REPUBLIC OF BULGARIA

Ministry of Energy

NATIONAL ENERGY EFFICIENCY ACTION PLAN (2014-2020) ANNUAL IMPLEMENTATION REPORT FOR 2019

March 2020

CONTENTS

LIST OF ABBREVIATIONS

AM - motorway

SEDA - Sustainable Energy Development Agency [*AUER* in Bulgarian]

GDP - gross domestic product

BHV - domestic hot water:

BDZh - Bulgarian State Railways

GVA - gross value added

GA - grant

RES -renewable energy sources

SG - State Gazette

EBRD - European Bank for Reconstruction and Development

EE -energy efficiency

EU -European Union

ESCO - company providing energy services

ESM -energy-saving measures

ERDF - European Regional Development Fund

EP - energy performance

ZE - Energy Act

ZEE - Energy Efficiency Act

ZEVI - Energy from Renewable Sources Act

ZMSP - Small and Medium-Sized Enterprises Act

ZUES - Condominium Ownership Management Act

FEC -final energy consumption

FEI -final energy intensity

ME -Ministry of Energy

MI - Ministry of the Economy

MPS - motor vehicles

MRRB - Ministry of Regional Development and Public Works

MTITS - Ministry of Transport, Information Technologies and Communications

NTEF -National Trust EcoFund [*NDEF* in Bulgarian]

NEEAP -National Energy Efficiency Action Plan [*NPDEE* in Bulgarian]

NAPCC -National Action Plan on Climate Change [*NPDIK* in Bulgarian]

NGO - non-governmental organisation

NSI - National Statistics Institute

OPIC -Operational Programme ‘Innovation and Competitiveness’

OPRR -Operational Programme ‘Regions in Growth’

OPT - Operational Programme 'Transport'

OPTTI - Operational Programme 'Transport and Transport Infrastructure'

PEC - primary energy consumption

PEI -primary energy intensity

TFA -total floor area

SMR - construction and installation works

FEEVI - Energy Efficiency and Renewable Sources Fund

FM EEA - European Economic Area Financial Mechanism 2014-2021

ktoe - kilo ton oil equivalent

I. INTRODUCTION

The National Energy Efficiency Action Plan ('National Plan'/'NEEAP'/'the Plan') 2014-2020 was developed in connection with the requirements of Article 24(2) of Directive 2012/27/EU of the European Parliament and of the Council on energy efficiency ('Directive 2012/27/EU'). The Plan was prepared in accordance with the Commission Implementing Decision of 22 May 2013 laying down a template for the National Energy Efficiency Action Plans under Directive 2012/27/EU and contains all the required indicators in accordance with Part 2 of Annex XIV to the Directive. The Plan was updated in 2017 and adopted by Council of Ministers Decision No 796 of 20 December 2017.

The Plan sets the 2020 national energy efficiency target of 716 ktoe/year of energy savings in final energy consumption (FEC) and 1 590 ktoe/year in primary energy consumption (PEC), including 169 ktoe/year in the transformation, transmission and distribution processes in the energy sector.

Additional energy savings in final energy consumption are defined in the implementation of a strong energy efficiency policy and an optimal absorption of the additional financial resources available from various sources in Bulgaria from:

- European funds and programmes (for the 2014-2020 programming period);
- obligated parties (based on the energy traders' obligation scheme);
- private investments;
- national budget.

These funding sources make the following contributions, respectively, to the 2020 national energy efficiency target for FEC:

- optimal use of available funds: 230 ktoe/year.
- implementation of the national obligation scheme: 486 ktoe/year.

The national energy efficiency target is calculated based on achieving the above targets for energy savings and is defined as a reduction in Bulgaria's primary energy intensity (PEI) for 2020 by 41% compared to the PEI for 2005.

II. LEGAL BASIS FOR REPORTING AND DESCRIPTION

The Agency for Sustainable Energy Development (SEDA) prepared the annual report on the basis of Article 11(6)(4) of the Energy Efficiency Act (ZEE) in conjunction with Article 24(1) of Directive 2012/27/EU. As required by Directive 2012/27/EU, the report tracks only the implementation in 2019 of the actions and measures of the NEEAP which directly impact the attainment of the national target.

The report is based on the information provided to the SEDA on energy efficiency projects, activities and measures implemented by organisations and institutions with specific obligations under the Energy Efficiency Act (ZEE).

The report complies fully with the requirements of Annex XIV to Directive 2012/27/EU.

This report contains basic statistical information and analyses the energy efficiency status and trends at national level in 2018, the last year for which there are official statistics on the energy intensity of the economy. Individual sectors of the economy were analysed reflecting changes in the main indicators — gross value added (GVA), energy consumption and energy intensity. In accordance with the requirements of Annex XVI, Part 1, point (a) of Directive 2012/27/EU, the respective causes were analysed for the sectors with stable or increasing consumption. The report also contains the information required in Annex XIV Part 1(b) to (e) on basic measures of a legislative or other nature applied in the country, the total floor area of buildings occupied and owned by central government which, as at 1 January 2020, do not meet the energy performance requirements under Article 5(1) of Directive 2012/27/EU. The annual report analyses the implementation of the national obligation scheme introduced as required by Article 7 of Directive 2012/27/EU, the implementation of energy efficiency improvement measures by energy traders and the alternative measures in force in 2019.

The achievement of the individual energy savings target under the national energy efficiency obligation scheme was determined on the basis of energy savings achieved by the energy traders for which the obligated parties have energy savings certificates issued under the Energy Efficiency Act [ZEE] and Regulation No E-RD-04-3/4.5.2016 on the eligible measures for implementing energy savings in final consumption, the means of demonstrating the energy savings achieved, the requirements for the methodologies for their assessment and the means to validate them, issued by the Minister for Energy and published in SG No 38 of 20/05/2016.

This Report provides an overview of the financial mechanisms in place to fund energy efficiency improvement measures, and assesses the effect of their implementation during the previous year. The information was collected from the responsible institutions, the managing authorities of the Operational Programmes and the official websites of the relevant organisations.

The Report provides conclusions and summaries of the implementation of the measures and activities set out in the NEEAP and an assessment of the achievement of the national energy efficiency target. Energy savings were estimated by applying the bottom-up approach.

III. BASELINE STATISTICAL DATA

Table III-1: Baseline statistical information for 2018 in accordance with Part 1(a) of Annex XIV to Directive 2012/27/EU

No	Key energy consumption indicator	Value	Unit	Source
1	Primary energy consumption	18 450.5	ktoe	NSI/Eurostat
2	Final energy consumption[(1)]	9 749.5	ktoe	NSI/Eurostat
3	Final energy consumption - industry	2 730.6	ktoe	NSI/Eurostat
4	Final energy consumption - transport	3 372.2	ktoe	NSI/Eurostat
5	Final energy consumption - households	2 229.7	ktoe	NSI/Eurostat

6	Final energy consumption - services	1 231.2	ktoe	NSI/Eurostat
7	Value added by sector - industry[2]	22 741	BGN million	NSI
8	Value added by sector - services[2]	59 219	million BGN	NSI
9	Average disposable income per household[9]	13 450	BGN	NSI
10	Total number of households (2018 average)	3 140.635	thousand	Expert appraisal by SEDA
11	Gross domestic product[2]	98 950	million BGN	NSI
12	Gross electricity generation from thermal power plants (TPP)	1618.3	ktoe	Eurostat
13	Gross electricity generation from combined heat and power plants (CHP)	325.6	ktoe	Eurostat
14	Heat generation from TPPs[5]	889.7	ktoe	Eurostat
15	Heat generation from combined heat and power plants (CHP)[6]	648.5	ktoe	Eurostat
16	Fuel input for TPPs	4 861.7	ktoe	Eurostat
17	Fuel input for CHPs[7]	1234.4	ktoe	Eurostat
18	Transmission and distribution energy losses (all fuel inputs)[8]	434.0	ktoe	NSI/Eurostat
19	Total passenger kilometres (transport excluding private vehicles)[3]	16 992	million passenger kilometres	NSI
20	Total volume of work carried out in freight transport[3]	32251	million tonne-kilometres	NSI
21	Total transport kilometres[3]	-	kilometres	-
22	Population (2018 average)	7 025.037	thousand	NSI
23	Heat generation from district heating plants[4]	215.0	ktoe	Eurostat
24	Fuel input for district heating plants[4]	230.5	ktoe	Eurostat

(1) No climate adjustment.

(2) At base prices from 2015.

(3) Excluding transport via oil pipelines.

(4) Data on installations for heat only (fuel boilers, etc.).

(5) Including waste heat recovered from industrial installations (total of 15 + 23).

(6) Including use of waste heat generated by industrial plants.

(7) Data needed to track the increase in efficiency of combined heat and power generation.

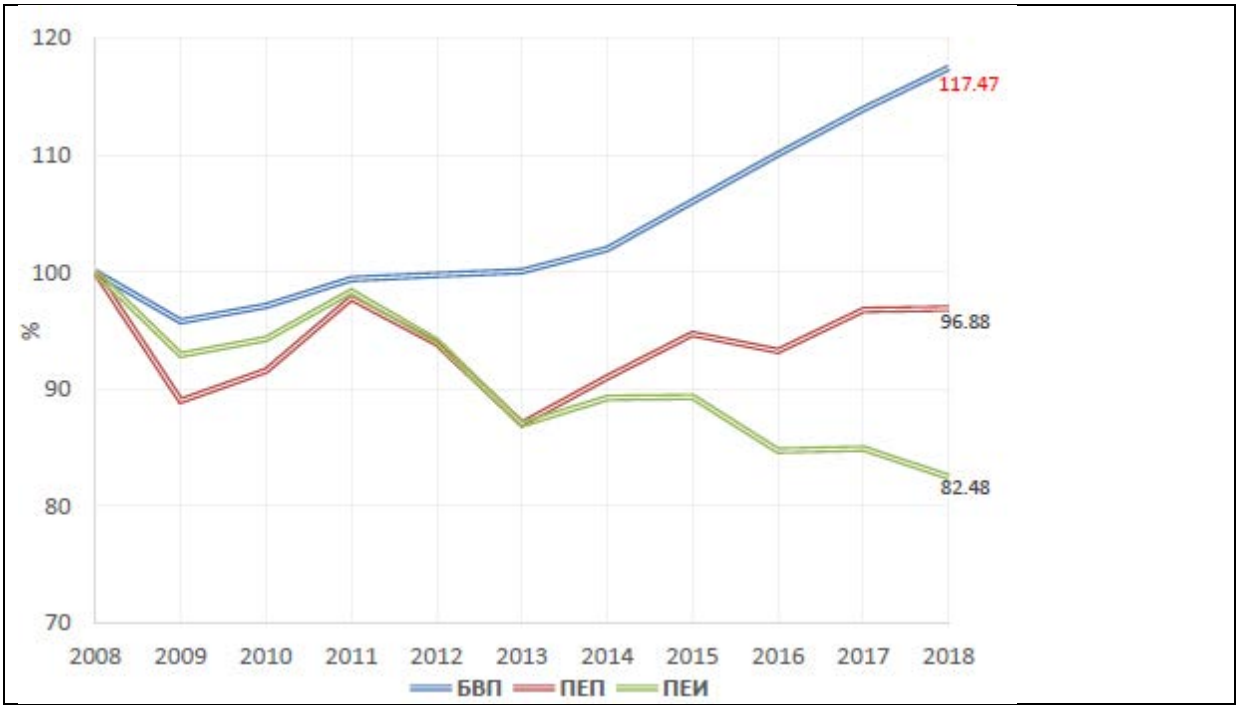
(8) Baseline data necessary for the measures implementing Article 15 of Directive 2012/27/EU.

(9) In current prices.

IV. ANALYSIS OF ENERGY CONSUMPTION TRENDS IN BULGARIA

Eurostat and the NSI data were used in the analysis. In 2018 the energy balance methodology used by the NSI was amended and fully aligned with the main recommendations of the IRES (International Recommendations for Energy Statistics). In this respect, the data from the present analysis cannot be compared with that of annual reports on implementation of the NEEAP prior to 2017.

IV.1. Primary energy consumption, primary energy intensity



- GDP
- PEC
- PEI

Fig. IV.1: Gross domestic product, primary energy consumption and primary energy intensity in the period 2008-2018, index 2008 = 100 %.

Source: NSI data

Figure IV.1-1 shows the indices of the evolution of gross domestic product (GDP), primary energy consumption (PEC) and primary energy intensity (PEI) in the period 2008-2018; the index value for 2008 is set at 100 %.

The period 2008-2018 shows a significant decline in GDP in 2009, followed by a period of relatively sustainable growth. GDP increased by 17.5 % in 2018 compared to 2008.

In 2009, there was a decrease in primary energy consumption then an increase in 2011, almost to the pre-crisis level, followed by a further decrease which in 2013 took it to the lowest level during this period. At the end of 2018, primary energy consumption was 3.1 % lower than in 2008.

In 2018, as a result of GDP growth and the decrease in primary energy consumption, primary energy intensity fell to 82.5 % of the 2008 level. In 2018 PEI decreased by

2.8 % compared to 2017, from 0.192 kgoe/BGN$_{2015}$ to 0.186 kgoe/BGN$_{2015}$. This is a favourable trend compared to 2017, when no reduction of energy intensity was recorded.

In 2018, GDP increased by 3.1 % compared to the previous year 2017 while PEC remained virtually unchanged.

The main factors affecting primary energy consumption and primary energy intensity are:

- the ratio of primary energy consumption [PEC] to final energy consumption [FEC], which shows the efficiency of the conversion, transmission and distribution of energy from the energy sector to final consumers;
- the change in final energy intensity [FEI], which depends on the efficiency of energy use by final consumers.

Ratio of final-to-primary energy consumption

The ratio of PEC to FEC depends on the efficiency of transformation and distribution processes in the energy sector, on the use of renewable energy, on the evolution of imports and exports of fuels and electricity, on non-energy consumption of energy carriers, etc.

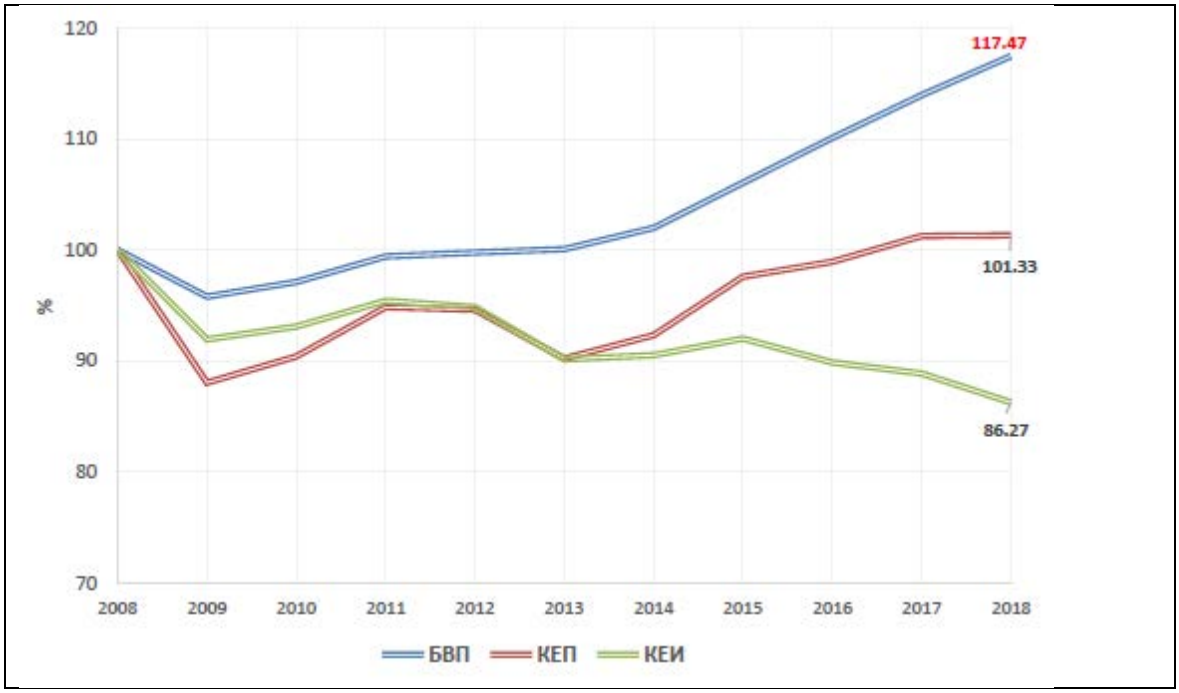
The main factors influencing efficiency in the energy sector in 2018 compared to the previous year are as follows:

- A significant increase (42.5 %) in net exports of electricity, leading to an increased production and transmission losses.
- A 41 % increase in the production of electricity produced from renewable sources due to an increase in production from hydropower plants and biomass plants. The increase in electricity production from hydropower brought down production losses and thus increased the ratio between FEC and PEC.
- A significant decrease in the ratio of losses for own needs and losses in distribution in the energy sector compared to that resulting from the conversion, from 22.9 % in 2017 to 13.7 % in 2018, representing an increase in efficiency.

As a result of the impact of the above factors, the ratio between FEC and PEC remained virtually unchanged, standing at 52.8 % in 2017 and 2018.

The increased losses from electricity exports in 2018 are fully offset by the growth in production of energy from renewable sources and reduced losses in the transformation and distribution of energy. This means that the reduction of PEI in 2018 is entirely due to a reduction in the energy intensity of FEC.

IV.2. Final energy consumption, final energy intensity



- GDP
- FEC
- FEI

Fig. IV-2-1: Gross domestic product, final energy consumption and final energy intensity in the 2008-2018 period. Index values for 2008 are set at 100 %.

Source: NSI data

In the period 2008-2018, final energy consumption decreased sharply, reaching its lowest value in 2009. At the end of the period, in 2018, it was only 1.3 % higher than in 2008.

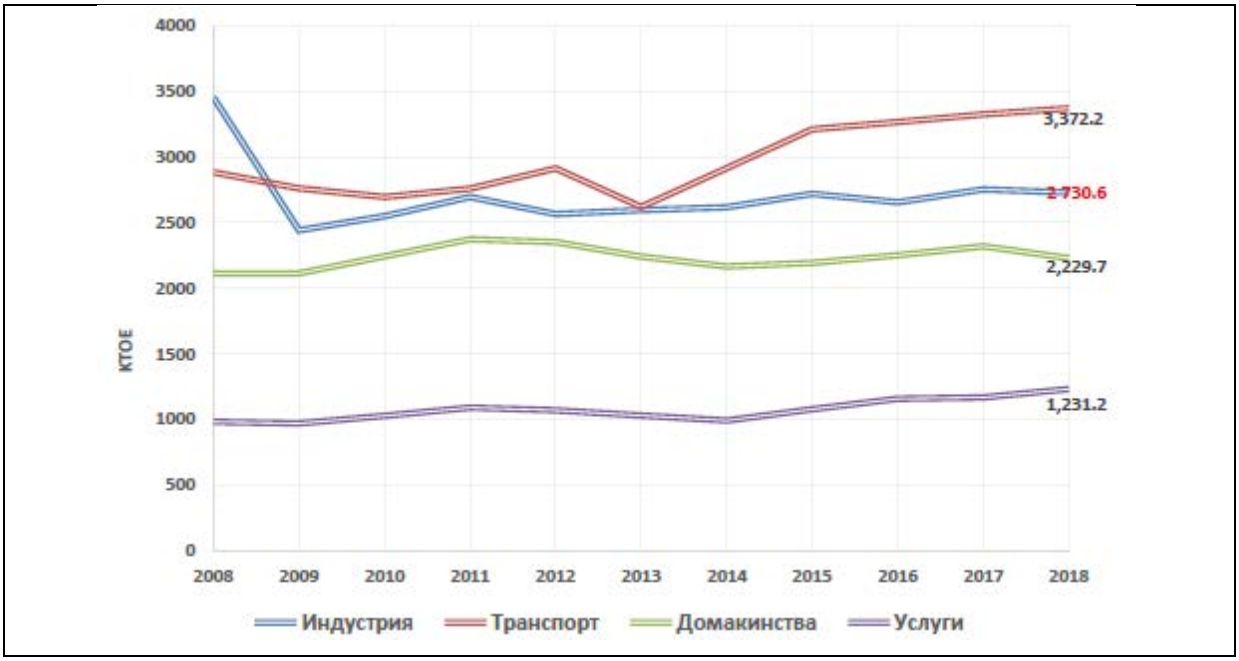
In the period 2008-2018, GDP grew by 17.5 % and FEI fell by 13.7 %.

In 2018, compared to 2017, the final energy consumption was slightly up, by 0.1 %, and final energy intensity down by 2.9 % to 0.099 kgoe/BGN$_{2015}$.

In 2018, there were minimal structural changes in the shares of different sectors making up GVA; they did not have a significant impact on the reduction of FEI. The share of industry, the most energy-intensive sector, fell from 27.6 % in 2017 to 26.4 % while the share of services, the least energy-intensive sector, increased from 67.3 % to 68.8 %.

The reduction in final energy intensity in 2018 is due almost exclusively to changes in energy intensity in individual economic sectors.

The changes in final energy consumption broken down by the main energy-consuming sectors for the period 2008-2018 are shown in Fig. IV-2-2.



- Industry
- Transport
- Households
- Services

Fig. IV-2-2: Final energy consumption by sector 2008-2018.

Source: NSI data

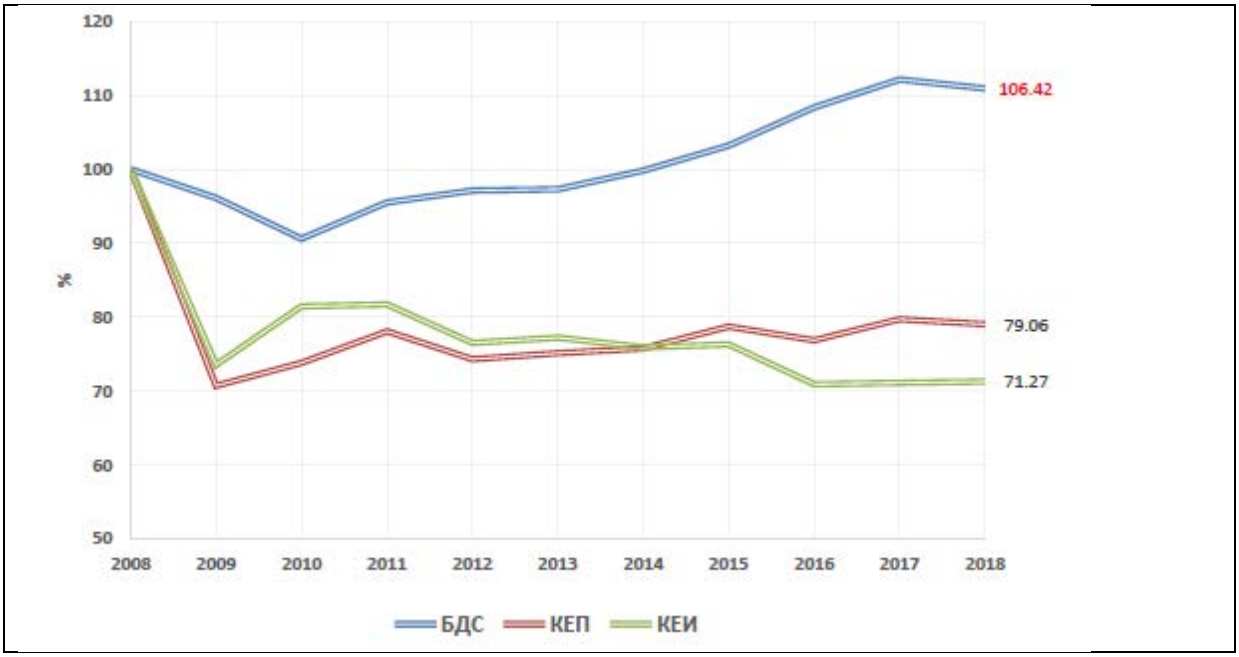
Over the period 2008-2018, energy consumption fell only in the industry sector (21 %). In the other sectors, consumption increased as follows:

- in the households sector, consumption increased by 5.5 %;
- consumption increased by more than 15 % in the transport sector, which in 2009 replaced industry in a stable position as the largest consumer of energy;
- in the services sector, consumption increased by 25.3 %.

Compared to 2017, in 2018 energy consumption increased by 5.5 % in the services sector and by 1.4 % in the transport sector.

In the industry sector, consumption decreased by 0.8 % and in the households sector, by 3.8 %.

IV.3. Final energy consumption in the industry sector



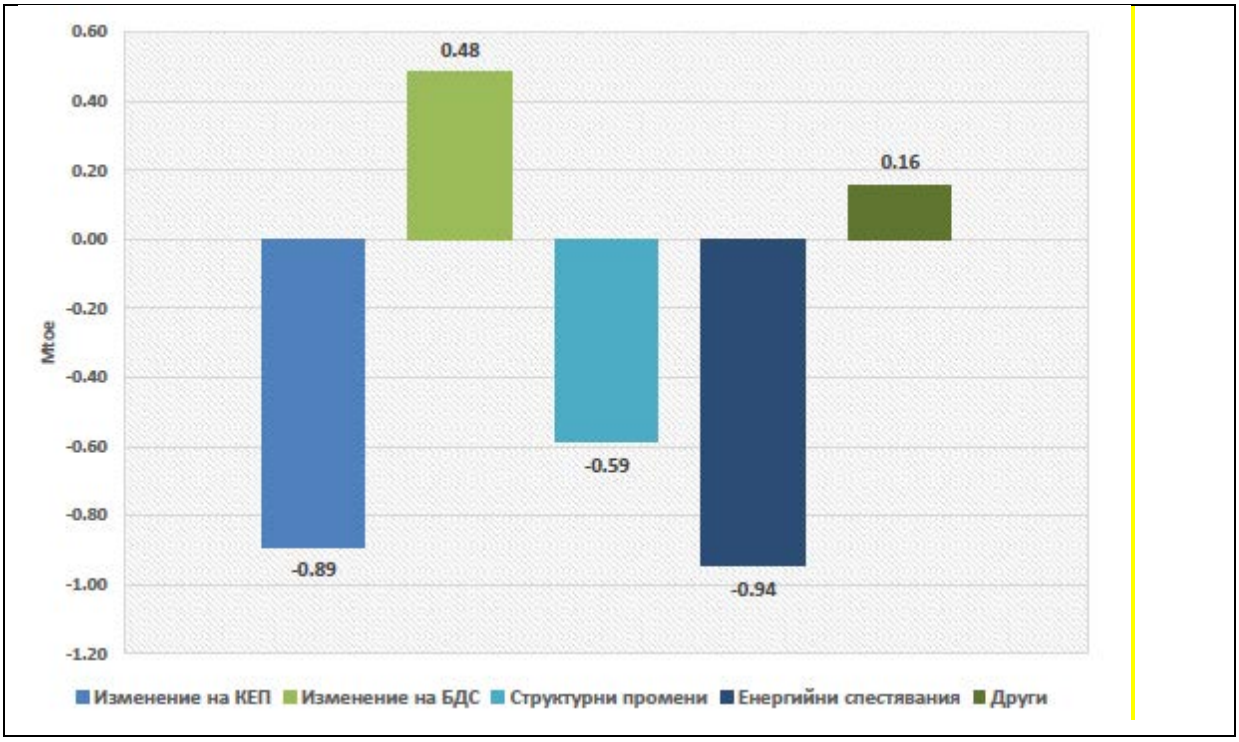
- GVA
- FEC
- FEI

Fig. IV-3-1: Gross value added, energy consumption and energy intensity of the industry sector in the period 2008-2018, indices.

Source: NSI data.

From 2008 the industry sector saw a rapid fall in value added, which continued until 2010. Energy consumption and energy intensity in the sector fell significantly faster.

After 2010, the value added and energy consumption increased and energy intensity decreased at a more moderate pace. Throughout the whole period, from 2008 to 2018, energy intensity in industry fell to 71.3 % of the level at the beginning of the period. The main reasons for the change in final energy consumption in the industry sector in the period 2008-2017 are shown in Fig. IV-3-2. For the analysis of the reasons for change in the final energy consumption (FEC) of the industry sector and the other sectors in the Annual Report the 'breakdown analysis' tool created and used in the Odyssee-Mure project was used. The purpose of this tool is to explain the change in energy consumption over a given period by 'breaking down' various impacts, the most important being economic activity and energy savings. Other effects depend on the sector of final consumption (e.g. changes in lifestyles, structural changes, etc.).



- Change in FEC
- Change in GVA
- Structural changes
- Energy savings
- Others

Fig. IV-3-2: Reasons for the change in energy consumption in the industry sector in the period 2008-2017

Source: Breakdown analysis instrument of the Odyssee-Mure project

The following conclusions can be drawn from the values shown in the figure:

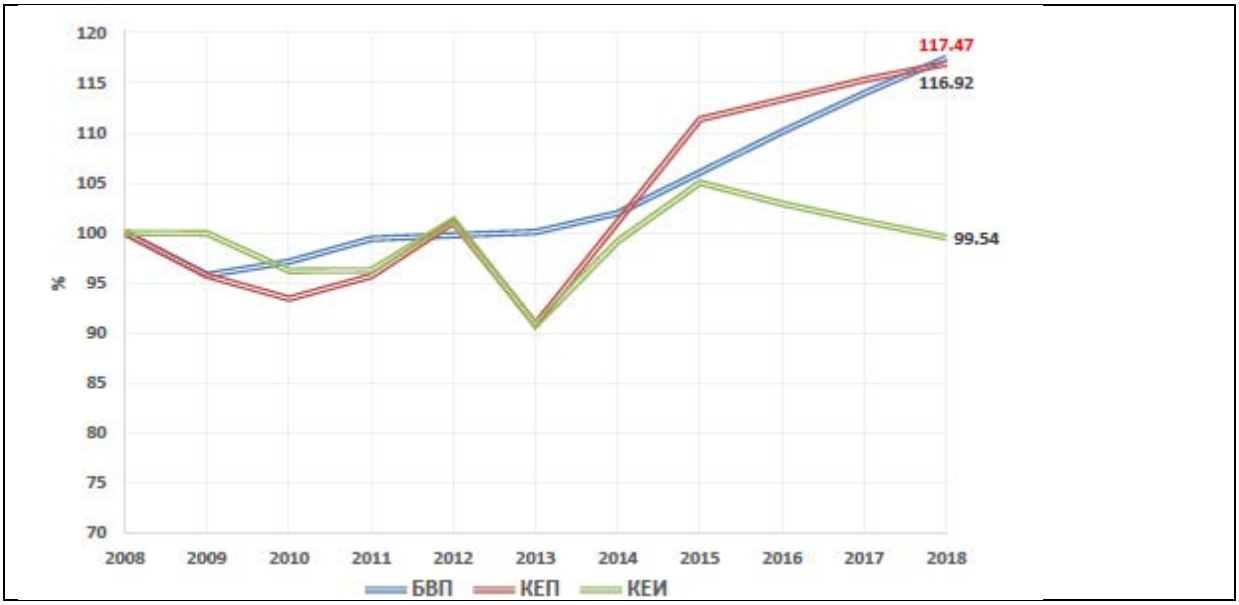
- The increase in GVA in the sector during this period contributed to a 480 ktoe increase in final energy consumption.
- Structural changes in the industry sector led to a 590 ktoe reduction in energy consumption. This means that, over this period, the share of highly energy-intensive industrial sectors - headed by the steel industry at the beginning of the period - was reduced in favour of less energy-intensive industries.
- Energy savings resulting from improved energy efficiency came to 940 ktoe.

As a result of the above factors, final energy consumption in the industry sector fell by 890 ktoe between 2008 and 2017. Without the effect of an increase in energy efficiency, there would be no reduction and final energy consumption would have increased compared to 2008.

In 2018, GVA fell by 1.1 % and energy consumption by 0.8 %, leading to a minimal increase in energy intensity of 0.2 % compared to the previous year 2017. The increase in energy intensity in 2018 shows that the efficiency of energy use in the sector has

deteriorated for the second year in a row. This is quite different from the data for 2016, when energy intensity in the sector fell by 5.6% in one year.

IV.4. Final energy consumption in the transport sector



- GDP
- FEC
- FEI

Fig. IV-4-1: Gross domestic product, energy consumption and energy intensity in the transport sector in the period 2008-2018. The indices for 2008 are set at 100%.

Source: NSI data.

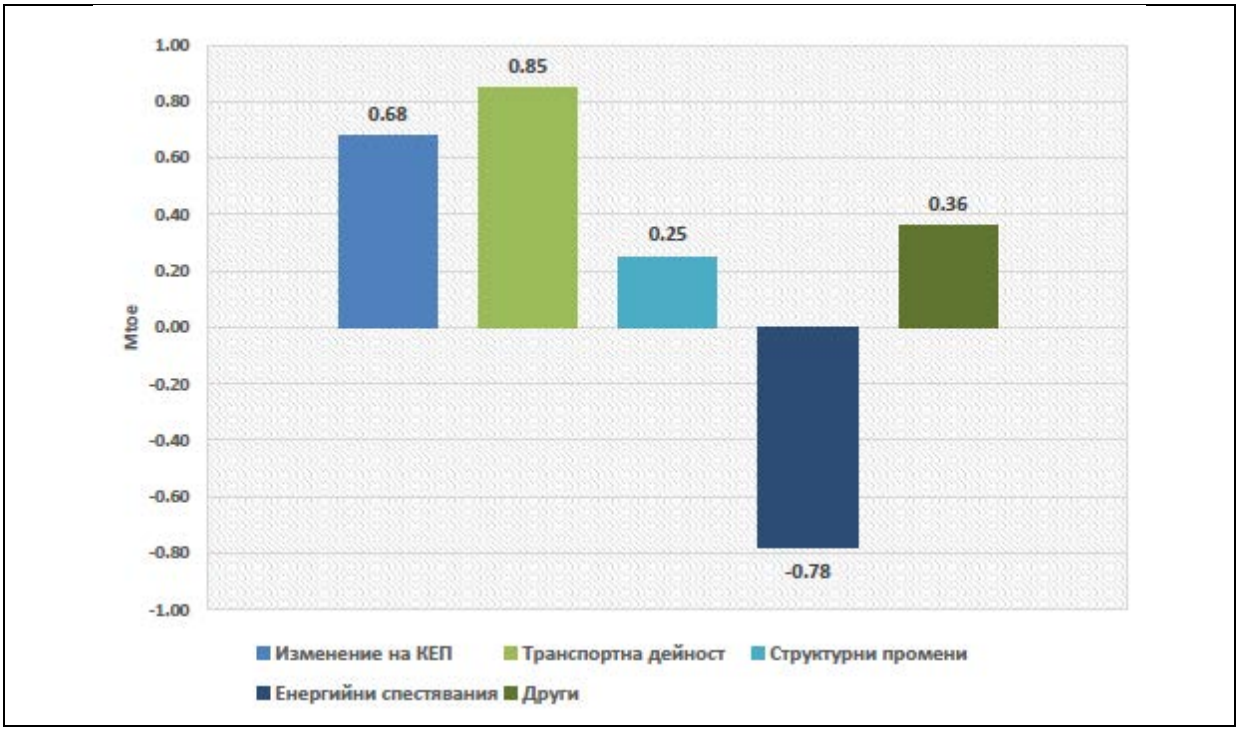
The most unfavourable long-term trend in energy consumption is observed in the transport sector. As from 2009, the transport sector replaced the industry sector as the largest consumer of energy. In the years which followed, this trend increased. It should be borne in mind that more than 90 % of the fuel used in the sector is imported, making it the sector most vulnerable to energy security.

Energy intensity in the transport sector is calculated in terms of total GDP, as transport serves all sectors, so energy intensity cannot be directly compared with that of other sectors.

In the period 2008-2018, energy consumption in the transport sector increased by 17 % and reached 3 372 ktoe (excluding international aviation).

The growth of energy consumption is virtually equal to the growth in GDP (17.5 %), which means a slight decrease in energy intensity (0.5 %).

Fig. IV-4-2 shows the reasons for the evolution of energy consumption in transport in the period 2008-2017.



- Change in FEC
- Transport activity
- Structural changes
- Energy savings Others

Fig. IV-4-2: Reasons for the change in energy consumption in the industry sector in the period 2008-2017

Source: *Breakdown analysis instrument of the Odyssee-Mure project*

The increasing consumption in the transport sector in the period 2008-2017 is due to the following factors:

- Increasing transport activity leading to an increase of 850 ktoe in energy consumption.
- Structural changes (change in the shares of modes of transport) leading to a 250 ktoe increase in consumption. This means that, during this period, the share of efficient modes of transport (rail, water, pipeline transport) decreased while the share of road transport increased.
- An increased use of private cars, reduced loading on the means of transport, increased congestion in urban centres etc. led to a 360 ktoe increase in consumption.
- Energy savings due to improved energy efficiency reduced consumption by 780 Mtoe.

As a result of all the above factors, final energy consumption in the transport sector increased by 680 ktoe from 2008 to 2017.

Without the energy savings achieved, the sector's energy consumption would have more than doubled (to 1 460 ktoe).

In 2018 compared to 2017:

- Final energy consumption in the transport sector increased by 1.4 %;
- GDP increased by 3.1 %;
- The energy intensity of the sector decreased by 1.6 %.

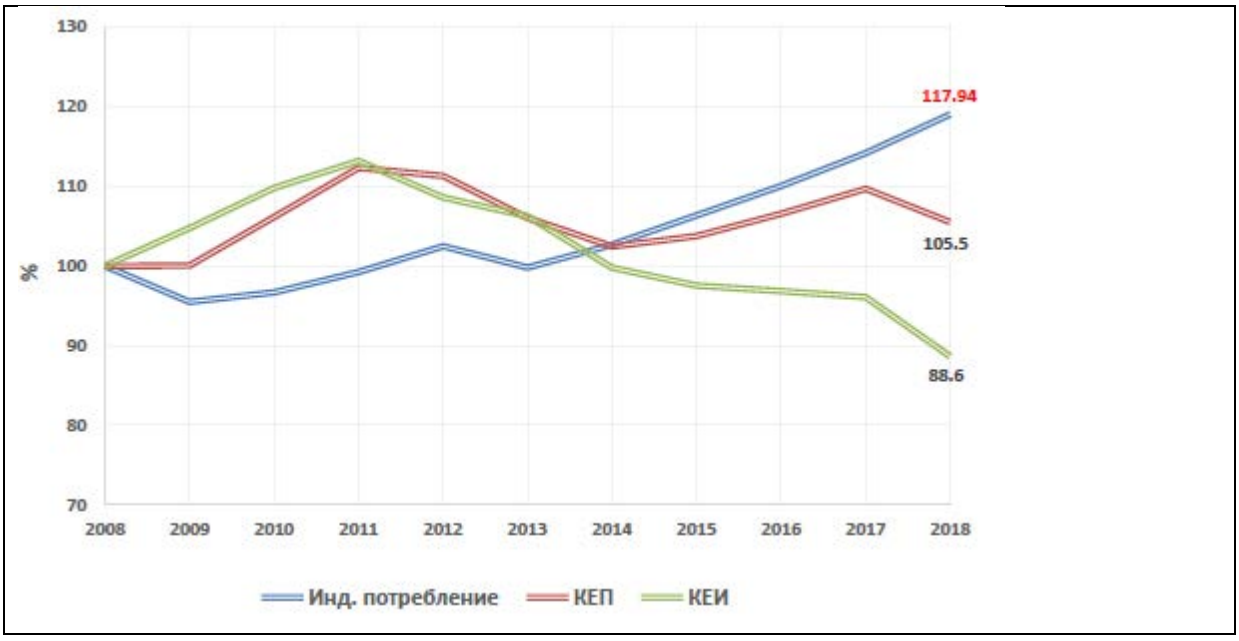
For the third year in a row since 2016, the energy intensity of the transport sector decreased, offsetting the increase in this indicator in previous years.

The main consumer of fuels and energy in transport is road transport, which accounted for a 94.3 % share of the sector's total consumption in 2018.

In 2018, energy consumption in the transport sector increased by 1.4 % compared to 2017, entirely as a result of a 2.9 % increase in consumption in road transport.

In 2018, as the volume of road haulage significantly decreased (by 27.7 % compared to 2017) and the volume of road passenger transport remained at the level of the previous year, the growth in consumption was mainly due to the increased use of private cars and the reduced load of freight and passenger cars.

IV.5. Final energy consumption in the Households sector



- Individual consumption
- FEC
- FEI

Fig. IV-5-1: Individual household spending, energy consumption and energy intensity of individual household consumption in the period 2008-2018, indices for 2008 set at 100%.

Source: NSI data

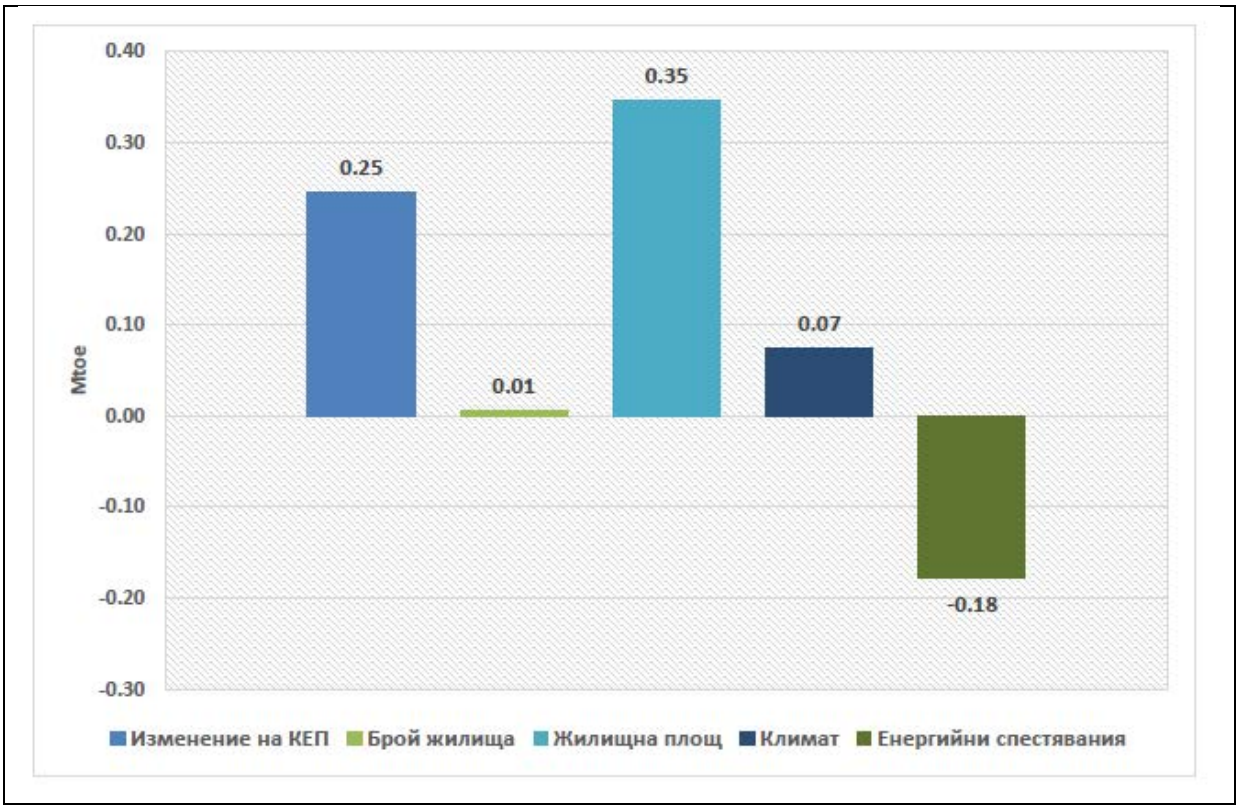
Energy intensity in the households sector is measured against the growth in individual household spending.

In 2009, as a consequence of the economic crisis, household spending fell to the lowest level for the period. After a further downturn recorded in 2013, sustained growth was observed. At the end of the period, in 2018, household spending was 17.9 % higher than in 2008.

Energy consumption increased to its maximum value in 2011. At the end of the period, the energy consumption of households had increased by 5.5 %.

Energy intensity decreased after 2011 and, in 2018, amounted to 88.6 % of the 2008 level.

Fig. IV-5-2 shows the breakdown analysis of the causes of change in energy consumption by households in the period 2008-2017.



- Change in FEC
- Number of dwellings
- Living area
- Climate
- Energy savings

Fig. IV-5-2: Reasons for the change in energy consumption in the household sector in the period 2008-2017

Source: *Breakdown analysis instrument of the Odyssee-Mure project*

The following conclusions can be drawn from the values shown in the figure for the period 2008-2017:

- The main reason for increasing consumption is the increased area of new homes — 350 ktoe.
- Energy savings due to improved energy efficiency reduced consumption by 180 ktoe.

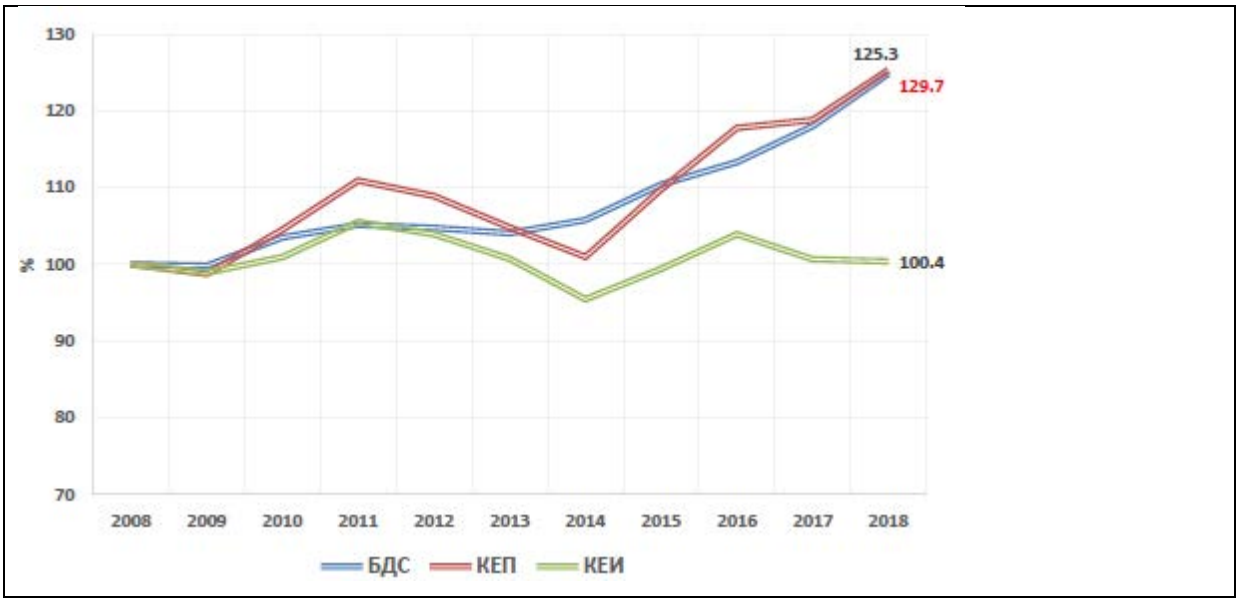
The impact of these factors was a 250 ktoe increase in final energy consumption in households. All other factors had a minimal effect on energy consumption.

In 2018, the following were observed, compared to 2017:

- A 4.3 % increase in spending.
- A 3.8 % reduction in energy consumption.
- A 7.8 % drop in energy intensity from 0.0395 kgoe/BGN_{2015} to 0.0364 kgoe/BGN_{2015}.

The decrease in energy intensity in relation to household spending is an indicator of increased efficiency in the use of energy by households, leading to a reduction in energy consumption throughout the year.

IV.6. Final energy consumption in the Services sector



- GVA
- FEC
- FEI

Fig. IV-6-1: Gross value added, energy consumption and energy intensity of the services sector between 2008 and 2018, index 2008 = 100 %.

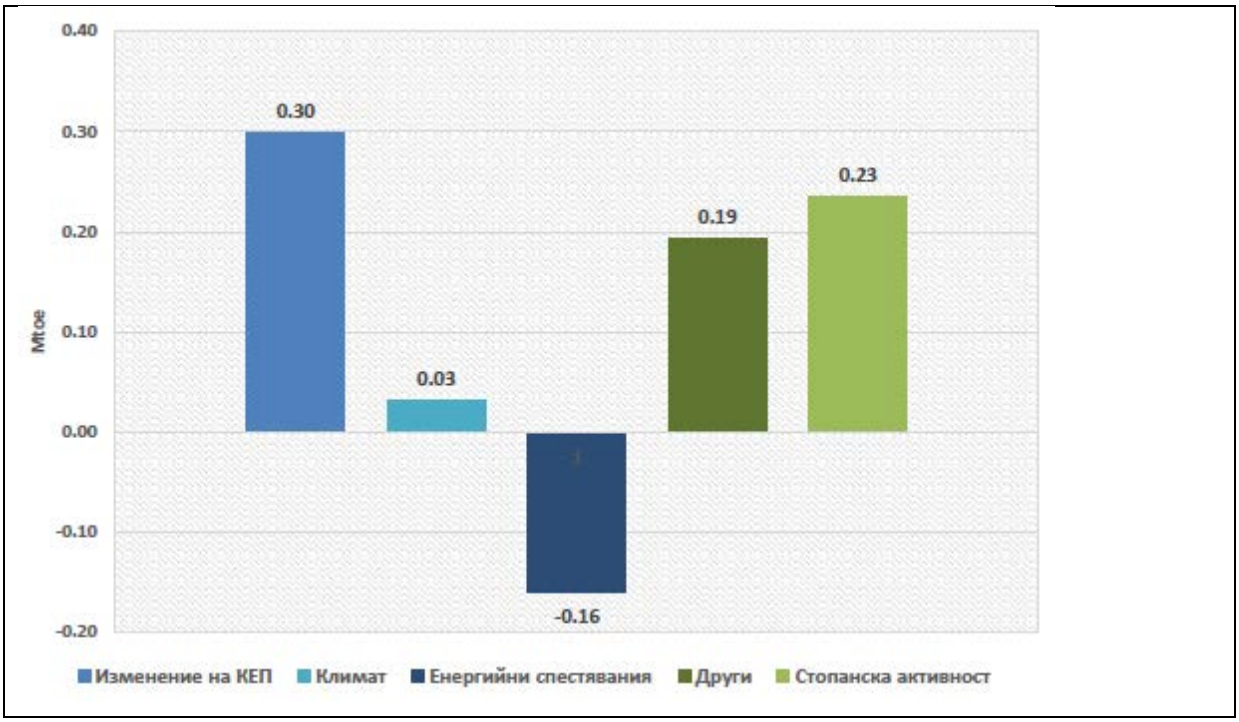
Source: NSI data

GVA and energy consumption in the services sector show a steady increasing trend over the whole period 2008-2018 and at the end of the period GVA is higher by 29.7 % and final energy consumption by about 25 %.

In 2018, energy intensity remained practically at the 2008 level.

It should be borne in mind that the services sector is the one with the lowest energy intensity, 6-7 times lower than the energy intensity of the industry sector.

Figure IV-6-2 shows the breakdown analysis of the causes of the change in energy consumption in the services sector in the period 2008-2017.



- Change in FEC
- Climate
- Energy savings
- Others
- Economic activity

Fig. IV-6-2: Reasons for the change in energy consumption in the services sector in the period 2008-2017

Source: *Breakdown analysis instrument of the Odyssee-Mure project*

The following analysis can be carried out for the period 2008-2017 on the basis of the values shown in the figure:

- The increase in economic activity, including GVA, contributes to a 230 ktoe increase in final energy consumption.
- Increased thermal comfort in buildings, increased electric energy consumption for lighting, and wider use of appliances increased consumption by 190 ktoe.
- Energy savings as a result of improving energy efficiency are the only factor that reduces consumption. in the period under consideration, these savings are assessed at 160 ktoe.
- The final energy consumption of the services sector grew by 300 ktoe.

In 2018, compared to the previous year 2017, the following was observed:

- GVA growth of 5.8 %;

- a 5.5 % increase in energy consumption up to final energy consumption of 1231.2 ktoe in 2018;
- a marginal 0.3 % drop in energy intensity to 0.0208 kg/BGN$_{2015}$.

The observed increase in energy consumption in the sector is due to:

- GVA growth of 5.8 %;
- a 0.7 % increase in the number of employees in the sector;
- 4.8 % increased consumption per employee, which is an indicator of an increase in the level of energy comfort in public buildings, in both winter and summer periods.

IV.7. Energy efficiency index (ODEX)

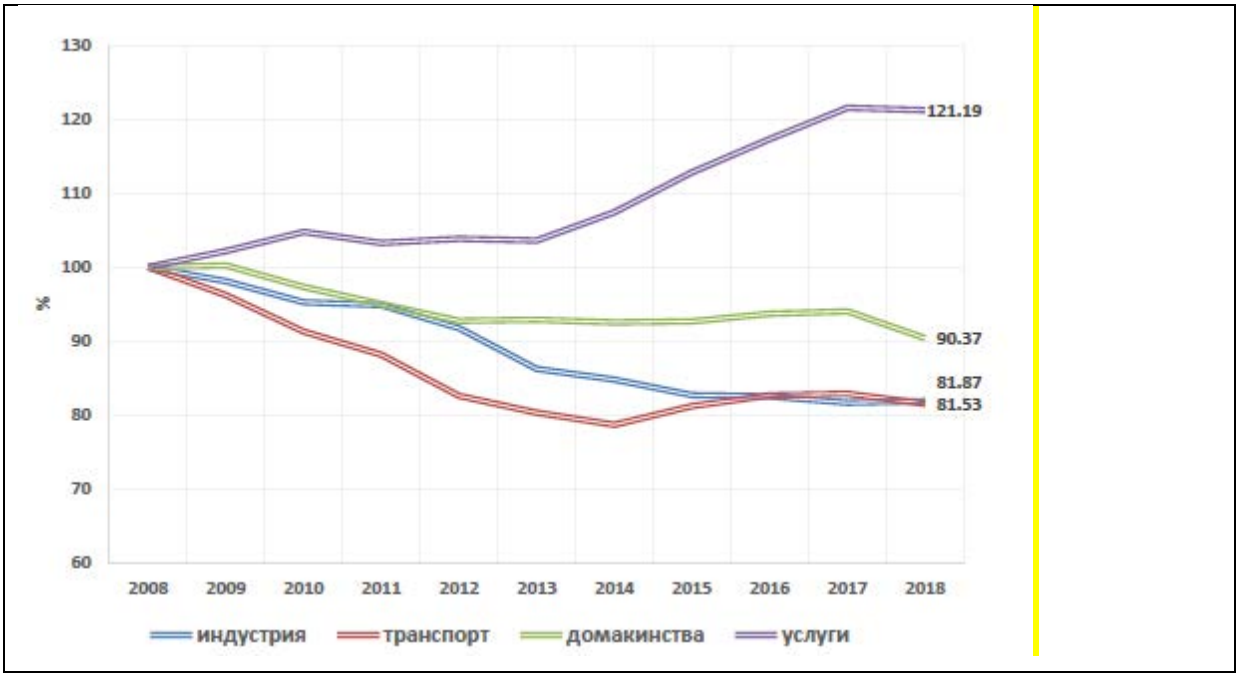
ODEX is the an index set up and used in the ODYSSEE-MURE project to measure progress in energy efficiency by sector (industry, transport, households and services). The aim is to create an indicator that reflects as little as possible the impact of structural changes in individual sectors.

For each sector, the index is calculated as the weighted average of energy efficiency [EE] indicators. EE indicators by sector can be: energy intensity, specific energy consumption, etc.

The calculation used in ODYSSEE is based on a 'floating' base year, which means that the energy savings of EE measures are measured against the previous year. ODEX cumulates additional energy savings from one year to the next. More detailed information on how ODEX was calculated is available in the methodology report Definition of ODEX Indicators in the ODYSSEE Database and on the Projects section of the SEDA website.

ODEX represents a better way of assessing energy efficiency trends over a year in all sectors of the economy than the energy intensity traditionally assessed for the individual sectors, as it is not affected by structural changes and by other factors not related to EE (increased thermal comfort, increased private car travel, etc.).

Figure IV-7 shows the ODEX index movement in the major sectors relevant to FEC in Bulgaria for the period 2008-2017.



- industry
- transport
- households
- services

Fig. IV-7: Evolution of the ODEX index by sector between 2008 and 2017, index 2008 = 100 %.

Source: *ODYSEE-MURE project*

Based on the ODEX index by sector, the long-term energy efficiency development trends for the period under consideration are as follows:

- In the industry and transport sectors, energy efficiency increased by around 18 %. The index fell to 82 % of its level in 2008.
- In the households sector, the ODEX index decreased by about 10 % and in 2018 was 90 % of its 2008 level. It should be noted that the index calculation method cannot reflect such important factors as the increase in the thermal comfort of housing in winter, the increasing use of air conditioning in the summer and of electrical appliances, which have a major impact on energy consumption.
- The services sector has a significantly smaller share in final energy consumption and the lowest energy intensity compared to other sectors. In this sector, as in the households sector, the main consumer is buildings and the ODEX index cannot reflect changes in the level of thermal comfort in public buildings. In the period under review, the trend was negative and it is only in this sector that the index increased, exceeding the 2008 level by 21 % in 2018.

This result shows that the effect of EE measures targeting public buildings does not offset the effect of the growth in the number of workers in the sector, increased comfort levels in buildings, etc.

V. ASSESSMENT OF THE IMPLEMENTATION OF NATIONAL ENERGY EFFICIENCY MEASURES

V.1. Horizontal measures

V.1.1. Energy efficiency obligation schemes and alternative measures (Article 7 and Annex XIV, Part 2, point 3.2 of Directive 2012/27/EU)

→ Individual energy savings targets for energy traders

Description	According to the national EE obligation scheme, the individual energy savings targets are allocated among obligated parties under Article 14 of the Energy Efficiency Act [ZEE] on the basis of their declarations of quantities of fuels and energy sold to final consumers in 2019. The individual targets are calculated in full compliance with the regulatory requirements and with the NEEAP. The list of obligated persons and their individual targets is published on the SEDA website and is included as **Annex 3** to this report. **At the time when the report was being drawn up, individual energy savings targets for 2020 were assigned to 70 obligated parties - fuel and energy traders - in accordance with Article 14 of the Energy Efficiency Act (ZEE).**
Impact assessment method	The assessment of the impact of the implementation of the measure is based on the energy savings certificates issued in accordance with the provisions of the Energy Efficiency Act (ZEE) and related secondary legislation.
Analysis of implementation in 2019	Under Article 63 of the Energy Efficiency Act (ZEE), obligated parties - energy traders - are obliged to manage energy efficiency and to provide annual information on the fulfilment of this obligation. Reporting on the implementation of measures related to EE management is meant to provide data for the purposes of the SEDA information system and is not considered as fulfilling individual targets for energy savings. Obligated parties' individual targets are accounted for through an energy savings verification procedure followed by issuance of energy savings certificates in accordance with the procedure of the Energy Efficiency Act (ZEE) and the secondary regulations under it. Information on the ongoing performance of obligated parties as regards their energy savings targets is published on the SEDA website. The implementation assessment of the national obligation scheme takes into account only proven energy savings achieved by entities with individual targets assigned. Over the last few years, SEDA has made a major effort to raise obligated parties' awareness of their obligations under the EEA and the options for fulfilling them. A large number of sectoral meetings

	with obligated parties were organised within the framework of a broad information campaign conducted by SEDA. The Agency is actively involved in national and regional events where the obligation scheme was extensively explained to all stakeholders. Explanatory information for obligated persons is regularly published on SEDA's website.
Summary impact assessment	(Table V.1.1-1)

An update on the ongoing implementation of the individual energy saving targets under Article 19(3) of the Energy Efficiency Act [ZEE] is available on the SEDA website.

➞ **Implementation of an alternative measure - National programme for energy efficiency in multi-apartment buildings**

Description	This alternative measure was transposed into national law by the Energy Efficiency Act (ZEE, published in SG No 105 of 30 December 2016.) The distribution of energy savings values and the share of alternative measures are shown in Table 3.1.1-7 of the NEEAP. Under Article 14(4) of the Energy Efficiency Act, energy savings from the implementation of alternative measures are determined using the energy savings estimates provided by the Ministry of Regional Development and Public Works, which coordinates the National programme for energy efficiency in multi-apartment buildings.
Impact assessment method	The impact of implementing the measure is assessed on the basis of an analysis of the savings achieved under the national programme in 2019 reported by the coordinator.
Relation to other NEEAP measures	Financial mechanisms - Measure V.5.4. National programme for energy efficiency in multi-apartment buildings

Assessment of Impact in2019	Aggregated information on the buildings where works were completed in 2019 and the amount of investment made	
(Data provided by the Ministry of Regional Development and Public Works)	**Buildings commissioned**	195
	Improved housing infrastructure, TFA, m².	1 116 116
	Number of housing units renovated	13 806
	Number of residents benefiting from the improved infrastructure	76 151
	Expected energy savings from renovated	100 674

	residential buildings, MWh/year
	Expected annual decrease in greenhouse gas emissions (CO_2 and equivalent), $ktCO_2$/year: 35
	Value of all works performed on buildings, BGN million *: 180.4
	** The value of all building activities includes both the investment for the works and the investments for technical and energy audits, design, conformity assessment, construction and copyright, investment control.*
	Detailed information on the progress made in the implementation of the National programme for energy efficiency in multi-apartment buildings is available in the analysis of Measure V.5.4 in this report.

➞ **Implementation of an alternative measure - Operational programme 'Innovation and Competitiveness' - Procedure BGI6RFOP002 - 3.002, Increasing energy efficiency in large enterprises**

Description	The alternative measure was introduced by the Annual Report on the implementation of the NEEAP in 2018 (Record **No 43 of the meeting of the Council of Ministers of 23 October 2019).** Procedure BGI6RFOP002-3.002 was launched in 2019 with 68 grant contracts for a total of BGN 253 791 859.90, including a grant of BGN 122 614 711.56 (48.3% funding intensity). The energy savings planned for the companies under the contracts are 553 505.51 MWh/year and the projected reduction of greenhouse gas emissions is 330 006.61 tCO_2/year. For the purposes of Article 15(2) and for the purposes of determining the national cumulative energy efficiency target under Article 14(1) of the Energy Efficiency Act (ZEE) as an alternative measure under Article 14(7)(2), only the energy savings corresponding to the grant amount under procedure BGI6RFOP002-3.002, equivalent to 267 737.7 MWh (22.99 ktoe), are used.
Impact assessment method	The energy savings achieved are assessed using the bottom-up method on the basis of projects actually implemented to increase energy efficiency in companies. The impact of the implementation of the measure is assessed on the basis of analysis of the savings achieved by projects financed under the Operational Programme 'Innovation and Competitiveness' and implemented in 2019, as reported by the Managing Authority.
Relation to other NEEAP measures	Financial Mechanisms - Measure V.5.3 Operational Programme 'Innovation and Competitiveness' 2014-2020 г.

Assessment of Impact in2019	Under procedure BG16RFOP002-3.002, 18 administrative grant contracts were completed in 2019 (with final payments made), the funds paid for these contracts amounting to BGN 29 586 162.76. The energy savings generated under these contracts amount to 105 151.07 MWh/year and the estimated reduction of greenhouse gas emissions is 72 337.68 tCO_2/year. In assessing fulfilment of the national cumulative target under Article 7 of Directive 2012/27/EU, savings of **50.79 GWh** were included, representing 48.3 % of the energy savings for the year 2019 achieved under procedure BG16RFOP002-3.002. More detailed information on progress in the implementation of the projects financed under the Operational Programme 'Innovation and Competitiveness' in 2019 is available in the analysis of Measure V.3.1 in this report.

➞ **Implementation of an alternative measure - Renewable energy, energy efficiency, energy security under the European Economic Area Financial Mechanism 2014-2021 (FM EEA)**

Description	The alternative measure was introduced by the Annual Report on the implementation of the NEEAP in 2018 (**Record No 43 of the meeting of the Council of Ministers of 23 October 2019).** The 'Renewable energy, energy efficiency, energy security' programme is financed by the European Economic Area Financial Mechanism [FM EEA] 2014-2021. The Ministry of Energy is the programme coordinator for this programme, in accordance with a Memorandum of Understanding on the implementation of the European Economic Area Financial Mechanism 2014-2021 concluded on 9 December 2016. The main objective of the programme is to reduce carbon intensity and increase security of supply. The objective will be achieved by: increasing the production of energy from renewable sources; improving energy efficiency in buildings, industry and municipalities; boosting expertise on renewable energy, energy efficiency and energy management. The budget for the Programme is close to EUR 33 million (EUR 28 million from the FM EEA and EUR 4.9 million of national co-financing). For the purposes of the national cumulative energy savings target set in accordance with Article 7 of Directive 2012/27/EU, Bulgaria will use energy savings under the second Programme outcome: 'Improving energy efficiency in buildings, industry and municipalities'. The Programme was launched in 2019 with the announcement of the 'Rehabilitation and modernisation of municipal infrastructure - municipalities' external artificial lighting

	systems' procedure, in which the beneficiaries will be Bulgarian municipalities and grants cover up to 100 % of the eligible costs.
Impact assessment method	The energy savings achieved is assessed using the bottom-up method on the basis of projects actually implemented to increase energy efficiency. The impact of implementing the measure is assessed on the basis of analysis of the savings achieved by the FM EEA 2014-2021-financed projects carried out, as reported by the programme coordinator. In 2019, no projects were completed under the Programme.
Relation to other NEEAP measures	Financial mechanisms - Measure 3.8.9. European Economic Area Financial Mechanism 2014-2021 of the National Energy Efficiency Action Plan (2017 update)

➞ **Summary impact assessment of implementing the measure**

Table V.1.1-1 Summary assessment of the achievement of the national cumulative energy efficiency target for the period 2014-2019

	2014	2015			2016			2017			2018			2019		
	Total annual savings (only new measures)	New savings	Total annual savings	New savings 2015	New savings	Total annual savings	New savings 2016	New savings	Total annual savings	New savings 2017	New savings	Total annual savings	New savings 2018	New savings	Total annual savings	New savings 2019
GWh	338.4	242.3	580.7	919.1	575.16	1155.86	2074.96	508.34	1664.20	3739.16	368.99	2033.19	5772.36	192.4	2225.59	7998
ktoe	29.1	20.8	49.9	79.0	49.5	99.4	178.4	43072	143.12	321.57	31.73	174.85	496.42	16.55	191.4	687.82

The data in the table are valid as at March 2020. The demonstration of energy savings by issuing certificates shall be carried out on an ongoing basis. In accordance with Article 16(3) of the Energy Efficiency Act [ZEE], when reporting on the fulfilment of individual annual targets, obligated parties may use energy savings for final customers achieved in the previous 4 or the following 3 years. Furthermore, in 2019, obliged parties continued to demonstrate energy savings achieved in 2017 and 2018. All these factors account for differences in the data on the achievement of the national cumulative target reported as at March 2019 and in this report.

Table V.1.1-2 Summary assessment of the implementation of the national cumulative energy efficiency target for 2014-2019 by policy type (in accordance with additional requirements under Article 24(1), Annex XIV Part 1(e) of Directive 2012/27/EU), ***ktoe***

Policies / measures for the achievement of the national cumulative energy efficiency target	2014	2015			2016			2017			2018			2019		
	Total annual savings (only new measures)	New savings	Total annual savings	New savings 2015	New savings	Total annual savings	New savings 2016	New savings	Total annual savings	New savings 2017	New savings	Total annual savings	New savings 2018	New savings	Total annual savings	New savings 2019
Individual energy saving targets for owners of motor vehicles and public and municipal buildings (period of effectivity 2014-2016)	14.21	12.7	26.91	41.12	16.8	43.71	84.83	-	43.71	128.54	-	43.71	172.3	-	43.71	216
Energy efficiency obligation scheme	14.9	8.1	23	37.9	25	48	85.9	8.02	56.02	141.92	8.97	64.99	207	3.52	68.51	275.4
'National programme for energy efficiency in multi-apartment buildings' (period of effectivity 2016-2020)	-	-	-	-	7.6	7.6	7.6	35.7	43.3	50.9	22.8	66.1	117	8.66	74.76	192
OPIC - Procedure BGI6ROP002-3.002 Increasing energy efficiency in large enterprises (period of effectivity 2019-2020)	-	-	-	-	-	-	-	-	-	-	-	-	-	4.37	4.37	4.37
FM EEA 2014-2021 - Programme area 'Renewable energy, energy efficiency, energy security' (period	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

of effectivity 2018-2024)															
Total (ktoe)	**29,11**	20,8	49,91	79,02	49,4	99,31	178,33	43,72	143,03	321,4	31,77	175,9	496,3	16,55	191,4	687,8

In the period 2014-2017, Bulgaria achieved 47.9 % of the national cumulative energy savings target for the period (1 436.4 ktoe). The data on the implementation of the obligation scheme are up to date as at March 2020. The process of verifying energy savings achieved by obligated parties through issuing of certificates is currently underway. National law requires that verification of energy savings through audits of buildings or industrial enterprises takes place at least one year after the energy efficiency improvement measures have been applied and gives obligated parties the option of using energy savings achieved through measures over the course of the previous four years. The process of issuing energy savings certificates is also time-consuming, as it involves conducting an independent assessment of the energy savings achieved by the individual obligated parties, in accordance with the Energy Efficiency Act [ZEE], as well as follow-up control by SEDA. The data on the actual fulfilment of the national obligation scheme verified by energy savings certificates will change depending on the process of obligated parties proving their savings and will be updated on an ongoing basis.

Table V.1.1-3: Breakdown of the national cumulative target determined in accordance with Article 7 of Directive 2012/27/EU, ktoe/year

Year	Obligation scheme - Basic approach	Existing obligation scheme[1]	National programme for energy efficiency in multi-apartment buildings[2]	OPIC procedure BG16RFOP 002-3.002 [3]	Financial Mechanism of the European Economic Area[4]	Balance for obligated parties
2014	61.7	14.2	-	-	-	47.5
2015	61.7	12.7	-	-	-	49
2016	75.2	16.8	7.6	-	-	50.8
2017	75.2	-	23.44	-	-	51.76
2018	77.1	-	16.5	-	-	60.6
2019	77.1	-	16.5	11.49		42.1

1 *Figures are based on the annual reports on the implementation of the NEEAP for the period 2014-2016.*
2 *Figures are based on the savings reported by the Managing Authority and an engineering evaluation in respect of the projected investments under the programme. Source: Ministry of Regional Development and Public Works*
3 *Figures are based on an engineering evaluation in respect of the projected investments under the programme. Source: Ministry of the Economy*
4 *Figures are based on an engineering evaluation in respect of the estimated savings under the programme. Source: Ministry of Energy*

2020	78.3	-	16.5	11.49	43.3
Total 2014-2020	***506.3***				***345.06***
Cumulative amount: 2014-2020	**1 942.7**				**1 396.84**

In light of the actual reported data on energy savings, adjustments were made to the values previously set in the NEEAP (2017 update) for energy savings achieved under the alternative measure 'Existing liability scheme of the owners of the PC and of government and municipal buildings' (period of effectivity 2014-2016). Bulgaria's total cumulative target, determined in accordance with Article 7 of Directive 2012/27/EU, was not changed. The adjustments made only reallocated the previously established values between the alternative measures and the basic approach for the period 2014-2016. In addition, the fulfilment of the national cumulative target for the period 2014-2016 as set out in Table V.1.1-2 was not adjusted compared to previous reporting years.

V.1.1.2 National Energy Efficiency Obligation Scheme in 2020

Pursuant to the provisions of the Energy Efficiency Act (ZEE), obligated parties' individual energy savings targets represent annual energy savings in FEC to be determined by the 15 March every year, published on the SEDA website and enclosed as an annex to this Annual Report.

Under ZEE Article 15(2), obligated parties' individual annual targets are determined as follows: the difference between the calculated annual energy savings and the estimated energy savings achieved by alternative measures in the relevant year (2020) is allocated among the obligated parties under ZEE Article 14(4) in proportion to the amounts of energy respectively sold by these parties to end users in the previous year.

For 2020, the assessment of the energy savings of the alternative measures is as follows:

- 'National programme for energy efficiency in multi-apartment buildings' - 16.5 ktoe (Table 3.1.1-7 of the NEEAP, 2017 update);
- Operational Programme 'Innovation and Competitiveness' - procedure BG16RFOP002-3.002, Increasing energy efficiency in large enterprises - 11.49 ktoe (Table V.1.1-3 of this report);
- Programme 'Renewable energy, energy efficiency, energy security', FM EEA 2014-2021 - 14 022 ktoe (Table V.1.1-3 of this report).

Within the statutory deadline, SEDA received information, including declarations in accordance with Article 68(3) of the Energy Efficiency Act [ZEE] of quantities of energy and fuels sold to end customers in 2019, from a total 98 persons, of whom 70 were obligated parties with individual targets for 2020. Fifteen obligated parties reported having provided information to

municipal mayors under ZEE Article 63(5) and benefit from a 1 % reduction in the individual annual target assigned to them, in line with ZEE Article 17.

The list of obligated parties and their designated individual targets for energy savings from new measures in 2020 is attached as Annex 3 to this Annual Report. Progress towards meeting the individual targets of the obligated parties for the period 2017-2019 as at 31 March 2020 is attached as Annex 4 to this report.

➞ **Other activities**

In accordance with Regulation E-RD-04-3/4.5.2016 on the measures eligible for implementing energy savings in final consumption, methods of demonstrating energy savings achieved, requirements for methodologies to assess the energy savings achieved and the means to confirm them, there are three permanent expert working groups within the Agency for Sustainable Energy Development [SEDA] operating in the areas of 'electricity', 'heat' and 'fuels for final consumption', in which representatives of scientific organisations, higher education institutions, energy traders and their organisations, etc. participate. At present, there are a total 35 specialised methodologies for assessing energy savings approved by Order of the Minister for Energy.

In 2019, nine specialised methodologies were drawn up and assessed by the expert working groups.

Approved specialised methodologies are available to the public on the SEDA website under the heading Methodology.

Throughout the reporting year, SEDA conducted ongoing information campaigns, meetings with stakeholders, consultations of the obligated parties, etc.

V.1.2. Energy audits and management systems (Article 8 of Directive 2012/27/EU)

Description

In accordance with the Energy Efficiency Act [ZEE], the following enterprises are subject to mandatory energy efficiency audits:

1. production enterprises other than small and medium-sized enterprises (SMEs) as defined in Article 3 of the Small and Medium-Sized Enterprises Act (ZMSP);
2. service enterprises other than small and medium-sized enterprises as defined in ZMSP Article 3;
3. industrial systems with an annual energy consumption over 3 000 MWh;
4. outdoor artificial lighting systems located in a settlements with a population exceeding 20 000 inhabitants.

All buildings with a total floor area [TFA] exceeding 250 m^2 are subject to mandatory energy efficiency [EE] audits and certification.

National law requires EE audits and performance optimisation in respect of heating systems with hot-water boilers and air conditioning systems in

buildings.

Impact assessment method	SEDA carries out an impact assessment of the measure based on the EE audits and reports on EE inspections of heating systems with hot-water boilers and air conditioning systems conducted in 2019 accordance with the procedure laid down in the Energy Efficiency Act [ZEE] and related secondary regulations.
Analysis of implementation in 2019	The following actions were conducted in 2019: - EE audits of a total of 49 enterprises and industrial systems; - audits of 37 outdoor artificial lighting systems; - Survey and certification of a total of 417 buildings, made up of 186 privately owned buildings (715.8 thousand m^2) and 231 State and municipal buildings (715.5 thousand m^2); - inspections of 103 heating systems with hot-water boilers and 41 air conditioning systems in buildings.

Impact assessment

Enterprises and industrial systems:

Number	**Energy savings GWh/year**	**CO_2 emission savings $ktCO_2$/year**	**Financial savings BGN million/year**
49	201.4	73.13	7.1

Source: SEDA information system

Outdoor artificial lighting systems:

Audited outdoor artificial lighting systems	**Number**	**37**
Energy savings	GWh/year	4.82
CO_2 emission savings	$ktCO_2$/year	3.95
Financial savings	BGN million/year	0.895

Source: SEDA information system

Audits and certification of buildings

Building type	Number	Total floor area [TFA] m2	Energy savings, GWh/year	CO_2 emission savings, $ktCO_2$/year	Financial savings, BGN million/year
Buildings owned by municipalities	174	393 526	16.4	7.33	3.2
Buildings owned by the State	57	321 949	19	7.63	2.7
Privately owned buildings	186	715 826	21.69	6.83	2.5
Total	**417**	**1 431 302**	**57.1**	**21.8**	**8.4**

Source: SEDA information system

Inspection of the energy efficiency of heating systems with hot-water boilers and air conditioning systems in buildings

	Number	***Installed capacity [MW]***	***Energy savings, GWh/year***
Heating systems with hot-water boilers	103	79.04	15.8
Air conditioning systems	41	11.2	4.01
Total	**144**	**90.2**	**19.8 ***

***** *The impact was assessed on the basis of an expert assessment taking into account the average annual number of operating hours of the inspected boilers and air conditioning systems, and the assumption that the measures prescribed following the inspections were put in place.*

V.1.3. Metering and billing (Articles 9 to 11 of Directive 2012/27/EU)

Description	This is a legislative measure transposed into national law by the Energy Act [ZE], the regulations and rules laying down the methods of metering of and trading in electricity, heating and natural gas.
Implementation	Accounting for electricity: Electricity supplied to final customers is measured by means of commercial metering means, which are the property of the transmission system operator or the operator of the relevant electricity distribution network, located within the customer's property or at the boundary of the property. Electricity users do not pay a charge for commercial metering. Accounting for natural gas: The quantities of natural gas transmitted via the gas distribution network are measured on gas meters upstream of the customer and owned by the distribution company. Operation of the means of commercial measurement of the transmission and distribution network is the responsibility of the operator of the network concerned, in accordance with the regulations on commercial metering: Act on Metering and Rules on the Trade in Natural Gas Accounting for heat: One of the main household heat consumption accounting methods is the heat accounting system introduced in Bulgaria in 1999 under the Energy Act (ZE), as one of the energy efficiency measures laid down in the conditions for Bulgaria's accession to the EU. Thanks to allocators (allocators, water meters, apartment heat meters), the total energy for the heating and heating of water may be shared between individual properties. The allocation of heat in a commonhold building follows the methodology specified in the Annex to Regulation No 16-334 of 6 April 2007 on the supply of heat. Specifically in the proportional allocation of the heat supplied an engineering estimate of the energy saving effect of the introduction of the measure may be made. Expert assessments show that the actual effect is a reduction in heating consumption of up to 30 %. Of that figure, at least 15% savings were achieved while maintaining thermal comfort. The energy savings are not included in the overall assessment of the achievement of the national target due to the expiry of the measure, in accordance with Annex 1 to Article 3(1) of Regulation E-RD-04-3/4.5.2016 of the Energy Efficiency Act. Billing: On their websites, energy suppliers maintain up-to-date information per customer type on energy prices, payment arrangements, options for the

	choice of energy supplier, clarification of the content of invoices for energy consumption, energy saving opportunities, etc. The possibility of electronic invoicing and practical information on consumer rights are also ensured. Together with the invoice for the last month of each six-month period, the supplier must inform final customers when the reported electricity or natural gas consumption for that period is more than 50 % greater than that reported in the same period of the previous calendar year.
Impact assessment	This measure has no direct energy-saving effect.

V.1.4. Availability of qualification, accreditation and certification schemes (Article 16 of Directive 2012/27/EU)

Description	This is a legislative measure regulated by the provisions of the Energy Efficiency Act and Regulation No E-RD-04-1 of 3 January 2018concerning the details to be entered into the registers under the Energy Efficiency Act, the entry and retrieval of information from such registers, and the conditions and procedures for the qualification of energy efficiency consultants. The Regulation lays down the necessary level of technical competence ensured by defining requirements for education, professional experience and completion of specialised training courses in line with a standardised learning path.
Impact assessment method	This measure has no direct energy saving effect. As at January 2020, the certified persons registered with SEDA and entitled and qualified to conduct energy efficiency audits of buildings and industrial systems are as follows: • companies registered in the register under Article 44(1) of the Energy Efficiency Act [ZEE]: 289; • energy efficiency consultants included in the register under ZEE Article 44(1): 21; • companies included in the register under ZEE Article 60(1): 58;

	Register under ZEE Article 44(1)		Register under ZEE Article 60(1)	
2019 Register	Registration	7 companies 1 consultant	Registration	3 companies
	Re-registration	1 company	Re-registration	-
	Deletion	6 companies	Deletion	1 company

V.1.5. Other horizontal measures

➞ Public awareness raising measures

In the Highlights section of the SEDA website, information received from the national agencies of other European countries or through partners in joint projects is published on an ongoing basis.

In the Funding section of the SEDA website, up-to-date information on existing EE and RES project funding possibilities for individuals, companies and the public sector is published.

Information on certified buildings in Bulgaria and the energy consumption class of each building can be obtained from the National Energy Efficiency System, which features a map of Bulgaria with various search and filter options.

In the Information materials section, detailed annual analyses can be found in respect of the implementation of municipal and regional energy efficiency programmes by region for economic planning in Bulgaria.

➞ European projects with a direct benefit to the NEEAP

ENSMOV - Enhancing the Implementation and Monitoring and Verification practices of Energy Saving Policies under Article 7 of Directive 2012/27/EU

The project was launched in 2019, funded by the European Commission's Horizon 2020 programme and implemented by SEDA in partnership with a further 13 Member States — Austria, Belgium, Croatia, France, Germany, Greece, Hungary, Italy, Lithuania, the Netherlands, Poland, Romania and the United Kingdom. The ambition of the ENSMOV project is to help Member States to monitor, review, improve and implement their energy efficiency policies by developing different options for practical and strategic issues under Article 7 of Directive 2012/27/EU and by:

a) supporting and expanding the exchange of knowledge and experience between Member States for the implementation of policies under Article 7 of Directive 2012/27/EU;

b) developing a set of resources and tools to implement Article 7 of Directive 2012/27/EU, meeting the specific needs of Member States;

c) supporting the national authorities in structuring the internal monitoring, reporting and verification of the implementation of Article 7 of Directive 2012/27/EU in order to ensure that they have reliable data and information for drawing up policies for 2030.

Under the project, a Report assessing the needs of stakeholders for the implementation of Article 7 of Directive 2012/27/EU was drawn up in 2019. The assessment of the needs of stakeholders is based on a survey drawn up by the ENSMOV consortium and sent to different stakeholder groups in partner countries - legislative and executive bodies and other stakeholders in the European Union on the problems in applying Article 7 of Directive 2012/27/EU. The survey in Bulgaria involved 12 institutions, organisations and companies.

The report can be found on the ENSMOV project page, as well as on the SEDA website.

➞ **- Education programmes**

The National Trust EcoFund (NTEF) carries out the training of trainers under a project funded by the European Climate Initiative (EUKI) of the Federal Ministry of the Environment of the Republic of Germany to incorporate climate action into the Bulgarian school curriculum. Speakers include experts, teachers, researchers and representatives of public administrations and non-governmental organisations, actors involved in framing and implementing Bulgaria's climate change policies. The following subjects are covered: the nature of climate change; international and European policies and their implementation at national level; energy sources and energy efficiency in buildings and good practices and useful measures to improve energy efficiency. It is planned that 140 trained teachers will try out the new programme in the next school year.

In 2019, the NTEF jointly with its EUKI partners continued the climate and energy saving initiative in Bulgarian schools. The initiative dates from 2016 and started with only 4 schools from 2 municipalities, the number of which later increased to 15 schools in 4 municipalities. In 2019, there were already 50 participating schools and kindergartens in 12 municipalities. In the cities of Veliko Tarnovo and Sofia, workshops were held to share experience of the work of the student energy teams under the responsibility of the trained teachers. These forms of extra-curricular work not only provide students with knowledge and experience on climate change and energy saving, but also help achieve significant savings in energy and financial resources for schools. In the city of Gabrovo, directors and teachers were acquainted with the set of measuring instruments used for the activities of the school energy teams and were included in the first demonstration energy tour of the 'Neofit Rilski' Primary School. Each participating school and nursery from the town of Gabrovo received one set free of charge. Learning materials for extracurricular activities were also provided.

In the schools included in the initiative, forms of extracurricular activities will be created, in which pupils under the responsibility of their teachers will take care of saving electricity and heat and share their knowledge and skills with their classmates and parents.

Educational information on climate change can be found on a dedicated 'The climate and me' website.

➞ **'Sustainable energy development of Bulgarian enterprises by supporting the activities of the Agency for Sustainable Energy Development' — BG16RFOP002-3.003**

In 2018, the SEDA launched the project Increasing the awareness and capacity of Bulgarian enterprises to implement energy efficiency activities and measures and setting up a business model to support the energy saving obligation scheme and related activities financed under the Operational Programme 'Innovation and Competitiveness' 2014-2020 co-funded by the EU through the European Regional Development Fund (ERDF).

As a result of the implementation of the planned project activities, a positive effect is expected to build on the capacity to implement energy efficiency measures and assess their results, to plan and implement the specific EE and RES policies more effectively, to boost the interest of

end users in support for energy efficiency and exploiting renewable energy and to raise awareness among citizens, thus contributing to the achievement of sustainable energy development.

The project's overall objective is to provide the necessary institutional preconditions for the implementation of an integrated approach in the field of energy efficiency and renewable energy, by supporting the enhancement of the SEDA's capacity to improve the quality and quantity of the services provided to Bulgarian enterprises and to enhance energy management opportunities for enterprises.

In 2019, as part of the project, a standard energy savings contract was developed offering a guaranteed outcome, guidance on the preparation of a contract in order to make it easier for the contracting parties, in line with guaranteed savings contracts, and comprising a minimum set of standard clauses. Alongside the standard contract, a model contract was also drawn up as well as a method for assessing energy savings under a guaranteed performance contract, indicative breakdown and repayment schedule. All the documents produced can be found on the SEDA website. To promote the application of the ESCO mechanism, information campaigns were organised throughout the country focussing on its impact and benefits both for individual users and for the economy of the country as a whole that would stem from increased energy efficiency in industrial enterprises. Market opportunities for energy efficiency measures and the use of energy from renewable sources and the benefits of obtaining energy savings certificates were presented. Information campaigns were carried out in 6 regional cities in Bulgaria involving 315 participants. The mechanism was also promoted through dedicated video material distributed by TV media.

In the reporting year, energy managers were trained in the administration of energy efficiency and BS EN ISO 50001 in industrial enterprises, including SMEs. The scope of the training activities covered the whole country and the curriculum focused on guidelines for collecting and analysing information on energy consumption; the practical implementation, monitoring and improvement of energy management systems; the application of measures to increase energy efficiency to major groups of energy consumers; setting up an energy information system and establishing good practices in the field of energy development. The training was attended by 609 participants. As part of the training seminars, trainees visited sites such as the wastewater treatment plant of Sofia Water AD in Kubratovo, district heating companies in Varna and Burgas, Schneider Electric in Plovdiv, Keros Bulgaria in Ruse and Valeks in Pleven.

In addition, a Manual on the management of energy efficiency in enterprises and Methodological guidelines for energy efficiency audits and assessment of energy savings of industrial systems and enterprises were drawn up.

V.2. Energy efficiency measures for buildings

V.2.1. Energy efficiency measures of public bodies

V.2.1.1. National Long-Term Programme to Promote Investment in Measures Improving the Energy Performance of Buildings of the Public and Private National Residential and Commercial Building Stock

Description	The National Programme was adopted by Council of Ministers Decision No 796 of 20 December 2017 and is included as an annex to the NEEAP as updated in 2017. This is a strategic document aiming primarily to establish a sustainable energy efficiency management model in Bulgaria through the implementation of efficient, integrated and targeted sustainability policies, flexible financial mechanisms and successful practices for achieving a high level of national energy savings while also caring for people and their quality of life, reducing carbon emissions in the air and preserving the country's energy resources.
Impact assessment method	The National Programme includes estimations and analyses of cost-effective scenarios for improving the energy performance of buildings. The estimations are based on a quantitative assessment of the energy, environmental and financial cost and benefit indicators delivered through a model study followed by an economic analysis (following the methodological framework of Regulation 244/2012/EU) of reference buildings of 11 categories (residential buildings, administrative buildings, hotels, health establishments, commercial buildings, etc.). The scenarios take into account diverse factors such as climate, interest rates, and product and energy price increases.
Assessment of direct benefits 2016-2020	The scenario to help achieve 39.66% of the national energy efficiency target was selected (Scenario A2 of the National Programme) on the basis of analysis of implementation in the period 2016-2020. The analyses of the implementation of energy efficiency measures by the owners of different categories of buildings are reflected in the impact assessment in terms of energy savings achieved.

V.2.1.2. Central government buildings

Description	Pursuant to Article 23 of the Energy Efficiency Act, in order to facilitate the achievement of the national energy efficiency target, measures to improve energy performance are implemented on an annual basis on at least 5% of the total floor area (TFA) in all heated and/or cooled buildings owned by central government and used by government administration. The National energy performance improvement plan for heated and/or cooled buildings owned by the central government and used by public administration 2016-2020 was adopted by Council of Ministers Decision No 796 of 20 December 2017. The national building stock owned or used by the central government administration was analysed on the basis of an inventory of all buildings with a TFA of more than 250 m^2 owned by the State or by municipalities, drawn up by

	SEDA in 2013 in accordance with the requirements of Article 5(5) of Directive 2012/27/EU. The buildings covered by Article 5(5) of Directive 2012/27/EU are listed in Table 3.3.3-1 in the NEEAP and identified through systematic analysis of the majority of State-owned buildings. The inventory was updated on the basis of information provided by the relevant government administrations in March 2020.
Measure implementation assessment method	As required by Article 11(6)(5) of the Energy Efficiency Act, by 31 March every year, SEDA publishes a list of the buildings owned or used by the central government administration which did not meet the minimum energy performance requirements as at 1 January of that year. To that end, the SEDA has taken the steps required to obtain information from the owners of the relevant buildings on the energy efficiency measures implemented during the 2019 accounting year and the energy consumption class achieved/expected after the implementation of the measures. SEDA sent an official letter to 56 institutions in Bulgaria (county administrations, ministries, government agencies, committees) requesting the information needed to draw up the list of buildings and their compliance with the requirements for the minimum energy performance requirements. At the time of preparing the Annual Report on the implementation of the NEEAP, updated information had been received from 49 institutions. The information on the buildings owned and used by the public authorities attached to this report was provided by the relevant administrations by 1 March 2020. The updating of the lists by the building owners revealed discrepancies in the data (number of buildings, total floor area, owner, etc.) indicated in Table 3.3.3-1 in the NEEAP. When updating the data on the basis of the information received from the building owners, significant differences were identified with the information submitted in the previous year by the same institutions. For the purposes of this report, SEDA took account of the information received by March 2019.
Relation to other NEEAP measures	This measure is directly related to the implementation of: - the mandatory preparation by State authorities of energy efficiency promotion programmes and annual reporting on their implementation *(Measure V.2.1.3. of this report);* - the mandatory auditing of buildings with TFA exceeding 250 m^2 *(Measure V.1.2 of this report).*
Assessment of cumulative benefits as at 2020	Based on the analysis contained in the National energy performance improvement plan for heated and/or cooled buildings owned by the central government and used by public administration 2016-2020, Scenario A2 was adopted under the approved national budget and, provided that all available financial mechanisms are applied, the cumulative energy savings expected to be achieved by 2020 amount to 119.35 GWh. The impact assessment expressed in energy savings achieved is given in the

	analysis of the implementation of energy efficiency measures by government bodies.

Table V.2.1.2-1 Additional requirements pursuant to Article 24(1), Annex XIV Part 1(c) of Directive 2012/27/EU

Total floor area [TFA] of buildings owned and used by the government administration which, as at 1 January 2020, do not comply with the energy performance requirements laid down in Article 5(1) of Directive 2012/27/EU*	***1 830 110.4 m²***

** Information received from the building owners showed discrepancies (including as regards the number and area of buildings) with the information submitted by the same institutions in the previous year. For the purposes of this report, SEDA took note of the information received by March 2020. in 2019, compared to 2018, information was submitted on 9 buildings which had not been on the list until then, raising questions about the data for the two years.*

Table V.2.1.2-1 Additional requirements pursuant to Article 24(1), Annex XIV Part 1(d) of Directive 2012/27/EU

Total floor area [TFA] of buildings owned and used by the government administration renovated in 2019*	***121 530.8 m²***

**Data provided in March 2020 by the building owners in response to a formal request from SEDA in January 2020*

The energy savings of the central government buildings renovated in 2019 were included in the assessment of the impact of measure V.2.1.3. Obligation of government and local government bodies to draw up their own energy efficiency improvement programmes and mandatory energy efficiency management in public buildings.

The surface area of buildings renovated in 2019 amounted to 4.77 % of the total floor area of buildings covered by the obligation laid down in Article 5(1) of Directive 2012/27/EU. The updated aggregated list of heated and/or cooled buildings owned by the State and used by the public administration with a total floor area [TFA] exceeding 250 m^2 is attached as Annex 2 to this Report. The list contains information on the buildings as registered in the Administrative Register of the government administration's Integrated Information System.

V.2.1.3. Obligation of government and local government bodies to draw up their own energy efficiency improvement programmes and mandatory EE management in public buildings

Description	Pursuant to Article 12 of the Energy Efficiency Act [ZEE], government and local bodies in Bulgaria draw up and adopt energy efficiency programmes. Government and local bodies submit reports on the implementation of the programmes to the Executive Director of the

	SEDA on an annual basis. This measure is directly related to the requirements of ZEE Article 63, under which the owners of buildings which are public state or public municipal property are under the obligation to engage in energy efficiency management. Energy efficiency management involves arranging the implementation of EE programmes, along with other measures leading to energy savings. Energy efficiency management is reported to SEDA by 1 March every year with the submission of the reports on EE programmes. Reports are submitted in a template form produced and endorsed by SEDA.
Impact assessment method	The impact is assessed by applying a bottom-up approach of aggregating and analysing the information received by 1 March concerning the implementation of the energy efficiency programmes, the EE management of buildings and other energy saving measures in 2019 by all municipal, district and State administrative structures.
Relation to other NEEAP measures	This measure is directly related to the implementation of: - the mandatory auditing of buildings with TFA exceeding 250 m^2 *(Measure V.1.2 of this report);* - the annual renovation of 5% of the aggregate TFA of buildings used by government administration *(Measure V.2.1.2 of this report).*
Analysis of implementation in 2019	As at the date of this report, a total of 16 central government bodies had submitted reports on the implementation of EE programmes in 2019. All 28 administrative regions of Bulgaria submitted reports on the implementation of measures in 2019. Municipal administrations submitted 253 reports on EE measures implemented in 2019. According to the information received from obligated parties, a total of 177 projects/measures were implemented by central government bodies and 1 030 EE projects/measures were carried out by local governments in 2019, with a range of measures applied not only to buildings but also to municipal street lighting systems.

Assessment of impact in 2019

	Number of projects	Energy savings *GWh*	CO_2 emission savings *ktC02*
Local administrations	1 030	54.1	21.4
Central government bodies	177	29.7	12.3
Total	**1 207**	**83.8**	**33.7**

	The impact assessment is based on information submitted by the obligated parties. In some cases such information is fragmentary, incomplete or incorrectly presented (no impact assessment, no information on the funds used and/or saved, etc.) In carrying out the assessment corrective actions were taken to ensure an assessment of energy savings that is as correct as possible.
Issues identified	Even though central and municipal administrations have fulfilled the obligation to draw up energy efficiency improvement programmes, report on them on an annual basis and engage in EE management since 2004, certain issues are still observed: - Some of the central government bodies have not yet drawn up their EE improvement programmes; - Local government authorities show progress in terms of knowledge and expertise in implementing policies and measures to raise EE. The central government authorities still show a lower level of compliance with obligations to implement energy-saving measures. The SEDA maintains up-to-date information on its website and has local units whose experts are in contact with local administrations. Every year it organises training events and takes part in a large number of awareness raising events for central and local authorities.

V.2.2. Other measures related to building stock:

V.2.2.1. Administrative measures undertaken to advance the implementation of the *National plan for nearly-zero energy buildings 2015-2020*

In 2019 a National Expert Council (the Council) was established to coordinate the implementation of the National Plan for nearly-zero energy buildings. The expert council represents a broad field and includes experts from public administrations, industry organisations and financial institutions: Ministry of Regional Development and Public Works (MRRB), Ministry of Energy (ME), Ministry of the Environment and Water, SEDA, Technical University - Sofia, University of Architecture, Civil Engineering and Geodesy (UASG), National Association of Municipalities of the Republic of Bulgaria (NSORB), Bulgarian Chamber of Investment Design Engineers (KIIP), Chamber of Architects in Bulgaria (KAB), Bulgaria Construction Chamber (KSB), Bulgarian Chamber of Installation Engineers (KIB), Chamber of Energy Auditors (KEO), Bulgarian Association of Consulting Engineers and Architects (BAAIK), 'Sustainable Cities Fund' DZZD, 'Regional Fund for Urban Development' AD, 'Energy Efficiency and Renewable Sources' Fund (FEEVI).

The work of the Council is organised along thematic lines in four thematic working groups (TWGs) as follows:

TWG-1: Regulatory framework, standardisation and technical standards;

TWG-2: Applied science, research and analysis activities and smart technology; TWG-3: Financial mechanisms and policies for mobilising investment;

TWG-4: Information and publicity, acquisition of knowledge and skills.

The Council's experts work on the following tasks

- Analysis of projects in the 'Energy efficiency' section and identification of engineering and technical barriers to achieving nearly zero-energy building (NZEB) standard (jointly with TWG-2);
- Assessment of the need to update national loss factors in the extraction/production and transmission of energy resources and energy (TWG-1);
- Analysis and justification of proposals for limitations on the requirements of the national definition (TWG-2);
- Applied aspects of infrared analysis for assessing the quality of construction and installation works (SMR) (TWG-2);
- Ideas on how to develop the voluntary scheme for the assessment of smart readiness of buildings (TWG-2);
- Create financial incentives for NZEBs and improve the credit environment (TWG-3);
- Identify professional and user groups that need more information about NZEBs (TWG-4);
- Identify the competences and knowledge that professional and user groups need to acquire (TWG-4);
- Guidelines on the development of training and indicative curricula leading to the defined knowledge, skills and competences (TWG-4);
- Survey of available study programmes and materials from projects carried out with EU and national funding and organisations that offer training on NZEBs (TWG-4).

The progress of the work of the Council can be followed on the Ministry of Regional Development and Public Works website in the Advisory Councils section.

V.2.2.2. Replacement of solid fuel heaters for households

In 2019, a project was launched to replace inefficient wood and coal heaters in six municipalities - Sofia, Burgas, Ruse, Stara Zagora, Veliko Tarnovo and Montana. The project has a budget of BGN 32.6 million, the funds being provided under the LIFE+ programme. Additional funds for Sofia, Burgas and Montana will be ensured under the Operational Programme 'Environment' (OPE). Its resources are more extensive and, besides gasification and pellet-fuelled heating, can also be invested in connection with district heating and heating using electricity.

The LIFE+ programme resources are earmarked for changing heating appliances in 10 000 households in Sofia, 2 000 households in Burgas, 1 500 households in Ruse, 1 000 households in Stara Zagora, 500 households in Montana and 500 households in Veliko

Tarnovo. The Operational Programme 'Environment' is aimed at replacing polluting and inefficient heating appliances in some 15 000 additional dwellings in Sofia. Under the two financial mechanisms, wood- and coal-fuelled heating appliances need to be replaced in at least 20 000 households out of a total of approximately 55 000 in Sofia.

Although the project's chief objective is to reduce fine particulates - the main ambient air pollutant in large cities, replacing inefficient appliances will have a direct energy-saving effect. In addition, the implementation of the measure has other additional benefits, such as reducing energy poverty, improving quality of life in households, economic and social benefits.

➞ **Useful information:**

An Analysis of the implementation of municipal energy efficiency programmes in 2016 by Economic Planning Region in Bulgaria was drawn up in 2019. The analysis contains detailed information on the measures applied and the savings achieved in all six regions in Bulgaria, and the progress in EE improvement in the country's districts and municipalities.

In 2019 the SEDA participated in a number of information seminars organised by municipal and regional administrations with the aim of presenting the issues identified and the progress made in fulfilling the obligations laid down in the Energy Efficiency Act and the Energy from Renewable Sources Act, along with good European practices related to EE and RES policies and projects targeting local authorities.

V.3. Energy efficiency measures in industry

V.3.1. Funding of projects for the introduction of energy saving technologies and renewable energy under Operational Programme 'Innovation and Competitiveness' 2014-2020

Information on the implementation of the measure was provided by the Managing Authority of the Operational Programme, the European Competitiveness Funds Directorate of the Ministry of Economy (MI).

Description	Project funding for the introduction of energy-saving technologies and utilisation of renewable energy by enterprises was provided under the Operational Programme 'Development of the Competitiveness of the Bulgarian Economy' 2007-2013 and the Operational Programme 'Innovation and Competitiveness' 2014-2020. The two Operational Programmes are co-funded by the EU through the European Regional Development Fund (ERDF). Project funding for the implementation of energy efficiency measures under the Operational Programme 'Innovation and Competitiveness' is provided under Investment Priority 3.1 - Energy technology and energy efficiency of Priority
Impact assessment method	Implementation in 2019 was assessed by applying a bottom-up approach on the basis of information submitted by the Managing Authority of the Operational Programmes - the General Directorate 'European Funds for Competitiveness' at the Ministry of the Economy.
Description of implementation in 2019	In 2019, EE projects under the Operational Programme 'Innovation and Competitiveness' 2014-2020 were implemented under two grant award procedures: 1) BG16RFOP002-3.001, Energy Efficiency for Small and Medium-Sized Enterprises, and 2) BG16RFOP002-3.002, Increasing Energy Efficiency in Large Enterprises. As at 31 December 2019, a total of 450 administrative grant contracts had been concluded under procedure BG16RFOP002-3.001 to a total value of BGN 520 424 020.11 million, including grants of BGN 331 128 940.39. The estimated energy savings in the undertakings under all the contracts concluded were 553 967.91 MWh/year and the estimated reduction in A total of 68 administrative contracts were concluded under procedure BG16RFOP002-3.002 'Increasing energy efficiency in large enterprises' by 31 January 2019 for a total amount of BGN 253 791 859.90, including grants of BGN 122 614 711.56. The estimated energy savings for the companies under the contracts are 553 505.51 MWh/year and the projected reduction in greenhouse gas emissions is 330 006.61 $ktCO_2$/year.

Impact assessment 2019	Under procedure BG16RFOP002-3.001, in 2019 alone, 255 administrative grant contracts were completed (with final payments made), with BGN 115 521 266.60 actually paid out under the contracts in grants. The energy savings generated are **387 400.07 MWh/year** and the projected reduction of greenhouse gas emissions is 330 514.30 $ktCO_2/r$. Under procedure BG16RFOP002-3.002, in 2019 alone, 18 administrative grant contracts were completed (with final payments made), with BGN 29 586 162.76 actually paid out under the contracts in grants. The energy savings generated are **105 151.07 MWh/year** and the projected reduction of greenhouse gas emissions is 72 337.68 $ktCO_2$/year. Of the energy savings achieved under procedure BG16RFOP002-3.002 in 2019, 48.3% (funding intensity) were included in the assessment of the fulfilment of the national cumulative target under Article 7 of Directive 2012/27/EU (Measure V.1.1 of this report).
Relation to other NEEAP measures	V.1.1.EE obligation schemes and alternative policy measures (Article 7 and Annex XIV, Part 2, point 3.2 of Directive 2012/27/EU)

V.3.2. Mandatory management of energy efficiency in enterprises and industrial systems.

Description	This measure is laid down in Article 63 of the Energy Efficiency Act [ZEE], pursuant to which owners of enterprises, industrial systems and outdoor artificial lighting systems under ZEE Article 57(2) are under the obligation to engage in energy efficiency management. Energy efficiency is managed through the maintenance of databases of the monthly energy generation and consumption by type of energy, analysing energy consumption and other EE improvement measures. In the 2014-2016 period, energy efficiency management was directly related to the owners of industrial systems achieving individual energy savings targets. In the period 2017-2020, the measure supports energy efficiency improvement in the industry sector. Energy efficiency management is reported by 1 March every year based on a confirmed template.
Impact assessment method	Impact is assessed by applying a bottom-up approach of aggregating and analysing the information received by 1 March 2020 on the implementation of the energy efficiency improvement measures by owners of enterprises and industrial systems in 2019.
Relation to other NEEAP measures	The measure relates to Measure V.1.2 Energy audits and management systems.

Analysis of implementation in 2019

In compliance with the provisions of Article 63 of the Energy Efficiency Act [ZEE], reports on the management of EE through the implementation of energy-saving measures were received by the statutory deadline from 300 enterprises and industrial systems. Of those, 5 reports concern industrial systems whose annual energy consumption is less than 3 000 MWh/year and which were subjected to energy audits and 23 enterprises reported only the investments made in 2019 due to the measures being launched during the reporting year and the lack of assessment. A total 124 enterprises had not implemented energy-saving measures in 2019. The reports received show that, in the reporting year, most energy-saving measures (ESM) involved lighting installations and the replacement of technological equipment. A large number of ESMs also concern technological units and facilities. ESMs frequently implemented include the optimisation of energy consumption in buildings, monitoring and control systems, repairs and thermal insulation. Other types of energy-saving measures are implemented, such as ☐ improving energy consumption reporting procedures, introducing organisational changes and effective planning of the production process.

Water utility companies in Bulgaria also implement a number of energy efficiency measures, whose energy saving impact is included in the overall assessment of the measure. The most frequently implemented measures are to replace pumping units for the transmission of drinking and waste water, the introduction of autonomous automated management of water systems and improvement of the state of building stock.

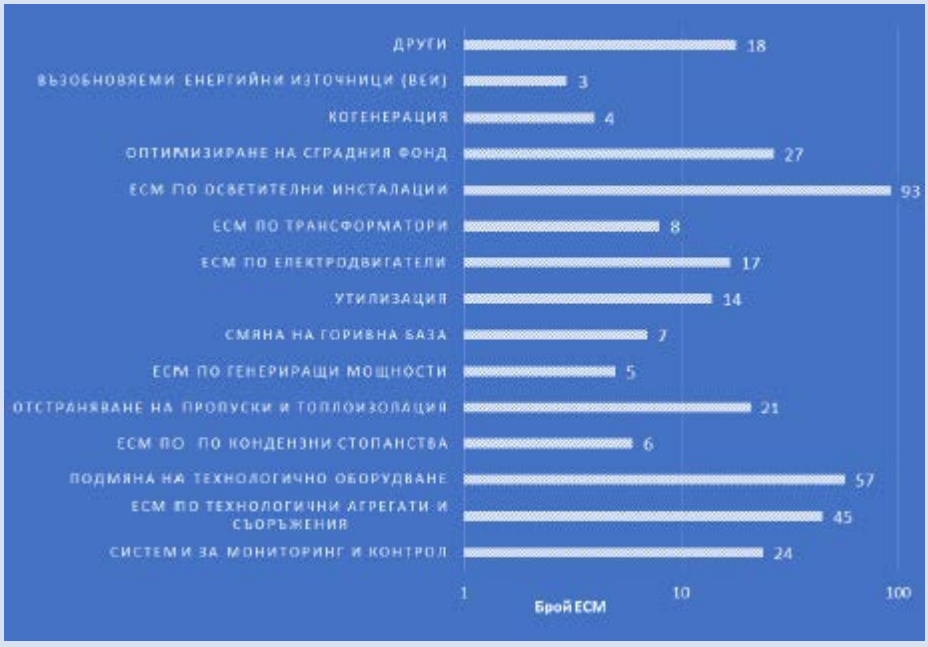


Figure V.3.2-1 Number of energy saving measures applied in 2019 by type of ESM.

Key:

- Други
- Възобновяеми енергийни източници (ВЕИ)
- Когенерация
- Оптимизиране на сгради и я фонд
- ECM по осветителни инсталации
- ECM по трансформатори
- ECM по електродвигатели
- Утилизация
- Смяна на горивна база
- ECM по генериращи мощности
- Остраняване на пропуски и топлоизолация
- ECM по кондензни стопанства
- Подмяна на технологично оборудване
- ECM по технологични агрегати и съоражения
- Системи за мониторинг и контрол

Брой ECM

- Other
- Renewable energy sources (RES)
- Cogeneration
- Optimisation of building stock
- ESMs involving lighting installations
- ESMs involving transformers
- ESMs involving motors
- Utilisation
- Switching fuel
- ESMs involving generating capacity
- Repair and thermal insulation
- ESMs involving condensing systems
- Replacement of technological equipment
- ESMs involving technological units and plant
- Monitoring and control systems

Number of ESMs

ESMs involving condensing systems and the use of renewable energy are fewest in number.

The greatest energy saving in 2019 was through application of the measure to replace technological equipment. The ESM involving technological units and plant has a significant influence on energy savings. Other measures, such as repair and thermal insulation measures and utilisation measures, also contributed to saving energy in the reporting year 2019. Approximately 95 % of the energy saving measures for 2019 were funded by the relevant parties themselves, and the total pay-back period of the investments made is 6.9 years.

Energy savings, GWh/year	**283.7 ***
CO_2 emission savings $ktCO_2$/year	98.2
Investments, million BGN/year	121.54
Financial savings, million BGN/year	17.78

** Energy savings of 3.14 GWh achieved in 2018 were added to the overall impact assessment; the data was not taken into account in the previous year, having been submitted too late for inclusion in the Annual Report on the NEEAP for 2018.*

	To avoid double reporting, the calculation of the contribution made by the measure to achieving the national energy efficiency target (Annex 1 to this report) excludes the energy savings achieved using funds from the Operational Programme 'Innovation and Competitiveness'. These savings are included in the assessment of the implementation of measure V.3.1. Funding of projects for the introduction of energy-saving technologies and renewable energy under the Operational Programme 'Innovation and Competitiveness' 2014-2020
Assessment of implementation in 2019	High own estimates of energy savings were not taken into account in aggregating the information received from the obligated parties. The impact assessment is based on information submitted by the obligated parties; SEDA made corrections to the assessment to ensure an assessment of energy savings that is as correct as possible.
Issues identified and addressed	- Failure to comply with time limits for reporting under the provisions of the Energy Efficiency Act [ZEE] or non-compliance with the provisions on annual reporting on the implementation of energy efficiency measures; - Failure to comply with the reporting formats; - Often the amounts of energy consumed are indicated but not the energy saved after application of the measure; - In the absence of energy efficiency monitoring, energy savings assessments are often inaccurate; - The opportunity to submit the documents required under the Energy Efficiency Act online via the SEDA portal is not used. In 2019, SEDA was involved in a large number of events and training campaigns to raise the sector's awareness of the implementation of energy efficiency improvement measures. In addition, under the SEDA project Increasing the awareness and capacity of Bulgarian enterprises to carry out energy efficiency activities and measures and to set up a business model to support the energy saving scheme and related activities, financed under OP 'Innovation and Competitiveness' 2014-2020, training was also carried out for energy managers to manage energy efficiency and the application of standard BS EN ISO 50001 in industrial plants, including SMEs. The training was attended by 609 participants. As part of the training seminars, trainees visited sites such as the wastewater treatment plant of Sofia Water AD in Kubratovo, district heating companies in Varna and Burgas, Schneider Electric in Plovdiv, Keros Bulgaria in Ruse and Valeks in Pleven. More information on the project and its results can be found under section V.1.5. Other measures of a horizontal nature of this report.

V.4. Energy efficiency measures in transport

The information on the measures in the transport sector included in this Report was mainly provided by the Ministry of Transport, Information Technology and Communications (MTITS).

V.4.1. Restoration and modernisation of the existing road infrastructure

Description	The construction, reconstruction and modernisation of Bulgarian transport infrastructure as part of the trans-European transport network is a primary responsibility and a strategic priority of the Ministry of Transport, Information Technology and Communications (MTITS). The modernisation of rail and road infrastructure and the implementation of smart traffic management systems are funded by the EU under the Operational Programme on Transport 2007-2013 and the Operational Programme on Transport 2014-2020. The central government budget provides the required co-funding. Airport and port infrastructure are upgraded through public-private partnerships under concession arrangements.
Impact assessment method	The impact is assessed within the implementation progress assessment process under the 2007-2013 Operational Programme on Transport (OPT) and the 2014-2020 Operational Programme on Transport and Transport Infrastructure (OPTTI), and disbursements under the latter have outpaced the average disbursement level of all operational programmes in the Republic of Bulgaria. The estimated energy saving effect of applying the measure amounts to 290.3 GWh/year up to 2020 (according to the assessment of the Third National Action Plan on Climate Change (NAPCC) up to 2020, based on the expected reduction of greenhouse gas emissions).
Progress on implementation in 2019	Road infrastructure development projects within the OPTTI are outlined under Priority Axis 2, 'Road infrastructure development along the trans-European and major national transport axes'. In 2019, the most significant progress was made on the following lots: - Gabrovo bypass; - Struma motorway - Lot 3.1: from Blagoevgrad to Krupnik (from km 359+000 to km 376+000) - design and construction; - Zheleznitsa Tunnel - Subsection No 1 from km 366+000 to km 366+720, including the tunnel service road at the northern entrance to the Zheleznitsa Tunnel; Subsection 2 from km 366+720 to km 369+000, including the tunnel service road at the southern entrance of the Zheleznitsa tunnel and a heliport; Subsection No 3 from km 369+000 to km 370+400; - Struma motorway - Lot 3.2: from Krupnik to Kresna (from

km 397+000 to km 420+628.478 = km 420+624.51).

V.4.2. Introduction of smart transport systems on the national road network and in urban environments

Description	Projects for the introduction of smart transport systems under the 2014-2010 OPTTI come under Priority Axis 4, 'Innovation in management and services — implementation of modernised traffic management infrastructure, improvement of transport safety and security'.
Impact assessment method	The impact is assessed via the implementation progress assessment process under the 2014-2020 OPTTI. The estimated energy saving effect of the measure amounts to 544.2 GWh per year up to 2020 (according to the assessment of the Third National Action Plan on Climate Change (NAPCC) up to 2020, based on the expected reduction of greenhouse gas emissions).
Progress on implementation in 2019	In the area of road infrastructure under priority axis 4, the following project was launched: 'Development and deployment of an intelligent transport system within the scope of the Trakia motorway' - The plan is for the construction of Bulgaria's only Automatic Incident Detection (AID) system, modern LED-lighting, electronic information signs, traffic lights, horizontal and vertical signalling, meteorological stations at the entrances, etc.

V.4.3. Increase in the share of electric and hybrid vehicles and expansion of the relevant charging infrastructure in urban environments

Description	The aim of the measure is to increase the share of electric and hybrid vehicles used by business and the general public, and to expand the relevant charging infrastructure. Efforts up to 2020 will focus on developing the infrastructure in urban environments which is required to increase the share of electric and hybrid (plug-in) vehicles in use and develop sustainable urban mobility.
Impact assessment method	The energy savings estimates are based on the projected number of electrically powered vehicles by 2020 according to the National Framework (with annual mileage of 10,000 km) adopted by Council of Ministers Decision No 87 of 26 January 2017. The estimated energy saving effect of the measure amounts to 42 GWh.
Information on implementation in 2019	Council of Ministers Decision No 87 of 26 January 2017 endorsed the National Policy Framework for the Development of the Alternative Fuels Market in the Transport Sector and for the Deployment of the Relevant Infrastructure, developed in accordance with the requirements of Article 3 of Directive 2014/94/EU of the European Parliament and of the Council of

22 October 2014 on the deployment of alternative fuels infrastructure. The policy presents the principal alternative fuels with the potential to replace oil-based fuels in the long-term, including electricity, and the possibilities for their use in road, water and air transport.

In September 2019, a draft Regulation was published on the terms and conditions for the design, construction, commissioning and monitoring of refuelling stations for hydrogen-powered vehicles drafted by the Ministry of Regional Development and Public Works pursuant to Article 169(4) in conjunction with paragraph (1) and Section 18(1) of the Final Provisions of the Spatial Development Act. A key objective of the Regulation is to enable the construction of infrastructure for the fuelling of hydrogen-powered vehicles, thus contributing to the development of the market for alternative-fuel vehicles.

In July 2019, under OP 'Environment' 2014-2020 priority axis 5 'Improving air quality', a new procedure 'Measures addressing transport as a source of air pollution' was announced with a budget of BGN 500 million.

The procedure comprises the following two separate components.

1. Component: Implementation of actions to improve ambient air quality through the purchase and supply of electric road transport vehicles - electric buses and trolleybuses.
2. Component: Implementation of actions to improve ambient air quality through the purchase and supply of electric rail transport vehicles for - tramway locomotives.

The procedure is a direct grant procedure. As specific beneficiaries, 11 municipalities have been designated as having poor air quality - Burgas, Varna, Vratsa, Pernik, Pleven, Ruse, Sliven, Stara Zagora, Sofia Municipality, Haskovo and Shumen. The eligible applicants are defined in accordance with their powers under national law - Article 19(2) of the Clean Ambient Air Act, as well as the measures and activities to be implemented in the procedure.

According to the European Automobile Manufacturers' Association, in the first 9 months of 2019 sales of electric cars in Bulgaria increased by 64.5 %. The majority of these sales are not to natural persons. Up to September 2019, 181 electric cars sold in Bulgaria, of which 102 were acquired by the car sharing service Spark. A total 39 plug-in hybrids were sold (70 % growth) and 1 370 classic hybrids (24 % growth).

In 2019, local authorities, businesses and the non-governmental sector continued their efforts on the transition to a green economy and clean urban transport.

Sofia Municipality's first fast-charging buses will start operating on routes at the beginning of 2020. The vehicles were ordered by 'Stolichen Elektrotransport' (Sofia Electro-Transport) EAD under the 'Project for the commissioning of new electricity lines on the territory of Sofia'. The project envisages the construction of 6 new electric bus routes to replace existing bus routes.

The electric buses will use fast-charging technology, stand for around 5-6 minutes at the terminal stops, store energy during braking and use it to travel a distance of at least 20 km.

Initially, 15 electric buses will be delivered to Sofia and 6 charging stations will be deployed, increasing later to 30 buses and 12 charging stations.

A loan agreement was concluded with the European Bank for Reconstruction and Development (EBRD) for the realisation of the project, with a value of EUR 14.7 million. The loan benefits from a preferential interest rate for the best technology and funding of up to 50 % of the value of the project from the Green Energy Special Fund.

The highly energy-efficient and environmentally-friendly technology used will greatly help reduce air pollution and CO_2 emissions. The project will make it possible to cut up to two-thirds of the CO_2 emitted by the diesel buses currently used on these routes.

In Sofia, a concept for a modal shift of transport to metro stations is being developed. A six-metre minibus is being trialled before proceeding with an order for the purchase of 30 electric buses. The electric bus is a zero-emission, air-conditioned vehicle, with charging for mobile phones and Wi-Fi, and is adapted for persons with reduced mobility and for prams.

New vehicles are planned for the following municipalities: Burgas, Varna, Vratsa, Pernik, Pleven, Ruse, Sliven, Stara Zagora, Sofia Municipality and Haskovo. All the procedures of the municipalities have been announced and, in addition to electric buses, involve separate tenders for new trolleybuses and trams. Ruse has launched a tender procedure worth BGN 26.4 million for 20 fast-charging buses, with a further BGN 13 million planned for the purchase of 13 trolley-buses.

In Burgas, 56 new electric buses are scheduled for delivery in 2020 at a value of BGN 65 million. BGN 70 million has been allocated to Varna for 60 new electric buses. In Stara Zagora, the sum of BGN 45 million is earmarked for new electric buses. The sum of BGN 6 million has been allocated for electric buses in Pernik.

Gabrovo concluded a contract with a value of BGN 2.7 million for three 12-metre fast-charging buses. The procedure was financed with funds from the 'Regions in Growth' Operational Programme.

Four municipalities, Sofia, Ruse, Stara Zagora and Vratsa, have signed contracts for the modernisation of their public transport fleet under the OP 'Environment' 2014-2020 (OPE).

The Lime electric scooter sharing services has been available in Sofia since August 2019. In central Sofia there are already more than a hundred vehicles which can be used by anyone wishing to travel quickly for a fee.

A new e-scooter sharing service was launched in Sofia in September 2019. It is called Brum and uses the platform of the US company Bird, which allows independent operators to establish their own fleets of electric vehicles. More info can be found here.

In 2019, 6 projects for the supply of 8 vehicles under the scheme to promote the use of electric vehicles in the public sector were carried out. The impact of the projects implemented is indicated in point V.5.5.The National Trust EcoFund – Climate Investment Programme of this report.

At the end of 2019, a memorandum of intent on the construction of an electric vehicle plant was signed. The MoI was signed by the Executive Director of the Bulgarian Investment Agency and the CEOs of the Korean/Italian company Songuo Motors and the Italian company Hadid Holding. The two companies stated their intention to invest USD 200 million in Bulgaria for the construction of an electric vehicle plant. (Source: Bulgarian Investment Agency [BAI])

Current status of the electric vehicle charging infrastructure:

Recharging infrastructure for electric vehicles is in the early stages of construction and is implemented mostly at municipal level by private investors. As at February 2020, 155 charging stations had been built (according to data from the online e-vehicle charging station location finder - Vsichkotok). In the same month in 2019, there had been 131 stations.

V.4.4. Increasing the share of electric urban rail, trolleybus, tram, underground and bus transport

Description

The measure involves:

- Improving electric rail transport infrastructure;
- Renewing the rolling stock of electric rail transport;

- Improving the infrastructure and renewing the vehicles used for mass electric public transport.

The construction, modernisation, rehabilitation, electrification and deployment of signalisation and telecommunications systems of railway infrastructure sections along the core Trans-European Transport Network is planned under the OPTTI Priority Axis entitled 'Development of the railway infrastructure of the trans-European network'.

Impact assessment method	The estimated energy saving effect of the measure amounts to 761.9 GWh per year up to 2020 (according to the assessment of the Third National Action Plan on Climate Change (NAPCC) up to 2020, based on the expected reduction of greenhouse gas emissions).

Information on implementation in 2019

Actions to improve the infrastructure of electric rail transport using national funding

Design and construction of a new power supply, replacement of sodium lamps with LED lighting, installation of LED lighting at train stations in Bulgaria and installation of LED light fittings for administrative buildings of the state enterprise National Railway Infrastructure Company. In 2019, after reconstruction and modernisation, substations at Provadia and Velichkovo became operational. Sindel switching post was modernised. A major renovation of 10 transformers was carried out.

Construction of rail infrastructure under the Operational Programme 'Transport and Transport Infrastructure'

The rail infrastructure is being built under OPTTI priority axis 1. In 2019, progress was made on the following projects:

– Rehabilitation of the Plovdiv-Burgas railway line, Phase 2;
– Modernisation of the Sofia-Plovdiv railway line: Elin Pelin-Kostenets section.

Improving infrastructure and renewal of vehicles used for electric public transport

A project for the extension of the Sofia Metro network is planned under Priority Axis 3 of the 2014-2020 OPTTI, entitled 'Improving the intermodality of the carriage of passengers and freight and developing sustainable urban transport'. This project continues the trend from the 2007-2013 OPT of promoting sustainable intermodal urban mobility and reducing the harmful impact of transport on the environment. The Metro extension projects aim to ensure fast, reliable, convenient and sustainable transport services in Bulgaria's most densely populated city. Actions were implemented under the following stages in 2019:

Sofia Metro Extension Project: Line 3, Phase I — Vladimir Vazov

Boulevard-Sofia Urban Mobility Centre-Zhitnitsa Street section

Test runs of the delivered metro trains started in April 2019. Metro systems (SCADA, automatic platform doors, etc.) are manufactured and delivered on-site, the equipment is installed and tested at the central and back-up dispatching post and the technical room at the Zemlyane depot, and equipment and systems are installed in metro stations and tunnel sections. Management and security system testing commenced;

Sofia Metro Extension Project: Line 3, Phase II — Zhitnitsa Street-Ovcha kupel-Sofia Ring Road section

In 2020, 12 new metro stations will be completed and 12 km of metro line constructed, benefitting 133 206 more citizens.☐
One metro line 3 is launched, the number of passengers using the metro daily will be closer to 500 000. A reduction in traffic of over 8 thousand vehicles a day is expected, leading to harmful emissions being cut by **9 000 thousand kt/year**.

V.4.5. Training in fuel-efficient driving

	According to the instructional documentation on the training of driving licence applicants, during their training applicants must acquire knowledge on the rules on the operation of vehicles in an environmentally-friendly and fuel-efficient way.
Description	To obtain authorisation to drive motor vehicles for the carriage of passengers or freight, drivers are required to take initial qualification training courses or undergo periodic training The courses include a module on sound vehicle management, which, based on safety requirements, includes topics related to improving drivers' skills to optimise fuel consumption by making better use of the structural features of motor vehicles and through more efficient driving.
Impact assessment method	According to an expert assessment, training drivers in fuel efficiency can bring about further energy savings (by newly-qualified drivers) and reduce road transport emissions by at least 0.2 % per annum.
Assessment of implementation in 2019	According to Ministry of Transport, Information Technology and Communications [MTITS] data, in the period from 1 January 2019 to 31 December 2019, 25 462 driver qualification cards were issued. The impact of the measure is assessed to be energy savings of **70.4 GWh/year (6.1 ktoe)**, estimated on the basis of the energy consumption of road vehicle transport in 2018*(according to NSI data).*

V.4.6. Implementation of energy efficiency improvement programmes by the companies within the Ministry of Transport, Information Technology and Communications

Description	The companies within the MTITS conduct EE audits and implement EE improvement programmes. The measures applied include: - Repair and reconstruction of transformer stations, cable lines, etc.; - Modernisation and rehabilitation of lamp-post and platform lighting systems; - Modernisation of the existing and development of new power supply systems for the electrical facilities of the railway infrastructure; - Reconstruction of railway stations (replacement of doors and windows, wall insulation, energy-saving measures on measurement, checking and control devices, building installations and lighting); - Optimisation of the timetables of express and commuter trains; - Optimisation of shunting at railway stations; - Increasing the operational efficiency of diesel locomotives through constant monitoring of their operation and standardisation of fuel consumption.
Impact assessment method	The impact is assessed by applying a bottom-up approach based on the annual reports submitted.
Assessment of implementation in 2019	The following activities were performed in 2019 in implementation of energy efficiency measures: → *State-of-the-art energy efficiency criteria* Metropolitan EAD • Saving electricity for traction purposes: Since 2005, 40 metro trains with regenerative braking capability have been in operation. According to control meter data, regeneration-related energy savings amounted to 25 %. In 2019 the average annual mileage of these 40 units was 813 590.5 km. The annual saving in electricity for traction purposes was **8 389 898.44 kWh**. • Saving electricity from the installation of LED lighting at 3 metro stations: In 2019, fluorescent lighting at the Sofia University, Vasil Levski Stadium and Joliot-Curie metro stations was replaced with LED lighting. The annual savings in electricity thanks to the installation of LED lighting are

300 248 kWh.

A raft of activities have been implemented by the National Railway Infrastructure Company in order to fulfil state-of-the-art criteria for the energy efficiency of railway stations – 28 railway station renovation projects have been carried out in Bulgaria.

Measures implemented by Bulgarian State Railways [BDZh] – Passenger Transport EOOD:

- In 2019, in locomotive depots, around 630 old conventional light fittings with a total energy consumption of approximately 160 050 W were replaced with new LED units with a total consumption of around 38 000 W;
- Modernisation and construction of new power supply systems for electrical facilities;
- Optimisation of the timetables of express and commuter trains;
- Optimisation of shunting at railway stations.

Activities are continuing to improve the operational efficiency of diesel locomotives by constantly monitoring their operation and standardising fuel consumption by installing GPS systems.

V.5. Financial mechanisms stimulating energy efficiency improvement measures

V.5.1. Kozloduy International Fund

Description	The Kozloduy International Fund (MFK) was established in 2001 to manage EU grants to reduce the impact of the early decommissioning of Kozloduy nuclear power plant units 1-4. The fund finances and co-finances projects in two areas: Activities for the decommissioning of units 1-4 (projects in the 'nuclear' window) and Measures to mitigate the negative consequences in the energy sector arising from the decision to close and decommission units 1-4 and which support the necessary restructuring, rehabilitation and modernisation of the sectors of production, transmission and distribution of energy, as well as the improvement of energy efficiency (projects in the 'non-nuclear' window). The fund is administered by the European Bank for Reconstruction and Development (EBRD). The aid intensity is 100%.
Impact assessment method	The impact of implementing the measure is assessed on the basis of the information provided by the Ministry of Energy on the expected outcomes of the energy efficiency improvement projects financed from the Kozloduy International Fund [MFK].
Analysis of implementation in 2019	A project entitled 'Reconstruction of municipal street lighting' was funded from the Kozloduy International Fund within its 'non-nuclear window'. The Ministry of Energy is a specific beneficiary of the aid, while the final beneficiaries are Bulgarian municipalities. The project is divided into three lots: – Lot 1: Rehabilitation of street lighting in the municipality of Sofia; – Lot 2: Rehabilitation of street lighting in the municipalities of Chernoochene, Kardzhali, Dupnitsa, Stara Zagora, Banite, Karlovo and Chepelare; – Lot 3: Rehabilitation of street lighting in the municipalities of Sevlievo, Gabrovo, Varna, Burgas, Gorna Oryahovitsa and Dobrich. The project started in March 2014 and was completed in 2018. No projects were funded under the Kozloduy International Fund in 2019.

V.5.2. Energy Efficiency and Renewable Sources Fund

Description

The Energy Efficiency and Renewable Sources Fund (FEEVI) was established under the Energy Efficiency Act [ZEE] and is the only institution in Bulgaria specialised in funding energy efficiency investment projects.

FEEVI functions as a financing/co-financing institution providing the following for a fee:

- low-interest loans;
- partial loan guarantees;
- portfolio guarantees.

FEEVI also provides, free-of-charge, consultancy services to municipalities, Bulgarian companies, hospitals, universities and individuals for the development of energy efficiency investment projects.

Impact assessment method

The impact of implementing the measure is assessed on the basis of the expected outcomes of the energy efficiency improvement projects funded by FEEVI in 2019, as reported by the Fund.

Analysis of implementation in 2019

In 2019, 6 funding agreements were signed for projects worth a total of BGN 6 058 684.67, the value of the allocated funding being BGN 5 038 610.82.

Loan portfolio structure - in accordance with its Rules of Procedure, the FEEVI works with different types of customers. For domestic accounting purposes, customers are divided into three main groups: municipalities, corporate entities and others (including hospitals, higher education institutions, etc.). For 2019 the loan portfolio breaks down by customer type as follows:

Beneficiary category	Number of projects	Project value in BGN	Funding amount in BGN
Municipalities	1	649 809.71	581 698.29
Corporate customers	4	3 258 078.96	2 539 106.53
Others	1	2 150 796.00	1 917 806.00
Total	**6**	**6 058 684.67**	**5 038 610.82**

Impact assessment 2019

The breakdown by beneficiary category of the estimated benefits of the FEEVI-funded projects implemented in 2019 is shown in the table below:

Beneficiary category	Expected annual financial savings, BGN per year	Expected energy savings, MWh/year	Annual greenhouse gas emission savings, kt CO_2eq per year
Municipalities	44 281	651.1	0.063
Corporate customers	290 086	2 088.9	1.295
Others	65 892	619.6	0.253
Total	**400 259**	**3 359.6**	**1.610**
*Including contracts giving FEEVI the right to a fee in consideration of the energy savings achieved **	*110 173*	*1 270.7*	*0.315*

** The 2 financing contracts dating from 2019, in support of projects with a total value of BGN 2 800 605.71, granted funding in the amount of BGN 2 499 504.29, contain a clause stating that rights arise in favour of FEEVI in respect of energy savings, in accordance with Article 18 of Regulation No E-RD-04-3 of 4 May 2016 on eligible measures to generate energy savings in final consumption. Proof of these is to be produced no earlier than one year after implementation, and the Fund is required to carry out all necessary steps to verify and prove the energy savings and to pay any costs arising therefrom.*

In order to prevent duplication in reporting the achieved energy savings, the effect of the measures and projects financed under the FEEVI was excluded from the total amount of savings calculated by applying the bottom-up approach. These savings have been taken into account in respect of the relevant sectoral measures.

V.5.3. Operational Programme 'Innovation and Competitiveness' 2014-2020

The implementation of the measure is reported under Item V.3.1. Funding of projects for the introduction of energy-saving technologies and renewable energy under the Operational Programme 'Innovation and Competitiveness' 2014-2020of this report.

V.5.4. Regions in Growth Operational Programme 2014-2020

Description	The Operational Programme 'Regions in Growth' 2014-2020 (OPRR) is co-funded by the EU through the ERDF. The implementation of projects for energy efficiency and major renovation of existing buildings falls under the investment priority entitled 'Supporting Energy Efficiency, smart energy management and the use of renewable energy in public infrastructure, including public and residential buildings', within the following priority axes: • Priority Axis 1: Sustainable and integrated urban development; • Priority Axis 2: Supporting energy efficiency in focal points in peripheral regions. The support for the achievement of specific objectives includes exemplary eligible activities in residential buildings, student halls of residence, administrative buildings of the central and municipal governments and municipal public buildings belonging to the education, culture and social infrastructures. Only buildings designed prior to 1999 are eligible for support. Funding will only be made available to projects that achieve Energy Consumption Class C at least or energy savings of at least 60 % where the energy efficiency measures involve major renovation.
Impact assessment method	The impact of implementing the measure is assessed on the basis of the expected outcomes of the projects funded in 2019 by the Operational Programme 'Regions in Growth' 2014-2020 [OPRR], as reported by the Managing Authority of the Programme.
Analysis of implementation in 2019	As at 31 December 2019, 238 energy efficiency improvement projects worth BGN 271 218 107.06 were financed, including 149 projects relating to public buildings with a value of BGN 127 218 118.98 and 89 projects relating to residential buildings with a value of BGN 143 999 988.09. In 2019, 105 energy efficiency improvement projects worth BGN 96 042 493.21 were concluded, including 70 projects relating to public buildings with a value of BGN 50 775 461.83 and 35 projects relating to residential buildings with a value of BGN 45 267 031.38.
Impact assessment	The Programme indicators track the decline in annual primary energy consumption and greenhouse gas emissions. Based on the information

2019	provided by the Managing Authority of the OPRR on reduced CO_2eq emissions for the needs of the Annual report on the implementation of the NEEAP, an engineering evaluation was carried out for the amount of final energy saved. Due to the lack of information on the saved fuel types, the assessment was made on the basis of fuel consumption data from the national statistics. The results of the projects carried out by the beneficiaries are reported as follows: Reduction in annual primary energy consumption by public buildings - 42 474 980.63 MWh and estimated annual reduction in greenhouse gas emissions - 19 482.93 tCO_2eq. → **Assessment of impact in public buildings:** - Energy savings in terms of final consumption in public buildings - 18 467.38 MWh/year. - Greenhouse gas emissions savings in public buildings - 10 320.37 t CO_2. Data on the primary energy savings and the coefficient calculated from the fuels and energy used in the services sector by the NSI and the reference values for the losses for extraction/production and transmission of energy for the various fuels and energies in Annex 3 to Regulation No E-RD-04-3 of 4 May 2016 have been used for the assessment. → **Assessment of impact in residential buildings:** - Energy savings in terms of final consumption in residential buildings - 21 367.91 MWh/year (assessment based on data from the National programme for energy efficiency in residential buildings - ratio of the size of the investment per MWh of energy saved in residential buildings). - Greenhouse gas emissions savings in residential buildings - 9 162.56 t CO_2. Data on the primary energy savings and the coefficient calculated from the fuels and energy used in the households sector by the NSI and the reference values for the losses for extraction/production and transmission of energy for the various fuels and energies in Annex 3 to Regulation No E-RD-04-3 of 4 May 2016 have been used for the assessment. The summary assessment of the implementation of the national energy efficiency target in 2019 only takes account of the impact of measures in relation to residential buildings - 21 367.91 MWh. The energy-saving effect achieved in public buildings is included in the analysis of the effect of the implementation of measure V.2.1.3. Obligation of government and local government bodies to draw up their own energy efficiency

	improvement programmes and mandatory EE management in public buildings.

V.5.5. National programme for energy efficiency in multi-apartment buildings

Description	The National programme for energy efficiency in multi-apartment buildings ('the Programme'/NPEEMZhS) focuses on renovating multi-family residential buildings. The main goal of the Programme is to ensure better living conditions for citizens living in multi-apartment residential buildings, temperature comfort and a higher quality living environment through the implementation of energy efficiency measures. The Programme corresponds to Alternative Measure 2 of the energy efficiency obligation scheme set up in accordance with the requirements of Article 7 of Directive 2012/27/EU (see point 3.1.1 of the NEEAP). All 265 municipalities in Bulgaria are eligible to participate in the Programme; actions have been implemented in 143 municipalities. Owners' associations registered under the Condominium Ownership Management Act in eligible buildings can receive grants of up to 100%.
Impact assessment method	The impact is assessed by applying a bottom-up approach on the basis of the energy efficiency actions and measures implemented under the Programme and the information on the progress in implementing the Programme submitted by the Ministry of Regional Development and Public Works.
Relation to other NEEAP measures	V.1.1. Energy efficiency obligation schemes and alternative policy measures (Article 7 and Annex XIV, Part 2, point 3.2 of Directive 2012/27/EU)

Description of implementation in 2019 and impact assessment

→ *Summary of programme implementation as at 31 December 2019:*

A. General information on the National programme for energy efficiency in multi-apartment buildings [NPEEMZhS]	
Number of funding agreements concluded between municipalities, regional governors and the Bulgarian Development Bank	2 022
Estimated improved housing infrastructure (for all 2 022 buildings), TFA, m^2	11 524 866
Number of dwellings to be renovated under the Programme (for all 2 022 buildings)	135 753
Expected energy savings from renovated residential buildings (for all 2 022 buildings), MWh/year	958 358

Estimated annual reduction of greenhouse gas emissions (for all 2 022 buildings), $ktCO_2$/year	317
B. Summary of programme implementation as at 31 December 2019:	
Number of buildings where works have commenced	1 999
Number of renovated buildings	1 820
Number of buildings under construction	91
Number of buildings for which engineering contracts have been concluded following EE audits but no construction and installation works (SMR) have yet started	26
C. Information on buildings put into service by 31 December 2019	
Number of renovated buildings	1 820
Improved housing infrastructure, total floor area, m^2	10 170 631
Number of renovated buildings	120 589
Estimated energy savings from renovated residential buildings, MWh/year	845 700
Estimated annual reduction in greenhouse gases, $ktCO_2$/year	280
Value of all works performed on buildings, BGN million*	1 820, 480

** The value of all building activities includes both the investment for the works and the investments for technical and energy audits, design, conformity assessment, construction and copyright, investment control.*

Source: Ministry of Regional Development and Public Works

→ *Information on buildings renovated under the National programme for energy efficiency in multi-apartment buildings [NPEEMZhS] put into operation in 2019*

Buildings put into service	195
Improved housing infrastructure, TFA, m^2	1 116 116
Number of housing units renovated	13 806
Number of residents benefiting from the improved infrastructure	76 151
Expected energy savings from renovated residential	100 674

buildings, MWh/year	
Expected annual reduction in greenhouse gas emissions (CO_2 and equivalent), savings in $ktCO_2$/year	35
Value of all works performed on buildings, BGN million	180,4

Source: Ministry of Regional Development and Public Works

The energy savings for 2019 are included in the assessment of the fulfilment of the national cumulative target under Article 7 of Directive 2012/27/EC (Measure V.1.1 of this report).

V.5.6. National Trust EcoFund – Climate Investment Programme

Description	The National Trust EcoFund (NTEF) manages financial resources made available especially from state central budget, including through debt-for-environment and debt-for-nature swaps. The Fund contributes to the implementation of the Bulgarian government's policy and international commitments undertaken in the field of environmental protection. The Climate Investment Programme is the NTEF's latest programme contributing to climate change mitigation. The goal of the Programme is to promote initiatives mitigating climate change, i.e. reducing greenhouse gas emissions into the atmosphere. The NTEF has launched the implementation of pilot EE improvement projects by combining grants with other sources of funding. The funding is targeted at energy efficiency improvement projects for buildings and other items of public state property or public municipal property (street lighting, healthcare facilities and large state and municipal projects). The funding available to public institutions and NGOs can be up to 85% of the investment costs. Along with energy efficiency improvement projects, the Climate Investment Programme also includes an electric car promotion scheme for 2018.
Impact assessment method	The impact of implementing the measure is assessed on the basis of the expected outcomes of the projects funded in 2019 by the Fund, as reported by the NTEF.
Analysis of implementation in 2019	In 2019, the NTEF funded the following projects under the Climate Investment Programme: - 14 energy efficiency improvement projects for buildings and other sites; - 6 projects to supply 8 vehicles under the scheme to promote the use of electric vehicles in the public sector — 2 fully electric cars, 3 fully electric vehicles, category L7e and 3 plug-in hybrid.
Impact	Assessment of the impact of projects carried out in 2019 to improve

assessment 2019	energy efficiency in buildings and other facilities funded by the NTEF: - Heat saving - 3 795.35 MWh; - Electricity saving - 2 272.75 MWh; - Emissions saved - 3 526 tCO_2eq. The NTEF-funded electric car promotion projects implemented in 2019 report the replacement of fuels as follows: - 9.54 thousand litres of petrol/year; - 10.34 thousand litres of diesel/year. According to SEDA's engineering evaluation, the impact of the projects carried out to promote the use of electric vehicles amounts to savings of 7 215 thousand litres of petrol and 7 784 thousand litres of diesel, which is equivalent to energy savings of 139.4 MWh/year. The evaluation took into account the electricity consumed by the vehicles. To avoid double reporting, the effect of these measures is excluded from the overall assessment of the achievement of the national target for 2019. The assessment of impact is included in the overall assessment of the implementation of energy efficiency improvement activities and measures by government and local government bodies reported under measure V.2.1.3.Obligation of government and local government bodies to draw up their own energy efficiency improvement programmes and mandatory EE management in public buildings.

V.5.7. Rural Development Programme 2014-2020.

As regards the energy efficiency improvement projects and measures implemented in 2019 funded under the Rural Development Programme 2014-2020, the Managing Authority of the Programme was requested to provide information by the State Fund for Agriculture — Paying Agency under a contract on the delegation of the functions of contracting and implementing the measures of the Programme. The information provided shows that, in 2019, 115 projects aimed at meeting the objectives of the focus area 5B 'Increasing energy efficiency in agriculture and the food industry' were carried out and definitively paid, as follows:

Rural Development Programme 2014-2020 measure/sub-measure	Number of projects	Total expenditure approved	Total expenditure paid
4.1. Investment in agricultural holdings	88	113 007 600.70	63 671 369.79
4.2. Investments in the processing/marketing of	27	77 407 821.27	38 097 227.21

agricultural products			

The State Fund Agriculture does not have information about the expected energy savings in the final energy consumption or the reduction of exhaust gas emissions as a result of the projects carried out.

According to the information provided by regional and municipal authorities in Bulgaria concerning the implementation of EE Improvement Programmes *(Measure V.2.1.3. of this Report)*, in 2019 the Rural Development Programme funded energy saving measures involving 19 buildings in 9 municipalities The impact is assessed as energy savings of 1 122 MWh. These savings are included in the summary assessment of the implementation of measure *V.2.1.3.Obligation of government and local government bodies to draw up their own energy efficiency improvement programmes and mandatory EE management in public buildings*.

V.5.8. The Residential Energy Efficiency Credit Line programme

Description	The Residential Energy Efficiency Credit Line (REECL 3) Programme is a lending facility of EUR 20 million within the second extension of the EBRD's residential energy efficiency credit line which supports energy efficiency measures in the residential sector. The funds are made available to approved Bulgarian banks to grant targeted ESM loans to Bulgarian households, owners' associations of residential buildings or private service companies (professional property management companies, ESCOs, entrepreneurs and civil engineering companies). The application of ESM in homes is further encouraged by 10-15% in additional grants for eligible ESM in one- or two-family houses or in at least three self-contained residential units in multi-family residential buildings. The grant funding, amounting to EUR 4.4 million, has been made available by the Kozloduy International Fund.
Impact assessment method	The impact of implementing the measure is assessed on the basis of the expected outcomes of the residential energy efficiency improvement projects funded in 2019 by the REECL 3 as reported by the REECL 3 consultant, based on an investment volume in line with the model assessment of the European Bank for Reconstruction and Development.
Analysis of implementation in 2019	A total of 845 home ESM projects worth a total of BGN 4 241 138.37 were funded and completed in 2019. The ESM covered by the individual projects include: - energy-efficient windows; - wall and roof insulation; - efficient biomass stoves and boilers;

- solar water heaters;
- efficient gas boilers and gas supply systems;
- heat-pump air conditioning systems;
- photovoltaic systems integrated in buildings;
- heating substations and installations in buildings for central heating and domestic hot water.

Impact assessment 2019	The energy savings achieved by REECL 3-funded projects implemented in 2019 are estimated at **6 150 MWh/year** of equivalent electricity savings accompanied by a reduction in greenhouse gas emissions of 4 200 t CO_2eq per year. Source: http://reecl.org/

V.5.9. Implementation of the Operational Programme 'Transport and Transport Infrastructure' 2014-2020

The implementation of the measure is discussed in point V.4. Energy efficiency measures in transport of this report.

V.5.10. Financial Mechanism of the European Economic Area 2014-2021

Description	The Memorandum of Understanding on the implementation of the Financial Mechanism of the European Economic Area (FM EEA) for the period 2014-2021 was signed in 2016. It represents a financial resource of EUR 115 million provided by Iceland, Liechtenstein and Norway (donors) to finance projects for local development and poverty reduction, EE and security, environmental protection and the development of cultural entrepreneurship. The Programme 'Renewable energy, energy efficiency and energy security' is financed by the Financial Mechanism of the European Economic Area 2014-2021. The programme's main objective is to reduce carbon intensity and improve security of supply. It will be achieved by increasing the production of energy from renewable sources, improving energy efficiency in buildings, industry and municipalities, as well as boosting expertise on renewable energy and EE. In the Programme Area 'Renewable energy, energy efficiency, energy security', provision is made for a financial contribution of approximately EUR 33 million (EUR 28 million of grants awarded by the EEA Financial Mechanism and EUR 4.9 million of national co-financing) for projects in the following areas:

	- increasing the production of energy from renewable sources; - improving energy efficiency in buildings, industry and municipalities; - boosting expertise on renewable energy, energy efficiency; - energy management.
Impact assessment method	The energy savings achieved are assessed using the bottom-up method on the basis of projects actually implemented to increase energy efficiency in companies. The impact of implementing the measure is assessed on the basis of analysis of the savings achieved by the Financial Mechanism-funded projects carried out, as reported by the programme operator. In 2019, no projects were completed under the Programme.
Relation to other NEEAP measures	In 2019, the measure was included in the alternative measures for the implementation of the national cumulative energy savings target set in accordance with Article 7 of Directive 2012/27/EU (Measure V.1.1.EE obligations schemes and alternative measures)).

VI. PROGRESS ASSESSMENT OF THE ACHIEVEMENT OF THE NATIONAL ENERGY EFFICIENCY TARGET

The energy savings resulting from the measures implemented under the NEEAP have been estimated after processing the information received, in particular:

- reports by central and local government bodies on the implementation of the energy efficiency programmes under Article 12 of the Energy Efficiency Act;
- reports on energy efficiency management referred to in Article 63 of the Energy Efficiency Act;
- actions and measures implemented under the energy efficiency obligation scheme;
- reports by institutions on the implementation of measures laid down in the NEEAP in 2019;
- results of energy audits of industrial systems and buildings;
- results of inspections of boilers and air conditioning systems;
- information received from various financing institutions;
- the official websites of the relevant organisations.

The energy savings referred to in this Report directly contribute to increasing the competitiveness of the economy and drive economic growth and job creation. The energy savings achieved reduce the demand for imported conventional fuels and thus have a positive influence on decreasing the trade balance deficit.

It should be noted that many of the measures laid down in the NEEAP can only be properly assessed after their period of implementation, meaning that the actual impact of the NEEAP is expected to be greater than that reported here.

This Report provides information on the progress towards the achievement of the national energy efficiency target set in accordance with Directive 2012/27/EU.

Table VI-1: Achievement of the national energy savings target for the period 2014-2017

	GWh/year	ktoe
National target 2014-2020	8 325.6	716
Achievement in 2019	1 128.1	97.02
Achievement 2014-2019	7 295.2	624.5
Target achievement rate for the period 2014-2018, %	**87.6**	

When considering the outcomes shown in the table above, it should be noted that the national target under Directive 2012/27/EU was set taking into account the national cumulative energy savings target under Article 7 of the Directive. In the period 2014-2019, Bulgaria achieved 47.9 % of the total cumulative energy savings target for that period (1 436.4 ktoe), a key

contribution to achieving this target being made by the alternative measure, the National programme for energy efficiency in multi-apartment buildings.

→ Progress on additional measures implemented or planned to achieve the target for 2020 (within the EU Energy Efficiency Task Force)

Table VI-2: Additional requirements as recommended by the Task Force on mobilising efforts to achieve EU energy efficiency targets (EU Task Force).

Strengthening of existing measure	Type of measure / action to ensure implementation	Legal basis	Short description of the measure / possible actions to ensure implementation	Expected (additional) energy savings*
	National cumulative target under Article 7 of Directive 2012/27/EU - Energy efficiency obligation scheme and alternative measures	Energy Efficiency Act [ZEE]	Section V.1.1 - Creating opportunities for the cost-effective demonstration of the achievement of the individual targets by the obligated parties; - Stimulating the process for the development of specialised methods for estimating the savings achieved after the implementation of energy efficiency measures; - Measures to raise stakeholders' awareness and engagement regarding the possibilities for implementing energy efficiency measures and the benefits of implementing EE projects (including economic projects for	2 060 GWh per year (117.2 ktoe/year) 4 808.7 GWh (413.5 ktoe) cumulative savings 2017-2020

			obligated parties); - Introducing additional alternative measures to support the achievement of the national cumulative target under Article 7 of Directive 2012/27/EU (in case such opportunities are identified).	

**The expected additional energy savings are estimated on the assumption that the individual targets of the obligations under Article 14(4) of the Energy Efficiency Act for the period 2014-2020 will be fully achieved as a result of actions taken to strengthen the measure. Traders are currently meeting approximately 20% of their targets. The remaining 80% will be achieved as a result of additional efforts.*

→ Energy savings from 'early action' in connection with the additional requirements referred to in Article 24(1), Annex IV, Part 1(e)

Table VI-3: Energy savings related to the structuring of the national energy efficiency obligation schemes referred to in Article 7(1) or alternative measures adopted pursuant to Article 7(9)

	Measure	Energy savings 01.01.2009-31.12.2010	
		GWh/year	ktoe/year
Energy savings achieved in 2019 from early action - 2009-2010, reported under Article 7(2)(d)	Obligation scheme under Directive 2006/32/EU for the period 2008-2016 - individual targets for owners of state and municipal buildings with a total floor area of over 1 000 m², owners of industrial systems with an annual energy consumption of over 3 000 MWh and energy traders selling more than 75 GWh of energy per year to an	223.7 annual incremental savings (non-cumulative)	19.24 annual incremental savings (non-cumulative)

	end user. The scheme is described in the second National energy efficiency action plan 2011-2013.

* The table only shows the part of the energy savings for the 2008-2010 period which achieve the maximum permissible 25% reduction in the national cumulative target under Article 7(2) of Directive 2012/27/EU. These savings are from measures with a long-term effect (over 20 years) and continue to operate in 2019.

The energy savings, via the use of Article 7(2)(c), exceed the maximum permissible 25% reduction in the national cumulative target set under Article 7(2) of Directive 2012/27/EU, which is why the assessment of the savings achieved is not taken into account when calculating the attainment of the national target under Article 7(2).

Recommendations to stakeholders concerning the implementation of energy efficiency policies and measures:

Short-term activities to be undertaken by relevant responsible persons and institutions in Bulgaria in order to ensure that the national energy savings target is met:

National energy efficiency obligation scheme:

- Taking steps to simplify the procedures for demonstrating energy savings, including by devising additional specialised methodologies for the simplified assessment of the energy saving effect achieved by the EE measures applied;
- Making it possible to apply the 'scaled energy savings' method of determining energy savings in accordance with paragraph 1(b) of Annex V to Directive 2012/27/EU;
- Providing possibilities to increase the share of alternative measures within the obligation scheme(in case such opportunities are identified);
- Improving energy traders' understanding and raising their awareness in respect of their role as participants in the energy efficiency obligation scheme; raising their awareness of the legislation applicable in Bulgaria, the possibilities of investing in energy efficiency improvement projects, as well as the benefits for the development and expansion of their market positions in Bulgaria.

National policies and measures laid down in the NEEAP:

- The need to set up a dedicated national fund providing leverage and bank guarantees for financial institutions to finance EE projects in all sectors.
- Differentiation of the intensity of grants in the financing of projects in buildings to achieve a higher EE class and attract private investment in the building sector.
- Taking steps to improve the structure of the information collected from and provided by the various financial mechanisms for energy efficiency improvement, placing an emphasis on

monitoring and assessing the ‘energy efficiency improvement’ indicator when granting funding for energy saving measures.

- Mobilising efforts for applying energy efficiency improvement measures in the Transport and Households sectors, which have substantial potential for energy savings.
- Raising overall awareness of energy efficiency improvement policies and measures as well as the benefits of improving energy efficiency, not only among persons with specific responsibilities and obligations but also among the general public, should be perceived as a priority by all national institutions, organisations and stakeholders involved in the process.

Annex 1: Assessment of the energy efficiency improvement measures laid down in the NEEAP in 2019 - an update on the main measures contributing to achieving the national energy efficiency target

(pursuant to Annex 4 to the NEEAP and the additional requirements laid down in Article 24(1) and Annex XIV, Part 1(b) to Directive 2012/27/EU)

Measure	Energy savings
	GWh
Energy efficiency obligation scheme	40.91
Mandatory energy efficiency management in enterprises and industrial systems	283.7[5]
Mandatory EE audits and certification of buildings	57.1[1]
Energy efficiency inspection of heating systems with hot-water boilers and air conditioning systems in buildings	19.82
Energy audits of enterprises and industrial systems	201.4[1]
Energy audits of outdoor artificial lighting systems	4.81
Obligation of government and local government bodies to draw up their own energy efficiency improvement programmes and mandatory EE management in public buildings	83.8
Training in fuel-efficient driving	70.4
Implementation of energy efficiency improvement programmes by the companies within the Ministry of Transport, Information Technology and Communications	8.7
Funding of projects for the introduction of energy saving technologies and renewable energy under the Operational Programme 'Innovation and Competitiveness' 2014-2020 .	441.7[6]
Procedure BGI6RFOP002-3.002 Increasing energy efficiency in large enterprises - Alternative measure for the fulfilment of a national cumulative energy efficiency target	50.79[7]
National Trust EcoFund	6.21[1]
Energy Efficiency and Renewable Sources Fund	3.36
Residential Energy Efficiency Credit Line programme	6.15
Operational Programme 'Regions in Growth'	21.37[3]
National programme for energy efficiency in multi-apartment buildings	100.7
Total	**1 128.1**

Description of the actions taken to avoid double reporting in the preparation of the annual assessment of progress towards the achievement of the national energy efficiency target:

1 To avoid double reporting, the effect of these measures is excluded from the overall assessment of the achievement of the national target for 2019.

2 The energy savings are not included in the overall assessment of the achievement of the national target due to the expiry of the measure, in accordance with Annex 1 to Article 3(1) of Regulation No E-RD-04-3/4.5.2016 of the Energy Efficiency Act.

3 To avoid double reporting, the overall assessment of the achievement of the national energy efficiency target only includes the energy-saving effect (of 21.37 GWh) achieved in public buildings funded under the OPRR.

4 The savings from the measure are not included in the overall assessment of the national target as they are already included as 'expected' in the Annual Report on implementation of the 2014-2016 NEEAP.

5 To avoid double reporting, the calculation of the contribution made by the measure to achieving the national energy efficiency target excludes the energy savings reported by obligated parties, which were achieved using funds from the Operational Programme 'Innovation and Competitiveness'.

6 The energy savings recorded include the impact achieved under Procedure BGI6RFOP002-3.001 'Energy efficiency in SMEs' and 51.7 % of the energy savings achieved under Procedure BGI6ROP002-3.002 'Increasing energy efficiency in large enterprises'.

7 The energy savings recorded reflect 48.3 % of the total savings under Procedure BGI6RFOP002-3.002 'Increasing energy efficiency in large enterprises', which correspond to the intensity of the grant portion and which are used as an alternative measure with a view to achieving the national cumulative energy efficiency target.

Annex 2: Aggregated list of heated and/or cooled buildings owned by the central government and used by public administration with a total floor area of more than 250 m²

(The list contains information on the buildings of administrative units and bodies of the executive as listed in the Administrative Register of the Government Administration Integrated Information System, 2019 update)

The full information on the buildings owned and used by government administration as enclosed with this Report was provided by the relevant government bodies up to 01 March 2020. Any inconsistency of the data (in terms of number of buildings, total floor area, owner, etc.) with Table 3.3.3-1 in the NEEAP is due to updates to the information included in the lists provided by the owners of the buildings up to 01 March 2020. When updating the data on the basis of information received from the building owners, significant differences were identified with the information submitted by the same institutions in the two reporting years (2017 and 2018). For the purposes of this Report, SEDA takes account of the updated information received from the competent institutions by March 2020.

ADMINISTRATION	Number of buildings	Total floor area m²	%
ROAD INFRASTRUCTURE AGENCY - under the Ministry of Regional Development and Public Works	**70**	**77 880.17**	
Area not compliant with the minimum EP requirements	50	51 273.97	65.8
Area compliant with the minimum EP requirements	20	26 606.2	34.2
ADMINISTRATION OF THE COUNCIL OF MINISTERS	**2**	**49 976**	
Area compliant with the minimum EP requirements	2	49 976	100.0
DIRECTORATE FOR NATIONAL CONSTRUCTION SUPERVISION - under the Ministry of Regional Development and Public Works	**2**	**4 092.84**	
Area not compliant with the minimum EP requirements	1	1 162.34	28.4
Area compliant with the minimum EP requirements	1	2930.5	71.6
STATE ARCHIVES AGENCY	**23**	**50 035.31**	
Area not compliant with the minimum EP requirements	18	38 703.25	77.4
Area compliant with the minimum EP requirements	5	11 332.06	22.6
STATE AGENCY FOR NATIONAL SECURITY	**1**	**26 444.12**	
Area not compliant with the minimum EP requirements	1	26 444.12	100.0
STATE INTELLIGENCE AGENCY	**7**	**14 418**	

Area not compliant with the minimum EP requirements	6	14 128	98.0
Area compliant with the minimum EP requirements	1	290	2.0
STATE AGENCY FOR TECHNICAL OPERATIONS	**4**	**14 770.4**	
Area not compliant with the minimum EP requirements	4	14 770.4	100.0
STATE AGENCY FOR REFUGEES under the Council of Ministers	**1**	**842**	
Area not compliant with the minimum EP requirements	1	842	100.0
STATE COMMISSION ON INFORMATION SECURITY	**3**	**26 145**	
Area compliant with the minimum EP requirements	3	26 145	100.0
COMMITTEE ON COMBATING CORRUPTION AND FORFEITURE OF ILLEGAL PROPERTY (KPKONPI)	**4**	**4 250**	
Area not compliant with the minimum EP requirements	3	3 313	78.0
Area compliant with the minimum EP requirements	1	937	22.0
COMMITTEE ON THE DISCLOSURE OF DOCUMENTS AND THE ESTABLISHMENT OF AFFILIATION WITH THE FORMER STATE SECURITY SERVICES	**1**	**1 015**	
Area compliant with the minimum EP requirements	1	1 015	100.0
MINISTRY OF THE ECONOMY	**10**	**42 258.06**	
Area not compliant with the minimum EP requirements	4	2 222.89	5.3
Area compliant with the minimum EP requirements	6	40 035.17	94.7
MINISTRY OF FOREIGN AFFAIRS	**7**	**53 578.78**	
Area not compliant with the minimum EP requirements	6	9 771.78	18.2
Area compliant with the minimum EP requirements	1	43 807	81.8
MINISTRY OF THE INTERIOR	**418**	**712 717.88**	
Area not compliant with the minimum EP requirements	349	548 498.25	77.0
Area compliant with the minimum EP requirements	69	164 219.63	23.0
MINISTRY OF ENERGY	**3**	**12 746**	
Area not compliant with the minimum EP requirements	2	9 111	71.5
Area compliant with the minimum EP requirements	1	3 635	28.5
MINISTRY OF HEALTH	**46**	**105 766.66**	

Area not compliant with the minimum EP requirements	36	86 199.96	81.5
Area compliant with the minimum EP requirements	10	19 566.7	18.5
MINISTRY OF AGRICULTURE, FOOD AND FORESTRY	**64**	**75 527.83**	
Area not compliant with the minimum EP requirements	54	36 766.97	48.7
Area compliant with the minimum EP requirements	10	38 760.86	51.3
MINISTRY OF CULTURE	**1**	**7 568**	
Area not compliant with the minimum EP requirements	**1**	7 568	100.0
MINISTRY OF YOUTH AND SPORT	1	**4 291.4**	
Area compliant with the minimum EP requirements	1	4 291.4	100.0
MINISTRY OF EDUCATION AND SCIENCE	**13**	**15 930.76**	
Area not compliant with the minimum EP requirements	7	4 740.48	29.8
Area compliant with the minimum EP requirements	6	11 190.28	70.2
MINISTRY OF THE ENVIRONMENT AND WATER	**24**	**39 810**	
Area not compliant with the minimum EP requirements	15	23 948.8	60.2
Area compliant with the minimum EP requirements	9	15 861.2	39.8
MINISTRY OF DEFENCE	**182**	**308 520.409**	
Area not compliant with the minimum EP requirements	179	304 726.289	98.8
Area compliant with the minimum EP requirements	3	3 794.12	1.2
MINISTRY OF JUSTICE	**28**	**58 840.608**	
Area not compliant with the minimum EP requirements	22	39 893.198	67.8
Area compliant with the minimum EP requirements	6	18 947.41	32.2
MINISTRY OF REGIONAL DEVELOPMENT AND PUBLIC WORKS	**2**	**10 539.1**	
Area compliant with the minimum EP requirements	2	10 539.1	100.0
MINISTRY OF TRANSPORT, INFORMATION TECHNOLOGY AND COMMUNICATIONS	**47**	**149 087.73**	
Area not compliant with the minimum EP requirements	36	90 334.13	60.6
Area compliant with the minimum EP requirements	11	58 753.6	39.4
MINISTRY OF LABOUR AND SOCIAL POLICY	**74**	**100 737.62**	
Area not compliant with the minimum EP requirements	71	99 279.51	98.6

Area compliant with the minimum EP requirements	3	1 458.11	1.4
MINISTRY OF FINANCE	**38**	**78 539.48**	
Area not compliant with the minimum EP requirements	36	52 915.48	67.4
Area compliant with the minimum EP requirements	2	25 624	32.6
NATIONAL SOCIAL SECURITY INSTITUTE	**49**	**142 407**	
Area not compliant with the minimum EP requirements	27	84 041	59.0
Area compliant with the minimum EP requirements	22	58 366	41.0
NATIONAL STATISTICS INSTITUTE	**29**	**28 204.79**	
Area not compliant with the minimum EP requirements	15	13 850.43	49.1
Area compliant with the minimum EP requirements	14	14 354.36	50.9
NATIONAL REVENUE AGENCY under the Ministry of Finance	**77**	**161 572.26**	
Area not compliant with the minimum EP requirements	65	124 375.12	77.0
Area compliant with the minimum EP requirements	12	37 197.14	23.0
BLAGOEVGRAD REGIONAL ADMINISTRATION	**1**	**5 300**	
Area compliant with the minimum EP requirements	1	5 300	100.0
VARNA REGIONAL ADMINISTRATION	**i**	**1 629**	
Area compliant with the minimum EP requirements	i	1 629	100.0
VELIKO TARNOVO REGIONAL ADMINISTRATION	**2**	**17 288.05**	
Area not compliant with the minimum EP requirements	2	17 288.05	100.0
VIDIN REGIONAL ADMINISTRATION	**1**	**1 641.18**	
Area not compliant with the minimum EP requirements	1	1 641.18	100.0
VRATSA REGIONAL ADMINISTRATION	**1**	**2 050**	
Area compliant with the minimum EP requirements	1	2 050	100.0
GABROVO REGIONAL ADMINISTRATION	**3**	**2 104.7**	
Area not compliant with the minimum EP requirements	3	2 104.7	100.0
KARDZHALI REGIONAL ADMINISTRATION	**1**	**9 000**	
Area not compliant with the minimum EP requirements	1	9 000	100.0
KYUSTENDIL REGIONAL ADMINISTRATION	**1**	**4 783.41**	
Area not compliant with the minimum EP requirements	1	4 783.41	100.0

LOVECH REGIONAL ADMINISTRATION	**1**	**6 637**	
Area not compliant with the minimum EP requirements	1	6 637	100.0
MONTANA REGIONAL ADMINISTRATION	**2**	**6 348**	
Area not compliant with the minimum EP requirements	2	6 348	100.0
PAZARDZHIK REGIONAL ADMINISTRATION	**1**	**1 600**	
Area not compliant with the minimum EP requirements	1	1 600	100.0
PERNIK REGIONAL ADMINISTRATION	**2**	**18 393**	
Area not compliant with the minimum EP requirements	1	6 982	38.0
Area compliant with the minimum EP requirements	1	11 411	62.0
PLEVEN REGIONAL ADMINISTRATION	**2**	**5 182.26**	
Area not compliant with the minimum EP requirements	2	5 182.26	100.0
PLOVDIV REGIONAL ADMINISTRATION	**1**	**4 666**	
Area compliant with the minimum EP requirements	1	4 666	100.0
RUSE REGIONAL ADMINISTRATION	**1**	**1 992**	
Area not compliant with the minimum EP requirements	1	1 992	100.0
SILISTRA REGIONAL ADMINISTRATION	**2**	**3 805.16**	
Area not compliant with the minimum EP requirements	1	2 444.16	64.2
Area compliant with the minimum EP requirements	1	1 361	35.8
SLIVEN REGIONAL ADMINISTRATION	**1**	**1 920**	
Area not compliant with the minimum EP requirements	1	1 920	100.0
SMOLYAN REGIONAL ADMINISTRATION	**5**	**17 587.17**	
Area not compliant with the minimum EP requirements	5	17 587.17	100.0
SOFIA REGIONAL ADMINISTRATION	**3**	**3 090.08**	
Area not compliant with the minimum EP requirements	3	3 090.08	100.0
STARA ZAGORA REGIONAL ADMINISTRATION	**2**	**19 292**	
Area not compliant with the minimum EP requirements	2	19 292	100.0
TARGOVISHTE REGIONAL ADMINISTRATION	**1**	**2 204.3**	
Area compliant with the minimum EP requirements	1	2 204.3	100.0
HASKOVO REGIONAL ADMINISTRATION	**2**	**11 340.19**	
Area not compliant with the minimum EP requirements	2	11 340.19	100.0

YAMBOL REGIONAL ADMINISTRATION	**1**	**1 670**	
Area not compliant with the minimum EP requirements	1	1 670	100.0
AGENCY FOR GEODESY, CARTOGRAPHY AND CADASTRE - under the Ministry of Regional Development and Public Works	**4**	**6 587.88**	
Area not compliant with the minimum EP requirements	4	6 388.66	100.0
DOBRICH REGIONAL ADMINISTRATION	**4**	**8 132.91**	
Area not compliant with the minimum EP requirements	4	8 132.91	100.0
INSTITUTE OF ROADS AND BRIDGES - under the Road Infrastructure Agency	**1**	**1 961.4**	
Area not compliant with the minimum EP requirements	1	1 961.4	100.0
SOFIA REGIONAL ADMINISTRATION	**1**	**2 208**	
Area not compliant with the minimum EP requirements	1	2 208	100.0
SHUMEN REGIONAL ADMINISTRATION	**1**	**1 636.88**	
Area not compliant with the minimum EP requirements	1	1 636.88	100.0
TOTAL	**1 280**	**2 548 364.557**	

	Number of buildings	Total floor area m²	%
Area not compliant with the minimum EP requirements	1 051	1 830 110,4	71,8
Area compliant with the minimum EP requirements	229	718 254,1	28,2
TOTAL:	**1 280**	**2 548 364,557**	

Annex 3: List of obligated parties and individual energy savings targets to be achieved from new measures in 2020

No	BULSTAT	NAME OF OBLIGATED PARTY	INDIVIDUAL ENERGY SAVINGS TARGET FOR 2020	
			ktoe	GWh
1	131512672	ENERGO-PRO ENERGIINI USLUGI EAD	2.537	29.505
2	103533691	ENERGO-PRO PRODAZHBI EAD	3.383	39.344
3	201869769	PROAKT OOD	0.024	0.279
4	106513772	AETs KOZLODUI EAD	0.553	6.430
5	123526430	EVN BALGARIYA ELEKTROSNABDYAVANE EAD	5.746	66.821
6	175133827	ChEZ ELEKTRO BALGARIYA AD	6.351	73.859
7	113570147	ChEZ TREID [Trade] BALGARIYA AD	1.996	23.216
8	175392783	ENERDZHI SAPLAI [Energy Supply] EOOD	0.233	2.704
9	131200181	ENERDZHI MARKET [Energy Market] AD	0.344	3.996
10	200929754	ENERGOINVESTMENT AD	0.106	1.237
11	201149482	ENERDZHI [Energy] MT EAD	0.076	0.884
12	201208860	GRAND ENERDZHI DISTRIBYUSHAN [Grand Energy Distribution] EOOD	0.600	6.978
13	175370769	EVN TREIDING SAIT IIST YURAP [Trading Site East Europe] EAD	1.512	17.590
14	131346040	ENERGEO EOOD	0.638	7.421
15	201325372	MOST ENERDZHI AD	0.542	6.301
16	123655865	RITAM-4-TB OOD	0.734	8.541
17	123507476	ZAGORA ENERDZHI EOOD	0.352	4.090
18	148075985	ESP ZLATNI PYASATSI OOD	0.056	0.655
19	202668908	SINERGON ENERDZHI EOOD	0.405	4.705
20	201313555	EL EKS KORPOREISHAN [LX Corporation] AD	0.039	0.453
21	175297965	TREN EOOD	0.085	0.983
22	203638768	ENEKOD AD	0.145	1.690
23	820162213	ZLATNA PANEGA TSIMENT AD	0.091	1.053
24	202240100	TERA KAP EOOD	0.030	0.354
25	202025709	VOLKAN LODZHIK OOD	0.251	2.915

26	102011085	TOPLOFIKATSIYA BURGAS EAD	0.125	1.452
27	106006256	TOPLOFIKATSIYA VRATSA EAD	0.073	0.855
28	113012360	TOPLOFIKATSIYA PERNIK EAD	0.549	6.390
29	114005624	TOPLOFIKATSIYA PLEVEN EAD	0.212	2.465
30	115016602	EVN BALGARIYA TOPLOFIKATSIYA EAD	0.199	2.312
31	117005106	TOPLOFIKATSIYA RUSE EAD	0.345	4.010
32	119004654	TOPLOFIKATSIYA SLIVEN EAD	0.252	2.928
33	831609046	TOPLOFIKATSIYA SOFIA EAD	3.627	42.180
34	103195446	VEOLIYa ENERDZHI VARNA EAD	0.062	0.719
35	200532770	TETs [Thermal Power Plant] ORYAHOVITSA EAD	0.155	1.805
36	201200529	KOGRIIN [Cogreen] OOD	0.030	0.355
37	202637962	TOPLOFIKATSIYA PETRICH	0.023	0.265
38	116019472	TOPLOFIKATSIYA RAZGRAD EAD	0.022	0.250
39	175084796	SI EN DZHI [CNG] MARITSA OOD	0.010	0.115
40	124058739	KAVARNA GAZ OOD	0.017	0.193
41	131534523	PRAVETSGAZ 1 AD	0.018	0.212
42	107063552	SEVLIEVOGAZ 2000 AD	0.081	0.941
43	130203228	BALKANGAZ 2000 AD	0.066	0.769
44	30400185	KOMEKES AD	0.093	1.082
45	131321489	KOSTINBRODGAZ OOD	0.010	0.111
46	831079085	PRIMAGAZ AD	0.082	0.957
47	175005806	GAZO-ENERGIINO DRUZHESTVO ELIN PELIN EOOD	0.049	0.568
48	834056298	DOBRUDZHA GAZ AD	0.010	0.114
49	813101815	ARESGAZ AD	0.665	7.729
50	131285259	SITIGAZ BALGARIYA AD	0.616	7.159
51	130533432	OVERGAZ MREZHI AD	2.048	23.822
53	175203485	BULGARGAZ EAD	4.043	47.019
54	812187989	EMI OOD	0.040	0.461
55	202829770	GAZTREID SLIVEN EOOD	0.065	0.761
56	115781068	SALINA 7 EOOD	0.107	1.249
57	124065057	MTT OOD	0.086	1.000
58	831924394	TOPLIVO AD	0.233	2.712

59	123655610	GU FARADEI EOOD	0.242	2.813
60	201700160	AKTAEL EOOD	0.062	0.716
61	131481248	(AVV Elektrifitsirane OOD) ENERDZHI MARKET GLOBAL [Energy Market Global] OOD *from 07.02.2019*	0.161	1.871
62	201869388	YUROPIAN TREID OF ENERDZHI [European Trade of Energy] AD	1.107	12.875
63	106063695	KNEZHAGAZ OOD	0.010	0.115
64	202533127	GEOTREIDING [Geotrading] AD	0.012	0.141
65	202887535	SAIT ENERDZHI [Site Energy] OOD	0.021	0.239
66	200907117	KUMER OOD	0.042	0.488
67	201161994	SI ENERDZHI GRUP [Si Energy Group] EAD	0.045	0.520
68	204656662	MET ENERDZHI TREIDING BALGARIYA [Met Energy Trading Bulgaria] EAD	0.434	5.047
69	114138293	GAZINZHENERING OOD	0.010	0.114
70	175000385	DZHI BI AI [G.B.I.] OOD	0.124	1.440
TOTAL for all obligated parties			**43,11**	**501.34**

Annex 4: Progress by obligated parties in terms of fulfilling the individual targets for the period 2017-2019 (as at 31 March 2020)