWh[18] was achieved, an increase of 16% over the target for 2016. It appears, therefore, that the target set in the framework of the first Action Plan in 2016, will be attained.

In the industrial and transport sectors, the value of the savings was estimated using the 'top-down' (TD) method. The other savings calculated resulted directly from the implementation of active policies and measures and were calculated using the 'bottom-up' (BU) method. The measures implemented in the industrial and transport sectors were omitted, to avoid counting savings twice. In other cases of possible double counting, the appropriate correction factors were taken into account.

When calculating savings using the BU method, appropriate methodologies from before mentioned policies for calculating energy savings were used. [13, 15] The Methods for Calculating Energy Savings in Implementing Measures to Increase Energy Efficiency and Promote the Greater use of Renewable Energy Sources [19] were used to calculate savings using the TD method. A factor of 2.5 was used in calculations of electricity savings.

[16] UL RS No 96/14.

[17] http://www.energetika-portal.si/fileadmin/dokumenti/publikacije/an_ure/an_ure1.pdf

[18] In the calculation, the energy savings in the industry were estimated using the top-down method, and in the service sector using the bottom-up method, but it was not possible to take into account the savings from the final energy savings obligation scheme since the more accurate sectoral distribution of savings is not known. The savings achieved in the service sector are, therefore, slightly underestimated and, therefore, also the total savings achieved by and including 2015.

[19] Annex 2:: Methods for Calculating Energy Savings in Implementing Measures to Increase Energy Efficiency and Promote the Greater Use of Renewable Energy Sources, September 2011; Draft National Energy Efficiency Action Plan 2011-2016 – draft, October 2011. http://www.energetika-portal.si/dokumenti/strateski- razvojni-dokumenti/akcijski-nacrt-za-energetsko-ucinkovitost/

3. POLICY MEASURES FOR IMPLEMENTING THE ENERGY EFFICIENCY DIRECTIVE

3.1. Horizontal measures

3.1.1. Energy efficiency obligation scheme and alternative policy measures (Article 7)

Slovenia will achieve a cumulative end-use energy savings target with the combined implementation of energy efficiency obligation scheme and alternative policy measures (Table 8).

Table 8: Existing measures for the implementation of energy efficiency obligation

No	Measure	Programme/ Upgrade	Type of measure / Responsible entity	Target group	Deadline
H.6	**Energy efficiency obligation scheme and an alternative measure**	**Upgrading** It is necessary to improve the monitoring of the implementation of the scheme and to ensure the conditions for its stable operation (checking of reporting persons on achieving savings, real-time reconstruction methods and the elimination of anomalies, which could lead to unrealistic high savings and, consequently, their low price in the market, and other.)	Energy services / Energy suppliers Eco Fund, Ministry responsible for energy, Energy Agency	Economy: industry and service activities, households	2017 -2020

Total target savings in end-use energy

The obligation to achieve end-use energy savings is 523 GWh in new savings between 1 January 2014 and 31 December 2020. The cumulative savings in the 2014-2020 period amount to 14 647 GWh. Slovenia reduced the target savings by using lower values in the first four years of implementing the energy efficiency scheme and by implementing alternative measures [20].

Total target final energy savings under the Article 7 of the Directive to be achieved by suppliers of electricity, heat, gas and liquid and solid fuels to final customers (liable) and the Eco Fund, as the implementer of an alternative policy measure, amount to 3 319 GWh in 2020, while cumulative savings are 11 596 GWh in the period from 2014 to 2020.

The lifecycle of measures and calculation of savings

The lifecycle of measures and methods for calculation of savings are determined in The Rules on the Methods for Determining Energy Savings[21]. For individual measures, the Rules also lay down the method of calculating the consumption of renewable energy sources and the reduction in carbon dioxide emissions.

Energy efficiency obligation scheme

The new scheme of compulsory end-use energy savings by energy-consumers is established in the EZ-1. The liable entities must achieve savings of 0.75 % of the sold energy in the previous year for the calendar year, and the liable entities supplying liquid fuels have to achieve savings of 0.25 %

[20] The first indent of the second paragraph of Article 7 of the Directive 2012/27/EU.
[21] UL RS No 67/15 and 14/17.

of the sold petrol and diesel fuel in the previous year for the calendar year.

The implementation of this measure is regulated by the new Regulation on the provision of energy savings[22] from 2015. With the new regulation, all suppliers of electricity, heat, gas, liquid and solid fuels to final customers became obligated to achieve savings, irrespective of their size. The level of energy savings that the liable entities have to achieve and the set of energy services and the measures they can implement are also slightly different. The way of financing measures has also changed. Under the new regulation, the liable entities may meet their obligations by remitting funds to the Eco Fund in an amount equal to the total savings that should have been achieved by final customers and the additions to the price of heat and fuel prices to increase Eco-Fund's energy efficiency. The measures to meet their obligations are financed from other sources, such as own resources, incentives, loans, financing by a third party, etc.

Measures to be implemented by the liable entities may be implemented in all sectors, including transport and industry that are included in the emission allowances trading scheme (ETS sector). The Decree will also introduce an exception: that primary energy savings achieved in the energy conversion, distribution and transmission sectors, including infrastructure for efficient DH and DC, is factored into the end-use energy savings[23]. Promotion of CHP, improvements to district heating systems, including improvements in heat stations to be made by liable entities will therefore also be included as eligible measures.

The Energy Act provides that the Energy Agency (hereinafter: the Agency) is responsible for reporting on and monitoring the achievement of energy savings.

Alternative measure—The Eco Fund´s programme for promoting EE measures

As an alternative measure for achieving the obligations referred to in Article 7 of the Directive, Slovenia chose the implementation of the Eco Fund´s programme for promoting EE measures [24,25]. The Eco Fund's target in individual years within the 2014-2020 period will amount to 0.75 % annual savings target, which is 262 GWh energy savings per year. Therefore, the savings made by the Eco Fund with the help of the measures implemented across the entire 2014-2020 period will amount to 1 834 GWh in 2020, giving cumulative savings of 7 336 GWh across the entire period.

Achieving the targets set out in Article 7

Pursuant to Article 7 of the Directive, the final energy savings for 2014 and 2015, realised through new measures, amounted to 349 GWh[26]. 87 GWh of these were achieved under the final energy savings obligation scheme and the other 262 GWH from incentives allocated for EE and RES by the Eco Fund (Table 9). In 2014 the liable entities achieved a reduction in final energy consumption of 66.3 GWh[27], and Eco Fund incentives contributed to reducing final energy consumption by 138 GWh. In total end-use energy savings of 204.3 GWh were made. In 2014, Slovenia achieved only 58.5 % of the target, with the liable entities reaching just over three-quarters of their target, while the Eco Fund only a half. At the cumulative level, the savings from 2014 achieved 12.3 % of the total cumulative value of 11 596 GWh for the period 2014-2020.

[22] UL RS No 96/14.
[23] The third indent of the second paragraph of Article 7 of the Directive 2012/27/EU.
[24] The second paragraph of Article 314 of EZ1.
[25] It is estimated, that EUR 35 million funds will be collected in 2017 for implementation of the Eco Fund´s programme.
[26] Indicative targets for 2014 and 2015 are the same.
[27] This figures take into an account only of the effects of investment measures, while the effects of carrying out energy inspections and providing information and awareness-raising are not taken into account.

Table 9: End-use energy savings between 2013 and 2015 as set out in Article 7 of the Directive

End-use energy savings [MWh/Year]	2013	2014	2015	2016
Final energy savings obligation scheme				
Scheme total	**51 567**	**66 248**	**502 160**	**327 290**
Alternative measure– Eco Fund's programme to improve energy efficiency				
Grants for citizens	197 257	117 617	84 805	
Grants for the public sector	845	1 786	0	126 600
Grants for vehicles	121	86	194	
Energy advice for citizens (ENSVET)	18 336	18 557	17 343	13 740
Total alternative measure	**216 559**	**138 046**	**102 342**	**140 340**
End-use energy savings pursuant to Article 7				
Total Article 7	**268 126**	**204 294**	**604 502**	**467 630**

In 2015, with the Eco Fund's grant, the final energy savings were 25.9 % less than the year before. In a scheme for the obligatory achievement of final energy savings by liable entities, some changes were made in 2015. The changes relate, in particular, to the taxpayers and the range and method of financing measures. A new Policy on the methods for determining energy savings with some new and changed methods for calculating the savings energy was also adopted. In 2015 the final energy savings, achieved within the scheme of energy savings, amounted to 502.2 GWh, considerably more than predicted indicative target of 87 GWh and also considerably more than the actual compulsory energy savings target of 0.25 % of energy sold in the previous year, which amounted to 125.7 GWh. Almost three-quarters of this savings were achieved through only three measures (adding fuel additive, introducing an energy management system, integrating the renewal of heat stations in the sectors of conversion, distribution and transmission).

In 2016, according to initial reports, the liable entities reached 327.3 GWh of final energy savings, of which 41 % were achieved by the introduction of the energy management system and 31 % by the measure of adding the additive to the motor fuel. Thus, the amount of mandatory final energy savings, which was 176.8 GWh for 2016, was again exceeded. Some liable entities have wholly or partially covered their obligations for 2016 with the savings achieved in 2015. In 2017, liable entities will have 245.6 GWh of energy savings from 2015 and 283.5 GWh from 2016, totalling 529.1 GWh. In the future, it will be necessary to improve the monitoring of the implementation of the scheme and to ensure the conditions for its stable functioning. This relates primarily to checking the reporting by the liable entities of the achievement of savings (implemented projects, participation in achieving savings), and on-going modification of methods for calculating energy savings and eliminating anomalies that could result in unrealistic high savings and, consequently, their low price in the market (see also measure H.6, Table 8).

The energy savings provided by the Eco Fund as an alternative measure increased in 2016 compared to the year before, amounting to 140.3 GWh[29]. In total this year, pursuant to Article 7 467.6 GWh of energy savings were achieved. Despite achieving savings in any given year, Slovenia has not achieved the set goals, since the surpluses achieved by the liable entities are transferred to future years, and the objectives set in the framework of an alternative measure (262 GWh of final energy savings per year) were not achieved. In the implementation of an alternative measure, the most important problem remains the allocation of funds collected from the contribution to the use of energy to increase energy efficiency.

[28] UL RS No 67/15 and 14/17.
[29] The data is not yet final.
[30] In 2014, the target was 349 GWh of final energy savings, and 204 GWh were achieved. In 2015, the target was

388 GWh of savings, and 228 GWh were achieved. In 2016, the target was 439 GWh of savings, which was 317 GWh.

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

Pursuant to Article 354 EZ-1, the Rules on the methodology for the production and content of energy audits were adopted in June 2016. In addition to the minimum requirements and methodology for the implementation of the energy audit, the Rules also stipulate that large companies that need to conduct an energy audit every 4 years (measure V.4) must be obliged to conduct the first such energy audit by the end of 2017 at the latest, when the first available data on the implementation of this measure will also be available. The Agency is responsible for monitoring the fulfilment of this obligation. The Rules also determine who can be the providers of energy audits but does not establish a system for their certification.

By the end of 2014, the implementation of energy audits and the purchase of energy management equipment in the industry and in the service sector were promoted through grants in the framework of programmes for achieving final energy savings for final customers carried out by suppliers of electricity, heat, gas and liquid and solid fuels (Article 7). In the 2013-2014 period, 138 energy audits were supported. Due to the new regulation[31] in 2015, some changes in the energy savings obligation schemes were made, including in the range and method of financing the measures. The measure of the programmes for carrying out energy audits was replaced by the measure of optimisation of technological processes, based on the conducted energy audit. In this measure, 13 customers were included in 2015. However, that year, grants for the implementation of energy audits were not issued. As part of the programmes for achieving energy savings for final customers, in the period from 2013 to 2014, 31 projects for the purchase of equipment for performing operational monitoring and energy management for customers were also supported. In 2015, 7 customers were involved in this measure, while the measure of introducing the energy management system was implemented at 12 customers. In April 2017, the Eco Fund announced a public call for the granting of non-refundable financial incentives to carry out an energy audit for small and medium-sized enterprises (SME).

Pursuant to Article 324 EZ-1, the Regulation on Public Sector Energy Management[32] was adopted in 2016 (measure J.3). The energy management system is compulsory for buildings with a usable area of more than 250 m2, which are used by the state, self-governing local communities or state bodies founded by the RS or the local community. The Regulation also lays down minimum requirements regarding the energy performance of buildings that are newly acquired by the state administration authorities using the purchase or hire. The liable entities must establish the energy management system by the end of 2017 at the latest, while in 2016 the MZI started the preparation of the register, and in the first phase, in 2017, established an energy accounting system for public sector buildings for reporting of liable entities. The implementation of energy audits in the public sector has not been systematically monitored for the time being. To obtain funds for the energy rehabilitation of public buildings under the Operational Programme for Environmental and Transport Infrastructure Development 2007-2013 (OP ROPI), the applicants had to carry out an energy audit beforehand (362 contracts[33], 1.2 million m2 of the floor area of the facilities). The pre-conducted extensive energy audit of the buildings subject to the operation remains a condition for obtaining funds for the energy rehabilitation of public buildings also within the framework of the OP EKP. In the area of energy audits and energy management systems, the continuation of the implementation of existing measures and their upgrading is planned (Table 10). Also, the introduction of a new measure V.6—Quality assurance scheme for energy audits is planned, primarily to improve the quality and usability of energy audits in the public sector and the economy (Table 11).

[31] Regulation on the provision of energy savings, UL RS No 96/14.
[32] UL RS No 52/16.
[33] The contract may involve several facilities. Thus the number of contracts is not equal to the number of buildings.

Table 10: Existing measures in the areas of energy audits and energy management systems

No	Measure	Programme / Upgrading	Type of measure / Responsible entity	Target group	Deadline
I.3	**Incentives for introducing energy management systems**	**Upgrading:** • Establishment of a scheme to promote energy governance in SMEs from 2018 onwards. The first phase of the establishment of the scheme will include the preparation of the scheme and the start-up with the pilot project.	Financial incentives / Ministry responsible for energy, Eco Fund	Economy, SMEs	2017 -2020
J.3	**Energy management system In the public sector**	**Upgrading:** • Upgrading the public sector energy management system by ensuring a continuous process of monitoring energy consumption and implementing EE measures and the use of RES in the public sector and its appropriate organisation, including the appointment of energy managers, training and the establishment of a continuous improvement process (MzI). • The preparation of instructions for the implementation of energy accounting, including instructions for proper reporting by liable entities on energy use, implementing measures to increase energy efficiency and associated costs).	Regulations / Ministry responsible for energy	Public sector	2017 -2020
V.4	**Implementation of energy audits in large companies**	**Existing measures** Performing energy audits in large companies every four years and monitoring the implementation of this obligation.	Obligation / Ministry responsible for energy, Energy agency	Economy, large companies	2017 -2020

Table 11: New measure in the areas of energy audits and energy management systems

No	Measure	Programme / Upgrading	Type of measure / Responsible entity	Target group	Deadline
V.6	**Quality assurance schemes for energy audits**	The implementation of the measure will improve the quality and usefulness of energy audits in the public sector and the economy. It is foreseen: • Establishment of a quality assurance scheme for energy audits that will include training and certification of energy auditors and upgrading the implementation of energy audits with additional services, depending on the phase of the project (informing and supporting subscribers in obtaining available non-refundable and returnable financial resources for implementing measures, monitoring and support in the implementation of measures, etc.). • Upgrading the preparation of energy audits in a way that the prepared documents will support the implementation of projects on the principle of energy contracting. • The establishment of systematic monitoring of energy audits.	Set of instruments/Ministry responsible for energy	Economy, Public sector	2018 -2020
I.3	**Financial incentives to raise energy efficiency and consumption of RES in the industry (see Table 29).**				

3.1.3. Metering and billing (Article 9 to 11)

In accordance with EZ-1 and Directives 2009/72/EC34 and 2009/73/EC35, an economic 'Analysis of costs and benefits of introducing advanced metering in Slovenia'[36] was prepared. In 2015, the Decree on Measures and Procedures for the Establishment and Connectivity of Advanced Measuring Systems for Electricity[37] was adopted, which sets out measures and procedures for ensuring the introduction and connectivity of the advanced measurement system of electricity in the territory of the Republic of Slovenia. It mainly regulates the technical requirements for smart metering systems and the method and conditions for its introduction into our electricity network. Under this Regulation, an advanced metering system includes: system counters for system users; a communications infrastructure that enables the transmission of data from system meters to the metering centres; metering centres and a unified information system (a system for unified access to data from metering centres in the RS).
In 2012, the distribution network operator for electricity in Slovenia (SODO) presented the 'Development programme for Smart Grids in Slovenia'[38], which defines the strategic guidelines for introducing smart grids to obtain a functioning system in Slovenia by 2020. In 2016, pursuant to Article 6 of the Decree on measures and procedures for the introduction and connectivity of advanced measurement systems, the SODO published the 'Plan for the introduction of an advanced measuring system in the electricity distribution system of Slovenia' [39]. The plan by 2025 foresees that all the users of the electricity distribution network will be connected to the advanced measuring systems. By 2023, the share of these users is estimated to 91 %.

In the last two years, the system operator of the electricity transmission network (ELES) has set out clear guidelines on the concept of smart grids and will, therefore, be given much attention in the future. In 2016, ELES signed a cooperation agreement with the Japanese Agency for New Energy and Industrial Technology Development (NEDO)[40], thus assuming one of the most prominent roles in Slovenia in the field of the development of smart grids and smart communities. Within the project, advanced functionalities will be established, which will enable better coordination between stakeholders in the electricity system and more efficient operation of the system. They will develop equipment that will include advanced network management tools (DMS), advanced tools for optimising the use of electricity in local communities and buildings (EMS), and a platform for integrating system services into the system.

The installation of advanced measurement systems is also supported under the final energy savings obligation scheme. The Rules amending the Rules on the methods for determining energy savings[41] emphasise the importance of advanced provider services in support of the end user. It is stated that an advanced metering system must be appropriately supported by a set of advanced services from the equipment provider (monitoring application, day view, comparison, etc.).

In 2015, the Government of the Republic of Slovenia adopted the 'Slovenian Strategy for Smart Specialization (S4)' [42], a development investment platform in areas where Slovenia has a critical mass of knowledge, capacities and competencies.

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[34] Directive 2009/72/EC of the European Parliament and of the Council of 13 July 2009 concerning common rules for the internal market in electricity and repealing Directive 2003/54/EC.
[35] Directive 2009/72/EC of the European Parliament and of the Council of 13 July 2009 concerning common rules for the internal market in natural gas and repealing Directive 2003/55/EC.
[36] http://www.agen-rs.si/dokumenti/29/2/2014/CBA_SLO_Koncno_20140321_1986.pdf
[37] Decree on measures and procedures for the introduction and connectivity of advanced measurement systems of electricity, UL RS No 79/15.
[38] http://www.sodo.si/_files/434/pametna_omrezja_2012_pop7.pdf
[39] https://www.sodo.si/o-nas/aktualno/nacrt-uvedbe-naprednega-merilnega-sistema-v-elektrodistribuc
[40] Project duration 2016-2019, project value EUR 35 million, https://www.eles.si/projekt-nedo
[41] Rules amending the Rules on methods for determining energy savings (UL RS No 14/17).
[42] http://www.svrk.gov.si/si/delovna_podrocja/strategija_pametne_specializacije/

Advanced metering systems play an important role in S4. Among the identified priority areas are the areas of *Smart Cities and Communities*, and *(S) Industry 4.0—the Future Factories.* Within the priority area *Smart Cities and Communities*, the development of system solutions in the field of smart grids and IT platforms will be supported and the establishment of at least two pilot projects, preferably in the field of energy, mobility. Among the focus areas are: open system solutions - IT platforms and conversion, distribution and management of energy. Within the priority *area (S) Industry, 4.0— the factory of the future*, modernisation and digitisation of production processes and management of the entire production cycle will be supported. Identified focus areas and technologies are optimisation and automation of production, smart machines and devices, advanced metering systems and sensors.

Legal basis

The area of measurement and billing of energy is defined in EZ-1 in accordance with Directives 2009/72/EC, 2009/73/EC and 2012/27/EU. The Energy Act in Articles 355 to 358 regulates the areas that the Directive provides for energy metering (Article 9), information on the billing (Article 10) and the costs of access to information on measurement and billing (Article 11):

- compulsory energy measurement and billing;
- compulsory measurement of heat for an individual building;
- compulsory measurement of heat in individual parts of buildings;
- informing final consumers about energy consumption;
- access to additional consumption information where advanced metering systems are installed;
- access to information by an energy service provider.

Provision of services in the field of measurement and accounting for final consumers

E-services for electricity consumers

On its website, the Energy Agency prepared an application with the Comparison of offers for electricity consumers[43], which is the standard starting point for e-services for electricity consumers. The application allows comparison of offers and the obtaining some other information as defined in Annex VII (Chapter 1.2) of the Directive—Minimum billing and information requirements for billing based on actual consumption. The application services are presented in the table below, Table 12.

Table 12: E-services for electricity consumers

E-service	Description
Comparison of electricity supply offers	The service enables the calculation and comparison of all active offers for the supply of electricity. The comparison of offers enables the final consumer to get to know the suppliers of electricity and their offers. It provides an informative calculation of the annual amount for the intended use of electricity and a comparison of all offers that meet the final consumer's criteria.
Checking the monthly billing	The service enables the verification of the correctness of the monthly electricity bill for the offer of the selected supplier.
Control over the offers for the supply of electricity	The service enables automatic notification of changes in the offers for the supply of electricity.
Price calculation for network use	The service provides a calculation of the price for using the network and a comparison between individual tariff items.

[43] https://www.agen-rs.si/sl_SI/primerjalnik

E-services for consumers of natural gas

On its website, the Energy Agency prepared an application with the Comparison of Offers for Customers of Natural Gas[44], which is the standard starting point for e-services for consumers of natural gas. The application allows comparison of offers and obtaining some other information as defined in Annex VII (Chapter 1.2) of the Directive—Minimum billing and information requirements for billing based on actual consumption. The application services are presented in the table below, Table 13.

Table 13: E-services for consumers of natural gas

E-service	Description
Comparison of offers on the supply of natural gas	The service enables the calculation and comparison of all active offers for the supply of natural gas. The comparison of offers enables the final consumer to know the suppliers of natural gas and their supply. It provides an informative calculation of the annual amount for the intended use of natural gas and a comparison of all offers that meet the final consumer's criteria.
Checking the monthly billing	The service enables the verification of the correctness of the monthly charge for the supply of natural gas to the selected supplier.
Control over the offers for the supply of electricity	The service enables automatic notification of changes in the offers for the supply of natural gas.

Services of electricity suppliers in Slovenia

Table 14 presents services that electricity suppliers in Slovenia offer in the area of billing and measurement for end-users in households.

Table 14: Services of electricity suppliers in Slovenia

Service	Description
Billing of electricity consumption	All final electricity consumers are provided with an annual electricity consumption bill. The SODO reads the counters once per calendar year and based on this reading, the electricity supplier generates a billing of electricity consumption for the previous accounting period. During the billing period, electricity is paid by prepayments, the amount of which is calculated on the basis of the average daily consumption in the previous billing period.
Calculation of electricity based on actual consumption	Electricity suppliers in Slovenia allow the billing of electricity by actual consumption, which replaces the electricity bill with advance payments. In this case, the end-user communicates a metric state (via a web application or telephone) on a monthly basis, which means that he pays electricity after actual consumption. The service is free of charge through the online applications of electricity suppliers. The billing of electricity based on actual consumption is also used in cases where remote access equipment (advanced measurement systems) is already installed on the consumption site.
The ability to check the current billing balance	End-users can verify the correctness of the amount of the issued instalment during the accounting period by informing the supplier about the status on the electricity meter at the time of the maturity of the instalment and requesting a control billing.
Additional e-services	Electricity suppliers in Slovenia provide their consumers with additional online services that provide end users with detailed information on consumption (e.g. performance indicators).

[44] https: //www.agen-rs.si/sl_SI/primerjalnik

Metering of heat

The area of metering and billing of heat in individual parts of buildings supplied from the district heating network (DO) or from the central source is defined by EZ-1 in Article 357 (obligatory metering of heat in individual parts of buildings); In multi-apartment buildings and other buildings with at least four individual parts, which are supplied with heat from a common heating system, the costs for heating and hot water are therefore billed in most cases on the basis of actual heat consumption. For this purpose, the owners of individual parts of the building install measuring devices, which allow an indication of the actual heat consumption of an individual part of the building.

The method of measuring heat and the method of dividing and billing for heat costs in multi-apartment and other buildings with at least four individual parts is determined by the Rules on the method of distribution and calculation of heating costs in residential and other buildings with several individual parts[45] adopted in 2015. In 2016, the Ministry of Infrastructure prepared amendments and supplements to the rules adopted in 2015, which provide fairer cost sharing and in the future also allow owners to reduce heating costs by saving and measures.

3.1.4. Consumer information and training programmes (Article 12 and Article 17)

In the area of consumer information and training, it is planned to continue the implementation of existing measures and upgrade them (Table 15) to achieve the objectives defined in the previous Action Plan in this area. To facilitate the monitoring of the implementation of measures, the measures are somewhat rearranged[46].

Within the framework of the measure of information, awareness and training of the target public (measure H.3), the Centre for RES/CHP Support Borzen is responsible for the preparation and implementation of information, awareness raising and training programmes for different target groups on the benefits and practical aspects of the development and use of EE technologies and the use of RES in accordance with 351. Article 1 EZ-1. For that purpose, Borzen prepared the sustainable energy portal *Trajnostna energija* in 2014, which was then thoroughly upgraded in 2015. The portal presents information in the field of EE and the use of RES for various target groups (households, companies, professional public). In 2015 Borzen and RTV Slovenia prepared *Eko utrinke*, a series of 15 educational programmes on sustainable energy. In 2016, animated short series of five cartoons titled *Lepši svet*, which tell about EE and the use of RES, were added to this, and are intended for children in kindergarten and first grades of the Nine Year School. Information and consumer information is also provided through other sources: through MzI portal for the energy (*Portal energetika*), ENSVET networks (measure G.5), and websites of energy companies (e.g. Energy of the future (Energija prihodnosti), Positive Energy (Pozitivna energija), etc., local energy agencies, non-governmental organizations and others involved in the field. In the period from 2012 to 2014, these activities also received support under the programmes of large liable entities to achieve energy savings in final customers, with a total of 113 supported programmes. For awareness-raising, education and training projects in the field of climate change, it was possible to obtain co-financing from the Climate Change Fund. Despite the wide range of events, there is no systematic monitoring of the effects and targeted planning of measures in the area of information and awareness of the target public. Also, there is no systematic monitoring of the integration of the content of EE into educational programmes at all levels of education, as indicated under measure H.4a. Otherwise, the measure is implemented.

[45] Rules on the Method of Dividing and Calculating the Costs of Heating in Residential and Other Buildings with Several Individual Parts, UL RS No 82/15 and 61/16.

[46] Due to differences in the concepts of formal education and targeted training and coordination with other documents (OP TGP), the education and training measure (H.4) is now divided into two separate measures, namely measure H.4a— Integrating the content of EE in the broader process of development of education and action H.4b— Promoting training.

In the field of preparation and implementation of energy efficiency projects, the use of RES and the installation of green energy technologies, various training courses (measure H.4b) are being conducted, e.g. 'European Energy Manager – EUREM', training in various international projects, in particular Horizon 2020 projects, training organized by the Slovenian Chamber of Engineers, the Chamber of Architecture and Spatial Planning of Slovenia, the Slovenian Association for Sustainable Construction—GBC Slovenia, the Economic Interest Grouping of Facade Systems and Heat isolation, professional training in regular annual fair events (International Trade Fair, DOM Fair, MEGRA Fair), etc., but there is no systematic planning and monitoring of training events.

Under measure G.3, socially weak citizens can apply for an Eco Fund call for grants for energy renovation of multi-apartment buildings and apply for incentives in the amount of 100 % of the recognised investment costs. In the autumn of 2016, the Eco Fund, within the ENSVET network, also set up the AERO project (reducing energy poverty— assisting energy-poor citizens).

ENSVET Energy Advisory Offices Network (measure G.5), which has been active since 1993, provides citizens with independent energy counselling and information, educational and awareness-raising activities for the promotion of EE and RES measures in the local environment. Management, the organization of consulting and implementation of the programme, was taken over by the Eco Fund in the second half of 2015. In 2016, 70 qualified independent energy advisors worked in 49 offices in the ENSVET network. Despite the fact that this year, 5 746 advice was delivered with a written report, and 4 321 the year before, the realisation lagged behind the annual work programme plan, which envisaged 8 000 advice delivered on the basis of a direct interview.

Within the framework of the energy labelling measure and the minimum standards for products and devices (measure V.2), harmonisation with European legislation is being carried out, while the Market Inspectorate of the Republic of Slovenia is responsible for administrative control and verification of products' compliance with the requirements of energy efficiency. In 2014, it conducted regular administrative control of the energy labelling of household appliances, namely refrigerators, washing machines, dishwashers and tumble dryers. A year later, the inspectorate carried out the control of the energy labelling of electric lamps and lighting products and their energy-efficient designs, and in 2016 also conducted a more detailed inspection of small-scale combustion plants for liquid and gaseous fuels, power up to 400 kW, large household appliances and vacuum cleaners. The Inspectorate concluded that there is still a lack of knowledge of the regulations on the provision of relevant information on energy labelling, as in 2016 the irregularities were still detected in a fifth of products.

Financing the implementation of G.5 and V.2 measures remains unchanged in the future. To carry out the tasks envisaged under other measures, it will be possible to obtain funds from the Climate Change Fund, except the measure of incorporating the content of the EE in the wider process of development of education (H.4a). For this measure, funds are allocated under the OP EKP. Within the framework of the priority of *Promoting energy efficiency, smart energy management and the use of renewable energy sources in public infrastructure, including public buildings and the housing sector*, funds are also allocated for information and awareness-raising, training of energy renovators or almost zero-energy construction buildings and implementation of measures in the framework of energy rehabilitation of households facing energy poverty. In the field of education and training, in general, the OP EKP plans to provide financial incentives also under the priority axes *Promoting employment and transnational labour mobility and Knowledge, Skills and Lifelong Learning for better employability.*

Table 15: Existing measures in the field of consumer information and training

No	Measure	Programme / Upgrading	Type of measure / Responsible entity	Target group	Deadline
H.3	**Information and awareness-raising for target publics**	**Upgrading:** • Preparation and implementation of long-term communication programmes for informing and raising awareness on EE and the use of RES for different target groups (households, public sector, SMEs). • Establishing systematic monitoring of the effects achieved through information and awareness-raising activities.	Informing / Ministry responsible for energy, Borzen, Eco Fund, Project office for the energy renovation of public buildings, Ministry responsible for the environment	Households, Public sector, Economy (SME)	2017-2020
H.4a	**Integrating the EE content into a wider process of development of education**	**Division of the measure into two separate measures** The integration of the EE content in educational programmes at all levels of education and their monitoring.	Education / Ministry responsible for education, Ministry responsible for energy	Educational institutions	2017-2020
H.4b	**Promoting training**	**Division of the measure into two separate measures, upgrading:** Preparation oriented to the needs, implementation and monitoring of targeted training for the preparation and implementation of projects in the field of EE, RES and green energy technologies. Some training is already planned in the framework of : • Measure H.1—training potential contractors as well as other actors at all levels for the preparation and management of energy contracting projects; • Measure J.1—training to increase the volume of green procurement; • Measure J.2—training of persons responsible for energy renewal at all levels of project preparation and implementation (subscribers, providers, promoters, providers of measurements and verification of savings, etc.); • Measure J.3—public sector energy management training; • Measure G.5 - regular and additional training of ENSVET advisers; • Measure G.5—training in the field of EE and RES for managers of multi-apartment buildings; • Measure I.4—training for energy management in the industry; • Measure P.3—education of drivers and managers of the vehicle fleet, including in the field of economical driving and logistics.	Training / Ministry responsible for energy, Ministry responsible for the environment, Ministry responsible for transport, Government Office for Development and European Cohesion Policy, training providers	Public administration, managers of multi-apartment buildings, designers, architects, energy managers, contractors, decision makers, etc.	2017-2020
G.3	**Aid for the efficient use of household energy for vulnerable population groups**	**Upgrading:** • Assessment of the introduction of an additional model of differentiation of owners in relation to the social and financial situation of their households, including the assessment of the expediency of introducing an appropriate partial adjustment of the amount of co-financing, thus eliminating the obstacle to difficult financing of renovations in households living close to the poverty threshold but not having the status of socially weak citizens. • Establish a system for providing information on counselling and implementation of EE measures and help implement measures tailored to vulnerable groups of the population.	Information and counselling / Ministry responsible for energy, Ministry responsible for social affairs, Eco Fund, ENSVET	Households with income in the first quintile	2017-2020

No	Measure	Programme/Upgrading	Type of measure / Responsible entity	Target group	Deadline
G.5	**Energy Advisory Network for Citizens - ENSVET**	• Strengthening promotion of ENSVET in public • Development of ENSVET services towards greater user-friendliness • Enlargement of the ENSVET network through the establishment of mobile information units for better access to energy advice to the public • Preparation of information materials in the field of EE and the use of RES in households • Extension and upgrading of the ENSVET network with additional consulting services (on-site supervision, on-site inspection, etc.), in particular in support of the implementation of measures in multi-apartment buildings. • Expansion of the ENSVET network also on organising training for managers of multi-apartment buildings and energy managers— janitors in public sector buildings. • The upgrading of regular training of energy advisers.	Eco Fund		
V.2	**Energy labelling and minimum standards for products and devices**	Under this measure, harmonisation with European legislation in this field is carried out, as well as administrative controls and verification of products' compliance with energy performance requirements by testing.	Regulations / Ministry responsible for energy, Market Inspectorate of the Republic of Slovenia, Inspectorate of the Republic of Slovenia for Infrastructure	End users	

3.1.5. Availability of qualification, accreditation and certification systems (Article 16)

The basis for the establishment of a systematic approach to training and certification of qualifications for several critical areas of energy efficiency is set by the EZ-1. In Article 341 it defines the conditions for obtaining a license for independent experts in the production of energy performance certificates, air conditioning system reviews and heating system overviews. In Article 353 it sets out the conditions for energy consultants for citizens and provides for the organisation of their regular supplementary professional training. Article 359 foresees the training of installers of installations on RES. Training programmes and more detailed conditions for training providers are set out in a rulebook prescribed by the minister responsible for energy. The Regulations on Training, Licenses and Registry of Independent Experts for Periodic Inspection of Climate Systems were renewed on the basis of the EZ-1 in March 2016 [47], the rules for heating systems are in the process of being prepared, and in the field of the production of energy cards, the regulations are issued in accordance with the previous Energy Act.

The ministry responsible for energy manages and maintains the register of independent experts and issuers of energy certificates, while the system of expert supervision of energy certificates and reports on the inspection of air-conditioning and heating systems, which is prescribed by Article 347 EZ-1, is being established.

The training and certification of installers of energy devices, envisaged in Article 359 EZ-1, has not yet been systematically established. In accordance with Article 351 EZ-1, information on certification systems or installers of energy devices for the use of RES and a list of certified installers is monitored and published online by the Borzen Centre for Support, but this information is not yet available.

[47] UL RS No 18/16.

In Slovenia, training is provided for the acquisition of the license for an independent expert for the production of energy performance certificates according to the programme, which is defined in the Rules on training, licenses and register of licenses of independent experts for the production of energy cards[48]. Upon successful completion of the training and a written and oral examination, the candidate can apply to the competent ministry for the issue of the license for an independent expert for the production of energy performance certificates. There are currently 473[49] organisations in the registry of authorised energy card issuers. The licensee must complete the training no later than every five years since the last successful completion of the training. Training for independent climate monitoring experts is carried out twice a year, while training for independent heating system experts is under preparation.

In 2014, the Slovenian Accreditation (SA), as a national accreditation body (organised according to Regulation (EC) 765/2008 and SIST EN ISO / IEC 17011: 2004), established an accreditation scheme for certification bodies for the certification of energy management systems according to the SIST EN standard ISO 50001. At SA in Slovenia, one certification body for management systems is currently accredited for this activity, while two are accredited with other European accreditation services, signatories of the multilateral (MLA) agreement on the recognition of accreditations.

The system of evaluation of products and services in the field of construction is being maintained - the Quality Evaluation in Construction (ZKG), which, with the aim of encouraging producers and service providers to pursue higher quality in Slovenia since 1996, is being managed by the ZRMK Construction Institute. Because of the complexity and lack of resources, the development of the system and the expansion to new areas (for example, the assessment of multi-apartment buildings) has stalled slightly or has been curtailed.

The national framework for certification or certification in areas of expertise that have a significant impact on EE, including a system of verification and certification of certification bodies, is not entirely defined and is currently only partially operational and operational for only a few areas. In addition, access to certified training programmes and qualification schemes for experts responsible for energy renewal or inspections, as well as operators and supervisors, at all levels of the preparation and implementation of EE measures, in particular, should be enhanced.

In the area of training and licensing of EE experts, the implementation of the existing measure and its upgrading will continue, Table 16. Professional non-licensing training courses are planned under measure H.4b—Promoting training in Chapter 3.1.4, Table 15.

Table 16: Existing measure of training and licensing of experts in the field of EE

No.	Measure	Programme / Upgrading	Type of measure / Responsible entity	Target group	Deadline
H.5	**Training and licensing of independent experts**	**Upgrading:** In the framework of the measure, new training and licensing are envisaged, namely: • Measure V.6 - training and certification of energy auditors.	Training / Ministry responsible for energy, training providers	Experts in the field of EE	2017-2020

[48] UL RS No 6/10, 23/13 and 17/14 – EZ-1.

[49] Situation at 24 April 2017. The Register is accessible at http://www.energetika-portal.si/podrocja/energetika/energetske- izkaznice-stavb/register-strokovnjaki-izdajatelji/

3.1.6. Energy Services (Article 18)

Energy contracting projects (EPOs) have been implemented in Slovenia since 2002, especially in the public sector at local community level, for various EE and RES measures and different levels of investment. The significant increase in the number of EPO projects occurred within the framework of the energy efficiency obligation scheme (measure H.6) in the period from 2012 to 2014. The set of EPO[50] models, which are successfully implemented in Slovenia, is extensive and provides suitable solutions for the implementation of EE and RES measures in all sectors. An encouraging support environment for the further development of the EPO is established in several strategic documents (DSEPS, OP EKP). Energy contracting is thus a key model of a comprehensive energy renovation of buildings in the public sector by 2020, which will make a significant contribution to achieving the annual dynamics required for renovating public buildings and improving the leverage of public spending in the overall energy renovation of public buildings. The implementation of the EPO projects is supported by the cohesion funds of the financial perspective 2014-2020. This appropriation is also intended for the horizontal development of the EPO, including for the implementation of pilot/demonstration projects and education.

The accelerated development of energy contracting was already planned in the previous An URE plan, in particular in measures H.1 and J.5, but the envisaged tasks were not fully implemented. Despite the high demand for EPO services in public sector and technical support for the preparation of ELENA[51] projects, the market of providers[52] and EPO promoters, with only a few national providers, are relatively poorly developed, which mainly affects the absence of competitive dialogue and the availability of optimal solutions and smaller scale of realized projects according to EPO model.

Up to 2020, it is necessary to upgrade the implementation of the EPO with the activities carried out under measures H.1 (Table 17) and J.5 (Table 25):

[50] This range comprises comprehensive energy contracting (contractual provision of energy savings including contracted energy supplies), lean, partial, integrated and green contractual provision of energy savings and contracted energy supply. The model for SMEs is in the implementation phase.

[51] The target value of investments to be realised under the three ELENA projects is over EUR 100 million.

[52] There is no official list of available EPO providers and promoters of EPO projects and their qualifications. Surveys on the EPO market are carried out in the framework of Horizon 2020 projects. The latest available data are thus available on the websites of The guarantEE project.
http://guarantee-project.eu/sl/wp-content/uploads/sites/18/2017/01/Market_Report_SI_2.pdf

Table 17: Existing measure of energy contracting

No.	Measure	Programme / Upgrading	Type of measure / Responsible entity	Target group	Deadline
H.1	**Energy contracting**	To achieve a higher volume of energy renewal according to the EPO, appropriate financial products and other support measures must be developed: • An optimal set of financial products is being created to ensure the establishment of a comprehensive support environment for the EPO. Financial instruments[53] have been identified (DSEPS amendments, EEFIG report[54]), which allow risk sharing (guarantee scheme), refinancing of investments (buyback of receivables, purchase of green bonds), financing of less profitable investments (state ESCO) and providing start-up capital for the creation of new energy companies services (capital injections). • A national EPO model in the housing sector and for SMEs is being prepared; • Pilot projects for the testing of new EPO financial instruments are carried out; • Pilot projects for a comprehensive energy renovation of a multi-apartment building are carried out according to the criteria of almost zero-energy renovation, possibly according to the model of energy contracting; • Systemic incentives for the preparation of EPO projects under the support programme for promoters of these projects are provided; • A structured process of those involved in the design and establishment of a system for the qualification of EPO providers and promoters of EPO projects, following the example of developed EPO markets (Germany, Czech Republic, Austria) and / or quality assurance of EPO projects, including, inter alia: subscribers, providers and promoters of EPO, renovation contractors, equipment manufacturers, chambers (GZS, IZS, OZS), providers of measurements and verification of savings, experts etc.; • A system of education and training of persons responsible for energy renewal is established at all levels of preparation and implementation of the EPO project (subscribers, providers, promoters, providers of measurements and verification of savings, etc.). • A manual for the implementation of EPO projects is prepared. P The manual will standardise the implementation processes and define the implementation protocols. It will contain proposals for all key documents for the development, implementation and monitoring of the EPO project, including standard tender documents and model contracts for various forms of energy contracting.	Training / Ministry responsible for energy, Ministry of Finance, SVRK, SID bank, Eco Fund	Public sector, multi-apartment buildings, service sector, SMEs, industry, EPO providers, promoters of EPO projects, experts on measurement and verification	

[53] The financial instruments identified in this Action Plan do not relate to instruments that are defined in Article 7 of the Market in Financial Instruments Act (UL RS No 108/10 – official consolidated text, 78/11, 55/12, 105/12 – ZBan-1J, 63/13 – ZS-K, 30/16 and 9/17).

[54] Energy Efficiency Financial Institutions Group ('EEFIG') Final Report covering Buildings, Industry and SMEs: Energy Efficiency—the first fuel for the EU Economy; How to drive new finance for energy efficiency investments, February 2015.

No.	Measure	Programme / Upgrading	Type of measure / Responsible entity	Target group	Deadline
		The upgrade of the measure also includes recommendations for the action: Project office (measure J.5.). The funds for the development of the public-private partnership model for energy renovation of buildings are planned in the framework of Technical Assistance for OP EKP, priority axes Sustainable use and energy production and smart grids.			

3.1.7. *Other measures of a horizontal nature for energy efficiency (Articles 19 and 20)*

The continuation of the implementation of existing other horizontal measures is shown in Table 18, and the new measures are in Table 19.

Table 18: Other existing measures of a horizontal nature

No	Measure
J.1	**Green public procurement (see Table 25)**

Table 19: Other new measures of a horizontal nature

No	Measure
G.6	**Instruments for financing renovation in multi-owner buildings (see Table 24)**
G.8	**Distribution of incentives between owners and tenants in multi-apartment buildings (see Table 24)**
G.9	**Establishing a guarantee scheme (see Table 24)**

3.1.8. *Other measures of a horizontal nature*

The environmental stamp duty is paid for air pollution with carbon dioxide emissions for fossil fuels, in particular for heating and transport. The amount of duty is proportional to the CO_2 emission in fuel and gives a price signal that directs consumers who are not included in the emissions trading scheme. From 1 January 2015, the amount of duty is EUR 17.3/EO.

The measure was implemented in 1997. Since then, the set of sectors and GHGs for which the tax is paid, and also the amount of duty had changed several times. In 2016, exemption from the duty for the fuel for combustion of LPG fuel and natural gas as a fuel for the propulsion was abolished with the amendment of the Regulation on the environmental tax for air pollution with carbon dioxide emissions[55], the provisions on exemption from tax were harmonized with the rules on State aid in the EU.

[55] UL RS No 22/16.

Table 20: Other EE horizontal measures

No	Measure	Programme / Upgrading	Type of measure / Responsible entity	Target group	Deadline
H.2	**The environmental stamp duty for air pollution with carbon dioxide emissions**	**Existing measure** The changes are not planned until 2020. **Upgrading** An analysis of the potential for changes in the amount of the tax and the reintroduction of the exemption scheme, which will stimulate taxpayers to invest in measures to reduce CO_2 emissions.	Duties and taxes / Ministry responsible for the environment	Final energy consumers	2017-2020

3.2. Regulations on the energy performance of buildings

3.2.1. Addressing the requirements of Directive 2010/31/EU (EPBD)

The calculation of the cost-optimal level of costs of the minimum energy performance requirements of buildings is presented in the context of EPBD reporting.

The list of measures and instruments in the field of buildings is given in chapter B.3. This list will also be presented in detail in the context of EPBD reporting.

3.2.2. Building renovation strategy (Article 4)

A long-term strategy to promote investment in energy renovation of buildings was adopted in October 2015. The starting points are set out in two strategic documents: OP TGP and OP EKP, which are based on previous documents (AN URE, OP ROPI, etc.) and established measures, and are being upgraded. The objectives are set for the ground-breaking years 2020 and 2023 (the final year of the OP EKP implementation) and 2030, where the expected energy savings, the necessary public funds and jobs are evaluated. For the year 2050, only the expected energy savings is estimated.

In line with the Energy Efficiency Directive 2012/27/EU, together with the preparation and decision-making of an EE, the preparation and decision-making on the renewal of the DSEPS is in progress, and amendments and supplements to the strategy are set out in a separate document, in the Annex to the DSEPS. The starting points of DSEPS are set out in Annex B.

General existing and new measures to promote EE and the use of RES in buildings are presented in the tables below (Table 21, Table22).

Table 23 lists the existing measures to promote EE and the use of RES in households, while Table 24 lists the new measures.

Table 21: Existing measures for promoting energy efficiency and the use of RES in buildings in general

No	Measure	Programme / Upgrading	Type of measure / Responsible entity	Target group	Deadline
V.1	**Amendments and supplements to energy efficiency regulations for buildings**	The Rules deal with new buildings, reconstructions, as well as all types of investment works on parts of the building that affect its energy efficiency. It is envisaged to complement the requirements of new standards for the introduction of almost zero-energy buildings and their upgrading regarding requirements for renovation of buildings, the use of RES in buildings and the reduction of GHG emissions during the lifetime.	Ministries responsible for energy and construction	Buildings	2017-2020
V.2	**Energy labelling and minimum requirements for products and devices**	Energy labelling of products intended for household use is one of the most important measures for reducing household energy consumption.		Buildings	2017-2020
V.3	**Support scheme for electricity generated from RES and CHP (see Table 30)**				

Table 22: New measures for promoting energy efficiency and the use of renewable energy in buildings in general

No	Measure	Programme / Upgrading	Type of measure / Responsible entity	Target group	Deadline
V.4	**Promotion of optimisation of the operation of energy systems (RE-CO)**	The measure will be implemented in the framework of investments in the energy renovation of public buildings in the period from 2014 to 2020, to achieve higher savings also by optimising the operation of energy systems and promoting energy efficient user behaviour. The possibilities of implementing measures to optimise the operation of energy systems will also be explored in other existing public administration buildings with financing in the form of energy contracting, and with the support of the project office and local energy agencies.	Financial incentives / Ministry responsible for energy; the ministry responsible for the real property of the state		2017-2020
V.6	**Quality assurance scheme for energy audits**	The measure is described in more detail in the chapter Energy audits and management systems (Chapter 3.1.2).	Set of instruments/ Ministry responsible for energy	Economy, public sector	2018-2020
V.8	**Comprehensive monitoring of energy renovation of buildings**	The measure introduces a comprehensive and systematic approach to the process of monitoring energy renovations of buildings and data evaluation methods. Existing bases related to energy efficiency and renewable building resources are compiled into a comprehensive process image to improve energy balances, strategies, local energy concepts, and so forth. Measures are thus more targeted, thus achieving greater energy savings.	Ministry responsible for energy	Buildings	2017-2020

Table 23: Existing measures for promoting the energy efficiency and the use of RES in residential buildings

No	Measure	Programme / Upgrading	Type of measure / Responsible entity	Target group	Deadline
G.1 + G.2	**Financial incentives for energy efficiency and the use of RES in residential buildings**	The implementation of the measure encourages investment in EE measures and the use of RES in single, dual or multi-apartment buildings, for which the Eco Fund's financial resources are available in the form of grants and loans with a favourable interest rate. For investments in RES, it is possible to obtain non-refundable and returnable funds in the framework of the Rural Development Programme of the Republic of Slovenia for the period 2014-2020, which are drawn from the European Agricultural Fund for Rural Development (EAFRD). Grants can be obtained under sub-measures M04.1 Support for investments in agricultural holdings and M04.2 Support for investments in the processing, marketing or development of agricultural products. The target group is agricultural holdings and food processing plants, and the subject of support is an investment in RES for the needs of agricultural holdings and food processing plants. Returnable funds in the form of financial instruments can be obtained through sub-measures M04.2 Support for investments in processing, marketing or development of agricultural products, M06.4 Support for investments in the establishment and development of non-agricultural activities and M08.6 Support for investments in forestry technology and the processing, mobilisation and marketing of forest products. The target groups are farms with complementary activities, food and wood processing plants and micro-enterprises in rural areas, and the subject of support is investments in RES for sale. The measure has been upgraded with the inclusion of funds under the OP EKP with demonstration projects for the energy renovation of multi-apartment buildings of the private and public sectors in the context of energy contracting, demonstration projects for a comprehensive energy renovation of multi-apartment buildings according to the criteria of almost zero energy renovation and energy renovation of buildings in the context of integrated territorial investments CTN) in selected urban areas.	Grants, refundable funds / Ministry of Energy, Eco Fund, SID bank	Households	2017-2020

No	Measure	Programme / Upgrading	Type of measure / Responsible entity	Target group	Deadline
G.3	**Aid for the efficient use of household energy for vulnerable population groups** [56]	Measures are being implemented for energy rehabilitation in households with problems of energy poverty. The measures are intended for both investments and advising and changing behavioural habits. In the Eco Fund's call for grants for the energy renovation of multi-apartment buildings, the socially weak citizens are entitled to an incentive of 100 % of the recognised investment costs. An additional model of differentiation of owners is introduced in relation to the social and financial condition of their households, and the appropriate partial adjustment of the amount of co-financing is introduced. This measure eliminates the hurdle of difficult financing for renovation in households, where they live very close to the poverty threshold but do not have the status of socially weak people.	Grants / Ministry responsible for energy, Ministry responsible for social affairs, Eco Fund, ENSVET	Households	2017-2020
G.4	**Distribution and calculation of costs for heat in multi-apartment and other buildings according to actual consumption**	A measure introducing compulsory sharing and calculation of heat costs according to actual use in multi-apartment and other buildings with at least four individual parts that are supplied with heat from a common heating system has been successfully established.	Legislation / Ministry responsible for energy	Households	2017-2020
G.5	**Energy Advisory Network for Citizens—ENSVET**	ENSVET Energy Advisory Offices Network provides independent energy counselling and information, educational and awareness-raising activities for the promotion of EE and RES measures in the local environment. Activities for enhanced visibility of ENSVET: - Renovation of corporate identity and promotion - Creating an interactive online information portal with simple online ordering and consulting - Establishment of mobile points - Upgrading the current advisory services with new services (for multi-apartment buildings, for managers, etc.) - Organizing and conducting education Enforcement of ENSVET advisers is strengthened.	Consulting / Eco Fund	Households ENSVET Managers of multi-apartment buildings	2017-2020

[56] The old name of the measure: Energy efficiency scheme for low-income households.

Table 24: New measures for promoting energy efficiency and the use of RES in residential buildings

No	Measure	Programme / Upgrading	Type of measure / Responsible entity	Target group	Deadline
G.6	**Instruments for financing renovation in buildings with multiple owners**	Commercial banks are involved in the process of co-shaping financial products based on the identified market needs (in the field of multi-apartment buildings). Sufficient information, education and training are provided to banks.	Financing / SID Banka, Eco Fund, Ministry of Energy, Ministry of Finance, SVRK	Commercial banks Households	2017-2020
G.7	**Legal bases for deciding in multi-apartment buildings**	The arrangement of legal bases for deciding in multi-apartment buildings based on the requirements of the Resolution on national housing programme 2015-2025.	Legislation / Ministry responsible for energy and construction	Households,	2017-2020
G.8	**Distribution of incentives between owners and tenants in multi-apartment buildings**	In line with the Resolution on the National Housing Programme 2015-2025, a change in the rent model is foreseen in the future.	Legislation / Ministry responsible for energy and construction	Households	2017-2020
G.9	**Establishing a warranty scheme**	Access to financial resources that will improve the creditworthiness of natural persons (lowering the interest rate and improving other conditions for loan rental) will be enabled.	Financing / SID bank, Eco Fund, the ministry responsible for energy, Ministry of Finance, SVRK	Households	2017-2020
G.10	**A programme of measures for more efficient energy use in households to reduce energy poverty**	In the Operational Programme of European Cohesion Policy, EUR 5 million is earmarked for the period 2014-2020 to tackle energy poverty by subsidising energy efficiency measures in 500 low-income households. Measures to improve energy efficiency will be for investment, advice and measures to change behavioural habits. The programme of measures for more efficient energy use in households for the elimination of energy poverty will be implemented by the MZI as a beneficiary. Measures to improve energy efficiency are intended for investment, advice and measures to change behavioural habits. The programme of measures for more efficient energy use in households for the elimination of energy poverty will be implemented by the MZI as a beneficiary.	Grants / Ministry responsible for energy as a beneficiary in cooperation with the Ministry responsible for social affairs	Households	2018-2022

3.2.3. Additional measures concerning the energy performance of buildings and installations

All measures on buildings, which also cover the energy efficiency of installations, are presented in Chapters 3.2.2 and 3.3.1.

3.2.4. Savings resulting from measures related to the energy efficiency of buildings

In the past period, the following measures were implemented in households to increase energy efficiency in buildings:

- the financial incentives for energy efficiency and the use of RES in residential buildings,
- an aid scheme for the efficient use of energy in households for vulnerable population groups,
- the instruments for financing renovation in buildings with multiple owners,
- Energy Advisory Network for Citizens—ENSVET,
- reimbursement schemes for energy efficiency in households: Eco Fund loans and incentives from other providers of green loans for the housing sector.

In the housing sector promoting investments to increase the energy efficiency of buildings is carried out through irreversible financial incentives through the Eco Fund. The main measures, which achieved the most savings in the period from 2008 to 2015, were the replacement of the thermal insulation of the façade in older buildings, the installation of a heat pump and a biomass boiler, Fig. 7. An overview of energy savings in the building sector is presented in detail in Chapter 2.4. In accordance with the AN URE plan, since 2016, the Eco Fund directs the citizens in a comprehensive energy renovation of residential buildings by granting higher non-refundable financial incentives in case of simultaneous implementation of three or more RES and EE measures, and in the case of a higher quality renovation of buildings (e.g., surveillance). The continuation of progressive incentives is also foreseen by the Eco Fund Programme in the period 2016-2020[57].

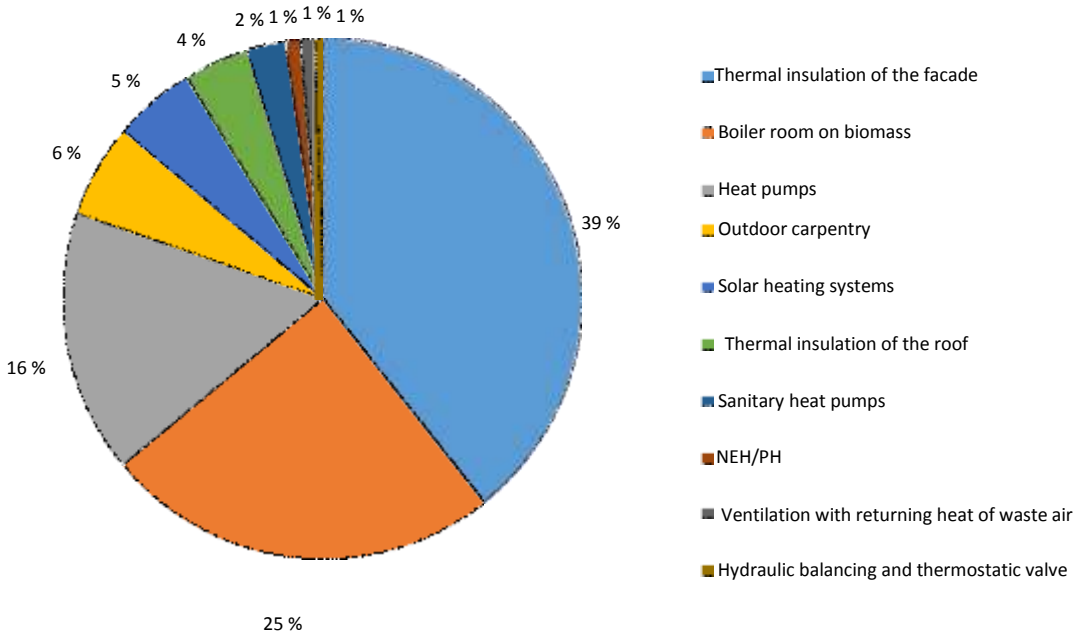


Figure 7: The final energy savings divided into ten actions, implemented under the Eco Fund 2008-2015, which have achieved the most savings

Savings at the expense of increased energy efficiency in the public sector have been achieved in recent years through measures:

- irreversible investment financial incentives for the energy rehabilitation of buildings in the public sector, aimed at increasing the share of projects implemented through energy contracting (in the period from 2007 to 2013 OP ETID; in the period from 2014 to 2016 OP EKP, Eco Fund programmes; in the period from 2012 to 2014 programmes of large liable entities);
- reimbursement schemes for energy efficiency in the public sector (Eco Fund);
- project office for energy renovation of public buildings;
- green public procurement.

EE and the use of RES in the public sector during the period 2008-2015 were primarily promoted through grants for the energy rehabilitation of buildings from the Cohesion Fund under the OP ETID 2007-2013. The Eco Fund also offers favourable loans to the public sector. In the period from 2012 to 2014, grants were also available under the scheme of compulsory end-use energy savings for large liable entities.

[57] Business Policy of Eco Fund, Slovenian Environmental Public Fund for the period from 2016 to 2020, Eco Fund, 2016.

During this period, funds from the European Regional Development Fund (ERDF) and the European Agricultural Fund for Rural Development (EAFRD) were also available for measures in the public sector. Some grants for EE measures were also earmarked for the public sector by the Eco Fund.

In the public sector, the most significant savings were achieved within the OP ROPI in the field of energy rehabilitation and the sustainable construction of public buildings. In total, 362 operations were carried out and 148 166 MWh / year of energy savings were achieved in buildings in the fields of health, education, higher education and science, retirement homes and buildings owned by local communities.

From 2012 to 2014, grants from public sources of funding under the programme of large liable entities were also granted for investments in EE and RES. As a system of energy efficiency obligations, the EZ-1 set up a new scheme of compulsory end-use energy savings for large liable entities, encouraging the flow without public funding. The effects of the scheme are not yet monitored for the individual sector.

3.2.5. Financing measures for the energy performance of buildings

Funds for financing energy-efficiency measures for buildings are provided in the OP EKP. On the priority axis 4, EUR 115 million of grants are earmarked for the renovation of public infrastructure for increased energy efficiency and EUR 50 million for the implementation of financing through financial instruments.

In the OP EKP, EUR 11.8 million is foreseen in the framework of Integrated Territorial Investments (CTN) for integrated energy renovation of residential neighbourhoods.

The Eco Fund provides grants for financing the renovation of buildings for the housing sector, SMEs, multi-apartment buildings and partly for the renovation of public buildings. Loans from Eco Fund and SID Banka are also available for implementation of measures. A possible source of funding (in case of significant infrastructure investments) is also the Strategic Investment Fund, where SID Banka is the entry point.

A scheme of operating support for electricity generation from RES has been established. A possible source of financing for investments for improving the energy efficiency of buildings are also the programmes of liable entities for achieving energy savings and grants within the framework of sub-measures M04.1 and M04.2 from the Rural Development Programme of the Republic of Slovenia for the period 2014-2020.

3.3. Measures to increase energy efficiency in public bodies (Articles 5 and 6)

3.3.1. The buildings of the central government (Article 5), hereinafter referred to as the 'narrower public sector buildings'

The ministry responsible for energy has prepared a record of the buildings of the narrower public sector, upgraded with data from several records, which are related to real estate (land register, SMA, MPA in the context of Centralization of the management of real property of the state...) within the relevant priority investments of the OP EKP. The current record of narrower public sector buildings is based on the state of the real estate register of 1 January 2017.

The Register of Public Sector Buildings by the Ministry of Energy shall include real estate from this register (REN)—buildings or parts of buildings:

- the owner of which is the Republic of Slovenia or a legal entity that the Ministry considers it represents the ownership of the Republic of Slovenia and in which the state property manager is registered in accordance with Regulation 45 on the method of

registering real estate managers in the land cadastre and cadastre of buildings[58] (ministries, institutions, etc.);

- are intended for business use;
- are in accordance with the provisions of the Directive, real estate for business use with an area greater than 250 m2 is taken into account.

The records of the public sector buildings are published on the website of the ministry responsible for energy [59]. For each building is stated:

- the area of the property in m2 and
- the estimation of primary energy consumption in kWh/m2/year.

The data were collected in the first phase for all buildings in the narrower public sector that are owned by the RS irrespective of the usable area, so it was possible to prepare a printout for buildings with a usable area of more than 250 m^2. This list defines buildings that need renovations (the threshold will be defined in the strategy of renovating the building fund) and will form functional units and which will enable energy recovery.

The list of energy-inefficient buildings in the narrower public sector that meets the requirements of the directive covers 504 buildings with a total area of 782 158 m^2. The obligation for the state to renovate 3 % of the total floor area each year means that 23 465 m^2 of building area must be renovated every year, on the assumption that all areas need renovation. The objective is indicative based on the existing record, as it is derived from the register of individual parts of buildings, but in fact, the renovations will be carried out at the level of each building. In this regard, it is necessary to start from the ownership of a particular building or from the possibility of renewal of common heating systems from the co-ownership data. The state decided to exercise exemptions in fulfilling its obligations, permitted by the directive in accordance with Article 5(2),namely that the buildings are not covered for the national defence, except for individual accommodation or office buildings used by the armed forces and other servants of the national defence authorities and buildings for ritual purposes, and that measures taken on buildings protected under regulations on protection of cultural heritage, adapt to protected values, in particular in terms of correction factors. These exemptions were determined by the DSEPS. Otherwise, the buildings will be treated as a whole, including the building envelope, equipment, operation and maintenance.

The buildings of the narrower public sector for renovation are selected through invitations to the intermediary bodies. The selection of buildings is on the side of the intermediary bodies, which select the buildings based on several criteria. The priority criterion is energy consumption in buildings (these are buildings that do not meet the minimum requirements of the regulation governing the efficient use of energy in buildings). In addition, the buildings are chosen according to the regulated ownership and management, the necessity to carry out the energy renovation, as well as other measures of comprehensive energy renovation, the importance of the facility, the cultural heritage and the possibility of renovation according to the model of energy contracting.

A long-term strategy to encourage investment in energy renovation of buildings is also addressed by energy renewal in connection with possible co-financing from cohesion funds. It is envisaged that pilot or demonstration projects and projects of the narrower public sector and the broader public sector owned by the state will be implemented through the direct allocation system, while projects of the broader public sector owned by the municipalities will be implemented through public tenders.

In October 2015, the ministry responsible for energy set up a project office for the energy renovation of buildings and in 2016 launched the operational implementation of the project ‘Energy renovation of buildings in state and municipal ownership’ in the framework of the

[58] UL RS No 121/06 and 104/13.
[59] http://www.energetika-portal.si/podrocja/energetika/prenova-javnih-stavb/

implementation of the OP EKP. The tasks of the project office are:

- Managing and ensuring the systematic preparation of a set of projects for meeting the set objectives in the field of the renovation of state-owned buildings;
- Support for the implementation of energy contracting projects;
    - active role in establishing the model of energy contracting (including preparation of procedures and documents for standardised implementation of projects; active role in eliminating administrative barriers);
    - accelerating the preparation of projects (accelerating the fulfilment of obligations regarding certification of buildings, preparation of extended energy audits and preparation of project documentation);
    - systematic preparation of joint tenders for lower costs of projects (geographical criteria, linking projects according to economic parameters, etc.);
    - provision of ongoing assistance for the implementation of energy contracting projects (assistance in the preparation of tenders and evaluation of offers, procedures, negotiations, an organization of adequate supervision over the implementation of investments, organising supervision over the implementation of the contract on the provision of savings, etc.);
- Supporting quality assurance in the field of efficient energy use in state-owned buildings;
    - active role in establishing a quality assurance system for the preparation and implementation of energy renovation projects in the public sector;
    - providing ongoing technical assistance in the preparation and implementation of projects and monitoring them;
    - the introduction of an energy management system for all public buildings of the narrower public sector;
    - preparation and implementation of a scheme for optimising the operation of energy systems, or so-called 're-commissioning'): with subsequent implementation for already implemented projects and in the context of new investment projects;
    - quality analysis of already implemented projects.
- Informing and participating in the training of all relevant actors in these areas;
- Transfer of know-how to investments in building renovation between different segments of public administration (with actors such as local energy agencies, etc.), transfer of international experience and transfer of knowledge to other sectors (e.g. SME, housing sector);
- Support in the transfer of knowledge and experience in the field of energy renovation of cultural heritage buildings;
- Keeping records of demonstration projects. The role of the project office will be to provide demonstration effects with the appropriate selection of projects, solutions and their monitoring, dissemination of results, etc.
- Custody of public sector buildings for the needs of energy renovations;
- Systemic monitoring of projects for optimising the process of preparing and selecting projects and allocating funds, providing comparative evaluation;
- Concentration, networking and know-how in the public sector in the field of investment in energy renewal and implementation of energy contracting projects.

Since its inception, the office has carried out the following tasks:

1. In support of a comprehensive energy renovation of public buildings, the Office has published the following documents: (i) Instructions and technical guidelines for energy renovation of public buildings, (ii) More detailed guidelines to public partners in the measure of energy renovation of public sector buildings, (iii) Guidelines for the work of intermediary bodies and beneficiaries in the measure of energy renovation of public sector buildings; (iv) A Guide to eligible costs for

the

measure of energy renewal of public sector buildings; and (v) Guidelines for the energy renovation of buildings of cultural heritage;
2. Announced the invitation to submit a proposal for an energy renovation operation for the buildings of the narrower and wider public sector;
3. It has established a record of the properties owned and used by the people of the public sector, which it also updates and guides the preparation of demonstration projects.

The functioning of the office is financed from the Cohesion Fund funds in the context of technical assistance in the OP EKP. In 2016, three pilot projects for energy renewal of buildings under the model of energy contracting were approved with the support of the OP EKP funds, namely:

- a pilot project of energy renovation to an almost zero-energy building;
- a pilot project for energy renovation of buildings with several managers;
- a pilot project of several related buildings with a joint manager.

In December 2016, an invitation to submit proposals for operations for the implementation of a pilot project for energy renovation of the cultural heritage building was also announced. Based on the proposals received, a pilot project for cultural heritage was selected in March 2017, currently in the process of implementing procedures for obtaining European Cohesion Policy grants.

As indicated in the above tasks, the office also offers – within its jurisdiction-legal, professional and technical assistance for the implementation of energy contracting projects at the state and local level, trains public contractors (workshops, seminars, consultations—for the transfer of best practices) and cooperating with competent ministries as mediators in remedying deficiencies in legislation. For this purpose, in the first phase of the office, the model of public-private partnership or energy contracting was first developed. The performance of the model of energy contracting is tested on a set of pilot projects, thus creating the basis for the transfer of acquired knowledge to similar projects of the entire public sector.

Existing EE measures in the public sector, including the upgrade of individual measures, are summarised in Table 25, and new measures are presented in Table 26.

In the period 2007-2013, the Republic of Slovenia promoted the energy renovation of the buildings of people in the broader public sector (health, education, social security, buildings owned by local communities). In this cycle of investments, which continues in 2014-2015, the buildings of the narrower public sector have not yet been included. The Republic of Slovenia financed measures to fulfil its obligation of energy rehabilitation of buildings from the Cohesion Fund, in accordance with the Partnership Agreement and the OP EKP. Thus, the 2014 renewal obligations will be taken into account in the surplus of overhauls for the next three years, as permitted in Article 5(3), with the 100 % commitment for 2014 fulfilled by the end of 2018. In fulfilling its obligation to renew (Article 5(4) of the Directive) [60], the Republic of Slovenia will not claim the contribution of changes to the building fund.

For more demanding investments in the energy renovation of public sector buildings, cohesion funds are available, while the Eco Fund grant is provided for financially less demanding investments, which will include one or more individual measures of EE and RES use in the renovation of older buildings owned by municipalities and the Republic of Slovenia.

Last year Eco Fund issued a call for incentives for the energy recovery of buildings of the Ministry of Defence. This year, an invitation for partial renovation of the ministries' buildings is planned.

[60] In the EZ-1, legal bases have been confirmed which, in fulfilling the obligations, would allow the enforcement of these changes. However, Slovenia decided not to apply Article 5(4) to reduce its liabilities in the event of a change in the building stock.

Table 25: Existing EE measures in the public sector

No	Measure	Programme / Description	Type of measure/ Responsible entity	Target group	Deadline
J.1	**Green public procurement**	The Green Public Procurement Regulation has been revised (Decree on GrPP) [61] and will enter into force on 1 January 2018. Unlike the original arrangement, according to the renewed regulation, green public procurement will be compulsory for several items (up to now 12, after the new 20). The Decree on GrPP determines the environmental aspects which must be taken into account by contracting authorities when awarding public contracts and determines the objectives to be achieved in each procurement procedure for ordering items from the recast regulation. Upgrading: In the field of URE, it is necessary to ensure that the Green Procurement Regulation will regulate, in particular, small-scale investment maintenance orders and regular maintenance, that is, for contracts not regulated by the PURES (e.g. heating, reconstruction of small-scale buildings, etc.). In the field of public procurement of energy renovation of buildings, it is necessary to establish criteria for choosing the most economically advantageous offer, which is based on the calculation of costs over the lifetime. The criteria are designed in a way that the evaluation of bids will be based on the lowest cost of living and at the best price-environmental impact ratio. Among the selection criteria, it is also appropriate to include energy savings, including the use of RES or CO_2 emissions. The Plan of Activities of Ministries and Governmental Offices (NAMVS) for the period 2017-2018 is also in preparation, including the preparation of sample documentation and database on good practices, knowledge transfer, regular training and assistance in the area of green public procurement and pilot projects.	Legislation / Ministry of Public Administration Ministry responsible for the environment	Public sector buildings	2017-2020
J.2	**Financial incentives for comprehensive energy renovation and sustainable construction of buildings in the public sector**[62]	Financial incentives to finance investments of a comprehensive energy renovation of buildings and the construction of almost zero energy buildings in the public sector are provided within the Cohesion Fund and Eco Fund funds (non-refundable and returnable funds). It is envisaged that part of the investments will be financed by private sources. To increase the impact of public funds, the accelerated start-up of the energy contracting mechanism is planned. In the OP EKP 2014-2020, EUR 180 million is foreseen under the Sustainable Energy investment priority, of which EUR 115 million is non-refundable, EUR 50 million is provided for financial instruments, and EUR 15 million will be contributed by the Republic of	Financial incentives / Ministry responsible for energy, Eco Fund	Public sector buildings Ministries not eligible for cohesion funds (e.g. MORS), municipalities	2017-2020

[61] UL RS No 51/2017.

[62] The old name of the measure: Financial incentives for energy efficient renovation and sustainable building of public sector buildings.

No	Measure	Programme/ Description	Type of measure/ Responsible entity	Target group	Deadline
		Slovenia from the integral budget. The emphasis is on designing financial instruments that must effectively eliminate obstacles in financing the renovation of buildings according to the model of energy contracting.			
J.3	**Public sector energy management**	Establishment of an energy management system by liable entities by the end of 2017. The establishment of a digital collection of energy accounting.	Organizational measure / Ministry responsible for energy	Public sector buildings	2017
J.4	**Financial incentives for efficient energy use in the public sector** [63]	Financing measures for the energy renovation of public sector buildings (in buildings where complete renovation is not justified and in buildings that are not eligible for cohesion funds—buildings of the MORS).	Financial incentives/ Ministry responsible for energy, Eco Fund	Public sector buildings	2017-2020
J.5	**Project office**[64]	Upgrading: In 2017 and 2018, the project office will give priority to the following tasks: • The establishment of a quality system for energy-rehabilitation projects for public buildings; • The preparation of analyses of the quality of projects already carried out and monitoring the objectives set out in strategic documents related to the savings and usable area of buildings; • The preparation of economic analyses of projects (implemented and all applications for tenders); • The establishment of systematic monitoring of projects to improve the preparation and selection of projects and the allocation of resources, and provide comparative evaluation (benchmarking); • Accelerating the preparation of projects for a comprehensive energy renovation of buildings owned by the narrower public sector. Provide systematic and project funding sources for the preparation of projects in the public sector (e.g. ELENA technical assistance projects); • The preparation and implementation of an energy optimization scheme. The work of the project office also includes the recommendations given in the measures: Quality management (J.8), Energy contracting (H.1).	Organizational measure / Ministry responsible for energy	Public sector buildings	2017-2020

[63] The old name of the measure: Financial incentives for the efficient use of electricity in the public sector.
[64] The old name of the measure: Technical office.

Table 26: New EE measures in the public sector

No	Measure	Programme / Description	Type of measure/ Responsible entity	Target group	Deadline
J.7	**Creating sustainable criteria for buildings**	Preparation of sustainable criteria as an instrument for decision making and assessment of economic, environmental and social impacts of construction and renovation of buildings, especially public buildings. The emphasis is also on considering environmental impacts in the lifetime of buildings.	Expert framework / The ministry responsible for construction and the ministry responsible for energy	Public sector buildings	2017-2020
J.8	**Quality management of energy renewal**	Design and establish a comprehensive quality assurance system for energy renovation of buildings in accordance with the principles of sustainable construction for all stages of the life cycle of buildings (design, construction/renovation, management/operation...) and quality evaluation. Creation of working groups which would consider the possible directions for the development of a comprehensive quality assurance system with key stakeholders: contracting authorities, contractors, equipment manufacturers, chambers (Chamber of Commerce and Industry of Slovenia—GZS, Slovenian Chamber of Engineers—IZS, Chamber of Craft and Small Business of Slovenia—OZS), experts from related fields (construction, architecture, urban planning, electrical engineering, economy, etc.).	The legislation, organisational action / Ministry responsible for energy	Public sector buildings	2017-2020
J.9	**Use of information-based design in public tenders**	The measure introduces a new modern process of planning, construction, maintenance up to the decommissioning of buildings at the end of their lifetime. It represents the integrated process of all project participants on a common digital model and full control over information over the entire life cycle of the facility. The measure envisages the introduction of new technological approaches, the creation of a new educational scheme and certified professionals who take care of design in accordance with the new requirements. Creation of a working group that considers the possibility of transferring established standards into Slovene territory and the development of national guidelines for information-supported design.	The ministry responsible for the construction	Buildings	2018-2030

3.3.2. Buildings of other public authorities (Article 5)

On the initiative of the municipalities, the projects of international technical assistance ELENA supported by the European Investment Bank (EIB) or the European Bank for Reconstruction and Development (EBRD) are being implemented in several municipalities (City Municipality of Ljubljana, 23 coastal municipalities, a consortium of city municipalities Novo Mesto, Kranj and Celje) for the preparation of projects for energy rehabilitation of buildings, which will be implemented according to the model of energy contracting. The implementation of these projects is also supported in the framework of measures J.2 and J.4.

3.3.3. *Purchases of movable and immovable property, investments by public authorities (Article 6) and rental of immovable property of the state*

The Green Public Procurement Regulation (ZeJN Regulation) [65] specifies which environmental aspects should be taken into consideration by contracting authorities when awarding public contracts and the objectives that must be attained by contracting authorities in each procurement procedure for procuring items from the recast regulation. The explicit requirements and criteria for individual items are no longer part of the regulation but will be prepared and published on the World Wide Web as a recommendation no later than ten days after the entry into force of the regulation. The ZeJN Regulation applies to the entire public sector.

According to the recast Regulation on ZeJN, green procurement is mandatory for several items (up to now 12, after the new 20), i.e. for: electrical energy, food and catering services, textile products, office paper and hygienic paper products, electronic office equipment, televisions, refrigerators, freezers and their combinations, washing machines, dishwashers, dryers, vacuum cleaners and air conditioners, furniture, water heaters, space heaters and their combinations and hot water storage containers, sanitary fittings, toilet equipment for flushing and urinal equipment, wall panels, design and / or construction of buildings, road design and / or construction works, road vehicles, tires, electric lamps and lamps, and indoor lighting, road lighting and traffic signalization, cleaners, cleaning and laundry services, horticultural services, agricultural and other products and equipment and gardening machines.

Among the environmental aspects and objectives, the ZeJN Regulation also mentions energy efficiency and the use of renewable or alternative energy sources, which are reasonably included in the targets for individual groups of items of procurement (for example, the share of electricity generated from renewable sources or high-efficiency cogeneration is at least 50 %, the share of electric lamps classified in the highest energy class available on the market is 90 %, etc.).

In 2015, within the framework of the Plan of Activities of Ministries and Government Departments (NAMVS) 2015-2016, the Framework Programme for the Transition to a Green Economy (OPZG) [66] has also been adopted, which also includes several activities and sub-activities in the field of environmental protection (e.g. analysis of the organization and implementation of the ZeJN in the period from 2012 to 2015, an analysis of the ZeJN design, construction and regular and investment maintenance of buildings with an impact assessment, in particular weaknesses, of this part of the ZeJN Regulation, etc.). NAMVS for the period from 2017 to 2018 is also under preparation, including the preparation of sample documentation and database on good practices, knowledge transfer, regular training and assistance on the topic of green public procurement, pilot projects and competition for the best innovative green public procurement and the greenest subscriber.

According to data from the annual statistical reports on public procurement[67], in 2013 at least one environmental aspect was included in 18.7 % of all orders, 2014 in 20.2 % and 2015 in 16.4 % of all orders. In the Action Plan for Green Public Procurement 2009-2012[68] it was anticipated that by 2012, 'green' will be 50 % of all public procurement for selected groups of products and services (paper, construction and buildings, electronic office equipment, furniture, vehicles, electric energy, food and catering services, cleaning products and cleaning services). For these groups of items, the environmental aspect was taken into account in 45 % of all public procurements in 2013, 44.8 % in 2014, and 33.9 % in 2015.

[65] UL RS No 51/17.
[66] http://www.vlada.si/fileadmin/dokumenti/si/projekti/2016/zeleno/opzg_akcijski_nacrt_in_nacrt_aktivnosti.pdf
[67] http://www.djn.mju.gov.si/sistem-javnega-narocanja/letna-porocila
[68] http://www.djn.mju.gov.si/sistem-javnega-narocanja/zeleno-jn

In the case of a purchase or hire related to the real property of the state, the provisions of the Act on the Property of the State and Self-Governing Local Communities[69] and the related regulation[70] must be followed. In 2016, this Regulation was aligned with the requirements for the purchases or leases of buildings listed in Annex III to the Directive. For the functioning of state administration bodies, Article 26 and Article 50 of the Regulation now only permit the purchase or rental of buildings that meet at least the minimum energy efficiency requirements. The minimum requirements are defined in the Regulation on Public Sector Energy Management[30]. Buildings fulfil these requirements if the annual energy delivered to the building or individual part of the building in the case of an energy certificate is not more than 100 kWh/m^{2}a, or if new buildings require heat for heating up to 25 kWh/m^{2}a.

In the future, the implementation of the ZeJN measure and its upgrading are foreseen (Chapter 3.3.1, Table 25).

3.3.4 Savings resulting from actions in the central government and other public bodies

In the public sector, the following measures were implemented: J.1—Green public procurement, J.2—Financial incentives for energy-efficient renovation and sustainable construction of buildings in the public sector, J.3—Introduction of a public energy management system and J.4—Financial incentives for the efficient use of electricity J.5—Project office, J.6—Support scheme for the renovation of building cultural heritage and other specific groups of buildings, and J.7—Creation of sustainable criteria for buildings. From the point of view of the EED and the AN 2020 URA, in the public sector the buildings of public authorities are particularly exposed and should serve as an example of efficient energy management, for which each Member State must ensure that 3 % of their total floor area is renovated annually, or alternative cost-effective measures are adopted to achieve the same improvement in the energy efficiency of state-owned buildings. Details of achieving this objective are covered in Chapter 2.4.

Final energy consumption in the public sector is not statistically monitored separately but is included in the use of final energy for other consumers. Final energy savings in the public sector, determined at the annual level by the BU method, amounted to 39.6 GWh in 2014, 57.2 % less than the year before (Table 27), while savings were even lower in 2015 with 25.6 GWh, representing just over a quarter of the 2013 savings. Since no energy-rehabilitation projects for public-sector buildings in the framework of the OP EKP have been carried out in 2016, the final energy savings in the public sector are expected to be even lower.

Table 27: End-use energy savings in the public sector [GWh/year] in 2011-2015

Code	Measure	2011	2012	2013	2014	2015
J.1	Green public procurement	-	-	-	-	-
J.2	Financial incentives for energy-efficient renovation and sustainable construction of buildings in the public sector	0	14.7	80.5	38.6	24.7
J.3	Introducing an energy management system in the public sector	-	-	-	-	-
J.4	Financial incentives for efficient electricity consumption in the public sector	0	1.7	12.1	1.0	0.9
Total end-use energy savings in the public sector		**0**	**16.4**	**92.6**	**39.6**	**25.6**

[69] UL RS No 86/10, 75/12, 47/13 – ZDU-1G, 50/14, 90/14 – ZDU-1I, 14/15 – ZUUJFO and 76/15.

[70] Decree on the real property of the state and self-governing local communities, UL RS No 34/11, 42/12, 24/13, 10/14 in 58/16.

3.3.5 Financing of energy efficiency measures in public bodies

The sources of funding are presented in Chapter 3.2.5.

3.4. Measures for energy efficiency in industry

3.4.1. Main measures of energy efficiency policy in the industry

In the recent period, the industry has only received limited financial incentives to increase energy efficiency, and most of the measures envisaged in the previous Action Plan were carried out to a lesser extent than expected. In the coming years, these measures will need to be implemented more intensively, and additional measures will be added to the existing ones. The main objectives of the implementation of the measures are:

1. **The long-term increase in the competitiveness of enterprises by managing energy costs** by reducing energy consumption, increasing the use of RES and excess heat, increasing own generated electricity from RES and CHP, etc.
2. **Greater development of companies in providing sustainable products and services** with higher added value and demand on the global market.

The main instruments for increasing energy efficiency in the industry are aimed at:

- Providing non-refundable financial investments and operating incentives;
- Providing financial resources for the implementation of projects: favourable loans, guarantees, promotion of third-party financing (contractual provision of savings and energy supplies);
- The development incentives for investment in research and development;
- Wood processing companies that can obtain grants only for projects that show material and energy efficiency;
- Incentives for projects in the wood-processing industry; companies can only obtain grants for projects that show material and energy efficiency;
- Incentives for the implementation of demonstration projects: development of effective solutions in the field of energy efficiency and resource efficiency, and promotion of inventions and innovative solutions by providing access to the digital and technical production of products or services, smart sites and smart grids;
- Financial incentives for introducing standards in the field of energy management, training of employees and integration of energy managers;
- Mandatory energy audits for large companies.

Regarding content, industry measures focus on the following key areas:

- **Introduction of energy management systems** (employee training, advanced measurement, IT support, the introduction of the ISO 50001 standard, integration of energy managers, etc.), applies to all companies with particular attention for SMEs;
- **Conducting energy audits** in small and medium-sized companies;
- **Improving the efficiency of electricity use:** installation of efficient technologies with the highest efficiency (electric motors, compressed air, cooling systems, etc.);
- **Reducing heat consumption and exploiting RES and excess heat**— optimising the use and supply of heat and introducing advanced solutions for the exploitation of RES (solar and geothermal energy, wood biomass, etc.) and redundant process heat;
- **Increase in the volume of energy production in CHP and generation of electricity from RES**—modernization of existing ones and installation of new CHP units mainly in process-

intensive industries (paper, chemical, rubber, etc.) on natural gas and RES (wood biomass, biogas cleaning plants, etc.); increasing electricity production in hydroelectric power plants, wind power plants and solar power plants;

- **Development and production of new sustainable products and services:** development and production of new sustainable products and services: energy and material efficient technological solutions, technologies for the exploitation of RES, IT support (smart metering and networks, energy management, etc.) in the context of horizontal promotion of research development projects in all areas listed in the Strategy of smart specialization technological solutions.

Continuing the implementation of existing and renewed measures in the industry (together with current horizontal multisectoral measures) are presented in Table 28 and Table 29, and new additional measures in the industry are presented in Table 30.

Table 28: Existing measures for EE in industry

No	Measure	Programme / Upgrading	Type of measure / Responsible entity	Target group	Deadline
I.1	**Financial incentives in the form of grants**	**SME:** • Financial incentives for energy audits implementation • Financial incentives for material and energy efficiency measures and the improvement of the efficient use of the resources of the wood processing industry (EUR 0.4 million; 2017) **ALL:** • Financial incentives for the construction of new and reconstruction of existing production facilities for electricity generation from RES (EUR 12 million, OP-ECG 4th axis)	Financial incentives / Eco Fund Slovenian Enterprise Fund (SPS) Ministry responsible for energy	Economy: industry and service activities	2017-2020
I.2	**Financial incentives in the form of revolving funds**	**ALL:** • Loans with a favourable interest rate for the implementation of measures to increase energy efficiency, use RES and environmental protection	Financial incentives / Eco Fund	Economy: industry and service activities	2017-2020
H.6	**A system of energy efficiency obligations and alternative measures**—key industrial measures **(see Table 8)**				
V.3	**Support Scheme for Electricity Generated from RES and CHP (see Table 30)**				
V.4	**Implementation of energy audits in large enterprises (see Table 10)**				

Table 29: Existing measures in the field of development and production of new sustainable products and services, with an impact on energy efficiency in industry

No	Measure	Programme / Upgrading	Type of measure / Responsible entity	Target group	Deadline
1. axis	**Financing in form of grants** **Innovative public procurement** **Use of revolving funds (financial engineering)**	**OP EKP, 1st Priority Axis: 'International competitiveness of research, innovation and technological development in accordance with smart specialization for greater competitiveness and greening of the economy'** **1. Promoting companies' investment in innovation and research, and building links and synergies between businesses, research and development centres and higher education**[71]	Financial incentives / MGRT	Different entities in the field of RRD and economic activities	2017-2020

[71] In particular, in the area of product and service development, technology transfer, social innovation and public service applications, demand, networking, clusters and open innovation in SMEs through smart specialization,

supporting

No	Measure	Programme / Upgrading	Type of measure / Responsible entity	Target group	Deadline
3. axis	**Revolving funds (debt and equity)[72]** **Financing in the form of grants** **Combinations of revolving and non-refundable sources of financing** **Other modern forms of financing[73], including a public-private partnership**	**OP EKP, third priority axis: 'Dynamic and competitive entrepreneurship for green economic growth.'** - Call for study labs - Material and energy efficiency—cooperatives: public tender for growth and development and improvement of competitiveness, which will be achieved by encouraging companies to increase RES use, improving material and energy efficiency, and developing environmentally less burdensome products and services. Therefore, process innovations and new business models will be supported in the form of substantial and energy cooperatives that will contribute to the goal of a circular economy (EUR 3 million).	Financial incentives / MGRT	Different entities in the field of economic activities	2017-2020

Table 30: New measures for EE in industry

No	Measure	Programme / Upgrading	Type of measure / Responsible entity	Target group	Deadline
I.3	**Financial incentives to increase the efficiency and use of RES in the industry**	• Financial incentives for material and energy efficiency measures and the improvement of the efficient use of the resources of the wood processing industry (EUR 26 million by 2023)	Financial incentives / MGRT	Economy: industry and service activities	2017-2020
		• Implementation of energy audits (continued), • The introduction of energy management systems (training, advanced measurements, IT support, the introduction of ISO 50001, etc.), • Increasing the efficiency of energy and heat consumption (effective technologies with the highest efficiency). ALL: • networking and training of energy managers, • use of RES and excess heat. The promotion programme is directed and upgraded on the basis of a more detailed analysis of the situation, potentials of EE and RES in the industry, as well as expert bases for upgrading instruments for promoting EE and RES in the industry, including measures to reduce energy consumption through measures to improve material efficiency in industry. Eco Fund is launching a public call for grants to legal entities for new investments for EE and RES in buildings and processes (building insulation, changing windows, combustion plants, heat stations, installation of solar collectors, installation of ventilation by returning exhaust air heat, heat from processes and / or devices, installation of an energy efficient lighting system, electric motors and / or installation of frequency converters and the introduction of an energy management system.	Eco Fund		

technological and applied research, pilot lines, early product validation measures, advanced production facilities and initial production in the area of key enabling technologies and the dissemination of technologies for general use. The measures are and will be of a horizontal nature. Significant objectives in any development are the sustainable aspect of reducing the use of raw materials—including energy products and improving the operation and operation from an environmental point of view.

[72] Financial engineering instruments: venture capital, guarantees for bank loans with interest rate subsidies, microcredit, micro-finance, loans and mezzanine loans.

[73] As an example: 'seed-stage' and 'early-stage' financing and similar.

No	Measure	Programme / Upgrading	Type of measure / Responsible entity	Target group	Deadline
I.4	**Financial incentives for demonstration projects**	Incentives for demonstration projects of EE and RES in the industry (introduction of RES, exploitation of excess heat and innovative new technologies) for which the European Commission approved co-financing under the COSME, LIFE, Horizon 2020 and others programmes.	Financial incentives / Climate change fund	Economy	2018-2020

3.4.2. *Savings resulting from measures for the industrial sector*

In 2014, the final energy consumption in industry increased by 2.8 % and 391 GWh compared to 2013 (mainly due to the increase in the use of final energy in the construction sector, wherein 2014 the gross value added increased for the first time since 2008). In 2015 the final energy consumption in the industry dropped by 0.3 %, despite a significant increase in the industrial production index (5.6 %) and the value added index (1.4 %). Since 2013, the Energy Efficiency Index (ODEX) has a trend of minimal decrease again, but since 2008 there have been no significant changes in its value, Figure 8.

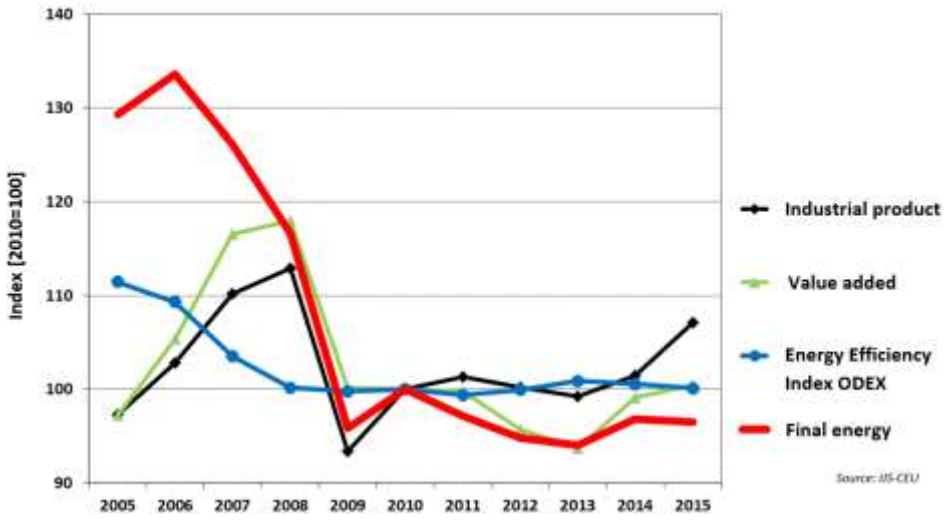


Figure 8: Trend developments—index numbers in the industry between 2005 and 2015

Table 31: End-use energy savings in the industry due to financial incentives from the Cohesion Fund, the scheme of compulsory end-use energy savings and Eco Fund loans for 2011-2015

Item	End-use energy savings [MWh / year]					
	2011	2012	2013	2014	2015	Total
Cohesion Fund						
Call UREE1	3 213	15 375	2 754	0	0	**21 343**
Calls KNLB and DOLB	7 490	7 520	3 601	14 215	1 153	**33 979**
Total end-use energy saving	**10 703**	**22 895**	**6 356**	**14 215**	**1 153**	**55 322**
Scheme of compulsory end-use energy savings for energy suppliers						
Reducing the use of electricity	0	0	6 393	6 195	np	**12 588**
Reducing the use of heat	0	0	6 472	10 293	np	**16 764**
Total end-use energy saving	**0**	**0**	**12 865**	**16 488**	**np**	**29 352**

Item	Final energy savings [MWh / year]					
	2011	2012	2013	2014	2015	Total
Eco Fund loans						
Reducing the use of electricity Reducing the use of heat	0	0	1	0	np	**1**
	5 419	0	5 454	0	np	**10 874**
Total end-use energy saving	**5 419**	**0**	**5 455**	**0**	**np**	**10 874**
Total financial incentives for the industry						
Total end-use energy saving	**16 122**	**22 895**	**24 675**	**30 703**	**1 153**	**95 548**

The final energy savings in industry, determined according to the data on the implementation of individual measures, Table 31, amounted to 30.7 GWh in 2014, or almost a quarter more than the year before. A year later the achieved savings could not be estimated, due to the lack of data on the implementation of sectoral measures under the mandatory energy savings and Eco Fund scheme. Most of the savings achieved have been made by the supplier scheme, where the savings are increasing, while the contribution of cohesion measures is decreasing, while in recent years there have also been small savings in favour of Eco Fund loans.

3.5. Measures for energy efficiency in transport

In 2015, traffic represented 38 % of final energy and was a key sector in achieving environmental targets by 2020. Activities in this sector are aimed at promoting low-carbon technologies, sustainable transport and ensuring the same or better quality of life with less mileage. The activities aim to ensure the growth of the share of passenger kilometres made by public passenger transport (PPP) and the share of tonne-kilometres with rail transport.

The national transport policy is defined in the Strategy for the Development of Transport in the Republic of Slovenia[74] (SRPRS), while the development plan and the investment programme are set out in the Resolution on the National Programme for the Development of Transport in the Republic of Slovenia for the period up to 2030[75] (ReNPRP30).

The main objectives of the transport policy in the SRPRS are:

- improve mobility and accessibility,
- improve the supply of the economy,
- improve road safety and security,
- reduce energy consumption,
- reduce user and operator costs,
- reduce environmental burdens.

Under the Operational Programme for the Implementation of the European Cohesion Policy for the period 2014-2020 (OP EKP), measures financed from the European Funds to promote sustainable mobility are implemented to achieve the following specific objectives:

- the development of urban mobility to improve air quality in cities,
- eliminating bottlenecks, increasing the capacity of lines and reducing travel time on the rail network.

[74] The strategy was adopted in July 2015. http://www.mzi.gov.si/fileadmin/mzi.gov.si/pageuploads/Dogodki/Strategija_razvoja_prometa_v_RS-koncna_razlicica-popr_Table_okt2016.pdf

[75] UL RS No 75/16.

Some measures are also being implemented to improve the efficiency of vehicles and driving on the basis of current legislation in Slovenia and EU acquis.

EE measures implemented on the basis of the above programme documents or legal bases are summarized in the following topics, Table 32:

- Promoting sustainable transport in general[76] (measure P.1);
- Promoting public passenger transport[77] (measure P.1a);
- Promoting sustainable freight transport (measure P.2);
- Encouraging the improvement of vehicle efficiency, driving and occupying vehicles and the use of low CO_2[78] emissions (measure P.3);
- Promoting non-motorized forms of traffic[79] (measure P.4).

Improving energy efficiency in the transport sector (increasing the energy efficiency of road motor vehicles) is also affected by the implementation of the measure J.1 Green public procurement (horizontal measure described in section 3.1.7).

3.5.1. Main policy measures relating to energy efficiency in transport

Promoting sustainable transport in general (measure P.1)

Sustainable mobility measures focus primarily on activities that reduce the impact of personal transport on air quality and regulate the growing mobility needs with improvements in sustainable mobility, which contributes to a better quality of life and efficient use of energy in transport. Recently, the planning and coordination of sustainable mobility at the level of local communities and the state has been strengthened.

Integrated Transport Strategies (CPS) of municipalities are under preparation. The measure is aimed at establishing sustainable traffic planning in Slovenian municipalities through the development of strategic documents—integrated transport strategies. Based on the MZI announcement, which was published in 2015, 62 municipal integrated transport strategies are being developed. For municipalities that do not have these strategies, financing is also foreseen.

Within the Ministry of Infrastructure, a service for sustainable mobility and transport policy was established, which took over the coordination of a sustainable transport policy in Slovenia.

The aforementioned umbrella transport policy documents in Slovenia: the Strategy for the Development of Transport in the Republic of Slovenia and the Resolution on the National Programme for the Development of Transport in the Republic of Slovenia for the period up to 2030 set as priorities for the development of transport: the development of the railway infrastructure and the promotion of sustainable mobility measures, the development of public passenger transport is in line with the objectives of the AN URE.

A Market development strategy for the establishment of adequate infrastructure in relation to alternative fuels (obligation under Directive 2014/94/EU) is also under preparation, which is expected to be approved in 2017. An inter-ministerial working group was set up to prepare the strategy.

The Spatial Development Strategy of Slovenia (SPRS) is being revised, and a focus group has been established for integrating the objectives of transition to a low-carbon society into spatial policy.

[76, 77] Modification of the name of the measure—alignment with the OP TGP (formerly measure P.1: 'Promotion of sustainable mobility measures').

[78] The modification of the name of the measure—alignment with the OP TGP (formerly measure P.3: 'Increasing the energy efficiency of road motor vehicles').

[79] The modification of the name of the measure—alignment with the OP TGP (formerly Action P.4: 'Construction of cycling tracks and support facilities and promotion of cycling').

The SPRS will significantly complement existing strategic documents, in particular with measures to reduce mobility needs that other documents do not include. The spatial policy instruments will also significantly contribute to promoting sustainable mobility, in particular: multimodality, public passenger transport, rail transport and non-motorized forms of transport.

In the substantive area P.1 Promoting sustainable mobility generally includes measures that are horizontal and apply to all, for several transport subsectors. These measures are:

- mobility management measures, including promoting the use of modern technologies for effective mobility management,
- promoting a sustainable choice of transport in the context of the calculation of travel costs,
- promoting sustainable mobility measures / informing and raising target audiences,
- gradually reducing environmentally harmful incentives.

Promotion of public passenger transport (measure P.1a)

Measures to promote public passenger transport are, according to the planned effects, one of the most important measures, which is the result of better energy efficiency of public passenger transport compared to other motorised forms of traffic.

SRPRS and ReNPRP include a series of measures to improve the system of public passenger transport (PPP), including the following:

- strengthening PPPs on major downstream routes to the main city and in connection with the airport;
- infrastructure development: the setting up of systems for increasing intermodality ('park and ride', 'cycling and ride' and others), development of stations for increasing accessibility, the introduction of information systems;
- separation of types of traffic and favourability to public transport;
- the introduction of a single ticket, the introduction of public transport services upon request, harmonisation of timetables;
- the introduction and use of new technologies and the establishment of public transport management centres.

The OP EKP plans a series of measures to develop urban mobility to improve air quality in cities. It is planned to promote PPPs in the framework of the elaborated integrated transport strategies of municipalities, for measures to regulate safe access to PPP stations and stops, the arrangement of stands and car parks for parking bicycles, P + R systems, PPP stations and other measures already mentioned in the content area P.1 Promoting sustainable mobility in general.

The field of public passenger transport is regulated by the Road Transport Act[80] and the Railway Transport Act[81]. In 2013, changes were introduced regarding the subsidising of student transport and the related policies were drawn up, which had noticeable effects on the increase of passenger kilometres in the PPP. The latest amendments to the legislation regulating passenger transport were introduced in 2015, which relate to the extension of concessions for the implementation of the public service of public passenger transport (GJS PPP) and the increase in the efficiency of implementation and ensuring proper supervision over the performance of concessions and other types of transport, e.g. subsidized, special linear, permanent outside regular and occasional services.

In the course of the implementation of OP ROPI, an important phase of the project for the establishment of the Integrated Public Transport System (IJPP) was completed with the aim of connecting different types of PPP.

[80] UL RS No 131/06, 5/07, 123/08, 28/10, 49/11, 40/12-ZUJF, 57/12.

[81] Railway Transport Act, UL RS No 92/99, 11/01, 33/01, 110/02, 56/03, 86/04, 29/05, 15/07, 58/09, 106/10, 63/13, 84/15, 99/15– official consolidated text.

AN URE from the above programming documents summarise the following instruments:

- subsidising public passenger transport services,
- concessions for the implementation of the public utility of passenger transport,
- Integrated Public Transport System (IJPP),
- other mobility management measures to improve PPP services,
- the incentives for the regulation of the infrastructure for public passenger transport and the promotion of multimodality.

Promoting sustainable freight transport (measure P.2)

In the case of sustainable freight transport, the emphasis is on co-modality, for which the construction and modernisation of existing transport infrastructure, especially railways, is crucial. The measure is additionally supported in the SRPRS with the objectives of establishing efficient rail transport (electrification of the entire Slovenian rail network, modernisation, upgrading and new construction) and efficient road freight transport (introduction of electronic toll charging for trucks, the introduction of IT for better use of Existing roads).

The measure includes the following instruments:

- financial incentives to create intermodality and increase freight transport by rail,
- development of logistics centres, freight terminals and intermodal hubs,
- use of piggyback units,
- the inclusion of external costs in tolls and other charges for freight,
- development of traffic telematics and dynamic control of traffic signalisation.

The measure also has multiplier and synergic effects, which are facilitated by the development of traffic telematics and dynamic control of traffic signalisation, namely positive effects on the efficiency of all road transport participants, including public passenger and passenger traffic.

Because of its geographical position, Slovenia is a transit country, which affects traffic flows, as well as other factors, including the sale of motor fuels. The latter significantly influences the fulfilment of climate and energy objectives, as energy consumption is monitored through the sale of motor fuels, with the share of energy sales in transport among the most important (around 40 % of all end-use energy).

Incentives for improving the efficiency of vehicles, driving and occupying vehicles and the use of low CO_2 emissions (measure P.3)

Since Slovenia does not have a direct impact on increasing energy efficiency in the production of passenger cars, additional measures can only affect the vehicle market and consumer choice (consumer awareness) to decide on as much as possible for vehicles that are more energy efficient and with smaller releases of TGP. The activities of this measure are based primarily on the application of economic, fiscal and information measures to promote the purchase of more environmentally friendly and energy-efficient road motor vehicles and the promotion of the use of electric and hybrid couplings.

The measure includes:

- regulations on the energy labelling of passenger cars[82] and tires[83];

[82] Regulation on information on fuel economy, carbon dioxide emissions and emissions of ambient air pollutants available to consumers on new passenger cars (UL RS No 24/14).

- fiscal instruments to promote the efficiency of vehicles and the use of low-emission fuel;
- non-refundable financial incentives and loans with a favourable interest rate financing the purchase of more environmentally friendly and more energy-efficient vehicles— electric and hybrid couplings and compressed natural gas vehicles;
- educational activities (school of economical driving);
- green public procurement in the field of transport (energy efficient and environmentally friendly vehicles and transport services and traffic signals, see also J.1 Green Procurement).

Promoting non-motorized forms of transport (measure P.4)

The construction of biking trails and accompanying promotional activities are intended to encourage cycling as an alternative transport, which, in connection with other modes of public transport, is an effective alternative to personal transport with minimal environmental impact. The strategic plan for the organisation of national cycling routes is also defined in the Strategy for the development of transport until 2030.

The measure contains financial instruments:

- financial incentives for the construction of cycling routes and other cycling infrastructure (secure parking places for bicycles, etc.),
- financing promotional and educational activities.

Financial incentives are also planned to build pedestrian areas, in particular to improve access to public passenger transport stops.

The measure also has multiplier effects and synergies, which are enabled by the development of cycling infrastructure, namely: the development of tourism with links to the international cycling network, lower environmental burdens (air, noise) and positive effects on the health of the population.

[83] The EC Labelling Regulation (EC / 1222/2009 / 228/2011 and 1235/2011) apply directly in Slovenia.

Table 32: Existing EE measures in transport

Code	Measure	Programme / Upgrading	Type of measure / Responsible entity	Target group	Deadline
P.1	**Promoting sustainable transport in general** **Integrated Transport Strategies (CPS) of municipalities**	**OP EKP; OP TGP:** • Establishment of sustainable traffic planning in Slovenian municipalities through the development of strategic documents—Integrated Transport Strategies (CPS). Encourage the CPS to produce a set of sustainable mobility measures at the level of the municipality or region. Financial resources for the CPS for municipalities that do not yet have strategies will be available under the Eco Fund call for 2017-2018 from the funds of Fund for Climate Change. • Financial incentives for co-financing measures from adopted CPS through MzI DP tenders. • Monitoring and evaluation of CPS (MzI) are planned. **Upgrading:** • Further upgrading of the methodology for preparation and implementation of CPS, training of CPS preparers and contractors.	Instrument set Financial incentives / Ministry responsible for transport, Ministry responsible for the environment	Pedestrians, cyclists, users of public transport, drivers	2017-2020 2017-2018 2017-2020
	Mobility Management Measures	**OP EKP; ReNPRP30:** • Implementing sustainable parking policy measures in cities and calming down and limiting urban traffic (limiting parking, parking costs, arranging delivery of goods in city centres, etc.). Promoting the establishment of institution's mobility plans and the implementation of actions under the OP ECHR and the Funds for Climate Change. • Publication of the Guidelines for the preparation of mobility plans in 2017 (MzI).	Financial incentives, organizational measures / Ministry, competent for traffic, local community		2017-2020
	Incentives for the use of modern technologies for effective mobility management	**OP EKP:** • Financial incentives under the OP EQF for Intelligent Transport Systems Measures (including the introduction of demand management, toll systems and information systems for monitoring, control and information).	Financial incentives / Ministry, competent for traffic		2017-2018
	Promoting a sustainable choice of transport in the context of the calculation of travel costs	**OP TGP** (NP-5)**:** • Modification of the method of calculating travel costs and compensation for transport costs for work by encouraging the reduction of GHG emissions in these transports, through additional subsidies to PPT from compensation for costs for transport to and from work. An analysis will be made of the possibilities to promote a sustainable choice of transport in the context of the calculation of travel costs.	The Ministry is competent for public administration		2019-2020
	Promotion of sustainable mobility measures/information and awareness raising among target audiences	**OP TGP** (NU-4)**:** • The promotion of sustainable mobility measures within the IJPP project and other projects. **Upgrading:** • Systematic monitoring, analysis and appropriate upgrading of implementation. • See also horizontal measure H.3.	Ministry, competent for traffic		2019-2020

Code	Measure	Programme / Upgrading	Type of measure / Responsible entity	Target group	Deadline
	Explore the possibility of gradually reducing environmentally harmful incentives	**OP TGP** (OR-2, NORG-3)**:** • The possibilities for the gradual reduction of environmentally harmful incentives that are contrary to the objectives of reducing GHG emissions with a view to improving energy efficiency and the potential for substitution with incentives that support these objectives will be explored, in line with the recommendations of the Green Budget Reform.	Ministry of Finance		2017-2020
	Sustainable mobility within spatial planning	**OP TGP** (OP-7)**:** • Integration of the objectives of the transition to a low-carbon society (NOD) in the field of transport into the Spatial Development Strategy of Slovenia (in preparation). A focus group for the transition to the NOD has been established. • Extending measures to reduce mobility needs, promote sustainable mobility and multimodality within spatial policy.	Ministry responsible for the environment		2017-2018
	Coordination of the development of sustainable mobility	**OP TGP** (NORG-4)**; OP EKP:** • A Sustainable Mobility and Transport Policy (MzI) service have been established. • In 2015, the Government of the Republic of Slovenia established an interdepartmental working group for the preparation of the Market Development Strategy for the establishment of adequate infrastructure related to alternative fuels (obligation under Directive 2014/94/EU). Adopting a strategy in the field of market development to establish the appropriate infrastructure in relation to alternative fuels in 2017.	Ministry responsible for transport		2017-2020
P.1a	**Promoting public passenger transport** **Subsidizing public passenger transport services**	**OP TGP** (NP-1)**:** • Subsidizing the transport of students independently from the social status of the beneficiary from 2013. With the amendment of the Road Transport Act (ZPCP-2F of the Official of the Republic of Slovenia, 92/15), the amendments that regulate subsidies for transportation of students, students and participants in education adults.	Instrument set Ministry responsible for transport	Users of public transport	2017-2020
	Concessions for the performance of public utility passenger services	**OP TGP** (NP-1): • With the change of ZPCP-2F changes were introduced, namely the extension of concessions for the implementation of the public service public passenger transport service (GJS PPP) until 2 December 2019 at the latest. Prices are regulated. Part of the funds for the provision of services comes directl from Financing energy-efficiency measures for buildings with compensation for the implementation of the GJS PPP. **Upgrading:** • The arrangement of concession relations for the period after 2 December 2019	Ministry, competent for traffic		

Code	Measure	Programme / Upgrading	Type of measure / Responsible entity	Target group	Deadline
P.1a	**Concessions for the performance of public utility passenger services (continuing**	**OP TGP** (NP-1); **OP EKP, ReNPRP30:** • The IJPP deployment project was funded from Cohesion Fund funds in the financial perspective 2007-2013 and continues in the period 2014-2020. (Measure: 036. Multimodal transport). The IJPP includes: combined ticket, coordinated schedules, improved accessibility and promotion. In 2016 a single (multimodal, multi-operator) electronic ticket for students was introduced. Working materials for amendments to legislation have been prepared. • The following activities are planned: extension of the system to all passengers, harmonisation and adjustment of schedules between different modes of transport (rail, public line long distance and city transport of passengers). The planned changes and amendments to the Road Transport Act will be regulated by the areas of tickets for fares, the establishment of the IJPP operator, the multi-operation of single tickets, and the links between urban traffic and the single fare system. • The introduction of a system and the establishment of an operator, the modernisation of public passenger transport services, the provision of traffic information is planned.	Ministry responsible for transport		
	Other Mobility Management Measures to Improve PPP Services	**OP TGP** (NP-1); **OP EKP:** • Measures to improve PPP services, such as the introduction of yellow lanes, increase the frequency of public transport operations, ensure a comfortable and easy transition between transport means of public transport, the introduction of new services (call transfer to PPP). The amendments and supplements to the ZPCP-2F have introduced the possibility of organising transport on call. • The planned changes and amendments to the Road Transport Act will regulate the field of co-financing of public transport by local communities in cases of increasing the accessibility standard, extending urban lines outside the settlements and the links between urban transport and the single ticket system.	Ministry responsible for transport, local community		
	Incentives for the regulation of public passenger transport infrastructure and the promotion of multimodality	**OP TGP** (NP-1); **OP EKP, ReNPRP30:** • Financial incentives in the framework of the OP EKP and from the Fund for Climate Change for sustainable mobility measures for the regulation of public passenger transport infrastructure such as access to stations and stops for PPP, park and ride systems (P + R), etc. The P + R systems were co-financed by the Cohesion Fund in the Financial Perspective 2007-2013. In 2017 MZI will issue financial incentives for the regulation of P + R systems in the total amount of EUR 4.8 million and for the arrangement of stops in the amount of EUR 4.3 million, both within the framework of the implementation of the OP EKP. It is foreseen that the measure will continue to be implemented in the framework of the implementation of the measure in the period up to 2020 and beyond. • In the framework of the implementation of the ReNPRP30, PPP infrastructure improvement projects are under preparation: the production of documentation that will ensure a greater role of the gutter in PPP, especially in the major centres. An analysis of the situation and development possibilities for increasing intermodality is planned, with an emphasis on the increased use of the bicycle network in conjunction with PPP.	Ministry responsible for transport, local community		

Code	Measure	Programme / Upgrading	Type of measure / Responsible entity	Target group	Deadline
P.2	**Promoting sustainable freight transport** **Other measures to promote co-modality** **Improving the efficiency of road freight transport**	**OP EKP; SRP; ReNPRP30:** Implementation of instruments for promoting co-modality: integration of external costs in tolls and other charges for freight traffic, promotion of the use of intermodal transport units, modernisation of intermodal terminals, etc. (SRP). **ReNPRP30:** • Implementation of instruments for promoting co-modality: the introduction of electronic toll charging for trucks, the introduction of IT to make better use of existing roads, etc.	Instrument set Ministry responsible for transport Ministry responsible for transport	Freight transport	2017- 2020
P.3	**Encouraging the improvement of vehicle efficiency, driving and occupying vehicles and the use of low CO_2 emissions** **Financial incentives for low-emission vehicles** **Promoting the efficiency of vehicles and the use of low-emission fuels in the framework of motor vehicle tax and other duties**	**AN URE 2020:** • The Eco Fund subsidises funds collected from the energy efficiency contribution for the purchase of electric battery vehicles for individuals and legal entities, for vehicles with CO_2 emissions in the combined mode, according to the manufacturer, less than 50 g/km. • Favourable lending to Eco Fund for the purchase of cars, motorcycles, motorcycles and bicycles for electric or hybrid power for legal entities, sole proprietors and citizens; • Pilot Eco Fund public call in 2017 to promote the purchase of fleets of electric bicycles and electric motorcycles owned by local communities; • Non-refundable financial incentives by Eco Fund in 2018 for the purchase of motorcycles, bicycles with electric and hybrid electric motorcycles for corporate clients, sole proprietors and citizens; • Purchase of new electric train sets for the provision of internal rail passenger services in 2017 and 2018 from the Fund for Climate Change; • Implementation of measures is planned for the period up to 2020 and beyond. **OP TGP** (OP-9)**:** • From 2010, the rate of motor vehicle tax depends on CO_2 emissions. • In accordance with the Law on the annual duty for the use of road vehicles (Official Gazette of the Republic of Slovenia, No. 57/08), the charge is not paid for electric vehicles. • Setting up the amount of compensation for the use of roads and other charges, so that these will also depend on the vehicle's CO_2 emissions.	Instrument set Financial incentives/Ministry responsible for the environment, Eco Fund Ministry of Finance, Ministry of Transport	Road transport	

Code	Measure	Programme / Upgrading	Type of measure / Responsible entity	Target group	Deadline
P.3	**Fuel use information for vehicles and tire labelling**	**OP TGP** (OP-1)**:** • Raise awareness among vehicle buyers, Regulation on information on fuel economy, carbon dioxide emissions and ambient air pollution emissions for new passenger cars available to consumers, UL RS No 24/14; • The direct validity of EC Regulations on the labelling of tires (EC / 1222/2009 / 228/2011 and 1235/201); • Further labelling of vehicles and tires is planned, including an upgrade in the direction of valuation of lifetime impacts, reduction of specific emissions in vehicles.	Ministry responsible for the environment, Ministry responsible for transport		
	Promoting economical driving	**OP TGP** (OP-5)**:** • Learning the basics of economical and environmentally friendly driving as an integral part of practical driver training, Driver Act, Ur. l. RS No. 85/16; • Education of drivers and operators of the fleet of vehicles, including the driver's and logistics aspects, carried out by authorised operators in accordance with Directive 2003/59/EC (driver education) and Regulation 1071/2009/EC (education of transport managers). **Upgrading:** • Increasing the scope of implementation of the measure, which is important, cost-effective and under-utilised	Ministry responsible for transport		
	Financial incentives for alternative fuels and electromobility infrastructure	**OP TGP; OP EKP:** • Financial incentives for alternative fuels and electromobility (OP TGP). Installation of smart charging stations for accelerated introduction of electromobility, for 630 public and 3 150 private electric vehicle chargers (OP EKP). • Eco Fund loans for the installation of charging stations for electric vehicles (2016). Non-refundable financial incentives from the Eco Fund for installing charging stations for electric vehicles in nature conservation areas from the Funds for Climate Change.	Ministry responsible for transport, energy and ministry responsible for the environment, Eco Fund		
	Schemes of subsidies for new freight vehicles and voluntary obligations for freight	**OP TGP:** NP-2**:** • A subsidy scheme will be developed to promote the economy of freight vehicles in conjunction with the reduction of fuel subsidies/refunds of excise duty. Subsidies for freight vehicles would be possible only for high-standard vehicles. Promoting the education of drivers and managers of the vehicle fleet.	Ministry responsible for transport, Eco Fund		

Code	Measure	Programme / Upgrading	Type of measure / Responsible entity	Target group	Deadline
P.3	**Green public procurement**	**OP TGP (**OP-6), OPZG[84]: • The Green Public Procurement Regulation (UL RS No 102/11, 18/12, 24/12, 64/12, 2/13, 89/14 and 91/15-ZJN-3) defines the basic environmental requirements for green public orders. In the field of transport, this is: for the procurement of personal and transport vehicles and the basic and additional environmental requirements for public green tire procurement. • Adoption of the renewed Regulation on green public procurement, which in the field of transport extends the LPP to: for vehicles on trucks for the collection of waste and traffic signalling lighting. **Upgrading:** • Implementation of support activities: production of supporting materials—procurement cases, knowledge transfer, implementation of training, etc. with the aim of increasing the volume of green procurement and improving practice in this area. See also measure J.1.	Ministry responsible for public administration, Ministry responsible for the environment		
P.4	**Promoting non-motorized forms of traffic** **Encouraging the construction of a cycling infrastructure** **Promoting the construction of a pedestrian infrastructure**	**OP EKP, OP TGP, ReNRP30:** • Non-refundable financial incentives for municipalities to regulate cycling infrastructure (racks and shelters for parking bicycles, bicycle paths, etc.) are planned from Cohesion Fund funds in the period from 2014 to 2020 and from 2018 onwards from the assets of the Climate Change Fund. Integrated transport strategies of municipalities are the basis for obtaining grants for the construction of cycling infrastructure in the future. • Preparation of guidelines for the construction of cycling infrastructure (MZI, 2017); • Preparation and implementation of the project for the establishment of a national bicycle network (MzI, DRSI and DRI); • Encouraging increased cycling in connection with PPP (within the framework of planning measures to increase intermodality); • Preparation of a strategic plan for the development of cycling. **OP TGP** (NP-3); **OP EKP; ReNPRP30:** • Encourage the construction of pedestrian areas from Cohesion Fund funds for the period 2014-2020. Municipalities are preparing measures under the CPS. • Preparation and implementation of the project of walking stimulation (MzI).	Instrument set Ministry responsible for transport, Ministry responsible for the environment, Eco Fund Ministry responsible for transport, local communities	Non-motorized forms of traffic Cycling traffic Pedestrians	2017-2020

84 Framework Programme for the Transition to the Green Economy (OPZG) with the Action Plan for the implementation of the OPCG (ANi OPZG) and the Plan of Activities of Ministries and Government Departments (NAMVS) for the years 2015 and 2016. The plan for the years 2017 and 2018 is under preparation.

Code	Measure	Programme / Upgrading	Type of measure / Responsible entity	Target group	Deadline
P.5	**Providing funding for 2014-2020 for the development of rail transport**	**OP TGP** (NP-4)**; OP EKP ReNPRP30:** • Implementation of projects for improvement of the railway infrastructure within the budget funds of the Agency for Infrastructure. To achieve the specific objectives, irreversible financial incentives for rail transport infrastructure in the period from 2014 to 2020 are available and other measures for the development of rail passenger and freight transport in the context of the implementation of the OP EKP from the Cohesion Fund funds. Financing of projects through the Connecting Europe Facility is also foreseen. • Preparation and implementation of projects for the gradual elimination of bottlenecks in all segments (subsystems) of the railways, priority measures for increasing the permeability of the infrastructure and the provision of TEN-T standards on the Slovenian corridor rail network and key projects for upgrading the lines, nodes and relieving the nodes; • Preparation and implementation of projects for enhancing the role of railways in public passenger transport; • Promoting efficient use of energy in the context of the deployment of ETCS systems. ERTMS, electrification of regional lines, a methodology for calculating user charges.	Instrument set / Ministry responsible for transport	Railway traffic	2017-2020

3.5.2. Final energy savings in transport

The calculation of final energy savings in traffic according to the TD method showed that the final energy consumption in 2015 was reduced by 1 095 GWh (94.15 ktoe) compared to 2007, Table 33. The final energy savings, determined by the BU method, were estimated at 133 MWh for 2014, while in 2015, with savings achieved by adding fuel additives and according to the methodology of calculating the savings, savings were considerably higher, namely 196.2 GWh. Savings mentioned above were entirely attributed to measure P.3, the final energy savings achieved through the implementation of measures P.1, P.2 and P.4 cannot be assessed using BU methods, measure P.5, which is linked to the withdrawal of financial resources under the OP EKP, was not yet fully realised in 2015.

Table 33: End-use energy savings in transport [GWh / year] in 2011-2015

Code	Measure	2011	2012	2013	2014	2015
P.1	Promoting sustainable and public passenger transport	-	-	-	-	-
P.2	Promoting sustainable freight transport	-	-	-	-	-
P.3	Encouraging the improvement of vehicle efficiency, driving and occupying vehicles and the use of low CO_2 emissions	0.033	0.206	0.158	0.133	196.2
P.4	Promoting non-motorized forms of traffic	-	-	-	-	-
P.5	Provision of financial resources for the period 2014-2020 for the development of rail transport	-	-	-	0	0
Total end-use energy savings in transport (BU)[85]		**0.033**	**0.206**	**0.158**	**0.133**	**196.2**
Total end-use energy savings in transport (TD)[86]		**372**	**666**	**784**	**927**	**1 095**

3.5.3. Reduction of greenhouse gas emissions in transport[87]

In the context of the monitoring of the implementation of the Operational Programme of measures to reduce GHG emissions, the transport sector is monitored by five indicators[88] (specific CO_2 emissions of new vehicles, specific CO_2 emissions of all vehicles, share of RES in fuels for the propulsion of vehicles, number of passenger kilometres in public passenger transport, share of freight transport) that are focused on monitoring the implementation of policies and measures to reduce GHG emissions, of which only one indicator shows a successful approximation to the target, Figure 9.

[85] The final energy savings determined by the BU method.
[86] The final energy savings determined by the TD method. It shows savings in an individual year compared to 2007.
[87] Summarized under the 'Expert Basis for the Second Annual Report on the Implementation of the OP TGP-2020, Final Report, Part Two', IJS-CEU, May 2017.
[88] Relative values are shown as a percentage of the required progress in the period from 2012 to 2020. The negative value means that the value of the indicator has deteriorated since 2012, that is, the development went in the opposite direction from the desired.

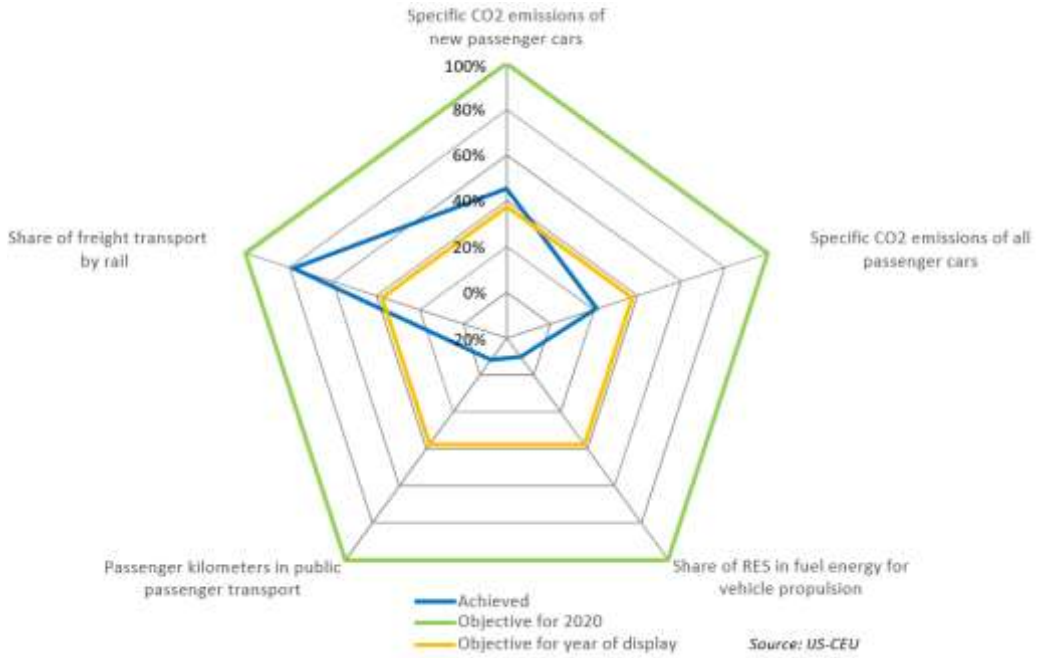


Figure 9: Achieved values of indicators to monitor and evaluate progress with policies and measures to reduce GHG emissions in transport in 2015

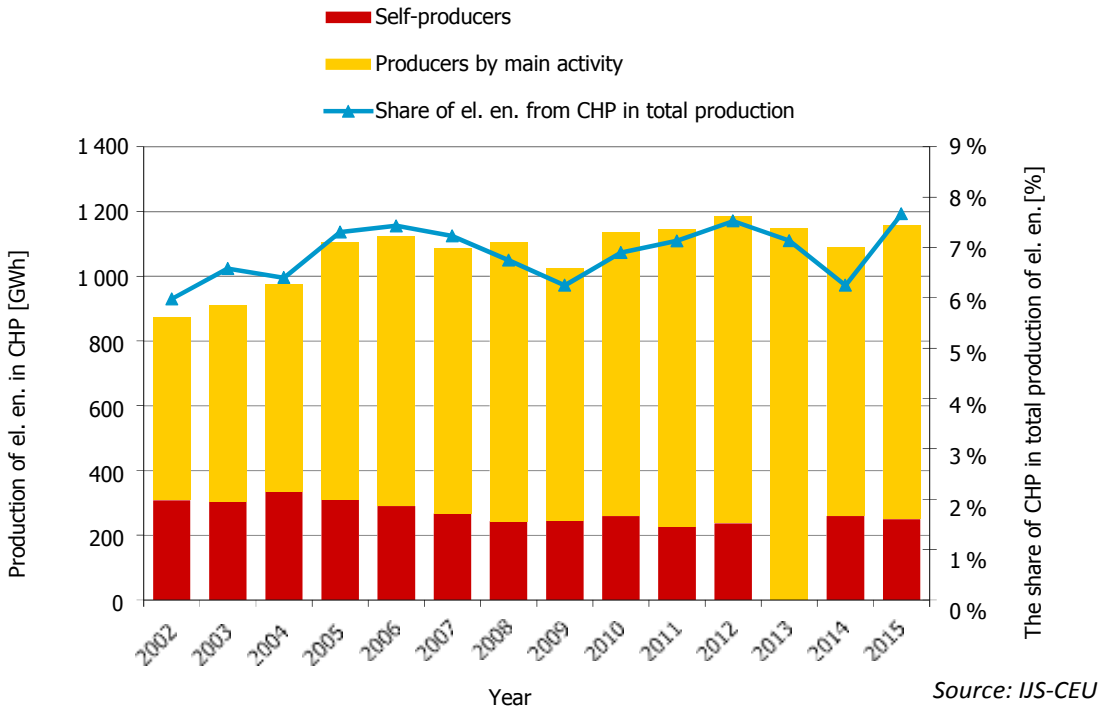
Specific emissions of new vehicles are decreasing, and they follow the set objectives, but this result is also affected by the growing inconsistency between factory measurements and actual data. **The average emissions of all vehicles** are decreasing, but more slowly than would be necessary to achieve the target. To achieve the objective, it will be necessary to strengthen the implementation of measures in this area, encouraging the purchase of more efficient vehicles and alternative fuel vehicles. **The share of RES** in transport declined in 2015 and amounted to only 2.25 %, which is significantly less than the annual target[89] and represents a significant backlog towards the 2020 target under Directive 2009/28/EU. **The number of passenger kilometres in public transport** has increased slightly for the first time since the beginning of the monitoring of the indicator in 2011, but a significant increase is required by 2020. In long-distance bus transport, passenger kilometres increased for the second year in a row (after 2011), while in urban public passenger transport remained virtually unchanged in 2014 and 2015, following a large, more than 10 % growth in 2013, which was mainly the result of changes in the subsidies for the transport of pupils and students, and partly as a result of more detailed monitoring of transport. **The share of rail transport in total freight transport** (with at least one point in Slovenia) continued to insist on the annual target but declined somewhat in 2015**.** In line with the objectives, it will be necessary to ensure faster growth of rail freight transport from road transport, which was achieved in the observed period, but not in the last year. Between 2011 and 2015, the number of tonne-kilometres transported in road transport increased by 4.3 % and in railway transport by 13.3 %. It will be necessary to ensure the continuation of these positive trends also in the context of the increased economic activity, which will affect the volume of freight transport.

3.6. Promoting efficiency in heating and cooling (Article 14)

Electricity production in CHP increases and has increased by 33 % between 2002 and 2015 or almost to 1.2 TWh in 2015. In total electricity production, the share of CHP is around 7 % (7.7 % in 2015), Figure 10.

[89] Action Plan for Renewable Energy Sources for the period 2010-2020, Government of the Republic of Slovenia, July 2010.

District heating has a long tradition in Slovenia: in 1991, 91 distribution systems operated in 51 municipalities, which supplied 103 459 customers and supplied them with 1 840 GWh of heat, Figure 11[90]. There is also a worrying negative trend in the number of heat customers from the DO systems, since their number in 2014 decreased by more than 14 % compared to 2014, mainly due to the transition to other, cheaper sources of heat supply. However, a high, almost 80 % share of DOE heat produced in CHP is encouraging and the development of small district heating systems for wood biomass (DOLB).



Source: IJS-CEU

Figure 10: Volume and share of electricity generated in CHP in the period from 2002 to 2015

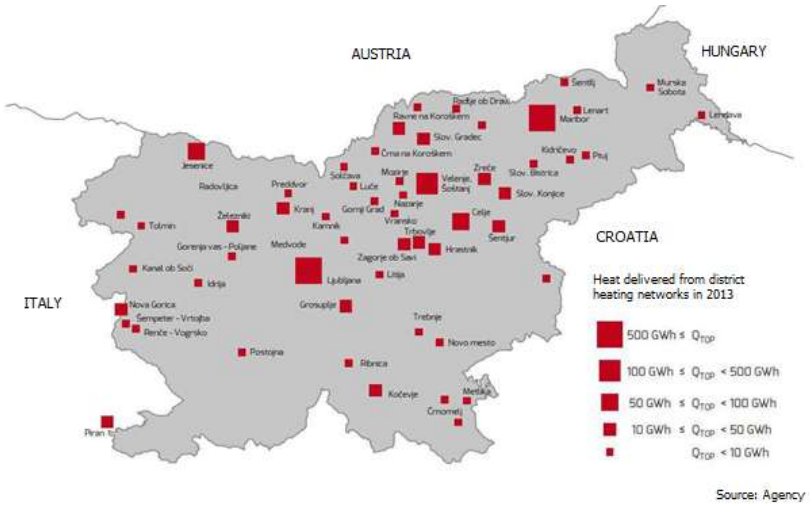


Figure 11: The size and dispersion of district heating systems in 2015

[90] Situational report of energy in Slovenia in 2015, Energy Agency of the Republic of Slovenia.

3.6.1. Comprehensive assessment

In accordance with the EZ-1, the ministry responsible for energy, every five years, prepares a comprehensive assessment of the possibilities for the use of CHP and effective DH and DC. The overall assessment, in line with the requirements of the Directive[91], includes a cost-benefit analysis, while the more detailed content of the cost-benefit analysis will be laid down by the minister responsible for energy. The first comprehensive assessment of the possibilities for the use of CHP and effective DH and DC has estimated the technical potential for CHP only in DH systems at up to 600 GWh of heat.

A comprehensive assessment of the potential of CHP was made in 2007 in accordance with Directive 2004/08/EC[92] and identified more than 1 000 MW_e of technical potential, and in 2011 the market potential by 2030 was estimated[93] to 500 MW_e, Figure 12. The future development of CHP will depend to a large extent on the available resources for the implementation of the support scheme for electricity produced from RES and CHP, and economic development in industry, where the unused potential is greatest, especially in services and households, as well as from the market introduction of microtechnologies CHP.

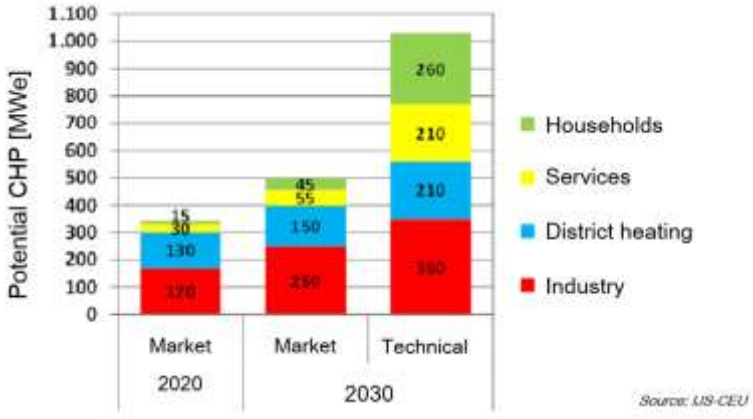


Figure 12: Assessment of the technical and market potential of CHP by 2030

3.6.2. Main measures to promote CHP, effective DH and DC, and other efficient heating and cooling systems

Over the period until 2020, the implementation of existing measures to promote efficient heating and cooling will continue, Table 34. Additional incentives for the further development of this sector are provided by implementing two new measures: the preparation of the heating and cooling strategy, the DH and DC action plan and the thermal maps (measure V.5), and financial incentives from the Eco Fund for the sustainable development of DH systems (measure D.2), Table 35.

Heating and cooling strategy, heat map (measure V.5)

A comprehensive strategy for heating and cooling in Slovenia has been developed, which, on the basis of a comprehensive spatial analysis and cost-benefit analysis, provides guidelines for the development of efficient DH, DC and the use of CHP, which will be a sound basis for establishing the necessary support environment for the further development of these systems, planning (production of local energy concepts—LEK).

[91] Article 14(1)(3) and Annexes VIII and IX.

[92] Directive 2004/8/EC of the European Parliament and of the Council of 11 February 2004 on the promotion of cogeneration based on the use of useful heat in the internal energy market and amending Directive 92/42/EEC.

[93] Proposal of the National Energy Programme of the Republic of Slovenia for the period up to 2030: 'active

management of energy’.

A particular emphasis of development in this area is on the future development of DH systems and their sustainable transition (increasing efficiency, increasing the use of RES and excess heat and increasing their competitiveness). In the future, it will be necessary to conduct comprehensive assessments of the possibilities for using CHP and efficient district heating at a local level, including cost-benefit analyses, and to define the frameworks for the preparation and implementation of the LEK accordingly.

To support planning at the national, local and project level, it is necessary to establish a uniform collection and update of the necessary databases and publicly available tools. The 'Heat map of Slovenia' is being prepared, which will include information on buildings, energy infrastructure, energy systems, energy use, etc. A system for maintaining a thermal map will also be established, which will include an iterative process of data collection and processing, database structuring, GIS mapping, the definition of accessibility and regular map evaluation.

The training of heat card users will be implemented, in particular, training of energy system planners, energy service providers and LEK preparers, and the Sustainable Energy Action Plans (SEAP) and the Sustainable Energy and Climate Action Plans (SECAP).

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

Until now, the Support Scheme for Electricity Generated from RES and CHP was the main measure to promote the development of CHP and, indirectly also the DH and DC systems The scheme provides operational support for larger plants and guaranteed purchase prices for smaller plants (up to 0.5 MW) for a period of 15 years for RES generation and 10 years for CHP for fossil energy sources.

The renewed support scheme (2009) significantly expanded the promotion of CHP (in line with Directive 2004/08/EC) to all sectors (primarily in DHs), set more support for the production of electricity from RES (several RES resources and size classes of support) and set clear methodological starting points for determining the amount of support (methodology for determining the reference costs of electricity, coordination of support according to market conditions, etc.), which significantly improved the predictability of the support and reduce the risks to investors. In the period up to 2014, around 140 MWe of new CHP generating plants were built on fossil resources and RES (Figure 13), mostly in DH systems, and in recent years the number of smaller units in the service sector has increased significantly.

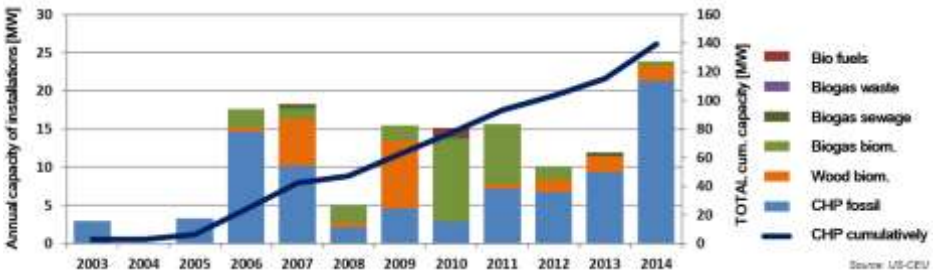


Figure 13: Development of new CHP generating plants in the period from 2003 to 2014

With the EZ-1, a new system of calls for entry of new devices into the support scheme was introduced in 2014, which was first published at the end of 2016. 80 projects with a total capacity of 187 MWe applied to the call, of which more than 19 MWe with the use of RES.

However, the future development will be highly dependent on the limited available funding to finance the support scheme. For the successful development of CHP, it is essential to provide predictable and stable conditions for investors, which is only possible through the stable financing of the support scheme.

Programme for co-financing the construction and expansion of district heating systems on RES (measure D.1)

Financial incentives are intended for investments in new DH-RES systems and DH-RES micro-systems, as well as the expansion of existing DH-RES systems and construction of new boiler rooms with wood biomass boilers, CHP on wood biomass or solar systems. The programme is implemented under the Operational Programme for the Implementation of the European Cohesion Policy for the period 2014-2020.

Financial incentives from the Eco Fund for the sustainable development of the DO schemes (measure D.2)

The Eco Fund will prepare a comprehensive financial incentive programme to promote the sustainable development of existing DH systems and increase their competitiveness by implementing various measures:

- The connection of new users to the DO system [94];
- introduction of RES in the supply of heat and cold;
- exploitation of excess heat from the industry;
- construction of heat accumulators, etc.

Other measures to promote efficient heating and cooling:

- **Investment incentives and favourable loans** for efficient heating systems and connection to district heating on RES (see measures in households and services);
- **Compulsory checks on combustion plants** for households and small industrial combustion plants (inspection and purification of plants, measurements of emissions and efficiencies and keeping records of the chimney services);
- **Inspection of heating systems**—a new EZ-1 measure, inspections will be conducted by independent certified experts who will evaluate the efficiency and suitability of building applications, advice on improvements and alternative replacement solutions, and keep a registry of the heating systems reports.
- **Regular inspections of air conditioning systems with a nominal power of over 12 kW** (assessment of efficiency and suitability, advisory services for improvements and alternative solutions for replacement, keeping a registry of climate inspection reports);
- **Consulting in the selection, optimisation and use of heating systems** under the ENSVET programme (free advice to citizens);
- **Regulations for the energy performance of buildings:** a mandatory 25 % share of RES, an action plan for almost zero-energy buildings

[94] Eco Fund already provides financial incentives in the form of grants for connecting residential buildings to DH systems on RES in the context of investment in RES use and higher energy efficiency of residential buildings.

- **Feasibility studies of alternative energy supply systems** for new buildings and major renovations of buildings with an area of over 1 000 m^2 (among alternative systems are decentralised systems on RES, district or group heating or cooling, CHP and heat pumps).

Table 34: Existing measures for promoting efficient heating and cooling

No	Measure	Programme / Upgrading	Type of measure / Responsible entity	Target group	Deadline
D.1	**Programme for co-financing of district heating on RES**	Continuation of co-financing (financial incentives in the form of grants, OP-EKP 4th axis) investments in DH on wood biomass and other RES (including microsystems, enlargements) and financing by liable entities under the Regulation on energy savings	Financial incentives / The Ministry responsible for energy, liable entities under the Regulation on the provision of energy savings	local communities, energy companies	2017-2020
V.3	**Support Scheme for Electricity Generated from RES and CHP**	It is necessary to provide stable and predictable conditions for investors and the necessary funds for financing the scheme. Regular monitoring of implementation and market conditions is required to ensure the financial sustainability of the scheme.	Financial incentives / The Ministry responsible for energy, Energy agency, Borzen	All sectors	2017-2020
H.6	**Energy efficiency obligation scheme and alternative measure**—measures in the field of DH and CHP (see Table 8)				

Table 35: New measures for promoting efficient heating and cooling

No	Measure	Programme / Upgrading	Type of measure / Responsible entity	Target group	Deadline
D.2	**Financial incentives from the Eco Fund for sustainable development of DH systems**	**A comprehensive programme of financial incentives to promote the sustainable development of existing DO systems (new connections, the introduction of RES, exploitation of excess heat, heat accumulators, etc.) and increase their competitiveness.**	Financial incentives / Eco Fund	Energy companies, economy, other sectors	2018-2020
V.5	**Heating and cooling strategy, heat map**	**Creating a comprehensive strategy for heating and cooling and heat maps** The strategy will set clear objectives and criteria for the development of efficient heating and cooling. The heat map will establish a supportive environment for designing efficient heating and cooling at the national, local and project levels. Continuous education and support for stakeholders in the field of planning effective DHs will be established.	Implementation of the strategy / The Ministry responsible for energy	All sectors	2017-2018

3.6.3. Individual plants: cost-benefit analysis and results

When planning of new constructions and the extensive renovation of facilities as referred to in Article 14, paragraph 5 of the directive, in the process of obtaining a building permit the investor must provide a cost-benefit analysis of the possibility of using CHP and effective DO and DH, as referred to in Article 364 EZ-1.

The methodology and detailed assumptions of the cost-benefit analysis will be determined by the Minister of Energy. The policy will be prepared in 2017.

3.6.4. *Individual plants: exemptions and exemptions decisions*

Pursuant to the requirement in paragraph 6 of Article 14 of the Directive, Slovenia informed the Commission of the exceptions it would take on the obligation to draw up a cost-benefit analysis and the analysis of the benefits for individual plants. Slovenia will apply all exceptions allowed by the Directive:

a) **power plants used at load peaks and back-up power generation plants,** which are expected to operate less than 1 500 operating hours per year over the five-year period as a current average;

b) **nuclear power plants**;

c) **installations which must be in the vicinity of the geological storage site**;

d) **the threshold for the use of excess heat from industrial installations** referred to in points c and d of the fifth paragraph of the directive will be set at the level of the minimum thermal load of the network of 1.5 GWh/year/km (cost-benefit analysis will not be mandatory for installations where, distance from the DO system, or heat demand, the heat load would not reach this level).

Until the publication of the Action Plan, no exemption procedure was carried out in accordance with Article 14(6).

3.7. Energy transformation, transmission, distribution, and demand response (Article 15)

In the current development of the electricity sector, Slovenia has managed to achieve a balanced structure of primary sources for the production of electricity (coal, hydropower, nuclear power) and has open possibilities for further diversification of resources. In the future, the goal in the field of electricity generation is a gradual transition to low-carbon sources in energy supply and an increase in the efficiency of the conversion of obsolete thermal power plants to be replaced by newer and more efficient units for cleaner fuels.

Increasing efficiency is one of the priorities in the development of energy networks, where the active participation of energy consumers (an adaptation of consumption, electromobility) and dispersed local energy production is seen as an increasingly important factor.

3.7.1. *Energy efficiency criteria in network tariffs and regulation*

The Energy Agency as the national regulatory authority of the Republic of Slovenia in the field of the energy market has in accordance with the EZ-1 clearly defined the basic objectives of the operation, among which are the objectives:

- Cost-effective promotion of the development of safe, reliable and efficient non-discriminatory systems aimed at customers that promote sufficient system capacity and, in accordance with the general objectives of the energy policy, **energy efficiency and the integration of electricity and gas production on a smaller and larger scale from RES and distributed production in transmission and distribution networks**.
- **Providing appropriate incentives for system operators and users, in the short and long term, to increase the efficiency of networks** and foster market integration.

In accordance with the guidelines of the EZ-1, the Agency, in the performance of its regulatory activity, pursues these objectives and directs the network operators, periodically publishes

[95] Consultation Paper 'Customizing the Quilt' (*Prilagajanje odjema*), March 2012.

[96] Consultation Paper 'Ten-Year Development Plan for the Transmission Gas Network for the Period 2016-2025' (*Desetletni razvojni načrt prenosnega plinovodnega omrežja za obdobje 2016–2025*), July 2015.

relevant consultative documents [95,96,97,98]. In 2015, the regulatory period 2013-2015 ended, and a new regulatory framework for the 2016-2018 period was adopted during the year. On the basis of the second paragraph of Article 116 and the fourth paragraph of Article 132 EZ-1, the Agency adopted the methodology for determining the regulatory framework and established the eligible costs of the electricity operators, thereby establishing the conditions for determining the tariffs for electricity network operators in the new regulatory period. It defined a network charge that maintains stable operation of the operators, while at the same time it allows acceptable and predictable tariffs for the network charge for final customers in the next three years. The Act on the methodology for determining the regulatory framework and the methodology for charging the network charge for electric operators[99] was adopted in 2015, and amendments to the mentioned act were adopted in 2016.

In accordance with the regulatory framework and the specific objectives of the amended act, it is necessary:

- To ensure the operation, maintenance and promotion of the development of the distribution and transmission system in accordance with the rules of the profession and the state of the art (or the principle of the best available technology) so that the quality of transmission and distribution of electricity is permanently improved or maintained.
- To promote the implementation of the investments needed to fulfil the environmental objectives of the action plans; promote the effective use of the system; permanently improve or maintain the level of quality of electricity supply, which includes commercial quality, power continuity and voltage quality.
- To implement the economic regulation of the network charge for the electricity system in a way that encourages the cost-effectiveness of operators; provide electricity operators with a sustainable return on assets and ensure stable and predictable conditions for the operation of electric operators and users and a stable environment for investors or owners.

In accordance with the EZ-1 and the National Development Energy Plan (DREN), transmission system operators and system and distribution operators must develop ten-year development plans for the system, and the development plan should include an assessment of the potential for increasing the energy efficiency of gas and electricity infrastructures by balancing loads and interoperability, energy production plants, including micro-production, and to define time dynamics and financial evaluation of planned investments and actual measures for cost-effective improvements in network infrastructure. The methodology for drawing up development plans shall be prescribed by the minister responsible for energy. In 2015, the natural gas transmission system operator and natural gas distribution system operators submitted a new regulatory framework to the Agency, setting out the eligible costs, network and other revenues, and the tariff line for the network charge for the period 2016-2018.

The introduction of advanced measurements is one of the key factors for increasing consumer involvement in system efficiency, including responding to demand in relation to national situations. In 2011, the Energy Agency prepared Guidelines for the introduction of the Advanced Measurement System for Slovenia[100], which provided the basis for the preparation of the new Energy Act for the role of the system operator in the field of measurement. In 2015, the **Decree on**

[97] Consultation document 'Ten-Year Development Plan for the Transmission Gas Network for the Period 2017-2026' (*Desetletni razvojni načrt prenosnega plinovodnega omrežja za obdobje 2017-2026*), December 2016.

[98] Consultation document 'Guidelines for the development of electromobility in Slovenia' (*Smernice za razvoj elektromobilnosti v Sloveniji*), January 2017.

[99] Act on the methodology for determining the regulatory framework and the methodology for charging network charges for electric operators (UL RS No 66/15, 105/15 and 61/16).

[100] http://www.agen-rs.si/dokumenti/29/2/2011/POS_20110729_Posvetovanje_AMI_Pub_1601.pdf

[101] Decree on measures and procedures for the introduction and connectivity of advanced measurement systems of electricity (UL RS No 79/15).

Measures and Procedures for the Introduction and Connectivity of Advanced Measuring Systems of Electricity[101] was adopted, which sets out the measures and procedures for ensuring the introduction and connectivity of the advanced measuring system of electricity in the territory of the Republic of Slovenia. In accordance with the Article 6 of the Regulation, in 2016, SODO published the **Plan for the Introduction of an Advanced Measurement System in the Slovenian Electricity Distribution System**[102] (discussed in more detail in Chapter 3.1.3).

A key measure to promote the development of smart distribution systems is included in the OP EKP and is presented in more detail in the table below, Table 36.

Table 36: Existing measure for promoting the development of efficient distribution systems

No	Measure	Programme / Upgrading	Type of measure / Responsible entity	Target group	Deadline
O.1	**Non-refundable investment incentives**	From the OP EKP funds 2014-2020, grants will be provided to encourage the development of advanced distribution systems by upgrading the existing electricity infrastructure with ICT and some new elements that provide cost-effective solutions, among which are: • The implementation of remote measurement by actual consumption using two-way digital communication between the supplier and the consumer. • Introduction of dynamic, innovative tariffs. • The integration of new elements, such as dispersed sources of electricity, electric vehicles, energy accumulators, compensating devices and their management. • The development and supply of new energy services, such as tailoring clothes, adjusting production from dispersed sources, managing consumption, owning, etc.	Financial incentives / Ministry responsible for energy	Distribution network operators	2015 -2020

3.7.2. Facilitating and encouraging demand response

Operational support for dispersed electricity generation from RES and CHP, and planned financial incentives for the development of advanced distribution systems (smart metering, ICT support for advanced services of adapting to customer satisfaction and electromobility, etc.), is an extremely important measure that will enable and stimulate the development of response services on demand.

In the area of electromobility, in particular with regard to its impact on the operation of the EES, two documents are linked: Proposal for the rewording of Regulation 714/2009 / EC on conditions for access to the network for cross-border exchanges in electricity, the proposal extends the scope of the regulation from the cross-border exchange to the whole internal the electricity market and the proposal to reform Directive 2009/72/EC concerning common rules for the internal market in electricity. In both documents, great emphasis is placed on the integration of network users (dispersed production, energy stores, and consumers) into the operation of the electricity system (EES). According to the consulting document, it was found that the current legislative incentives for the integration of network users into the operation of the EES have not yielded satisfactory results. It is proposed to set up new business models, especially at the distribution level, which envisage the entry of network users into the market of system services and include the aggregation of the potential of smaller adaptable resources and customers to support the operation of the EES (electromobility).

The proposal to reform Directive 2009/72/EC concerning common rules for the internal market in electricity mentions the role of electromobility in the transformation of energy into the EU. The need to develop a charging infrastructure for all types of charging (public and private) and after

[102] https://www.sodo.si/o-nas/aktualno/nacrt-uvedbe-naprednega-merilnega-sistema-v-elektrodistribuc

the inclusion of the charging of electric vehicles (EV) into the operation of the EES is highlighted. In doing so, smart charging (customisation) is exposed as a precondition for effectively integrating EV charging into the operation of the EES. In EZ-1, electromobility is directly dealt with in two articles: Article 78: (9) 'The Distribution Operator is responsible for the development of the basic public infrastructure of high-speed road vehicles on motorway cross-roads'; and in connection with the connection and technical requirements of charging stations (as far as the impact on the network is concerned).

In 2016, the system operator of the electricity transmission network (ELES) prepared a Development Plan of the transmission system of the Republic of Slovenia from 2017 to 2026. In September 2015, the system operator took over the new system for managing and monitoring EES—EMS (Energy Management System) set a target from the previous development plan. The new system allows for more efficient control of the transmission system and easier control in critical and more optimal operation under normal operating conditions. In the upcoming period, the management system will be upgraded to support the processes in the implementation of tertiary regulation, relieve the network on the load side, while also providing optimization of the network voltage profile, optimization of network losses and other required functionalities for the needs of cross-border cooperation in projects in the field of smart networks. In 2014, the system operator successfully integrated electricity customers and smaller dispersed sources into their portfolio of system services, thus enabling the management of purchases for the needs of providing a tertiary reserve. On the basis of the positive experience gained, the system operator will continue to include the management of the take-over into its portfolio of system services. The system operator, together with its partners, seeks solutions[103] and encourages consumers and distributed production to provide flexible services for the needs of the EES. As part of the project, the partners in the project will in practice try out solutions that will mainly include industrial customers in combination with diffuse Source of Production, which will in the future shape the concepts of collaboration for tailor-making and dispersed Production Sources for system services. The project itself is of a developmental nature, with emphasis on the application of pilots in practice, aimed at demonstrating the ability to cooperate with different types of smaller producers and taking in secondary frequency regulation and to evaluate the available potential.

In the last two years, the system operator has set clear goals for the concept of smart grids and will continue to focus on the study and development of these, and will continue to develop smart network projects in the forthcoming period[104] actively. In the area of promoting investment in smart grids in the regulatory period 2016-2018, the Agency included two pilot projects[105] in the implementation incentive scheme. Implementation incentives are in the current regulatory period focused on testing the effectiveness of active customer engagement in customisation programmes using dynamic tariffs. By the end of 2018, up to 10 000 household or small business customers will be able to participate in a tailor-made payment adjustment programme based on the pilot dynamic network tariffs that will be provided by distribution companies within the framework of these projects. A critical peak tariff will be used to dynamically redirect final customers from the system load during peak hours to peak loads, taking into account the availability of energy from RES, the energy generated in the CHP, and the distributed generation of electricity. The Agency will monitor the implementation of projects. The analysis of the effectiveness of the programmes will serve as a basis for further decisions of the Agency regarding the introduction of dynamic tariffs in the field of network tariffs. In accordance with the new development plan of the transmission system, joint planning and proper integration of all entities in the energy sector is necessary for the realisation of the demanding goals of smart grids.

[103] project FutureFlow.

[104] FutureFlow, SINCRO.GRID, NEDO.

[105] Project 'Flex4Grid' (distribution area Elektro Celje d.d) and the project 'Peak equalisation / adaptation in the area of RTP Breg' (distribution area Elektro Maribor d.d.).

3.7.3. *Energy efficiency criteria for network design and operation*

Pursuant to Article 30 EZ-1, gas and electricity infrastructure operators must also draw up an assessment of the possibilities for increasing energy efficiency in the context of development plans, in particular as regards transmission, distribution, load balancing and interoperability and connectivity to energy production plants, including access options for microgenerators of electricity; and to define the time dynamics and financial evaluation of the planned investments and measures for improvements in the network infrastructure. In accordance with the EZ-1, the Agency issued consent to the operating instructions for the transmission[106] and the distribution[107] of the electricity system, for the natural gas transmission system[108], and for the operation and management of the distribution system[113]. The NEP[109] proposal provided guidelines for further development and analysed the problem of the efficiency of electricity networks and distribution networks for district heating.

Electricity

The development and construction of active electricity distribution networks to support energy efficiency and dispersed production of electricity increase is one of the priority areas. According to figures from 2015[110], there were losses of electricity on the transmission system 334 GWh and 530 GWh on the distribution system. Electricity losses of 864 GWh represent about 6 % of the electricity taken from the transmission and distribution system in Slovenia. The NEP proposal presents guidelines and measures that should ensure the further development of the transmission and distribution electricity network and, despite the increased production of electricity, enable the management of network losses and at least the maintenance of the achieved situation in 2008. The proposed guidelines and measures will be SOPO and SODO operationalised in its development plans.

To support the production of electricity from RES and CHP, the network operator should specifically consider the connection and operation of generating plants for the production of electricity from RES and CHP. The EZ-1 states that:

- the electricity operator cannot refuse the investor's consent for connection and must provide him with clear information on the connection costs;
- the costs of all analyses for issuing a consent for connection to the network are borne by the electricity operator;
- the investor does not bear the costs of any reinforcement of the existing transmission or distribution network, which is necessary due to the connection of the production plant;
- the electricity operator must ensure the transmission and distribution of such electrical energy;
- in the course of its network regulation activities, on the basis of transparent and non-discriminatory rules, the electricity operator must give priority to these production facilities, provided that this allow the safe operation of the EES;
- the system operating instructions clearly define the connection methods, the required technical equipment, the standard rules for determining the connection costs, especially for units with a power of up to 10 MW_e and simplified for units with a power of up to 1 MW_e.

At the beginning of 2016, the Regulation on self-handling of electricity[111], which allows household and small business customers (MPOs) to self-supply electricity from RES based on net metering,

[106] System operating instructions for the electricity transmission system of the RS, UL RS No 29/16.
[107] System Operating Instructions for the Electricity Distribution Network, UL RS No 41/11 and 17/14 – EZ-1.
[108] System operating instructions for the transmission system of natural gas, UL RS No 55/15.
[109] Proposal of the National Energy Programme (NEP) for the period up to 2030: 'Active management of energy',

June 2011.

[110] Report on the state of energy in Slovenia in 2015, Energy Agency, August 2016.

[111] UL RS No 97/15.

has entered into force. The technical and safety requirements of self-supply devices for RES from RES are given in the Rules on the technical requirements of self-supplying devices from RES[112].

Heat

According to data from 2015[110], losses in the distribution of district heating amounted to 333 GWh or about 16.1 % of the gross heat produced in DH systems in Slovenia. The draft NEP[109] proposal presents guidelines and measures that will ensure conditions for the effective implementation of all activities aimed at reducing losses in DH systems.

A distributor who performs the activity of heat distribution and the activity of the distribution of other energy gases as an economic, public service shall issue systemic operating instructions[113] governing the operation and management of the distribution system. The system operating instructions must be transparent, objective and non-discriminatory and prepared in accordance with the general act of the Agency on the methodology for generating the price of heat for district heating[114].

3.7.4. Savings in heat supply

In accordance with the Regulation on the provision of energy savings for final customers[115] and the new Rules on the methods for determining energy savings[116] and the Annex[117] of the Rules, the following measures are planned for achieving primary energy savings in the sectors of conversion, distribution and transmission of heat energy:

- complete renovation of the heat station;
- increasing the efficiency of the heat distribution system;
- installation of district heating installations for achieving criteria for energy efficient district heating systems.

In 2015, 11 such measures were implemented, and the estimated savings in this period amounted to 76.3 GWh.

3.8. Financing the measures

The key sources of grants for the implementation of the measures of AN URE 2020 are:

- Funds from the EU structural and investment funds to implement the European cohesion policy in Slovenia in the financial perspective 2014-2020. The Government of the Republic of Slovenia adopted the OP EKP from 2014 to 2020. This is an implementation document based on national strategies, programmes and action plans from individual fields, including the field of EE. The programme identifies those priority investments in which Slovenia invests the resources of the European Regional Development Fund, the European Social Fund and the Cohesion Fund in the 2014-2020 programming period to achieve the national goals and objectives of the EU 2020.

[112] UL RS No 1/16.

[113] A list of the system operating instructions of heat distributors operating a public commercial service to which the Energy Agency has given its consent is accessible at https://www.agen-rs.si/web/portal/podzakonski-akti7

[114] Act on the Methodology for the Design of the Price of Heat for District Heating, UL RS No 2/17.

[115] Decree on the provision of energy savings to final customers (UL RS No 114/09, 57/11, 17/14 – EZ-1 and 96/14).

[116] Rules on methods for determining energy savings (UL RS No 67/15 and 14/17).

[117] ANNEX 1: Methods for determining energy savings, using renewable energy sources and reducing CO_2 emissions.

- Budgetary funds to ensure Slovenian participation in the implementation of European cohesion policy.

- contributions or allowances paid by energy consumers under the EZ-1.

- Funds of the Climate Change Fund of the Republic of Slovenia, which are dedicated budget funds, revenues of the fund are revenues from the sale of emission coupons at the auction and are dependent on the market price of emission coupons on the European market. The areas in which Slovenia invests the assets of the Climate Change Fund of the Republic of Slovenia are defined in the Environmental Protection Act[118], and in detail for a two-year period in the Programme for the use of the assets of the Climate Change Fund in the years 2017 and 2018. Part of this appropriation is for EE measures.
- EE measures in agricultural holdings, food and wood processing plants and micro-enterprises in rural areas are also supported under the Rural Development Programme of the Republic of Slovenia for the period 2014-2020, from the European Agricultural Fund for Rural Development.
- Funds from other EU programmes in the financial perspective 2014-2020, aimed at achieving the goals of the climate and energy package, to a large extent also in the field of EE. These include, in particular, the following programs: Horizon 2020—the EU Framework Programme for Research and Innovation, COSME, the Programme for the Competitiveness of Enterprises and SMEs, the LIFE Environment and Climate Action Program, the Territorial Cooperation Programmes financed by the European Regional Development Fund[119], help from ELENA, etc. Within these programmes, individual projects are implemented by different actors in Slovenia. System support from the state is provided only for inclusion in projects in the LIFE programme.

Investments in the public sector will also be funded from private sources, and the EPO mechanism is planned to be promoted. Within the priority investment Sustainable Energy of the OP EKP, further development of the EPO system, contractual energy supply and contractual provision of energy savings, especially in the public sector, is foreseen, and in so far as is justified, and also in the household sector, in particular through demonstration projects. See also measure H.1 in Chapter 3.1.6.

The funds earmarked for incentives for EEU measures in the period from 2017 to 2020 are shown in the table, Table 37. These funds of the OP EKP programme will be drawn up in the period up to 2023.

In addition to the national objective of improving energy efficiency, the EEU measures will also achieve great external benefits due to synergies with other energy and environmental policy objectives (mitigation of climate change, improvement of air quality and increasing of the share of RES, improvement of competitiveness and security of energy supply), and development goals of the country: employment, economic growth and a way out of the economic crisis.

[118] Law on Environmental Protection, UL RS No 39/06—official consolidated text, 49/06 - ZMetD, 66/06 - rev. US, 33/07—ZPNatchrt, 57/08—ZFO-1A, 70/08, 108/09, 108/09—ZPNacrt-A, 48/12, 57/12, 92/13, 56/15, 102 / 15 and 30/16.

[119] During the programming period 2014-2020, Slovenia will participate in the thirteen European Territorial Cooperation programmes in the cross-border programmes Slovenia-Italy, Slovenia-Hungary, Slovenia-Croatia, Slovenia-Austria; in transnational programmes: Alpine Space, Central Europe, Adriatic-Ionian, Mediterranean and Danube regions and interregional programmes: INTERREG VC, INTERACT, ESPON and URBA.

Table 37: Sources of public funds for the financing of AN URE 2020 measures—by measures

Measure		Public financial resources [EUR]				Form of support	The purpose of the funding
		2017	2018	2019	2020		
OP EKP							
Priority axis 1: International competitiveness of research, innovation and technological development in line with the smart specialisation for greater competitiveness and greening of the economy							
002 Research and innovation processes in large companies	Axis 1		58 823 529			grants	Funds for partial financing of measure
062 Technology transfer and cooperation between universities and businesses, in particular for the benefit of SMEs	Axis 1		23 529 412			grants	Funds for partial financing of measure
063 Support for clusters and business networks mainly for the benefit of SMEs	Axis 1		9 873 679			grants	Funds for partial financing of measure
064 Research and innovation processes in SMEs, including voucher systems and process, design services and social innovation	Axis 1		58 823 529			grants	Funds for partial financing of measure
065 Research and innovation infrastructure, processes, technology transfer and cooperation in companies focusing on the low-carbon economy	Axis 1		80 185 189			grants, financial instruments	Funds for partial financing of measure
Priority axis 3: Dynamic and competitive entrepreneurship for green economic growth							
068 Energy efficiency and demonstration projects in SMEs and support measures	Axis 3		17 230 279			grants	Funds for partial financing of measure
			48 561 935			financial instruments	Funds for partial financing of measure
069 Support environmentally friendly production processes and efficient use of resources in SMEs	Axis 3		6 474 925			undefined	Funds for partial financing of measure
071 Developing and encouraging companies specialising in services that contribute to a low-carbon economy and resilience to climate change (including support for such services)	Axis 3		2 352 941				Funds for partial financing of measure
Priority axis 4: Sustainable use and generation of energy and smart grids							
013 Renewal of public infrastructure for increased energy efficiency, demonstration projects and support measures	J.2, J.3, J.6, J.4, V.7		135 529 412			grants	Funds exclusively to finance this measure
	J.2, G.1, G.2, G.9, H.1		58 823 529			financial instruments	Funds exclusively to finance the measures listed
014 Renovation of existing housing stock for increased energy efficiency, demonstration projects and support measures	G.1, G.2, G.3		25 294 118			grants	Funds exclusively to finance this measure
015 Intelligent distribution systems for medium to high voltage (including intelligent energy networks and ICT systems)	O.1		16 350 353			grants	Funds exclusively to finance this measure

Measure		Public financial resources [EUR]				Form of support	The purpose of the funding
		2017	2018	2019	2020		
			5 882 353			financial instruments	Funds exclusively to finance this measure
			1 176 471			undefined	Funds exclusively to finance this measure
016 High-efficiency cogeneration and district heating	D.1		16 470 588			grants	Funds exclusively to finance this measure
043 Infrastructure for environmentally friendly urban transport and its promotion (including equipment and fleet)	P.1, P.1a		5 352 941			grants	Funds exclusively to finance the measures listed
			5 882 353			reimbursable grants	Funds exclusively to finance the measures listed
090 Bicycle paths and pedestrian paths	P.4		7 788 235			grants	Funds exclusively to finance this measure
			5 717 647			reimbursable grants	Funds exclusively to finance this measure
036 Multimodal transport			3 505 882			grants	Funds exclusively to finance this measure
	P.2		2 352 941			reimbursable grants	Funds exclusively to finance this measure
044 Intelligent transport systems	P.1		2 352 941			grants	Funds exclusively to finance this measure
083 Measures in the field of air quality	CTN P.3		24 734 359			grants	
Priority axis 7: Building infrastructure and measures to promote sustainable mobility							
024 Railways (central TEN-T network)	P.5		180 117 647			grants	
Priority Axis 14: Technical Assistance							
121 Preparation, implementation, monitoring and review	J.5		18 981 285			grants	The funds are also intended for other areas of technical support

Measure		Public financial resources [EUR]				Form of support	The purpose of the funding
		2017	2018	2019	2020		
Eco Fund							
Contribution of EE	G.1, G.2, G.3	25 000 000				definition of resources from 2018-2020	
Contribution of EE	J.3, J.4	8 000 000				definition of resources from 2018-2020	
Contribution of EE	I.1, I.2, I.3	4 300 000				definition of resources from 2018-2020	
Contribution of EE	P.3	2 000 000				definition of resources from 2018-2020	
Contribution of EE	G.5	900 000				definition of resources from 2018-2020	
Contribution of EE	D.2					definition of resources from 2018-2020	
Other sources							
Contribution to promote production from RES and CHP	V.3		undefined				
Suppliers' programmes	H.6		/				
Borzen - information activities	H.3	260 000					Information, awareness-raising programme (Article 351 EZ-1)
Measures requiring funding sources							
Promoting training	H.4b					from 2018 possible funding from the Climate Change Fund	
Training and licensing of independent experts	H.5					from 2018 possible funding from the Climate Change Fund	
Financial incentives for demonstration projects	I.4					from 2018 possible funding from the Climate Change Fund	

ANNEX A ANNUAL REPORT ON THE ENERGY EFFICIENCY DIRECTIVE

A.1 A national target for 2020 to increase energy efficiency

Pursuant to Article 3 of the Directive, Slovenia set an indicative target of improving energy efficiency by 2020 at 7 125 Mtoe (82.86 TWh) of primary energy. This objective does not include the non-energy use of fuels. The objective is set on the basis of national statistics on energy use, prepared according to the EUROSTAT methodology.

A.2 Key statistics

Table 38: Assessment of the key statistical data on energy consumption

Key statistics related to energy use[120]		
Total use of primary energy	6 407 ktoe	74 512 GWh
Total end-use energy consumption[(1)]	4 690 ktoe	54 544 GWh
End-use energy consumption– industry	1 227 ktoe	14 273 GWh
End-use energy consumption – transport	1 799 ktoe	20 927 GWh
End-use energy consumption – households	1 111 ktoe	12 920 GWh
End-use energy consumption – services sector	478 ktoe	5 557 GWh
Gross value added – industrial sector[(2)]		€7 996 m
Gross value added – service sector [(2)]		€19 004 m
Average disposable income per household		€21.778
Total no of households		820 541
Gross domestic product (GDP) [(2)]		€32 543 m
Electricity generation in thermal power plants	337 ktoe	3 923 GWh
Electricity generation in CHP	100 ktoe	1 158 GWh
Heat generation in thermal power plants [(3)]	0 ktoe	0 GWh
Heat generation in CHP(4)	248 ktoe	2 883 GWh
Fuel input for thermal power plants	741 ktoe	8 621 GWh
Fuel input for CHP	436 ktoe	5 074 GWh
Energy transmission and distribution losses (all fuels)	101 ktoe	1 176 GWh
Total passenger km (pkm)		/
Total tonne-km (tkm) [(5)]		/
Total km [(5)],[121]		19 130 m km
Total population		2 064 632
Heat generation from the heating plant	38 ktoe	441 GWh
Fuel input for the heating plant	43 ktoe	503 GWh

[(1)] Without climate change.
[(2)] At constant prices, the reference year 2005.
[(3)] Including waste heat produced in industrial plants.
[(4)] Including waste heat reused in industrial plants.
[(5)] No turnover in oil pipelines.

[120] The source of all data, except Total kilometres, is the Statistical Office of the Republic of Slovenia.
[121] The source of the data is the Jožef Stefan Institute, the Centre for Energy Efficiency.

A.3 Analysis of energy consumption trends

As mentioned in Chapter 1.2.2, between 2000 and 2015, the use of final energy in transport increased the most, while the use of energy in the industry (for analysis, see chapter 3.4), other uses (services, agriculture) and households decreased.

In 2007, with 36 % of the end-use energy consumption, the transport sector became the most important end-use energy sector, and in 2008 even strengthened its position with 39 %. After decreasing the share in 2009 and 2010 to 37 % and 36 % respectively, the highest shares in the observed period were achieved in 2012 and 2014 with 40 %. In 2015, transport represented 38 % of final energy consumption. In 2015, 46 % (6 609 GWh) more energy was used in transport than in 2000. The peak of energy consumption in transport was achieved in 2008 with a consumption of 24 091 GWh, which is 15 % more than the consumption in 2015. In the period from 2000 to 2008, a 6.7 % annual average growth was recorded. The growth in 2008 was even record high with 17.7 %. In 2009, use decreased by 13.3 %, and by 0.2 % in 2010. In 2011, the use increased again, by 7.2 % and in 2012 by 1.8 %. After 2012, the use of energy in this sector has been decreasing, in 2013 by 6 %, and in the last two years by about 1 %. The high growth in end-use energy consumption in transport up to 2008 was the result of the increase in the motorization rate of the population, an increase in the number of kilometres driven per private car, economic growth, and after entering the EU, an important generator of increased use of liquid fuels is also an increase in transit traffic in combination with lower prices of propulsion fuel according to neighbouring countries. An analysis of the impact of fuel sales to foreign vehicles has shown that from 2000 to 2008, the growth in fuel sales to foreign and domestic vehicles contributed to growth in the same way. The fall in energy consumption in 2009 was, to a large degree, the result of the economic crisis. The prices of engine fuels also had a significant impact, since diesel prices were higher in Slovenia than in neighbouring countries. The price conditions were similar in 2010, but changed again in 2011, since diesel fuel once again became cheaper in Slovenia than in neighbouring countries. The situation was again reversed in 2013. As a result, the sales of fuel to foreign vehicles have been declining since 2012. The sales of fuels to domestic vehicles, with minor fluctuations, are maintained at the level of 2008. In 2015 they were 1.5 % lower than in 2008, while sales to foreign vehicles decreased by 12.9 %

In all other sectors, the use of final energy between 2000 and 2015 decreased. The least in households, where there are two growth periods, from 2000 to 2003 and from 2008 to 2010. The quality of data on the use of RES has had a great impact on the movement of consumption in the past. In 2009, the assessment of the use of wood biomass in households, which is the most important energy product, was significantly improved. The new estimate was significantly higher than the previous one, which is why the use in 2009 increased significantly. After 2009, energy use has been influenced by climate variability and the implementation of the renovation of buildings and heating systems. In 2015, energy consumption in households was 14 % lower than in 2009. In industry, the use of energy was increasing until 2006, when the use of 19 749 GWh was achieved. The economic crisis and the restructuring of the industry were the reason for a significant reduction by 2009. The recovery in 2010 was followed by three years of decreasing of energy use, mainly due to the second wave of economic crisis and further restructuring. In 2014, the use of energy was higher by 2.8 %, while in 2015 it was on the same level as the year before. The use of energy in other uses is calculated as the difference between total end-use energy consumption and end-use energy consumption in the sectors of industry, transport and households, which affects the large fluctuations in this use. The highest use was recorded in 2001 in the amount of 9 989 GWh and the lowest in 2007 in the amount of 5 404 GWh. In 2015, the final energy consumption was 6 426 GWh. It should be noted here that the statistics do not measure the consumption of renewable energy sources for the generation of heat in this sector (except the direct consumption of geothermal energy, which was included in 2010 statistics).

This means that service sector buildings are removed from the statistics when they replace fossil fuels with RES (heat pumps, solar energy collectors, wood biomass boilers).

A.4 Implementation of the main measures in 2015

To ensure more effective monitoring of the implementation of the measures envisaged in the AN 2020 ERA and the assessment of existing policies, a more detailed report on the implementation of measures is prepared annually, which includes an analysis of the implementation of the measures in the light of the achievement of the AN URE 2020 targets. The report 'Reporting on the implementation of the AN URE 2020 for 2015 was published in July 2016 and is available at the Energy Portal of the Ministry of Infrastructure[122].

A.5 Central government buildings

In accordance with Article 5 of the Directive, Slovenia has committed to renewing 3 % of the total floor area of the buildings owned and used by the narrower public sector, which are heated or cooled, and has ensured the minimum requirements for the energy performance of buildings pursuant to the Directive on the energy performance of buildings, from 1 January 2014 onwards each year.

The DSEPS foresees the energy renovation of buildings of the public sector based on the calculation of the total floor area of buildings owned and used by the narrower public sector and from 9 July 2015 also administrative departments with a total useful floor area of more than 250 m² and which on 1 January of each year do not meet the national minimum energy performance requirements established in accordance with Article 4 of the Directive on the energy performance of buildings. According to the records of the buildings owned and used by the central government[123] with a useful floor area of more than 250 m2, the surface area of the central government buildings is 782 158 m^2 (as of 1 January 2017), therefore the obligation means that 23 465 m^2 of building surface must be renovated annually the assumption that all surfaces require renewal.

The energy renovation of these buildings was not conducted in 2014 and 2015; the first activities started only in 2016. According to the project office for the energy renovation of buildings, in the year 2016, 11 307 m^2 of buildings, owned and used by the narrower public sector[124], was renovated. This represents about half of the required annual quota or 16 % of the planned target of renovating 70 394 m2 of surface areas in the period between 2014 and 2016.

A.6 Energy efficiency obligations

Figures on the end-use energy savings achieved through the national system of energy efficiency obligations and an alternative measure are available in chapter 3.1.1, Table 9.

Chapter 3.1.1 contains a description of the alternative measure for achieving the target energy savings for the energy efficiency obligation system—Eco Fund programme energy efficiency improvement.

[122] http://www.energetika-portal.si/fileadmin/dokumenti/publikacije/an_ove/porocilo_izvajanje_an_ure_za_2015_2.pdf

[123] http://www.energetika-portal.si/fileadmin/dokumenti/podrocja/energetika/javne_stavbe/evidenca_stavb_ojs_stanje_1.1.2017.htm

[124] Part of the area of 11 307 m2 was renovated and a part replaced by a move to another building that meets the required minimum energy efficiency criteria.

ANNEX B BUILDING RENOVATION ROADMAPS

In 2015, buildings accounted for 35 % of the end-use energy consumption (1.7 Mtoe), of which 24 % are contributed by households and 12 % in the service sector (public and private). Buildings account for as much as 14 % of direct GHG emissions (share in emissions for which national targets under Decision 2009/406/EU have been adopted). In buildings, the potential for improving energy efficiency and reducing GHG emissions is very high, with the renovation of existing buildings and the replacement of energy products.

In October 2015, the Government of the Republic of Slovenia adopted the DSEPS. The starting points were set out in two strategic documents: the Operational Programme of measures to reduce greenhouse gas emissions by 2020 with a view to 2030 and the Operational Programme for the Implementation of the European Cohesion Policy 2014-2020, based on previous documents (AN URE, AN OVE, OP ROPI etc.) and established measures and upgrading them. The next phase of preparation is followed in the Annex to the DSEPS, which focuses on the economic and development aspects of the strategy and will be adopted in 2017.

B.1 Overview of building stock (Article 4, Part A)

Buildings are separated into residential and non-residential buildings according to their purpose, taking into account the uniform classification of types of facilities (CC-SI). In 2012 there were 775 204 apartments (SORS), which together represent more than 63 million m^2 of floorplans or, 72 % of the total building stock slightly. Non-residential buildings are divided into public and other services sector buildings. Among the non-residential, the public sector has 38 % of the total floor area. This includes the buildings owned and used by the narrower public sector. The size of the entire building fund in Slovenia in 2012 was 88 million m2, where only buildings that are heated are included. According to the purpose of use, residential buildings and among them one-apartment buildings prevail, while among non-residential buildings the group of buildings with a social significance has the largest share. This group includes buildings for culture and entertainment, museums and libraries, buildings for education and scientific research, buildings for health and sports halls, which makes this group of buildings very heterogeneous.

The preparation of policies and measures for the renovation of buildings is accompanied by a detailed analysis of the National Building Fund, prepared in the framework of the project Modernization of energy balances until 2030 and the expert basis for determining national energy goals and preliminary analyzes[125]. In analyses of age, the building fund is divided into six age classes (Table 39) according to the type of building. Age classes are defined by the then applicable regulations that regulate the field of EE in buildings, thus determining the minimum requirements for thermal transmittance of the structural elements.

The housing fund is divided into energy classes, which are determined on the basis of the construction period and the type of renovation determined by the thickness of the insulation of the building envelope and the thermal conductivity of the building furniture, separately for one-family and multi-apartment buildings. In the calculation of energy indicators, climate data for Ljubljana are taken into account, which is comparable with the predominant part of the rest of Slovenia with regard to the temperature gap and the density of settlement in Slovenia, Figure 14.

[125] Jožef Stefan Institute, CEU: Modernization of energy balances until 2030 and the expert basis for determining national energy goals, IJS-DP-11467, rev. 2, March 2014
Jožef Stefan Institute, CEU; ELEK d.o.o, IREET d.o.o, ELAPHE d.o.o, GI ZRMK d.o.o. Et al: Long-term energy balances of the Republic of Slovenia for the period 2010-2030—Part 1: Starting points, IJS-DP-10548, ver. May 2011
Jožef Stefan Institute, CEU; ELEK d.o.o, IREET d.o.o, ELAPHE d.o.o, GI ZRMK d.o.o. Et al: Long-term energy balances for the Republic of Slovenia for the period 2010-2030—Part 2: Results, IJS-DP-10581, ver. June 2011.

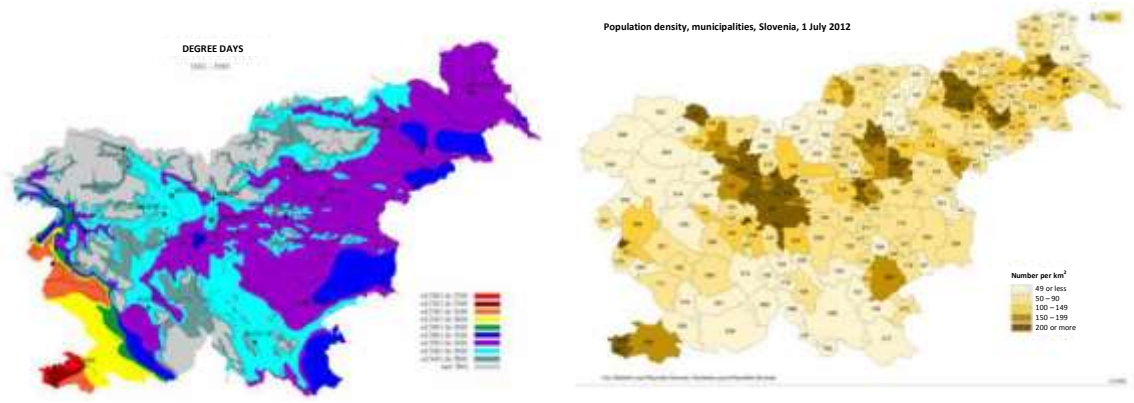


Figure 14: Annual temperature deficit (left) and settlement density (right) in Slovenia (Source: ARSO, SURS)

The existing housing fund is being renovated and, consequently, housing is transferred from higher energy classes to lower, energy-efficient classes. For a certain proportion of apartments it is envisaged that due to different technical constraints, classes with the lowest energy figures cannot be reached. Transitions from the energy class 'without renovation' into the 'renovation' class are considered in the model as a partial renovation (e.g. window replacement), all the transitions to the energy classes 'improved renovation, low-energy renovation, superior renovation and low-energy construction' are considered as comprehensive energy renovation of buildings.

The renovations also include the replacement of technological systems in buildings for heating, ventilation, preparation of sanitary hot water, cooling and lighting. Consideration is given to the replacement of existing boilers with newer ones that exploit the condensation technique (gas, ELKO), connection to the DH network, the use of technologies that exploit RES (e.g. heat pumps, biomass boilers) and additional support (solar collectors, PV power plant).

Table 39: The review of age groups with related regulations governing the field of energy efficiency in buildings and minimal requirements of the main structural elements

Age class	Valid policies	U_{walls} [W/(m^{2}K)]	U_{walls} [W/(m^{2}K)]	$U_{windows}$ [W/(m^{2}K)]	$U_{roofing}$ [W/(m^{2}K)]
Period before 1945	/	1.80	1.50	3.00	2.70
Period from 1946 to 1970	/	1.40	1.50	2.30	1.00
The period from 1971 to 1980	Rules on Technical Measures and Conditions for the Thermal Protection of Buildings (Official Gazette of SFRY, No. 35/70)	0.93	1.68	2.80	0.93
The period from 1981 to 2001	Technical conditions for the design and construction of buildings JUS U.J5.600 / 80	0.93	1.22	1.80	0.78
The period from 2002 to 2008	Rules on thermal protection and efficient energy use in buildings (UL RS No 42/02)	0.20	0.28	1.4-1.6	0.20
Period from 2009	Rulebook on Efficient Use of Energy in Buildings (UL RS No 52/10)	0.20	0.28	1.30	0.20

Due to the renovation of the existing housing stock and, consequently, the transition of residential areas to classes with lower energy numbers, the total energy number is decreasing. New buildings in the projections meet the requirements of the legislation in this area, i.e. PURES and EPBD (after 2020, all new buildings to be nearly zero-energy buildings) and account for a tiny

share of total energy consumption in residential buildings (under 5 %).

According to the reference strategy, the energy number will fall by 30 % between 2012 and 2030, while energy for heating will fall by 20 % because of the increase in residential floor area.

B.2 Cost efficient approaches to renovation, based on building type and air conditioning (Article 4, Part B)

A list of building-related measures and instruments is given in Chapter B.1. This list will also be presented in detail as part of reporting under the EPBD.

Technical potential

The technical potential for a comprehensive energy renewal of existing buildings, estimated on the basis of data on the state of the renovation of each element of the building envelope (external walls, roof, windows), expressed as a percentage of the total base area of buildings for a particular category, Figure 15[127]:

- one-apartment buildings 41 %,
- multi-apartment buildings 40 %,
- public sector buildings 38 %,
- other non-residential buildings 34 %,
- narrower government buildings (3 % mandatory renovation) 47 %.

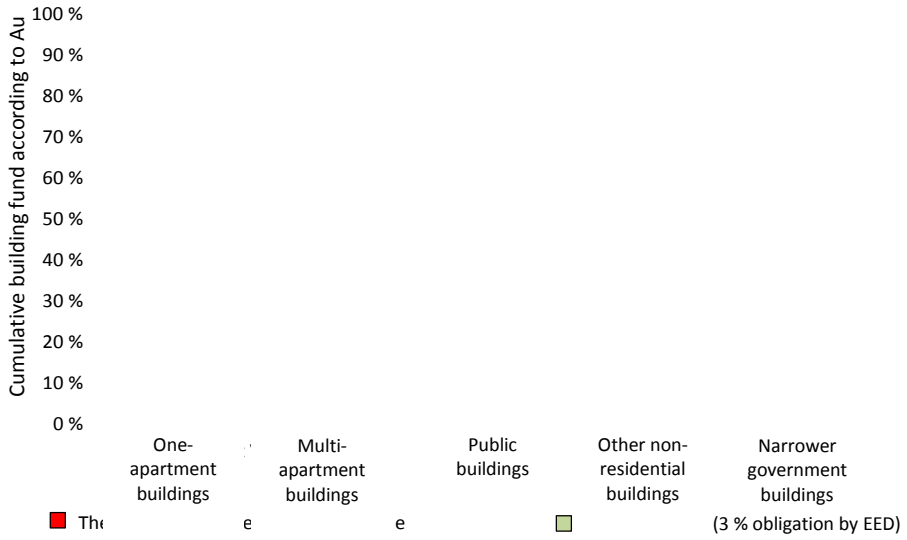


Figure 15: The baseline technical potential to conduct the comprehensive renovation of buildings concerning the entire useful area of a specific group of buildings

The technical potential for energy renewal is assessed based on the age of the envelope element (the expiry of the lifetime of a single element of the envelope, such as walls, roofs, windows), which means the potential is influenced both by the very age of the building and the existing renovation. The initial technical potential for a comprehensive renovation is buildings where at least two elements of the building's heat-insulation (wall, window, and roof) have already reached the intended lifetime of the element and therefore require replacement.

[126] UL RS No 52/10.

[127] Source: DSEPS, Ministry of Infrastructure, October 2015.

An energy efficient measure of energy renovation of a building is such a measure in which the payback period of the measure is shorter than its lifetime. As the energy renovation of the building is usually composed of a group of measures, the economic efficiency of the energy concept of the renovation of the building is evaluated comparatively, depending on the baseline energy design at the reference building. In this case, the reference building represents a building with such an energy design that arises from the legislation and construction practice at the time of planning or, construction of the building.

As an economic criterion for assessing the energy design of the building, Directive 2010/31/EU introduced lifelong or common costs in the expected lifetime of the building, with a key indicator describing the energy design of the building its use of primary energy.

Methodology

To determine the appropriate design of a comprehensive energy renovation of a building, first, the definition of the criteria of a cost-effective and cost-optimal design has to be done at national level. The starting point is, therefore, a reference (non-powered) building with high energy consumption, as well as high lifetime costs associated with an inefficient design. Each scenario of renewal, which, on the basis of the analysis (energy properties of the building and the cost of life cycle investment (LCC), namely maintenance, replacement and operation) shows lower overall costs and lower energy consumption than the reference, is cost-effective, but optimal is the one with the lowest total cost in terms of net present value.

In the analysis of the determination of cost-optimal levels of minimum requirements[128], a set of energy efficiency measures for the defined reference buildings has been developed. The measures included in the calculation include the technologies listed in Article 6 of Directive 2010/31/EU and repeated in Article 7. In accordance with paragraph 3 of Annex I (2) to Regulation[129], Slovenia also included measures based on RES (heat pumps, biomass boilers, solar collectors and PV power plants). DH systems with and without CHP and wood biomass are considered separately.

Approaches

It turned out that the greatest savings after renovation are achieved through comprehensive renovations and simultaneous replacement of the existing, outdated energy system. Partial interventions in a thermal building envelope or complete energy renovation are in most cases a cost-effective measure based on an analysis of lifelong costs but do not achieve or exceed the cost-optimal level and minimum performance requirements as defined by PURES. Set of measures that anticipate the complete renewal of the building envelope and the replacement of the heating system lead to the area of cost-optimal renovation. The greatest savings from the baseline are driven by technologies that use RES largely. More advanced and efficient technologies are generally not found in the area of cost-optimal levels but are treated as examples of almost zero-energy updates, i.e. a renewal that is still cost-effective, but its lifelong cost in reducing primary energy consumption is higher than the set of measures identified in the area of the cost-optimal level.

Within the priority direction Energy rehabilitation and sustainable construction of buildings, a considerable number of energy renovations of public buildings will be conducted in the next cohesion period. The support environment in the implementation is provided by the Project Office for Energy Building Renewal, which also issued written instructions for the work of intermediary and implementing bodies. , These guidelines set out the evaluation criteria based on which

[128] Cost-effective level of minimum requirements regarding the energy performance of buildings in Slovenia; Analysis of results, GI ZRMK, December 2014.

[129] Commission delegated (EU) No. 244/2012 supplementing Directive 2010/31/EU.

the percentage of co-financing of operations with Cohesion Fund funds is determined. The criteria based on OP TGP are divided into three sections: contribution to energy efficiency, the share of co-financing of eligible costs by the beneficiary, contribution to social change and raising social awareness and supplement for cultural heritage buildings. Within these criteria, economically efficient, comprehensive energy renovation and technologies are used, which use RES. Mostly to make the public sector a model for both the residential and the services sector.

B.3 Policies and measures to stimulate cost-effective renovations (Article 4, Part C)

Policies and measures to promote cost-effective renovations are detailed in DSEPS chapter 5.

B.4 Future guiding investment decisions in households, construction industry and financial institutions (Article 4, Part D)

According to the projections for the period between 2015 and 2023, the value of investments in the renovation of buildings will amount to EUR 3 517 million, of which 72.0 % for the renovation of buildings in the housing sector, 11.5 % in the public sector and 16.5 % in the private service sector. The value of investments in the period from 2024 to 2030 is estimated at EUR 3 137 million; the total value in the period from 2015 to 2030 is thus EUR 6 654 million, of which 73 % in the housing sector, 11 % in the public sector and 16 % in the private service sector. The scope of investments, the addressed frameworks and possible additional sources of financing are regulated by the DSEPS in Chapter 6.

To achieve the set goals in the field of energy efficiency of buildings, a set of financial instruments is envisaged which provide sufficient amount of funds in the form of grants and reimbursable grants for the implementation of the required volume of investments. The funding sources are more precisely defined in the DSEPS by 2023 (until the end of the absorption of cohesion funds from the financial perspective 2014-2020), and it is also indicated which sources can also be considered for a longer period.

The Annex to the DSEPS presents financial instruments that will create more sustainable alternative solutions that complement traditional grant funding. Before the creation of concrete products of financial instruments, the assessment of the needs of financial instruments and the assessment of the market situation was made on the request of the Government Office for Development and European Cohesion Policy (SVRK).

To finance less profitable investments, the Annex to the DSEPS foresees the preparation of a programme for financing comprehensive energy renovation projects in the public sector with low profitability under the model of partial energy contracting.

The Annex to the DSEPS also provides for the preparation of a programme for the financing of measures for partial energy renovation in the public sector, where a complete energy renovation is not justified.

Investments in the public sector (narrower and broader) will be financed from European Union funds (Cohesion Fund), funds of the Republic of Slovenia (budget funds and funds from the EE), and from private sources (liable entities for achieving savings). As one of the possible sources, the funds of the European Strategic Investment Fund (EFSI).

For the successful activation of the envisaged funds, the continued implementation of energy renovations of buildings and the achievement of the expected effects, it is important that the absorption of financial sources be supported by appropriate support measures:

- project management by the project office in a way that maintains an efficient, long-term

stable and predictable flow of projects in the public sector, suitable for energy contracting;

- ensuring the rapid start of project preparation, which will ensure a stable demand for financial and energy contracting services and a stable volume of investment over the entire period, and will consequently also have the highest national economic impacts;
- targeted grants in the context of energy contracting only to the extent that the project is interesting for energy contracting and the maximum direction of grants to the segment of buildings that are not of interest to energy contracting;
- identifying projects according to the priority list with the greatest impact of investments.

B.5 Estimation of expected energy savings and wider benefits (Article 4, Part E)

The set of DSEPS measures is one of the most important measures for rapid economic recovery, employment and for improving the competitiveness of society. It means the start of the investment cycle, and at the same time, investments are being repaid from savings in fuel imports.

Energy renovation of buildings also contributes to the improvement of local air quality and thus has a positive impact on health due to the reduction of emissions of harmful substances into the air.

The measure improves the strategic and operational security of energy supply. It also contributes significantly to achieving the legally binding national targets for a 25 % share of RES under Directive 2009/28/EC and the objective of reducing GHG emissions in line with Decision 2009/406 / EC.

With energy renovation, additional positive effects are achieved for building users, as they increase living comfort, prevent energy poverty, significantly contribute to adapting to climate change and improve the security of supply for the user in emergency situations.

Only a part of the externalities is financially valued and included in commodity prices for the benefit of the investor. As early as 1 January 1997, an environmental tax on air pollution with CO_2 emissions was introduced in Slovenia with the aim of internalising the external costs of air pollution with CO_2 emissions. The price per unit of loading from 1 January 2015 is EUR 17.3/t CO_2. Other external costs are not systematically evaluated and taken into account in the design of fiscal policy.

On the other hand, when determining the method of promotion and the level of incentives for the energy renovation of buildings, other aspects will be taken into account, such as: environmental protection, in particular reduction of emissions, nature conservation, use of natural materials, promotion of energy-saving technologies.

ANNEX C THE PLAN FOR NEARLY ZERO ENERGY BUILDINGS

Slovenia has prepared a National Action Plan for almost zero-energy buildings for the period up to 2020[130] (AN sNES), which was adopted in April 2015. The objectives included varying according to the category of the building. In the first half of 2014, Slovenia prepared an analysis of cost-optimal levels of minimum requirements for energy efficiency of buildings[131], which also provide an expert basis for the technical definition of almost zero-energy buildings. It is envisaged that the technical definition of an almost zero-energy building will be prescribed in the framework of the modernisation of the technical regulation on the energy performance of buildings planned for 2018, see also chapter 1 in the AN sES.

The technical bases for designing the technical definition of almost zero-energy buildings include both new buildings and a complete renovation of existing typed buildings.

The definition of an almost zero-energy building includes the setting of minimum requirements for the maximum permissible needs for heating, cooling or air conditioning, the preparation of hot water and lighting in the building in accordance with PURES, the determination of the maximum permitted use of primary energy in the building and the determination of the minimum authorized share of RES in total energy input for the operation of the building.

The term 'almost zero-energy building' according to EZ-1 means a building with very high energy efficiency or a minimal amount of energy needed for operation, where the required energy is largely produced from RES on the spot or in the vicinity.

The definition of an almost zero-energy building covers the following elements:

A. definition of a building with very high energy efficiency;

B. a tiny amount of energy needed to operate the building;

C. the minimum permissible share of RES or the required energy is largely produced from RES on the spot or in the vicinity.

By introducing minimum requirements for almost zero-energy buildings, an additional reduction in the maximum required heat for heating the building:

- at 25 kWh/m^{2}a (energy classes A1, A2 and B1).

Implementation and measures for almost zero energy buildings will be more precisely defined in the new Action Plan for almost zero energy buildings. These measures are also a very important part of the measures to increase energy efficiency and renewable energy sources in the building.

[130] http://www.energetika-portal.si/fileadmin/dokumenti/publikacije/an_snes/ansnes_final_apr_2015.pdf

[131] Cost-effective level of minimum requirements regarding the energy performance of buildings in Slovenia; Analysis of results, GI ZRMK, February 2014.