

4TH NATIONAL ENERGY EFFICIENCY ACTION PLAN OF GREECE

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Under Article 24(2) of Directive 2012/27/EU



**ΚΑΠΕ
CRES** | ΚΕΝΤΡΟ ΑΝΑΝΕΩΣΙΜΩΝ ΠΗΓΩΝ
ΚΑΙ ΕΞΟΙΚΟΝΟΜΗΣΗΣ ΕΝΕΡΓΕΙΑΣ



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This National Energy Efficiency Action Plan for the implementation of national energy efficiency improvement targets for 2020 was based on Annex XIV to Directive 2012/27/EU and was developed following cooperation of:

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INTRODUCTION

Greece, along with the rest of the MS, has undertaken a joint commitment to achieving the EU target of 20 % reduction in primary energy consumption in the EU by 2020 compared to projections. The most important tool to achieve this goal is the EU Energy Efficiency Directive (Directive 2012/27/EU) (EED), which came into force in December 2012.

Increasing energy efficiency is a key factor in meeting future challenges at both national and European level. Reducing energy demand and focusing on improving energy efficiency are a key goal of Greece in fulfilling its European commitments.

In November 2016, the EU proposed further strengthening this important energy policy area beyond 2020 by setting a binding 30 % energy efficiency target at EU level by 2030.

Since December 2014, Greece has presented its strategy for improving energy efficiency with a series of actions and a mix of policy measures in the 3rd National Energy Efficiency Action Plan (NEEAP). Energy efficiency policy measures reduce energy costs to final consumers, contribute to the safety of energy supply, competitiveness, sustainability of the national economy and job creation, as well as to the reduction of greenhouse gas emissions. Improving energy efficiency along with energy savings are key pillars for the energy transition of Greece to the path to growth, despite the current difficult economic environment.

This NEEAP evaluates the already defined policy measures of the previous one, and details the policy measures for the period 2015 to date, including the planned policy measures for the period 2017-2020. The set of measures presented in this 4th NEEAP is presented in the form of tables and is qualitatively evaluated. The presentation and structure of its content is mainly based on the format provided by the EU for the submission of the NEEAP.

At the same time as the National Indicative Energy Efficiency Target for the year 2020, set in the 3rd NEEAP, which involves achieving a final energy consumption of 18.4 Mtoe in 2020, the same chapter contains an estimate of the potential total consumption of primary energy in Greece in 2020, as well as specific energy targets (Table 1). Moreover, the savings for the period 2007-2015 are estimated, the energy saving target for 2016 according to the 1st NEEAP has already been achieved and the energy savings achieved in 2015 are twice the 2016 target.

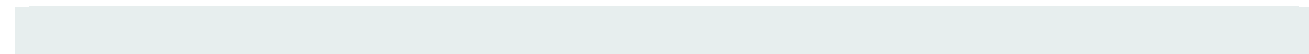
The following Chapter V describes the alternative measures adopted in accordance with Article 7 of the EED and also describes the adoption and implementation of the energy efficiency obligation scheme from 1 January 2017 to 31 December 2020, which ensures that energy distributors and/or retailers defined as obligated parties operating in the Greek territory will achieve a specific cumulative end-use energy savings target. Furthermore, the following sections provide additional information on horizontal measures to meet specific obligations stipulated in the Energy Efficiency Directive, the obligation for an energy audit, measurement and pricing measures, the implementation of programmes and actions to consumers, the obligation to apply qualification and certification systems, the operation and development of energy services, including other horizontal energy efficiency measures, which do not fall under Article 7 and either have already been or will be adopted for the implementation of Articles 19 and 20 of the EED.

The next section covers the energy efficiency measures for buildings. Reference is made to the integration of pending institutional issues as well as to the long-term strategy for mobilising investment in the renovation of the national building stock.

Section 3 describes the energy efficiency measures for public buildings that have been completed or are underway, both by the central public administration and by all other public bodies, and with regard to the implementation of Article 8 of Law 4342/2015 (Government Gazette, Series I, No 143, 9.11.2015), it provides a description of the procedures for the supply of high energy efficiency products, services and buildings. The next section describes the progress made in the implementation of energy efficiency improvement measures in industry. The overall progress made on key policy measures addressing the issue of energy efficiency in the transport sector is outlined in Section 5. Moreover, the progress made on the overall estimates of the possibilities for using highly efficient cogeneration units and efficient district heating and cooling, is described in Section 6.

Finally, Section 7 gives an overview of the current state of energy conversion, transmission and distribution and records the responsibilities of the bodies that supervise and manage energy in Greece.

Next, two annexes are included, the first of which comprises the annual progress report for the year 2017 on the achievement of the National Target and the second comprises the detailed policy measures under Article 7.



I. OVERVIEW OF NATIONAL ENERGY EFFICIENCY TARGETS FOR 2020

The national indicative energy efficiency target for 2020 was set in the 3rd National Energy Efficiency Action Plan (NEEAP) and is aimed at achieving a final energy consumption of 18.4 Mtoe in 2020, taking into account Article 3 of Directive 2012/27/EU on energy efficiency (EED).

The national energy efficiency target for 2020 is the result of the evolution estimates for both the size of the Greek economy and the **implementation of measures, actions and programmes to improve energy efficiency**, the penetration of Renewable Energy Sources (RES) and **achieving energy savings**.

The definition of the national indicative target was achieved by applying the methodology and assumptions detailed in the 3rd NEEAP, and the quantitative analysis of the scenario for the determination of the national energy efficiency target was made using the mathematical models TIMES, WASP IV and COST.

The national end-use energy target in the final consumption for 2020, the annual progress report on the achievement of the national target and the 3rd NEEAP were adopted by means of Ministerial Decision No ΔΕΠΕΑ/Γ/οικ. 185496/31.12.2015 (Government Gazette, Series II, No 3023).

II. SETTING THE OBJECTIVE

Table 1 summarises the evolution of the energy figures under consideration, giving outturn data for the years 2009, 2011 and 2015, and the corresponding estimates for 2020, as resulting from the national indicative target set under the EED and Law 4342/2015 (Government Gazette, Series I, No 143, 9.11.2015).

Table 1: Evolution of energy figures and national indicative target.

	2009	2011	2015	2020 (National indicative target under the EED)
Gross domestic energy consumption (Mtoe)	30.5	27.8	24.4	25.4
Primary energy consumption (Mtoe)	29.6	26.9	23.7	24.7
Total final energy consumption (Mtoe)	20.5	18.9	16.5	18.4

III. REVIEW OF FINAL ENERGY SAVINGS

The evaluation of energy savings for 2015 was based on the methodology of the ODEX indicators (ODYSSEE - MURE, H2020 project) as defined for each final consumption sector in Ministerial Decision No Δ6/7094 (Government Gazette, Series II, No 918, 23.5.2011 - Article 4, Calculation methods – addressing uncertainties), and thoroughly analysed in the 3rd NEEAP. The ODEX indicators are used to measure energy efficiency in the main sectors of energy consumption (industry, transport, residential sector), and in final consumption as a whole. Moreover, for the tertiary sector, the ODEX indicator developed by CRES is used as part of the 3rd NEEAP.

The ODEX indicators are used in order to isolate the external conditions, including the economic downturn, from the overall reduction in energy consumption.

Table 2 shows the final energy savings achieved in 2015, resulting from the calculation of ODEX indicators, as well as the aggregated energy savings targets which arose from the 1st NEEAP.

Table 2: Energy savings estimates and individual targets.

	Final energy under Directive 2006/32/EC (ESD)	
	Energy savings target as defined in the 1 st NEEAP (TWh)	Target achievement/estimate for 2016 (TWh)
2010	5.15	
2015		31.8
2016	16.46	

As confirmed by the 2nd NEEAP, the interim target for energy savings in 2010 was exceeded by implementing measures prescribed by the 1st NEEAP, but also as a result of the economic downturn.

Moreover, as confirmed by Table 2 for the for 2007-2015, the energy saving target for 2016 according to the 1st NEEAP has already been achieved and the energy savings achieved in 2015 are twice the 2016 target.

It should be noted that modelling of the ODEX indicator for the tertiary sector was carried out from 2010 onwards; therefore, the improvement in energy efficiency for the period 2007-2010 is not determined.

Table 3 lists the results obtained from the application of the above methodology regarding the energy savings achieved in the period 2007-2015 for all the final consumption sectors concerned.

Table 3: Energy savings assessments per sector in 2007-2015.

Sector	Energy savings achieved (GWh)
Residential	9.5
Tertiary	0.9
Industrial	3.3
Transport	19.0
Total	32.7

As shown in the table above, energy savings equal 9.5 TWh (817 ktoe) in the residential sector, 0.9 TWh (77 ktoe) in the tertiary sector and 3.3 TWh (284 ktoe) in the industrial sector, and 19.0 TWh (1634 ktoe) in the transport sector. In this case, the total energy savings are estimated to be equal to **32.7 TWh** (2812 ktoe).

It is noted that the intermediate energy savings target set by Law 3855/2010 (Government Gazette, Series I, No 95, 23.6.2010) for the year 2010, is successfully met, while it appears that it is possible to reach the total target for 2016.

IV. REVIEW OF PRIMARY ENERGY SAVINGS

The indicative target set in accordance with Article 3 of the EED relates to the final energy consumption for the year 2020, as detailed in section 2.1 of the 3rd NEEAP. Primary energy savings are not taken into account in setting the target.

This section presents the evaluation of primary energy savings for 2015, taking into account final energy savings, as presented in detail in section 2.2, and the rates for converting final energy into primary energy (Ministerial Decision No ΔΕΠΕΑ/off. 178581/12.7.2017 (Government Gazette, Series II, No 2367) ‘Approval of Regulation on the Energy Performance of Buildings’, Table B1).

In the case of the final consumption sectors concerned, the distribution of the energy savings between electricity and petroleum products is derived from the percentage participation of these energy products for 2015. In the industrial sector, for example, based on the energy balance for 2015, the final consumption of petroleum products stands at 1 128.3 ktoe (13.1 TWh) and electricity consumption at 1 089.3 ktoe (12.7 TWh). This means that in the evaluation of primary energy savings, 51 % is considered to relate to petroleum products and 49 % to electricity products.

Table 4: Data for the calculation of primary energy savings.

Sector	Energy		Rates for converting final energy into primary energy	
	Petroleum products	Electricity	Petroleum products	Electricity
Residential	49 %	51 %	1.1	2.9
Tertiary	19 %	81 %		
Industrial	51 %	49 %		
Transport	100 %	0 %		

Based on the above and considering the final energy savings for 2015, the primary energy savings achieved in 2015 are presented in Table 5.

Table 5: Primary energy savings evaluations per sector in 2015.

Sector	Primary energy savings (TWh)
Residential	19.2
Tertiary	2.3
Industrial	6.5
Transport	20.9
Total	48.9

As shown in the table above, according to the ODEX indicators, the minimum primary energy savings equal 19.2 TWh (1 649 ktoe) in the residential sector, 2.3 TWh (198 ktoe) in the tertiary sector, 6.5 TWh (562 ktoe) in the industrial sector, and 20.9 TWh (1 797 ktoe) in the transport sector. In this case, the total energy savings are estimated to be equal to 48.9 TWh (4 206 ktoe).

No additional primary energy savings measures have been designed or planned.

V. POLICY MEASURES IN IMPLEMENTATION OF THE ENERGY EFFICIENCY DIRECTIVE

1. Horizontal measures

1.1. Energy efficiency obligation schemes and alternative policy measures (Article 7)

Article 7 of the EED was brought in line with Article 9 of Law 4342/2015 (Government Gazette, Series I, No 143, 9.11.2015) regarding the energy efficiency obligation schemes. Paragraph 1 of this Article provides for the adoption of the energy efficiency obligation scheme from 1 January 2017, which ensures that energy distributors and/or retailers defined as obligated parties operating in the Greek territory will achieve a specific cumulative end-use energy savings target by 31 December 2020.

In addition, paragraph 11 stipulates that alternative policy measures will be combined with the obligation schemes to achieve the national target. The Operation Regulation on the Energy Efficiency Obligation Scheme was set in Ministerial Decision No 174063/11.4.2017 (Government Gazette, Series II, No 1242).

In 2014-2016, only alternative policy measures contributed to achieving the energy efficiency target under this Article.

I. Policy measures implemented in the period 2014-2016

Table 6 lists both the new energy savings for individual years and the cumulative energy savings to be achieved by 2020 for the policy measures implemented in 2014-2016.

Table 6: Energy savings from policy measures implemented in 2014-2016 (ktoe).

S/N	Policy measure	Number of interventions	New			Cumulative
			2014	2015	2016	2014-2020
M1	'Saving at home' programme	26 164 buildings	21.98	8.17	1.55	210.64
M2	'Save' programme for local government organisations	59 municipalities	-	-	2.25	11.25
M3	'Save II' programme for local government organisations	14 municipalities	-	0.05	0.17	1.12
M11	Replacing old	10 952	4.17	5.12	3.14	75.61

S/N	Policy measure	Number of interventions	New			Cumulative
			2014	2015	2016	2014-2020
	light trucks in the public and private sectors	vehicles				
M12	Replacing old private passenger vehicles	165 778 vehicles	28.27	29.86	17.13	462.71
M14	OP-ESD operations	-	0.24	1.24	11.66	67.44
M16	Athens metro extension	-	29.30	-	-	205.10
M17	Offset of fines on illegal buildings	522 buildings	0.00	0.13	0.50	3.25
M18	Energy managers	204 buildings	-	-	1.19	5.95
M19	EEC-Other reason for issue	5 724 EECs	2.09	3.51	2.26	15.73
Total cumulative savings			86.06	48.08	39.84	1 058.81

It should be noted that the energy savings were achieved following completion of the procedures for monitoring and verifying the measures implemented.

Completing these specific policy measures has led to the achievement of 32 % of the total cumulative target for 2014-2020 under Article 7 of the EED (1 058.81 ktoe energy savings achieved in the overall 3 333 ktoe target).

II. Scheduled policy measures for the period 2017-2020

Table 7 lists both the new energy savings for individual years and the cumulative energy savings to be achieved by 2020 for the policy measures expected to be implemented in the period 2017-2020.

Table 7: Energy savings from policy measures scheduled for the period 2017- 2020 (ktoe).

S/N	Policy measure	New				Cumulative
		2017	2018	2019	2020	2017-2020
M1	'Saving at home' programme	7.19	-	-	-	28.74
M4	Energy upgrading of residential buildings	-	25.04	18.78	18.78	131.47
M5	Energy upgrading of public buildings	-	7.14	7.14	7.14	42.82
M6	Energy efficiency and demonstration projects in SMEs and supporting measures	-	3.01	3.01	3.01	18.08
M7	Implementing an energy management system in bodies of	-	1.19	1.19	-	5.97

S/N	Policy measure	New				Cumulative
		2017	2018	2019	2020	2017-2020
	the public sector and general government agencies according to the ISO 50001 standard					
M8	Energy upgrading of commercial buildings through energy service companies	-	-	0.85	0.85	2.54
M10	Developing smart energy metering systems	1.39	-	6.30	6.30	24.45
M14	OP-ESD operations	6.31	-	-	-	25.26
M18	Energy managers and action plans for public buildings	8.39	76.13	84.53	-	437.00
M19	EEC-Other reason for issue	2.62	2.62	2.62	2.62	20.97
M20	Energy upgrading of street lighting	-	10.00	-	-	30.00
M21	Energy upgrading of pumping equipment	-	-	4.00	2.00	6.00
M22	Obligation schemes	25.00	44.33	33.50	33.00	333.00
Total energy savings		50.90	169.47	159.92	73.70	1 097.70

Implementing these specific policy measures and obligation schemes is expected to lead to the achievement of 35 % of the total cumulative target for 2014-2020 under Article 7 (1 097.70 ktoe energy savings achieved in the overall 3 333 ktoe target).

Therefore, it is estimated that **a total of 65 % of the overall energy savings target** (2 156 ktoe) will be achieved in the period 2014-2020 under Article 7, which indicates the need to cover a **funding gap of 35 %** (1 176 ktoe).

In order to better understand and address the problem, the Ministry of the Environment and Energy has commissioned a study evaluating the optimal portfolio of energy savings measures in the Laboratory of Decision Support Systems and Management of the School of Electrical and Computer Engineering of the NTUA. The purpose of the study was to determine the optimal portfolio of policy measures, taking into account the economic efficiency of each measure, the available financial resources, as well as to integrate the impact of risk and uncertainty on the success of the selected policy measures.

As a result of the above study, both the identification of the optimal portfolio of measures to be implemented on the basis of available financial resources and the identification of the optimal policy portfolio and the additional costs involved in achieving the energy savings target have been identified.

The results of the study show that the main policy measures to be implemented in order to maximise economic efficiency and minimise the risk of implementation are the energy upgrade of residences (M4), the energy efficiency and demonstration projects in SMEs and supporting measures (M6) and the energy managers and action plans for public buildings (M18). It is also worth noting that the integration of these measures into the final portfolio keeps the solution highly stable, minimising the uncertainty of achieving the desired energy savings.

Moreover, taking into account the results of the study on the funding gap, it is noted that to implement one of the optimal portfolios and, at the same time, keep the implementation risk at low levels, it is necessary to find additional financial resources of € 800 million. However, attention needs to be paid to the immediate and effective implementation of the policy measures in order to overcome the technical constraints on the implementation of the measures.

Lastly, it is recalled that any delay in the implementation of the proposed policy measures will lead to increased costs of compliance with the overall energy savings target in 2020.

A detailed description of the new M18-M22 policy measures is presented in Annex II.

II. Other information on energy efficiency obligation schemes or alternative policy measures.

A. Methodology for determining energy savings achieved by individual operations

The methodology for determining the energy savings achieved is detailed in Table 8 by policy measure.

Table 8: Methodology for determining energy savings achieved by policy measure.

S/N	Policy measure	Methodology
M18	Energy managers and action plans in State and general public buildings	Projected savings
M19	EEC-Other reason for issue	Projected savings
M20	Energy upgrading of street lighting	Projected savings
M21	Energy upgrading of pumping equipment	Projected savings
M22	Obligation schemes	Projected, scalable and measured savings depending on the type of each measure

B. Life cycle of policy measures to identify energy savings

The approach that will be used to determine the energy savings achieved taking into account the life cycle of the policy measures is the straightforward method in which the actual energy savings for each measure will be attributed each year to each individual measure between the date of implementation of the measure and 31 December 2020.

C. Approach to avoid double counting of energy savings achieved

The procedure for avoiding double counting for policy measure M18 was developed in the 3rd NEEAP and the EECs issued under policy measure M19 are recorded separately from the EECs filled in for the needs of the rest of the alternative policy measures.

In the case of policy measures M20 and M21, there is no question of double counting of the achieved energy savings, since they target different final energy consumption sectors.

Finally, in the case of policy measure M22, the Calculation, Monitoring, Checking and Verification Manager of the Energy Efficiency Obligation Scheme checks compliance of the Obligated Parties with the criterion of avoiding double counting of the energy savings achieved for each individual measure under that mechanism.

1.2. Energy audits and management systems (Article 8)

Law 4342/2015 (Government Gazette, Series I, No 143, 9.11.2015) has set the institutional framework for energy audits. According to Article 10, all final consumers are given the possibility of carrying out cost-efficient energy audits, divided into three categories as follows:

(a) **Category A:** Residential buildings, office buildings of up to two thousand square meters (2 000 m²), commercial shops of up to two thousand square meters (2 000 m²) and professional workshops with installed driving power not exceeding twenty two kilowatts (22 kW) or thermal power not exceeding fifty kilowatts (50 kW).

(b) **Category B:** Office buildings of more than two thousand square meters (2 000 m²), commercial buildings of more than two thousand square meters (2 000 m²), other buildings hosting tertiary sector bodies (such as school buildings, hotels, hospitals, etc.), and industrial and craft installations with a total installed capacity not exceeding one thousand kilowatts (1 000 kW).

(c) **Category C:** Industrial and handicraft facilities with a total installed capacity of more than one thousand kilowatts (1 000 kW).

Moreover, energy audits are independent and are carried out by one or more qualified energy auditors, who may also be internal experts and are classified in three distinct classes according to their professional qualifications and experience.

Energy audits must meet the minimum criteria set out in Annex VI of Law 4342/2015 (Government Gazette, Series I, No 143, 9.11.2015) and be carried out on the basis of the EN 16247 series of the European standards on energy audits.

Enterprises that are not SMEs are required to perform repetitive energy audits within four years of the date of the previous energy audit. Moreover, enterprises that are not SMEs and that are implementing an energy or environmental management system - certified by an independent body according to the relevant European or International Standards - shall be exempted from this requirement, provided that Member States ensure that the management system concerned includes an energy audit on the basis of the minimum criteria based on Annex VI of Law 4342/2015 (Government Gazette, Series I, No 143, 9.11.2015).

Ministerial Decision (Government Gazette, Series II, No 2337, 10.7.2017) 'Qualification and Certification Systems for Energy Auditors, Energy Auditors Register and Energy Audit Register' sets the professional qualifications of energy auditors, the content of the energy auditors register and the registration procedure, the procedure for keeping the energy auditors register and the audit of energy auditors, the specifications of energy audits, the content of the energy audit results reports, and the content of the energy audit file, the procedure for submitting the energy audit results reports, and issues related to the evaluation of energy audit results reports.

More specifically, with regard to the qualifications of the energy auditors, a point collection system for the energy auditors was developed, aiming at their advancement to the higher classes of energy auditors, according to Law 4342/2015 (Government Gazette, Series I, No 143, 9.11.2015).

With regard to the implementation of energy audits, the scope of each energy audit covers 90 % of the total energy consumption of the audited undertaking, and in particular for the transport sector, vessels, fixed track means and air transport are not subject to energy audits.

The Energy Auditors Register as well as the Energy Audit Register are hosted on the website www.buildingcert.gr/enaudits/ and the Energy Inspection Departments of Northern and Southern Greece of the Environment, Building, Energy and Mining Inspectorate of the Ministry of the Environment and Energy are responsible for their keeping.

Finally, two detailed technical guides to energy audits, useful excel tools for data collection and performance of calculations, as well as a standard format of the energy audit reports to be submitted, are hosted on the website of the Ministry of the Environment and Energy.

1.3. Metering and billing (Articles 9-11)

Article 9 of the EED has been incorporated into Greek legislation through Article 11 of Law 4342/2015 (Government Gazette, Series I, No 143, 9.11.2015). With regard to the cost-effectiveness of the installation of individual meters, which depict the actual energy consumption and provide real time information, compared to the estimated potential savings in the long term, the cost-benefit studies for electricity and gas have been completed. Specifically for electricity, the study concluded that the installation of such meters has a positive economic impact, but the result is expected to be confirmed after the smart meter installation pilot programme is implemented and the critical parameters obtained in the study calculations are confirmed. With regard to natural gas, the corresponding study concluded that the installation of smart meters is not a cost-effective application.

For the breakdown of the expenses for heat or hot water consumption in multi-apartment and multi-purpose buildings that include several properties, the Presidential Decree of 27 September /7 November 1985 (Government Gazette, Series IV, No 631) 'Technical Regulation on the Method of Breakdown of Central Heating Expenses in Buildings comprising Several Properties', is followed. Moreover, the Technical Chamber of Greece has published a draft law, as a revision of the technical directive 'TOTEE 2427/83: Breakdown of Central Heating Expenses'. This proposal includes instructions on the breakdown of expenses for each existing way of measuring thermal energy, mandatory use of calorimeters, and the consideration of specific cases, such as the installation of larger radiators, the use of water heaters, common or individual, and architectural changes in the building envelope.

Finally, Article 8 of the Regulation on the Energy Performance of Buildings [Joint Ministerial Decision No Δ6/B/off.5825/9.4.2010 (Government Gazette, Series II, No 407)] expressly states that where a breakdown of expenses is required for space heating and in central domestic hot water systems, calorific measurement shall apply.

The examination of the cost-effectiveness and technical suitability of installing individual consumption meters for heating, cooling and domestic hot water in multi-apartment and multi-purpose buildings with a central heating/cooling source or supplied from a district heating network or from a central source serving multiple buildings, is planned to be completed in the first half of 2018.

With reference to Articles 10 and 11 of the EED, relating to metering and billing, which have been incorporated into Greek law through Article 12 of Law 4342/2015 (Government Gazette, Series I, No 143, 9.11.2015), the provisions of the 3rd NEEAP, shall apply.

1.4. Consumer information programmes and training (Articles 12 and 17)

In the context of the Thessaloniki International Fair (TIF), there was a wide-ranging briefing to inform households about the benefits of their participation in the programme and the design of the new ‘Saving Energy at Home’ programme, during the years 2016-2017. Table 9 presents quantitative data on the effectiveness of specific actions.

As part of this programme and after the establishment of the Special Holding Fund ‘Saving Energy at Home’, an open call for tenders was launched for banks to be involved in the Fund’s activities.

Table 9: Quantitative data of implemented actions.

Participation in TIF 2016	September 2016	Participation of the Ministry of the Environment, Energy and Climate Change in the 81 st TIF	Approximately 8 000 visitors stopped by the stand of the Ministry of the Environment and Energy
Participation in TIF 2017	September 2017	Participation of the Ministry of the Environment, Energy and Climate Change in the 82 nd TIF	Approximately 10 000 visitors stopped by the stand of the Ministry of the Environment and Energy

1.5. Availability of qualification, accreditation and certification schemes (Article 16)

The obligation of Article 17(1) of Law 4342/2015 (Government Gazette, Series I, No 143, 9.11.2015) on qualification and certification schemes for energy auditors was met by means of Ministerial Decision No 178679/10.7.2017 (Government Gazette, Series II, No 2337), which detailed the scheme, including both the Energy Auditors Register and the Energy Audit Register.

Article 17(2) of Law 4342/2015 (Government Gazette, Series I, No 143, 9.11.2015) provides for the establishment of a scheme for the certification of installers, who are involved in the energy components of a building unit, as defined in Article 2(8) of Law 4122/2013 (Government Gazette, Series I, No 42, 19.2.2013), whereas the Ministry of the Environment and Energy should adequately disclose the certification schemes so that final consumers are aware of their existence, as set out in Article 17(3).

To date, no certification scheme has been put in place. However, as part of the national operation BUILD UP Skills UPSWING (supported by the EU Intelligent Energy Europe Programme), appropriate technical training and qualification schemes have been developed to enhance the knowledge and skills of insulation technicians, aluminium builders and burner installers-maintenance staff in energy efficiency issues. The BUILD UP Skills UPSWING qualification and certification programme meets the needs of the skilled labour market, incorporating the criteria of Directive 2010/31/EU on the energy performance of

buildings and taking into account the national legislative framework. The certification is awarded to labourers who have been trained and passed the exams provided for by the scheme with the participation of the National Organisation for the Certification of Qualifications & Vocational Guidance in the specific Issues of Energy Savings and Energy Efficiency which are their field of expertise, in accordance with the requirements of the recognised BUILD UP Skills UPSWING training and certification programme.

1.6. Energy Services (Article 18)

Ministerial Decision No Δ6/13280/7.6.2011 (Government Gazette, Series II, No 228) 'Energy Service Companies. Operation, Register, Code of Conduct and relevant provisions', as adopted on the basis of Article 10 of Law 3855/2010 (Government Gazette, Series I, No 95, 23.6.2010), which initially set the institutional framework for the provision of energy services, set out inter alia issues related to the establishment and organisation of the ESCO Registry (Article 3), its content (Article 4), the registration procedure (Article 5), the membership criteria and the necessary supporting documents for the registration of ESCOs (Article 6), issues pertaining to the way in which its data are handled and exploited (Article 8), as well as the ESCO categories (Article 7). Moreover, it details the conditions for the establishment and operation of ESCOs (Article 9), the energy services provided (Article 10), the criteria governing the proper performance of their work (Article 11), the incompatibilities with their work (Article 12), administrative sanctions imposed on them (Article 13), and, finally, the Code of Conduct that is applicable to ESCOs (Article 14).

More specifically, according to the aforementioned Ministerial Decision, the companies registered in the ESCO Registry are classified in the following categories:

- (a) **Category A**, which includes all companies in the ESCO Registry.
- (b) **Category B**, which includes all natural persons in the ESCO Registry.

The companies of the ESCO Registry (category A) are further classified into the following subcategories:

- (a) **Sub-category A1**, if they have implemented or have been implementing projects with ESCOs with a total budget of at least EUR 300 000.00 in the last five years;
- (b) **Sub-category A2** if they have implemented or have been implementing projects with a total budget of at least EUR 1 000 000.00 in the last five years;
- (c) **Sub-category A3**, for all other companies registered in the ESCO Registry.

The ESCO Registry website (<http://www.escoregistry.gr>) where the ESCO Registry is currently hosted, counts 14 entries in category B, 23 A2 companies and 19 A3 companies.

Moreover, the Directorate for Energy Policy and Energy Efficiency has prepared and posted on the ESCO Registry website two model Energy Performance Contracts (EPC):

- i. Model of guaranteed performance EPC.
- ii. Model of shared benefit EPC.

Article 19 of Law 4342/2015 (Government Gazette, Series I, No 143, 9.11.2015) entitled 'Energy Services' transposes Article 18 of the EED into Greek law.

According to this Article, with a view to promoting the energy services market and access of SMEs to this market, the ESCO Register website (<http://www.escoregistry.gr/>) provides information material that includes:

1. available EPC and clauses that should be included in such contracts to guarantee energy savings and final customers' rights;
2. financial instruments, incentives, grants and loans to support energy efficiency service projects;
3. a list of available energy service providers who meet the criteria for registration in the ESCO Register;
4. Model EPC, mainly for building renovations;
5. best practices for EPC, mainly for building renovations, which include a cost-benefit analysis using a lifecycle approach.

Moreover, the Ministry of the Environment and Energy encourages the development of quality labels, inter alia, by trade associations, and the competent department of the Ministry of the Environment and Energy is carrying out a qualitative review, under the National Energy Efficiency Action Plan, that concerns the current and future development of the energy services market.

The Ministry of the Environment and Energy, which is responsible for the proper functioning of and access to the energy services market of small and medium-sized enterprises, identifies and posts on its website the contact points from which final consumers can receive information on energy services. Moreover, if necessary, it takes measures to remove the regulatory and non-regulatory barriers that impede the uptake of EPCs and other energy efficiency service models for the identification or implementation of energy saving measures.

Finally, it may set up, by means of a decree, an independent mediation mechanism for the handling of complaints and the out-of-court settlement of disputes arising from EPCs, as well as to establish, by means of a joint ministerial decision, a framework for the operation of independent intermediaries to stimulate the development of the energy services market both in terms of demand and in terms of supply.

As part of this role, the Ministry of the Environment and Energy, through a technical assistance programme, has drawn up a road map for the further development of EPCs in Greece. This study made it possible to identify the major obstacles in this regard, to propose solutions based on international experience and the role of the intermediary, as well as of independent intermediaries as critical factors for the further development of energy services, was analysed.

Moreover, with the aim of facilitating access to private funds by granting loans to energy service companies, a proposed pre-standardised methodology for measuring risk when assessing energy savings projects by financial institutions was developed. In addition, a training programme was organised for the staff of financial institutions and ESCOs on the technical and economical evaluation of energy saving projects through EPCs.

Finally, to remove regulatory and non-regulatory barriers that prevent the conclusion of EPCs in the public sector, CRES implemented a project entitled 'Supporting and monitoring of the pilot implementation of energy efficiency improvement projects in public buildings by Energy Service Companies (ESCOs)', which was funded by the Operational Programme 'Environment & Sustainable Development' for the period 2007-2013 and is presented in detail in the 3rd NEEAP.

1.7. Other horizontal measures to promote energy efficiency (Articles 19 and 20)

This section presents other horizontal energy efficiency measures that are not covered by Article 7 and have either been or will be adopted for the implementation of Articles 19 and 20 of the EED.

The measures presented in this section concern actions that are not closely related to a sector or industry, but are deemed necessary for the implementation and follow-up of support actions in all sectors. These measures focus mainly on collecting and evaluating relevant information and financial support through the various operational programmes.

This NEEAP evaluates the existing measures of a horizontal nature that have been presented in detail in the 3rd NEEAP (Table 10), on one hand, and presents in detail the new measures of a horizontal nature (Table 11), on the other.

Table 10: Existing horizontal policy measures to improve energy efficiency.

No	Title of measure	Type of measure	Year commencing	State of implementation
01	Information system for monitoring energy efficiency improvement and achieved energy savings	Supporting action	2009	In progress
02	Programmes to provide financial support for investment in energy-saving technologies and research	Public aid	2009	Completed
03	Tax exemptions on energy savings interventions	Tax incentives	2012	Completed
04	Implementation of an energy management system (EMS) in the tertiary and public sectors	Institutional/Regulatory	2012	In progress
05	Bioclimatic upgrades to public open spaces	Exemplary role of the public sector	2011	Completed
06	Green agricultural and island communities — New development model	Exemplary role of the public sector	2011	Not implemented

Under the ‘**Bioclimatic upgrades to public open spaces**’ programme, 13 operations with a total public expenditure of € 25.4 million were completed. A total area of 475.3 thousand m² was regenerated and upgraded, while green spaces grew by 47.6 thousand m² and the average energy savings reached 19.5%.

Furthermore, the implemented actions led to the creation of new jobs during the implementation of the action (610 man-years of employment), and in terms of environmental benefits, there was a CO₂ reduction of 4.9 ktn.

Table 11: New horizontal policy measures to improve energy efficiency.

No	Title of measure	Targeted end use	Start
07	Energy upgrading of street lighting	Tertiary sector	2017
08	Private investment aid scheme for regional and economic development	Undertakings	2016

The following tables provide an analysis of the new horizontal policy measures.

Title		Energy upgrading of street lighting
Measure code		07
Description	Category	Funding programme
	Implementation framework	2017-2018
	Purpose / brief description	The funding programme ' Implementation of energy efficiency improvement actions in street lighting facilities of local authority organisations ' is an initiative of the Greek Consignment Deposits and Loans Fund, with the collaboration of the Centre for Renewable Energy Sources and Saving (CRES), for the supply and installation of more energy-efficient equipment in the street lighting facilities of first and second-degree local authority organisations, having the ultimate goal of saving resources, reducing operating and maintenance costs, and improving the quality of the lighting facilities of local authority organisations.
	End use	Tertiary sector
	Target group	First and second-degree local authority organisations
	Area of application	National level
Implementation information	List and description of energy saving measures	<p>The actions eligible for funding under the programme are:</p> <ol style="list-style-type: none"> 1. Supply of state-of-the-art lighting fixtures, transportation to the installation site, installation, connection to the network, and performance of functional tests. 2. Supply of state-of-the-art technology lamps, transportation to the installation site and installation inside existing lighting fixtures. 3. Supply and installation of new lighting fixture brackets in cases where the state-of-the-art lighting fixtures cannot be mounted on the existing brackets. 4. Supply and installation of lightning protection equipment for street lighting facilities. 5. Supply of lighting fixture components (power supply, etc.) for storage. 6. Dismantling, removal, transport and disposal of the existing obsolete lighting fixtures, in accordance with applicable legislation.

[NATIONAL ENERGY EFFICIENCY ACTION PLAN]

Title		Energy upgrading of street lighting
		7. Disconnection, removal, transport and disposal of the lighting fixture brackets, in accordance with applicable legislation.
	Budget and sources of funding	<p>A low-interest loan will be raised from the Greek Consignment Deposits and Loans Fund, using sources of funding of the European Investment Bank and the Greek Consignment Deposits and Loans Fund.</p> <p>The loan granted will have a maturity of up to 10 years at a floating or fixed interest rate at the option of the local authority organisations.</p> <p>It is possible for each interested local authority organisation to apply for either the whole or part of the project budget, if it chooses to finance the remaining part of the project from a different source of funding.</p> <p>The objective of the programme is that the estimated annual reductions in the operating and maintenance costs of the street lighting facilities that will result from its implementation can cover the servicing of the loan (Debt Coverage Rate > 1) and bring economic benefit to the local authority organisations.</p>
	Implementing body	Greek Consignment Deposits and Loans Fund, CRES and local authority organisations
	Supervising authority	Greek Consignment Deposits and Loans Fund

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Title		Private investment aid scheme for regional and economic development
Measure code		O8
Description	Category	Funding programme
	Implementation framework	2016-2020
	Purpose / brief description	Law 4399/2016 (Government Gazette, Series I, No 117, 22.6.2016) provides for a framework for the establishment of private investment aid schemes for the regional and economic development of the country . The aid schemes are implemented through a single investment project of the companies concerned.
	End use	Primary, industrial and tertiary sector
	Target group	Beneficiaries of the aid under the schemes are undertakings which are established or have a branch in Greece at the time of the start of the investment project and have one of the following forms: (a) Sole proprietorship; (b) Commercial company; (c) Cooperative; (d) Social Cooperative Societies of Law 4019/2011 (Government Gazette, Series I, No 216, 30.9.2011), Agricultural Cooperatives, Producer Groups, Agricultural Joint Ventures of Law 4384/2016 (Government Gazette, Series I, No 78, 26.4.2016); (e) Companies in the course of being established or merged, provided that they have completed the disclosure procedures prior to the start of the investment project; (f) Companies operating in the form of a joint venture subject, provided that they are registered in the General Commercial Register (GEMI); (g) Public and municipal companies and their subsidiaries, provided that: (aa) they have not been entrusted with the provision of public service; (bb) they have not been entrusted with the provision of services by the State on an exclusive basis; and (cc) they are not subsidised from public resources during the time of compliance with the long-term contractual obligations set out in Article 21.

[NATIONAL ENERGY EFFICIENCY ACTION PLAN]

Title		Private investment aid scheme for regional and economic development
	Area of application	National level
Implementation information	List and description of energy saving measures	<p>The categories of eligible costs of investment projects include:</p> <ul style="list-style-type: none"> ✓ Investment costs for energy-efficiency measures. ✓ Investment costs for high-efficiency cogeneration from RES. ✓ Costs for the production of primary energy from RES. ✓ Costs for installing efficient district heating and cooling systems.
	Budget and sources of funding	<p>The minimum eligible amount of investment for investment projects to be included in aid schemes hereunder is determined by the size of the company, i.e.:</p> <p>(a) For large companies, the amount of EUR 500 thousand.</p> <p>(b) For medium-sized enterprises, cooperatives and clusters, EUR 250 000.</p> <p>(c) For small companies, the amount of EUR 150 thousand.</p> <p>(d) For very small companies, the amount of EUR 100 thousand.</p> <p>(e) For the social cooperatives referred to in Law 4019/2011 (Government Gazette, Series I, No 216, 30.9.2011) as well as agricultural cooperatives, producer groups and the agricultural joint ventures referred to in Law 4384/2016 (Government Gazette, Series I, No 78, 26.4.2016), EUR 50 thousand.</p> <p>The following types of aid are granted to investment projects that are subject to the aid schemes:</p> <ul style="list-style-type: none"> ✓ Tax deduction. ✓ Grant. ✓ Financial leasing subsidy. ✓ Subsidy for the cost of creating new jobs. ✓ Stabilisation of income tax rate. ✓ Ventura capital financing through a holding fund.
	Implementing body	Ministry of Economy and Development
	Supervising authority	Ministry of Economy and Development

1.8. National Energy Efficiency Fund, Financing and Technical Support (Article 20)

In June 2017, as part of a technical assistance programme, a feasibility study on the establishment of the National Energy Efficiency Fund (ETEAP) was submitted to the Ministry of the Environment and Energy by an external technical advisor. The subject of the study was the analysis of existing structures to accommodate energy efficiency improvement actions and the submission of proposals for the establishment, management and operation of ETEAP and the optimal way of organising and developing the necessary structures for its operation.

The assessment has taken into account the savings potential, the possibilities to finance energy efficiency interventions as well as practices from other Member States. Moreover, an analysis of the regulatory framework for the establishment of ETEAP was undertaken.

The existing structures, which serve to finance energy efficiency actions, the new proposed structures, as well as all possible combinations to better serve the purpose of ETEAP were evaluated. It was suggested as an optimal solution to develop a hybrid scheme to be evaluated by the Ministry of the Environment and Energy.

ETEAP's recommendation is to accommodate energy efficiency improvement actions, a sector marked by increased risk investments, and to promote the energy services market in a period of economic recession/crisis which is anything but favourable to the leveraging of capital in a market short of liquidity.

In this respect, ETEAP is a lever for promoting energy efficiency, taking into account existing savings potential in the country, prioritising actions resulting from cost-benefit analysis studies to be funded.

2. MEASURES ON THE ENERGY PERFORMANCE OF BUILDINGS

2.1. Review of the requirements under the recast of Directive 2010/31/EU

Directive 2010/31/EU of the European Parliament on the energy performance of buildings (EPBD) has been transposed into national legislation with Law 4122/2013 (Government Gazette, Series I, No 42, 19.2.2013).

Article 9(2) provides for the establishment of a national plan for increasing the number of nearly zero-energy buildings, which may include different targets according to the category of building and should be communicated to the Commission.

A study is being completed currently in line with the reporting requirements in the context of the implementation of the EPBD. More specifically, the study includes:

- the technical characteristics of nearly zero-energy buildings, reflecting national, regional or local conditions, and including a numerical indicator of primary energy use expressed per year (kWh/m²/year);
- information on the policies and financial or other measures taken for the promotion of nearly zero-energy buildings, including details of national requirements and measures concerning the use of energy from renewable sources in new buildings and existing buildings undergoing major renovation.

Article 5 of Law 4122/2013 (Government Gazette, Series I, No 42, 19.2.2013) provides for the setting of cost-optimal levels of minimum energy performance requirements for buildings and building elements (Article 5 of the EPBD). The relevant report on the assumptions, data and results of the study on cost optimal levels was submitted to the European Commission in March 2017.

The Regulation on the Energy Performance of Buildings (KENAK) - which, according to Article 3 of the above law, sets minimum requirements for the energy performance of buildings in order to achieve cost-optimal levels as calculated by the comparative methodological framework of Article 5 of the same law and involve the building elements of the envelope and the technical systems - was revised and approved with Joint Ministerial Decision No 178581/30.6.2017 (Government Gazette, Series II, No 2367). Moreover, the calculation methodology published in the Government Gazette of the Hellenic Republic regarding the revision of the minimum requirements methodology, is specified in the technical instructions of the Technical Chamber of Greece, as approved by Ministerial Decision No 182365/17.11.2017 (Government Gazette, Series II, No 4003).

Meanwhile, Article 10(2) of Law 4122/2013 (Government Gazette, Series I, No 42, 19.2.2013) provides for measures, funding schemes and other means to improve the energy performance of new and existing buildings. In introducing incentives, the cost-optimal energy performance levels shall be considered, also taking into account the costs and benefits of energy performance improvement investments for society. However, the joint decision of the Minister for Finance, the Minister for the Environment, Energy and Climate Change and the relevant Minister, as the case may be, detailing what is set out in this paragraph, is still pending.

Finally, Articles 14 & 15 of Law 4122/2013 (Government Gazette, Series I, No 42, 19.2.2013) sets out the procedure to be followed when inspecting heating and air-conditioning systems, respectively, which is specified in KENAK and the technical instructions of the Technical Chamber of Greece mentioned above.

2.2. Building renovation strategy (Article 4)

Article 4 of the EED was brought in line with Article 6 of Law 4342/2015 (Government Gazette, Series I, No 143, 9.11.-2015) regarding the renovation of buildings. The Report on the long-term strategy for mobilising investment in the renovation of the national stock of residential and commercial buildings, both public and private, was submitted to the European Commission in December 2014 and approved by Ministerial Decision No 185497/21.12.2015 (Government Gazette, Series II, No 3004). An update of this Report is being completed.

Moreover, a presentation is made of the existing and new measures for the mobilisation of investments for the renovation of residential and tertiary sector buildings (Tables 12 and 13).

Table 12: Existing policy measures for the renovation of buildings.

No	Title of measure	Type of measure	Year commencing	State of implementation
K1	Regulation on the Energy Performance of Buildings	Regulation	2010	In progress
K2	'Saving at home' programme	Financial incentives	2011	Completed
K3	Mandatory installation of solar thermal systems in new residential buildings	Regulation	2011	In progress
K4	Energy upgrading of social housing buildings - 'Green pilot urban neighbourhood' programme	Financial incentives	2011	In progress
K5	Mandatory installation of solar thermal systems in tertiary sector buildings	Regulation	2011	In progress

No	Title of measure	Type of measure	Year commencing	State of implementation
K6	Strengthening SMEs active in manufacturing, tourism and trade - services	Financial incentives	2013	Completed

The applications completed by June 2016 as part of the ‘Saving at home’ programme amounted to 51 659 of a total budget of € 529 million. 83 % of the completed applications involved the replacement of window frames, 53.9 % thermal insulation and 71.6 % upgrade of the heating system and domestic hot water supply. The total area of renovated residences amounts to 5.2 million m² resulting in total annual primary energy savings of 853.6 GWh.

Table 13: New measures for the renovation of buildings

No	Title of measure	Targeted end use	Start
K7	Regulation on the Energy Performance of Buildings	Building sector	2017
K8	‘Saving at home II’ programme	Residential sector	2018
K9	Improving the energy efficiency of SMEs	Tertiary sector	2018
K10	Replacement of oil-fired heating systems with gas-fired ones in residences	Residential sector	2018

The following tables provide a detailed presentation of the new policy measures for the renovation of buildings.

[NATIONAL ENERGY EFFICIENCY ACTION PLAN]

Title		Regulation on the Energy Performance of Buildings
Measure code		K7
Description	Category	Regulation
	Implementation framework	Start: 2017
	Purpose / brief description	Law 4122/2003 (Government Gazette, Series II, No 42, 19.2.2013) approved the Regulation of Energy Performance of Buildings (KENAK) , which defines the relevant calculation methodology, the minimum requirements for the energy performance of buildings, the type and content of the necessary Energy Performance Study (EPS) of buildings and building units, the procedure and frequency for the conduction of energy inspections of buildings and heating and cooling systems, the type and content of the Energy Efficiency Certificate (EEC) to be issued, the procedure for issuing this certificate, the monitoring and control of the procedure of the energy inspection, the competent authorities and any other specific issue or necessary detail.
	End use	Building specifications in terms of design, building envelope and electromechanical installations
	Target group	All new buildings with a total surface area of more than 50 m ² and the existing ones subject to major renovations.
	Area of application	National level
Implementation information	List and description of energy saving measures	KENAK established integrated energy planning in the building sector, aiming to improve the energy efficiency of buildings, ensure energy savings and protect the environment through the following actions: <ol style="list-style-type: none"> 1. preparing an energy performance study for buildings; 2. setting of minimum energy performance requirements for buildings; 3. classifying buildings in terms of energy (energy performance certificate); 4. carrying out energy inspections of buildings, boilers, and heating and air-conditioning installations.
	Budget and sources of funding	-

[NATIONAL ENERGY EFFICIENCY ACTION PLAN]

Title		Regulation on the Energy Performance of Buildings
	Implementing body	Ministry of the Environment and Energy
	Supervising authority	Ministry of the Environment, Technical Chamber of Greece

[NATIONAL ENERGY EFFICIENCY ACTION PLAN]

Title		'Saving at home II' programme
Measure code		K8
Description	Category	Financial incentives
	Implementation framework	Start: 2017
	Purpose / brief description	The ' Saving at home II ' programme involves the implementation of interventions to improve the energy performance of residences that are proved to have low energy performance and belong to low-income owners who cannot fully fund on their own the energy upgrade of their residence, or in which interventions going beyond the minimum required levels of energy performance will be implemented. The programme is set up to provide incentives for energy saving interventions in the residential building sector aiming at the reduction of energy needs. Aid is to be granted either directly to the beneficiary or in the form of a grant coupled with an interest-free or low-interest loan. The financial instrument to be used for the implementation of the action has been the result of the ex-ante evaluation of a financial instrument for energy-saving actions in the residential sector.
	End use	Energy consumption for domestic hot water, heating-cooling
	Target group	The programme concerns buildings that have a building permit or other legalising document, are used as main residence and whose owners meet specific income criteria.
	Area of application	National level
Implementation information	List and description of energy saving measures	Eligible interventions include: <ol style="list-style-type: none"> 1. Replacement of window frames with new thermal insulated/break frames with double glazing. 2. Installing thermal insulation in the building envelope, including the flat roof/roof and pilotis. 3. Upgrade of the heating system.

[NATIONAL ENERGY EFFICIENCY ACTION PLAN]

Title		'Saving at home II' programme
		<p>4. Upgrade with RES systems for heating/cooling. In this category, it is possible to install a solar system to provide DHW and/or assist the main heating system (collector, water storage tank, support, piping, etc.) as well as a system for accommodating the heating/cooling loads, that operates through the use of renewable energy sources (e.g. biomass burner, heat pumps, solar thermal systems, etc.) or a high-efficiency CHP system (HECHP).</p> <p>The energy upgrade proposal (combination of interventions) submitted with the application should cover the minimum energy objective of the programme which is different in the case of low incomes.</p>
	Budget and sources of funding	The programme is funded by the European Union (European Regional Development Fund (ERDF) and National Resources, through the Regional Operational Programmes (ROP) and Operational Programme 'Competitiveness, Entrepreneurship, Innovation' (OP-CEI) of NSRF 2014-2020. The total public expenditure of the programme amounts to EUR 292.18 million (EUR 248.06 million from the OP-CEI Operational Programme 'Competitiveness, Entrepreneurship, Innovation' and EUR 44.12 million from the ROPs - Regional Operational Programmes).
	Implementing body	Special Management Service for the OP-CEI
	Supervising authority	Ministry of the Environment and Energy

[NATIONAL ENERGY EFFICIENCY ACTION PLAN]

Title		Improving the energy efficiency of SMEs
Measure code		K9
Description	Category	Financial incentives
	Implementation framework	Start: 2018
	Purpose / brief description	The 'Improving the energy efficiency of SMEs' programme aims to support micro, small and medium-sized enterprises in order to improve their energy efficiency.
	End use	Total energy consumption
	Target group	The action is aimed at micro, small and medium-sized enterprises from all of manufacturing, handicraft, trade, services, tourism and shipping sectors.
	Area of application	National level
Implementation information	List and description of energy saving measures	<p>The action involves:</p> <ul style="list-style-type: none"> • Interventions in the building envelope: Thermal insulation, window frames/glazing, shading systems. • Upgrade of internal electrical installations and power distribution systems. • Upgrade of systems for the production and distribution of thermal energy both for cooling/heating purposes and in production. (e.g. hot water/steam generating equipment and systems, waste heat recovery equipment, etc.). • Upgrade or inclusion of new materials and equipment to reduce energy losses. • Upgrade of lighting equipment. • Installation of energy management systems. • Energy inspections and/or energy audits before and after assessing the energy outcome. • Certification of the energy management system according to ISO 50001. • Project consultant.

[NATIONAL ENERGY EFFICIENCY ACTION PLAN]

		<ul style="list-style-type: none"> Other interventions, as specified in the guide. <p>Interventions do not include production equipment. Specific objectives (desired outcomes) and eligible budget limits will be set for each of these interventions.</p>
	Budget and sources of funding	The action is funded by the European Union [European Regional Development Fund (ERDF)] and National Resources, through the Operational Programme 'Competitiveness, Entrepreneurship, Innovation' (OP-CEI) 2014-2020. The total budget of the action amounts to EUR 64.06 million and the total public expenditure amounts to EUR 32.3 million.
	Implementing body	Special Management Service for the OP-CEI
	Supervising authority	Ministry of the Environment and Energy

[NATIONAL ENERGY EFFICIENCY ACTION PLAN]

Title		Replacement of oil-fired heating systems with gas-fired ones in residences
Measure code		K10
Description	Category	Financial incentives
	Implementation framework	Start: 2018
	Purpose / brief description	The action ' Replacement of oil-fired heating systems with gas-fired ones in residences ' involves the subsidy for the cost of the internal gas installation to replace existing oil-fired heating systems in residences, with a view to reducing emissions of gaseous pollutants by improving the energy efficiency of residential heating systems and increasing gas penetration in urban areas.
	End use	Energy consumption for heating and domestic hot water in the residential sector
	Target group	The action involves supporting low-income owners who cannot fully fund on their own the replacement of the existing oil-fired heating system with a natural gas system.
	Area of application	This action will strengthen residences located in low-price zones of Attica where the penetration of natural gas is low.
Implementation information	List and description of energy saving measures	Replacement of the existing oil-fired heating system with a natural gas system.
	Budget and sources of funding	The action is funded by the European Union [European Regional Development Fund (ERDF)] and National Resources, through the Operational Programme 'Transport Infrastructure, Environment and Sustainable Development' (2014-2020). The current budget for this action is EUR 5 million.
	Implementing body	Special Service for the Management of the Operational Programme 'Transport Infrastructure, Environment and Sustainable Development'
	Supervising authority	Ministry of the Environment and Energy

2.3. Complementary measures to address the issue of the energy performance of buildings and appliances

This section presents the existing policy measures to promote the use of energy-efficient appliances and equipment in buildings (Table 14).

Table 14: Existing policy measures to promote the use of energy-efficient appliances and equipment in buildings.

No	Title of measure	Type of measure	Year commencing	State of implementation
ΚΣ1	Energy labelling of appliances and minimum energy efficiency requirements	Regulation - Provision of information and obligatory information measures	2008	In progress

3. ENERGY PERFORMANCE OF PUBLIC BODIES’ BUILDINGS (ARTICLES 5 AND 6)

3.1. Central government buildings (Article 5)

Article 7 of Law 4342/2015 (Government Gazette, Series I, No 143, 9.11.2015) on the exemplary role of public bodies’ buildings has transposed Article 5 of the EED into Greek law.

The list of heated and/or cooled central government buildings under Article 5 of the EED was posted on the website of the Ministry of the Environment and Energy on 31 December 2013. The list included heated and/or cooled central government buildings with a total useful floor area over 500 m².

The identification of the central government bodies was based on the definition of central government in Article 14 of Law 4270/2014 (Government Gazette, Series I, No 143, 28.6.2014), in accordance with which the Central Government is comprised by the Presidency of the Republic, the Ministries, the Decentralised Administrations and the Independent Authorities.

This process resulted in the drafting of a final list of 82 buildings, with a total floor area of 309 712 m². However, as there is no official register of public buildings in Greece, official communication with all central government bodies has been launched since 2014 to explain the obligation under Article 5 of the EED and to obtain all the necessary information about the buildings over 250 m² and their energy condition. Data processing is currently in progress.

In order to record more effectively the energy characteristics of public buildings, the Ministry of the Environment and Energy has developed an online platform for recording and managing the energy characteristics of public buildings, which is expected to be put in place as of 2018.

3.2. Buildings of other public bodies (Article 5)

Article 7 of Law 4342/2015 (Government Gazette, Series I, No 143, 9.11.2015) on the exemplary role of buildings belonging to public bodies transposed into Greek law Article 5(12) of the EED, which provides that, under the responsibility of the Heads of Regional Units and Mayors for the buildings within their area of competence, an energy efficiency plan should be produced, containing specific energy saving and energy efficiency improvement objectives and actions. The plan should be reviewed every two years and submitted to the Directorate for Energy Policy and Energy Efficiency of the Secretariat-General for Energy and Mineral Raw Materials of the Ministry of the Environment and Energy. Moreover, it is envisaged to put in place an energy management system, which includes energy audits under the Energy Efficiency Plan and, to the extent feasible, energy efficiency plans are implemented, using, inter alia, specific financing tools and instruments, as well as energy service providers through EPCs. Finally, these buildings, which are part of energy efficiency plans or energy management systems, have priority in establishing financial incentives and programmes to improve the energy performance of public buildings.

Table 15 shows the number of existing measures in place to meet this obligation.

Table 15: Existing policy measures for the energy upgrade of public buildings.

No	Title of measure	Type of measure	Year commencing	State of implementation
ΔΚ1	Integrated energy planning of local authority organisations and Covenant of Mayors	Grant Exemplary role of the public sector	2009	In progress
ΔΚ2	Energy savings interventions on public buildings	Grant Exemplary role of the public sector	2010	Completed
ΔΚ3	Interventions to improve energy efficiency in school buildings	Grant Exemplary role of the public sector	2011	Completed
ΔΚ4	Green terraces in public buildings	Grant Exemplary role of the public sector	2011	Not implemented
ΔΚ5	Compulsory installation of central solar thermal systems to meet domestic hot water requirements	Regulation	2011	In progress
No	Title of measure	Type of measure	Year commencing	State of implementation
ΔΚ6	Compulsory replacement of all low energy efficiency light fittings in the public sector and the wider public sector	Regulation	2006	In progress

ΔΚ7	Intelligent Nearly Zero Energy Theme Museums	Grant Exemplary role of the public sector	2012	Not implemented
ΔΚ8	Energy managers in public sector and general government buildings	Institutional-Regulatory	2014	In progress

A total of 59 operations with a total cost of EUR 23.3 million took part in the **‘ENERGY EFFICIENCY’** programme. Overall, the completion of the **‘ENERGY EFFICIENCY’** programme by local authority organisations contributed by to energy saving 37.2 % and achieved an annual 9.8 ktn reduction in CO₂ emissions. More information on the total cost, annual energy savings and annual reduction in CO₂ emissions on the two main axes of the programme for all the integrated operations is presented in Table 16.

Table 16: Indicators of Result for the **‘ENERGY EFFICIENCY’** programme

Axis	Budget	Primary energy savings		Reduction in CO ₂ emissions	
		ktoe	%	ktn	%
Improving the energy efficiency of existing municipal buildings	EUR 16.2 million	1 722	30.4 %	5.97	29.1 %
Upgrading open-air urban spaces	EUR 4.6 million	746	56.1 %	2.69	55.8 %

A total of 14 operations with a total public expenditure of EUR 2.7 million took part in the **‘ENERGY EFFICIENCY’** programme. The average primary energy savings are 41 %, while the reduction in CO₂ emissions is estimated to be 0.93 ktn CO₂. Finally, the completion of the actions led to the creation of 36.2 jobs (man-years of employment).

The energy savings from policy measures in Table 15, which were funded by the Operational Programme 'Environment and Sustainable Development' 2007-2013 (OPESD), were quantified under the policy measure M14 'OPESD operations', which was included in the alternative policy measures for compliance with the obligation under Article 7 of the EED.

Under the programme '**Standard demonstration projects on the use of Renewable Energy Sources (RES) and/or Energy Saving (ES) in public buildings**', 5 operations of a total public expenditure of EUR 10.1 million were completed, which led to a reduction in greenhouse gas emissions of 1.49 ktn CO₂ (38.3 % average reduction) and the creation of 138.5 man-years of employment during their implementation. The average energy savings rate was 43.2 %.

7 operations were completed under the programme '**Bioclimatic Demonstration Schools**', with a total public expenditure of EUR 26.3 million, resulting in an average 22.6 % greenhouse gas reduction and the creation of 245.7 man-years of employment during their implementation. The average energy savings rate was 22.1 %.

67 operations were completed under the programme '**Standard demonstration projects on the use of Renewable Energy Sources and Energy Saving Actions in new, under construction or existing buildings, gyms and swimming pools owned by local authorities and municipal enterprises of local authorities**', with a total public expenditure of EUR 10.5 million.

Finally, 4 operations were completed under the programme '**Standard demonstration projects on the use of Renewable Energy Sources and Energy Saving Actions in new, under construction or existing buildings, gyms and swimming pools owned by local authorities and municipal enterprises of local authorities**', with a total public expenditure of EUR 22.4 million, which led to a reduction in greenhouse emissions of 0.77 ktn CO₂ (53.8 % average reduction) and the creation of 151.5 man-years of employment during their implementation. The average energy savings rate was 54.6 %.

The new policy measures for the energy upgrade of public buildings are presented in Table 17.

Table 17: New measures for the energy upgrade of public buildings.

No	Title of measure	Targeted end use	Start
ΔΚ9	Energy upgrading of public buildings	Public sector	2018
ΔΚ10	Holding Fund under the name 'Infrastructure Fund - Projects for the energy upgrade of public buildings	Public sector	2018

The following tables provide a detailed presentation of the new measures for the energy upgrading of public buildings.

[NATIONAL ENERGY EFFICIENCY ACTION PLAN]

Title		Energy upgrading of public buildings
Measure code		ΔΚ9
Description	Category	Grant - Exemplary role of the public sector
	Implementation framework	Start: 2018
	Purpose / brief description	The programme ‘Energy upgrading of public buildings’ aims at energy upgrading of energy-intensive public buildings, exploiting the potential for energy savings and improving energy efficiency in the building sector, with public sector buildings being an example to mobilise the entire economy. The first call for this programme is titled ‘Energy Upgrading and Energy Savings Actions and Utilisation of Renewable Energy Sources (RES) in Sports Facilities’ .
	End use	Reduction in energy consumption of public buildings and reduction of CO ₂ emissions by improving energy efficiency and RES use in public sector infrastructures through the adoption of energy-efficient space cooling and heating systems and DHW production, as well as through the implementation of energy savings technologies.
	Target group	Public buildings The call titled ‘Energy Upgrading and Energy Savings Actions and Utilisation of Renewable Energy Sources (RES) in Sports Facilities’ refers to closed sports facilities and open swimming sports facilities.
	Area of application	National level
Implementation information	List and description of energy saving measures	<p>The upgrades will, inter alia, include:</p> <ol style="list-style-type: none"> 1. Energy upgrading and energy savings interventions, such as adding insulation, replacing window frames and glazing with new certified, energy-efficient ones, replacing burner systems/boilers/piping with a RES system, replacing old air conditioning systems, passive solar systems, etc. 2. RES projects such as construction of a high efficiency cogeneration of heat and power facility, construction of a facility for making use of the heat produced from the HECHP and/or RES facility for cooling purposes, etc.

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		<p>Specific requirements for the energy upgrade of public buildings will be defined with a view to implementing interventions that exceed the minimum required energy efficiency levels or, if economically and technically feasible, their upgrading to energy classes B+, A, A+, or to Nearly Zero Consumption Buildings.</p> <p>Meeting the energy target will be ensured through the conduct of an energy audit by an energy inspector both before and after the implementation of the interventions.</p>
	Budget and sources of funding	<p>The programme is funded by the European Union [European Regional Development Fund (ERDF)] and National Resources, through the Regional Operational Programmes (ROP) and Operational Programme ‘Competitiveness, Entrepreneurship, Innovation’ (OP-CEI) and the Operational Programme ‘Transport Infrastructure, Environment and Sustainable Development’ (OP-TIESD) of NSRF 2014-2020. The total public expenditure of the operation amounts to EUR 244.93 million.</p> <p>The public expenditure as part of the call titled ‘Energy Upgrading and Energy Savings Actions and Utilisation of Renewable Energy Sources (RES) in Sports Facilities’ amounts to EUR 27 million.</p>
	Implementing body	Special Management Services of the Operational Programmes
	Supervising authority	Ministry of the Environment and Energy

[NATIONAL ENERGY EFFICIENCY ACTION PLAN]

Title		Holding Fund under the name 'Infrastructure Fund - Projects for the energy upgrade of public buildings'
Measure code		ΔΚ10
Description	Category	Grant - Exemplary role of the public sector
	Implementation framework	Start: 2018
	Purpose / brief description	<p>The Holding Fund under the name 'Infrastructure Fund' - which was set up with Ministerial Decision No 6269/29.11.2017 (Government Gazette, Series II, No 4159), aims at maximising the use of the Financial Instruments to cover the financial gap, inter alia in the fields of Energy Saving and Promotion of Renewable Energy Sources (RES). As part of the Fund, resources from the Operational Programme 'Competitiveness, Entrepreneurship, Innovation' (OP-CEI) relating to these areas will be drawn, in conjunction with national resources from a European Investment Bank (EIB) loan and repayments of the JESSICA financial instrument for the period 2007-2013. The liquidity of public and private entities will be strengthened through the Infrastructure Fund, for the implementation of projects with favourable funding conditions.</p> <p>In the energy sector, the projects that will be financed by the Infrastructure Fund and are related to the resources to be allocated by OP-CEI will concern projects for the energy upgrading of public buildings, as well as projects for the production and distribution of energy from RES.</p>
	End use	Reduction in energy consumption of public buildings and reduction of CO ₂ emissions by improving energy efficiency and RES use in public sector infrastructures through the adoption of energy-efficient space cooling and heating systems and DHW production, as well as through the implementation of energy savings technologies.
	Target group	Public buildings
	Area of application	National level

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Title		Holding Fund under the name 'Infrastructure Fund - Projects for the energy upgrade of public buildings'
Implementation information	List and description of energy saving measures	<p>The upgrading of buildings will cover, among others, interventions in the building envelope (thermal insulation), replacement of window frames, replacement of cooling and heating systems, etc.</p> <p>In order to achieve the objectives of the Fund in the sector of energy savings:</p> <ul style="list-style-type: none"> • Specific requirements for the energy upgrade of public buildings will be defined with a view to implementing interventions that exceed the minimum required energy efficiency levels or, if economically and technically feasible, their upgrading to energy classes B+, A, A+, or to Nearly Zero Consumption Buildings. • The proposed interventions will be determined. • Meeting the energy target will be ensured through the conduct of an energy audit by an energy inspector both before and after the implementation of the interventions. Achievement of the goal will be demonstrated from the Energy Efficiency Certificate (EEC) or the Energy Audit Outcomes for interventions not covered by the EEC.
	Budget and sources of funding	<p>The Fund draws resources from the Operational Programme 'Competitiveness, Entrepreneurship, Innovation' (OP-CEI), in conjunction with national resources from a European Investment Bank (EIB) loan and repayments of the JESSICA financial instrument for the period 2007-2013. The total resources of the Fund amount to EUR 450 million, while the resources of OP-CEI in the energy sector amount to EUR 128.7 million.</p>
	Implementing body	Special Management Service for the OP-CEI
	Supervising authority	Ministry of the Environment and Energy

3.3. Purchasing by public bodies (Article 6)

Article 8 of Law 4342/2015 (Government Gazette, Series I, No 143, 9.11.2015) on the energy efficiency in purchasing by public bodies transposed Article 6 of the EEC into Greek law. Central governments purchase only products, services and buildings with high energy-efficiency performance, insofar as that is consistent with cost-effectiveness, economical feasibility, wider sustainability, technical suitability, as well as sufficient competition. It is noted that this requirement may be extended to other public bodies.

Moreover, public bodies may, when tendering service contracts with significant energy content, assess the possibility of concluding long-term energy performance contracts that provide long-term energy savings.

Finally, when concluding a new lease or purchase of a building by public bodies, the building must be classified at least under energy category B, as set out in the Regulation on the Energy Performance of Buildings. The above obligation is progressively applied to the renewal of existing lease agreements with the aim of ensuring that all buildings used to house public sector departments are classified at least under energy category C by 2020.

Pursuant to Article 18 of Law 3855/2010 (Government Gazette, Series I, No 95, 23.6.2010), the authority in charge of the elaboration of a National Policy and the elaboration of a National Action Plan for the promotion of Green Public Contracts, under the provisions of the EU legislation, is set to be the Secretariat-General for Commerce and Consumer Protection of the Ministry of Economic Affairs, Development and Tourism. The above Secretariat-General, in the framework of its competencies, shall cooperate with the services of the competent ministries and public and private sector bodies to promote the necessary legislative arrangements and to take the necessary steps required for the implementation of the relevant provisions for the Green Public Contracts.

A committee comprised of 11 members is established with a view to carrying out the coordinating work of the Ministry of Economy, Development and Tourism, to harmonise the policies pursued by the relevant ministries, as well as to elaborate a National Policy and a National Action Plan for the Promotion of Green Public Contracts, which shall have the following responsibilities:

- I. to elaborate an Action Plan for the promotion of Green Public Contracts and submit proposals for national policy-making within eighteen (18) months from its commencement. The National Action Plan is approved by Joint Decision of the Minister for Economy, the Minister for Development and Tourism and the Minister for the Environment and Energy;

- II. to provide timely information to the suppliers of public bodies, as well as other interested parties;
- III. to consider the drafting of environmental criteria or the adoption of those issued by the European Commission;
- IV. to select the products, services and projects to which environmental criteria will be applied;
- V. to evaluate, monitor the implementation of and update the national policy and the national Action Plan;
- VI. to recommend to the Minister for Economy, the Minister for Development and Tourism and any other competent Minister, any necessary legislation and modification of the existing legislative framework, where necessary, and to take the necessary measures for the implementation of the relevant provisions for Green Public Contracts and the fulfilment of their purpose;
- VII. to propose to the Minister for Environment, Energy and Climate Change and any other competent Minister to invite specialised scientists and experts engaging in research related to the Committee's objective, for them to provide technical and scientific support to the Committee;
- VIII. to propose to the Minister for Environment, Energy and Climate Change and any other competent Minister the assignment of studies and programmes for the promotion of the implementation of the Green Public Contracts and the Committee's work, to organise or participate in seminars, programmes, lectures or public discussions for providing information, developing and diffusing the principles and applications of the Green Public Contracts.

Finally, Article 7 of Ministerial Decision No Δ6/B/14826/17.6.2008 (Government Gazette, Series II, No 1122) 'Measures to improve energy efficiency and energy savings in the central and general government' stipulates that energy labelling and certified energy efficiency indication of appliances supplied by the State is mandatory.

4. MEASURES ON ENERGY EFFICIENCY IN THE INDUSTRIAL SECTOR

4.1. Key policy measures addressing the issue of energy efficiency in the industrial sector

This section presents the existing and new measures aimed at improving energy efficiency in the industrial sector (Tables 18 and 19).

Table 18: Existing policy measures to improve energy efficiency in the industrial sector.

No	Title of measure	Type of measure	Year commencing	State of implementation
B1	Relocation of enterprises to industrial-business zones and business parks	Financial incentives	2013	Completed
B2	Innovative Entrepreneurship, Supply Chain, Food, Drinks	Business loans with favourable terms	2011	Completed
B3	Green Business	Financial incentives	2010	Completed
B4	Support for improving energy efficiency in manufacturing enterprises	Financial incentives	2015	Not implemented

Table 19: New measures for improving energy efficiency in the industrial sector

No	Title of measure	Targeted end use	Start
B5	Programme 'Modern manufacturing'	Industrial-Craft sector	2018

A detailed presentation of measure B5 on the improvement of energy efficiency in the industrial sector is shown in the table below.

[NATIONAL ENERGY EFFICIENCY ACTION PLAN]

Title		Programme 'Modern manufacturing'
Measure code		B5
Description	Category	Funding programme
	Implementation framework	2018-2020
	Purpose / brief description	The programme ' Modern manufacturing ' involves the financing of business plans for small and medium-sized enterprises and aims at transforming the manufacturing base of the Greek economy into new or diversified production lines, products and manufacturing services with extrovert orientation.
	End use	Industrial-Craft sector
	Target group	Existing manufacturing SMEs employing 50-250 persons or enterprises in the process of being set up in eligible activity code numbers of the strategic priority sectors, mainly in manufacturing and other related activities, such as the supply chain.
	Area of application	National level
Implementation information	List and description of energy saving measures	One of the three distinct choices of the programme is to improve energy efficiency. In particular, the energy efficiency component for SMEs focuses on providing support to improve the energy efficiency of their production processes and their preparation for the implementation of future Community standards on energy consumption in the production of goods and related services.
	Budget and sources of funding	The programme's total approved budget is EUR 100 million, with 40 % being public expenditure. The eligible budget of the investment projects may range from EUR 250 thousand to EUR 3 million. The rates of aid for small enterprises amount to 30-45 % and for medium-sized enterprises to 20-35 %. The programme is funded by the Operational Programme 'Competitiveness, Entrepreneurship, Innovation' (OP-CEI) 2014-2020.

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Title		Programme 'Modern manufacturing'
	Implementing body	Special Management Service for the OP-CEI
	Supervising authority	Ministry of the Environment and Energy, Ministry of Economy and Development

5. MEASURES ON ENERGY EFFICIENCY IN THE TRANSPORT SECTOR

5.1. Key policy measures addressing the issue of energy efficiency in the transport sector

This section presents the existing policy measures aimed at improving energy efficiency in passenger and freight transport and the transition to more sustainable modes of transport (Table 20).

Table 20: Existing policy measures to improve energy efficiency in the transport sector.

No	Title of measure	Type of measure	Year commencing	State of implementation
M1	Reshaping of the public transport system	Energy efficiency improvement mechanism	2008	Completed
M2	Transport infrastructure projects	Energy efficiency improvement mechanism	2006	Completed
M3	Elaboration of urban mobility plans	Regulatory Voluntary agreements and joint ventures	2011	In progress
M4	Promotion of economical, safe and eco-driving	Regulatory Provision of information Training and education	2008	In progress
M5	Incentives for the replacement of private vehicles and the promotion of the use of energy-efficient vehicles (vehicles fuelled by biofuels and hybrid vehicles)	Financial incentives Regulation	2009	In progress
M6	Eco-labelling – Energy label for cars	Regulation - Provision of information and obligatory information	2009	Completed
M7	Compulsory quotas of vehicles with greater energy efficiency in the fleets of the public services and of public bodies	Regulation Exemplary role of the public sector	2012	Completed
M8	Linking of vehicle taxation to energy efficiency and CO ₂ emissions	Regulation	2010	Completed
M9	Replacing old light trucks in the public and private sectors	Regulation	2010	Completed

No	Title of measure	Type of measure	Year commencing	State of implementation
M10	Replacing old private passenger vehicles	Regulation	2010	Completed
M11	Promotion of CNG and LPG-powered passenger vehicles	Regulation	2011	Not implemented
M12	Introduction of electric vehicles and electric vehicle recharging points	Regulation	2014	In progress

6. PROMOTION OF EFFICIENCY IN HEATING AND COOLING (ARTICLE 14)

6.1. Comprehensive assessment

Article 15 of Law 4342/2015 (Government Gazette, Series I, No 143, 9.11.2015) 'Promotion of efficiency in heating and cooling transposes into national law the obligations of Article 24 of the EED relating to Article 14(6). The Directorate for Renewable Energy Sources and Electricity of the Secretariat-General for Energy and Mineral Resources of the Ministry of the Environment and Energy is responsible for the elaboration of a comprehensive assessment of the potential for the implementation of high efficiency cogeneration and efficient district heating and cooling, including the information listed in Annex VIII and taking full account of the analysis of the high-efficiency cogeneration potential referred to in Law 3734/2009 (Government Gazette, Series I, No 8, 28.1.2009), transposing Directive 2004/08/EC into Greek law.

Law 4414/2016 (Government Gazette, Series I, No 149, 9.8.2016) 'New support scheme for plants producing electricity from renewable energy sources and high efficiency cogeneration of power and heat - Provisions for the legal and functional separation of the supply and distribution sectors on the gas market and other provisions', develops a new support scheme for RES and HECHP plants, compatible with the 'Guidelines on State aid for environmental protection and energy (2014-2020)' (Communication of the European Commission, OJ C 200, 28.6.2014).

Moreover, the support scheme for electricity generation from RES or HECHP plants is reformed in order to achieve the gradual integration and participation of RES and HECHP plants in the electricity market in the best way possible in terms of the cost-benefit for society. At the same time, the operation of HECHP plants, the improvement of energy efficiency and primary energy savings is supported.

The exemption criteria from the obligation under Article 14(6) of the EED to carry out a cost-benefit analysis for the recovery of waste heat, were notified to the European Commission on 31 December 2013 and are presented in detail in the 3rd NEEAP.

The comprehensive assessment of high efficiency cogeneration potential and efficient district heating and cooling has been prepared and submitted to the European Commission in March 2016.

The comprehensive assessment approaches the ability to meet the needs for heating and cooling in an energy efficient way at national level in an integrated way. The study assessed the demand for heating and cooling in all economic activity sectors, the potential of high efficiency cogeneration, efficient district heating and cooling and the recovery of waste heat from industrial plants to meet this demand in a cost-effective way.

In order to investigate and determine the most cost-effective way to meet the demand for heating and cooling, a cost-benefit analysis was performed, that covers the entire territory, taking also into account the climatic conditions, the economic feasibility and the technical potential for implementing the technologies under consideration, according to Part 1 of Annex IX to Law 4342/2015 (Government Gazette, Series I, No 143, 9.11.2015).

The study included an economic analysis and cost-benefit analysis of the technically exploitable potential of efficient heating and cooling at society level. The analysis took into account the change in demand for heating and cooling per climatic zone, as well as the change in the economic potential in terms of the source of available energy to meet heating and cooling needs.

Three scenarios were set for the analysis. Each scenario was evaluated against the baseline scenario, which relates to the current situation of heating and cooling generation by use of conventional technologies. The scenarios covered the following:

Scenario 1: The demand for heating per settlement type is covered by district heating systems using available waste heat from existing facilities.

Scenario 2: The demand for heating per settlement type is covered by district heating systems using heat generated from new heat generation facilities by use of natural gas, biomass and co-combustion of biomass and lignite.

Scenario 3: The demand for heating per settlement type is covered by district heating systems using heat generated from high-efficiency co-generation systems by use of natural gas.

Scenario 4: Penetration of co-generation and heat pumps for individual installations in the residential, tertiary and industrial sectors.

The results of the cost-benefit analysis illustrate the measures and policies that can be taken by 2030 to optimise the use of efficient heating and cooling potential.

According to the outcomes of the analysis of the scenarios examined, great emphasis should be placed on identifying points where waste heat is available and utilising it for providing heat to settlements via district heating networks, since the cost-benefit analysis demonstrates that major economic, social and environmental benefits may arise from selecting this specific method of generating energy-efficient heating.

In addition, biomass and lignite combustion technology and heat supply technology are examined by combining biomass and natural gas boiler technologies. The cost-benefit analysis performed demonstrated major benefits for society in both cases. For these technologies to be economically viable, State aid must be granted, of an amount depending on the climate zone, the demand for heat and the distance from the thermal source, and provided that there is technical potential for the implementation of those technologies, as extensively presented in Chapter 6 hereof.

With regard to Scenario 3, namely the penetration of HECHP systems for the production of energy-efficient district heating, the analysis made demonstrated that the technologies of differential pressure steam turbine, steam extracting-condensing turbine with heat recovery and steam turbine with heat recovery differ marginally as regards both the economic analysis and the cost-benefit analysis. The most common method, where technical capability is available, is the combined cycle gas turbine with heat recovery, followed by internal combustion engines and other HECHP technologies.

As far as Scenario 4 is concerned, the analysis performed has shown that, from an economic point of view, it is not economically viable to invest in all the cases considered for each climate zone. Nonetheless, cost-benefit analysis at a community level shows a very great benefit for investing in heat generation systems through cogeneration systems. For that purpose, the amount of the existing funding gap that has to be covered for the investment to be economically viable is determined, where the cost/benefit ratio is over 1.

In addition, the penetration of air-heated heat pumps into residential buildings is not recommended, since in all cases the cost/benefit ratio is lower than 1.

According to the results of the cost-benefit analysis, energy-efficient district cooling is not proven to be socially efficient and the envisaged policies should not include the district cooling infrastructures as a first stage. The Minister for the Environment and Energy is expected to approve the comprehensive assessment.

Finally, the cost-benefit analysis procedure and methodology at facility level, including district heating companies and other stakeholders (*Annex IX, Part 1 of the Directive*), is expected.

6.2. Key policy measures addressing the issue of heating and cooling efficiency

Table 21 presents existing policy measures to promote efficient heating and cooling systems, and Table 22 illustrates the new policy measures.

Table 21: Existing policy measures to promote efficient heating and cooling systems.

No	Title of measure	Type of measure	Year commencing	State of implementation
ΘΕΡΜ1	Installation of high-efficiency cogeneration of heat and power systems with natural gas in hospitals	Grant	2011	In progress
ΘΕΡΜ2	Installation of district heating networks	Grant	2009	In progress

The programme ‘**District heating network of Florina**’, with a total public expenditure of EUR 29.1 million, resulted in an average 88.1 % greenhouse gas reduction and the creation of 706 man-years of employment during their implementation.

4 operations were completed under the programme ‘**District heating networks**’, with a total public expenditure of EUR 34.1 million, resulting in an average 48.3 % greenhouse gas reduction and the creation of 610 man-years of employment during their implementation.

Finally, 2 operations were completed under the programme ‘**Promotion of high-efficiency cogeneration of heat and power (HECHP) systems**’, with a total public expenditure of EUR 4.5 million, resulting in a greenhouse gas reduction of 15 ktn CO₂ and the creation of 55 man-years of employment during their implementation. The average energy savings rate was 32.4 %.

Table 22: New policy measures to promote efficient heating and cooling systems.

No	Title of measure	Targeted end use	Start
ΘΕΡΜ3	Promotion of efficient district heating systems	Promotion of efficient heating systems	2018
ΘΕΡΜ4	Completion/expansion of infrastructure for the increase of electricity capacity through cogeneration - District heating in the Region of Western Macedonia (Florina, Kozani)	Promotion of efficient heating systems	2018

No	Title of measure	Targeted end use	Start
ΘΕΡΜ5	Promotion of heating and cooling systems from RES and heat cogeneration for self-consumption	Promotion of efficient heating and cooling systems	2018
ΘΕΡΜ6	Thermal power generation plants using biomass for the 30 MW district heating network of Amyntaion	Promotion of efficient heating systems	2018
ΘΕΡΜ7	Holding fund under the name 'Infrastructure Fund' - Projects for power production and distribution from RES	Promotion of efficient heating and cooling systems	2018

A detailed presentation of the new measures to promote efficient heating and cooling systems is provided in the following tables.

[NATIONAL ENERGY EFFICIENCY ACTION PLAN]

Title		Promotion of efficient district heating systems
Measure code		ΘΕΡΜ3
Description	Category	Grant
	Implementation framework	Start: 2018
	Purpose / brief description	The programme ' Promotion of efficient district heating systems ' aims at installing integrated district heating systems to improve energy efficiency.
	End use	Reduction in energy consumption for heating and supply of DHW in the residential sector as well as for other uses.
	Target group	The programme concerns the promotion of integrated efficient district heating systems in semi-urban and rural settlements.
	Area of application	National level
Implementation information	List and description of energy saving measures	The operations actions funded under this programme involve extensions of district heating networks and the construction of a thermal power plant. Moreover, it is envisaged to strengthen the supply chain infrastructure in the biomass sector.
	Budget and sources of funding	The programme is funded by the European Union (European Regional Development Fund (ERDF) and National Resources, through the Operational Programme 'Competitiveness, Entrepreneurship, Innovation' (OP-CEI) 2014-2020. The total budget of the action amounts to EUR 37.5 million and the total public expenditure amounts to EUR 25 million.
	Implementing body	Special Management Service for the OP-CEI
	Supervising authority	Ministry of the Environment and Energy

[NATIONAL ENERGY EFFICIENCY ACTION PLAN]

Title		Completion/expansion of infrastructure for the increase of electricity capacity through cogeneration - District heating in the Region of Western Macedonia (Florina, Kozani)
Measure code		ΘΕΡΜ4
Description	Category	Grant
	Implementation framework	Start: 2018
	Purpose / brief description	Completion and extension of infrastructure for recovery of the waste heat from the power generation process in PPC's steam power plants in order to use this heat for urban purposes (heating and hot water use) in the cities of Florina and Kozani.
	End use	Reduction in energy consumption for heating and supply of DHW in the residential and tertiary sectors.
	Target group	Residential and tertiary sector
	Area of application	Region of Western Macedonia
Implementation information	List and description of energy saving measures	<p>The physical object of the programme includes the following:</p> <ol style="list-style-type: none"> 1. Florina Transmission Pipeline - Florina Distribution Network - Pumping stations. 2. Supply and complete installation of a total of six primary pumping stations. 3. Supply and complete installation of two boilers with thermal power of 27.5MW each. 4. Supply and complete installation of 2 534 thermal substations with counter-flow alternators for heat exchange between the primary (distribution network) and the secondary (heating network of buildings) circuits. 5. Modifications within the Melitis TPP/PPC, for the supply of district heating to Florina with a thermal load of up to 70MW from the Melitis TPP. 6. Supporting projects, in particular projects for the connection of installations to the public utilities network, publicity of the operation, technical consultancy services, archaeological research and rescue work (if any), rights of way allowances, land purchase and transit costs.
Title		Completion/expansion of infrastructure for the increase of electricity capacity through cogeneration - District heating in the Region of Western Macedonia (Florina, Kozani)

[NATIONAL ENERGY EFFICIENCY ACTION PLAN]

	Budget and sources of funding	The programme is funded by the European Union [European Regional Development Fund (ERDF)] and National Resources, through the Operational Programme 'Transport Infrastructure, Environment and Sustainable Development' (2014-2020). The total public expenditure of the operation amounts to EUR 42 million.
	Implementing body	Special Service for the Management of the Operational Programme 'Transport Infrastructure, Environment and Sustainable Development'
	Supervising authority	Ministry of the Environment and Energy

[NATIONAL ENERGY EFFICIENCY ACTION PLAN]

Title		Promotion of heating and cooling systems from RES and heat cogeneration for self-consumption
Measure code		ΘΕΡΜ5
Description	Category	Grant
	Implementation framework	Start: 2018
	Purpose / brief description	The programme ' Promotion of heating and cooling systems from RES and heat cogeneration for self-consumption ' aims at the installation of heating and cooling systems from RES and heat cogeneration for self-consumption in order to improve energy efficiency.
	End use	Efficient heating and cooling
	Target group	Manufacturing and craft industries, trade, services, tourism and shipping
	Area of application	National level
Implementation information	List and description of energy saving measures	<p>The project in question includes:</p> <ul style="list-style-type: none"> • Installations of heating and cooling systems from RES, i.e. using biomass, biogas, geothermal, solar and other RES systems. • High-efficiency cogeneration of heat using RES. • Installations of waste heat recovery systems. <p>Cogeneration facilities are eligible only when they will act as self-generation facilities. Cogeneration facilities fuelled by natural gas are not eligible. Interventions do not include production equipment. Specific objectives (desired outcomes) and eligible budget limits will be set for each of these interventions, and the eligible expenditure categories will be specified.</p>
	Budget and sources of funding	The programme is funded by the European Union [European Regional Development Fund (ERDF)] and National Resources, through the Operational Programme

[NATIONAL ENERGY EFFICIENCY ACTION PLAN]

Title		Promotion of heating and cooling systems from RES and heat cogeneration for self-consumption
		'Competitiveness, Entrepreneurship, Innovation' (OP-CEI) 2014-2020. The total budget of the operation amounts to EUR 70 million and the total public expenditure of the programme amounts to EUR 35 million.
	Implementing body	Special Management Service for the OP-CEI
	Supervising authority	Ministry of the Environment and Energy

[NATIONAL ENERGY EFFICIENCY ACTION PLAN]

Title		Thermal power generation plants using biomass for the 30 MW district heating network of Amyntaion
Measure code		ΘΕΡΜ6
Description	Category	Grant
	Implementation framework	Start: 2018
	Purpose / brief description	Installation of a biomass-fired plant in the existing Amyntaion district heating network, aiming at the substitution of the thermal power currently supplied by the Amyntaion TPP/PPC. The planned biomass-fired thermal power plant has a total power of 30 MW and will meet the thermal needs of the existing Amyntaion district heating network.
	End use	Reduction in energy consumption for heating and supply of DHW in the residential and tertiary sectors.
	Target group	Domestic and tertiary sector in the settlements of Amyntaion, Filotas and Levaia, as well as future thermal needs of the wider region.
	Area of application	Settlements of Amyntaion, Filotas and Levaia in the Region of Western Macedonia
Implementation information	List and description of energy saving measures	The planning of the interventions includes the incorporation of 2 biomass-fired burning units (boilers) of 15 MW each in the Amyntaion district heating network, as well as a space for a third one, of the same thermal power. The boilers will also be able to combine biomass with a small amount of lignite, if required. The boilers will be housed in an appropriate building. There will be an appropriate infrastructure for fitting the fuel feeders to the boilers, auxiliary facilities, and covered biomass storage areas. The overall biomass boiler control system and interconnection device will be connected to the existing SCADA system of the pumping station of the Municipal District Heating Undertaking of the Broader Area of Amyntaion (DETEPA).
	Budget and sources of funding	The programme is funded by the European Union [European Regional Development Fund (ERDF)] and National Resources, through the Operational Programme 'Competitiveness, Entrepreneurship, Innovation' (OP-CEI) 2014- 2020. The total eligible budget of the operation amounts to EUR 11.16 million and the total public expenditure amounts to EUR 6.69 million.

Title	Thermal power generation plants using biomass for the 30 MW district heating network of Amyntaion
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[NATIONAL ENERGY EFFICIENCY ACTION PLAN]

	Implementing body	Special Management Service for the OP-CEI
	Supervising authority	Ministry of the Environment and Energy

[NATIONAL ENERGY EFFICIENCY ACTION PLAN]

Title		Holding fund under the name 'Infrastructure Fund' - Projects for power production and distribution from RES
Measure code		OEPM7
Description	Category	Grant - Exemplary role of the public sector
	Implementation framework	Start: 2018
	Purpose / brief description	<p>The Holding Fund under the name 'Infrastructure Fund' - which was set up with Ministerial Decision No 6269/29.11.2017 (Government Gazette, Series II, No 4159), aims at maximising the use of the Financial Instruments to cover the financial gap, inter alia in the fields of Energy Saving and Promotion of RES. As part of the Fund, resources from the Operational Programme 'Competitiveness, Entrepreneurship, Innovation' (OP-CEI) relating to these areas will be drawn, in conjunction with national resources from a European Investment Bank (EIB) loan and repayments of the JESSICA financial instrument for the period 2007-2013. The liquidity of public and private entities will be strengthened through the Infrastructure Fund, for the implementation of projects with favourable funding conditions.</p> <p>In the energy sector, the projects that will be financed by the Infrastructure Fund and are related to the resources to be allocated by OP-CEI will concern projects for the energy upgrading of public buildings, as well as projects for the production and distribution of energy from RES.</p>
	End use	Reduction in energy consumption of public buildings and reduction of CO ₂ emissions by improving energy efficiency and RES use in public sector infrastructures through the adoption of energy-efficient space cooling and heating systems and DHW production, as well as through the implementation of energy savings technologies.
	Target group	Total final energy consumption
	Area of application	National level

[NATIONAL ENERGY EFFICIENCY ACTION PLAN]

Title		Holding fund under the name 'Infrastructure Fund' - Projects for power production and distribution from RES
Implementation information	List and description of energy saving measures	<p>The projects to be supported by the Infrastructure Fund in the RES sector using OP-CEI resources are included, but not limited to, the following categories:</p> <ul style="list-style-type: none"> • Installations of heating and cooling systems from RES, i.e. using biomass, biogas, geothermal, solar and other RES systems. • High-efficiency cogeneration of heat using RES. • Installations of waste heat recovery systems. • Installations for the production of heat and power through RES technologies with special functional characteristics that ensure the injection of power, while enhancing or increasing the functional characteristics of the power network contributing to its reliable operation in a way that load needs are met. <p>Along with the above categories, support for the creation of supply chains and e-markets will also be funded, where necessary, for the operation of the project.</p>
	Budget and sources of funding	<p>The Fund draws resources from the Operational Programme 'Competitiveness, Entrepreneurship, Innovation' (OP-CEI), in conjunction with national resources from a European Investment Bank (EIB) loan and repayments of the JESSICA financial instrument for the period 2007-2013. The total resources of the Fund amount to € 450 million, while the resources of OP-CEI in the energy sector amount to EUR 128.7 million.</p>
	Implementing body	Special Management Service for the OP-CEI
	Supervising authority	Ministry of the Environment and Energy

7. ENERGY TRANSFORMATION, TRANSMISSION AND DISTRIBUTION AND DEMAND RESPONSE (ARTICLE 15)

Article 15 of the EED was brought in line with Article 16 of Law 4342/2015 (Government Gazette, Series I, No 143, 9.11.2015) 'Energy transformation, transmission and distribution'. This article sets out, inter alia, that RAE is responsible to take into account the energy efficiency of the operation of the gas and electricity infrastructure (paragraph 1) and to create tariffs and incentives for the implementation of energy efficiency improvement measures in the transmission systems and electricity distribution networks (paragraph 2).

Transmission system operators and gas and electricity distribution system operators have not completed the report referred to in paragraph 5 on the assessment of the potential for increasing the energy efficiency of gas and electricity infrastructure and the selection of specific measures and investments to achieve financially viable energy efficiency improvements in the network infrastructure. However, specific operations to improve energy efficiency are included in the 2018-2027 development study by the Hellenic Gas Transmission System Operator SA (DESFA SA) for the national natural gas system, as well as in the ten-year programme for the development of the electricity transmission system 2017-2026 by the Independent Power Transmission Operator (ADMIE). Moreover, pursuant to Law 4001/2011 (Government Gazette, Series I, No 179, 22.8.2011), the Minister for the Environment and Energy may permit components of schemes and tariff structures with a social aim for net-bound energy transmission and distribution, provided that any disruptive effects on the transmission and distribution system are kept to the minimum and are not disproportionate to the social aim.

When approving the tariffs for access to the transmission system and the electricity distribution networks in accordance with the procedure laid down in Article 140 of Law 4001/2011 (Government Gazette, Series I, No 179, 22.8.2011), RAE shall ensure that there are no incentives in transmission and distribution tariffs that are detrimental to the overall efficiency (including energy efficiency) of the generation, transmission, distribution and supply of electricity or that might hamper participation of demand response, in balancing markets and ancillary services procurement (paragraph 7).

Moreover, pursuant to Law 4001/2011 (Government Gazette, Series I, No 179, 22.8.2011), it shall provide incentives to transmission system operators and distribution system operators to improve efficiency in infrastructure design and operation, and shall ensure that tariffs allow electricity suppliers to improve consumer participation in system efficiency, including demand response, depending on domestic circumstances (paragraph 8).

The transmission system operators and distribution system operators shall ensure that RES and HECHP facilities are included on the basis of

Articles 9 and 10 of Law 3468/2006 (Government Gazette, Series I, No 129, 27.6.2006), ensuring the transmission and distribution of electricity from HECHP and giving priority or ensuring access to the electricity network from HECHP, including the distribution of electricity generation capacity to the extent permitted for the safe operation of the electricity grid (paragraph 9).

Paragraph 10 stipulates that a decision shall be adopted by the Minister for Environment and Energy, after RAE's opinion, setting out the rules for prioritising the access and distribution of loads allocated to electricity systems, and making a distinction between and within the different types of RES and HECHP plants when priority access or distribution of loads is given to HECHP, so that priority access or distribution of electricity from variable RES production is not hampered.

HECHP operators may offer balancing services and other operational services at the level of transmission system operators or distribution system operators, where this is technically and economically feasible based on the way the HECHP installation works. Transmission system operators and distribution network operators shall ensure that such services are part of a services bidding process which is transparent, non-discriminatory and open to scrutiny (paragraph 12).

Pursuant to paragraph 13, RAE may require transmission system operators and distribution system operators to reduce connection charges and network charges to encourage the installation of HECHP facilities close to points of high demand.

RAE shall also seek to create conditions enabling, as far as possible and by any appropriate means, the participation in the electricity market of potential demand-oriented resources, such as demand response (paragraph 15). Moreover, RAE shall ensure that transmission system operators and distribution network operators, in meeting requirements for load-production balancing and ancillary services, treat demand response providers, including aggregators, in a non-discriminatory manner, on the basis of their technical capabilities (paragraph 16).

Paragraph 17 stipulates that the Minister for the Environment and Energy shall adopt a decision to promote the access and participation of demand response providers to load-production balancing, reserve capacity and other system services markets.

Finally, following a suggestion by transmission system operators and networks and in cooperation with demand-side service providers and end-users, RAE may adopt technical arrangements for participation in the

system services markets, based on the technical requirements of these markets and the potential to respond to demand. Such specifications shall include the participation of aggregators.

ANNEX A: ANNUAL REPORT UNDER THE ENERGY EFFICIENCY DIRECTIVE

The annual progress report for 2017 on the achievement of the National Energy Efficiency Target in accordance with Article 24(1) of the EED was submitted in August 2017.

The filled in sections of the model form for the year 2017 are listed below.

ANNEX B: DESCRIPTION OF POLICY MEASURES UNDER ARTICLE 7

M18. Energy managers and action plans in State and general public buildings

This measure will be implemented after the adjustment of Joint Ministerial Decision No Δ6/B/14826/17.6.2008 (Government Gazette, Series II, No 1122) 'Measures to improve energy efficiency and energy savings in the central and general government, where the institution of the energy operator in the central and general government is introduced for the first time. Moreover, this Joint Ministerial Decision details the responsibilities of the energy operators, as well as the responsibility of specific competent public bodies to implement this measure.

This measure shall apply to a certain number of buildings, and it is further noted that the energy operator may be responsible for one or several buildings of each body, depending on the operational needs, the total staffing potential, the useful surface area and the volume of the body's buildings.

Alternatively, it is possible to prepare an energy efficiency action plan in accordance with Article 7(12) of Law 4342/2015 (Government Gazette, Series I, No 143, 9.11.2015). In particular, under the responsibility of the Heads of Regional Units and Mayors for the buildings within their area of competence, an energy efficiency plan shall be produced, containing specific energy saving and energy efficiency improvement objectives and actions. The plan shall be reviewed every two years and submitted to the Directorate for Energy Policy and Energy Efficiency of the Secretariat-General for Energy and Mineral Raw Materials of the Ministry of the Environment and Energy.

Energy managers and action plans in State and general public buildings	
Obligated parties	The Ministry of the Environment and Energy, the Ministry of the Interior, the Ministry of Development and Competitiveness, the entire public and broader public sector and the energy operators of the buildings.
Target sectors	Public and broader public sector.
Energy savings target level	The total of new energy savings in the 2014-2020 period is estimated at 170.2 ktoe.
Length of obligation period	The length of the implementation period of the measure is 2014-2020. The life of the measure is more than 10 years.
Eligible categories of measures	The responsibilities of the energy operator include: <ol style="list-style-type: none"> 1) Collection of data on the energy consumption of buildings. 2) Mandatory maintenance of a file or database for the energy consumption of the building.

Energy managers and action plans in State and general public buildings	
	<p>3) Preparation of an annual summary report of energy recording and control according to the procedures, requirements and guidelines for conducting energy audits required by Joint Ministerial Decision No Δ6/Β/οικ. 11038/8.7.1999 (Government Gazette, Series II, No 1526).</p> <p>4) Verification of the proper operation of the central heating and cooling installations and the responsibility for carrying out periodic maintenance of the boilers - burners and air conditioning units.</p> <p>5) Monitoring maintenance or repairs to ensure energy savings.</p> <p>The action plans include the energy recording and examination of each building, the setting of specific targets and the design of energy saving measures in order to meet the objectives set.</p>
Quality standards	The quality standards for monitoring the implementation of the measure are set by the Secretaries-General of the Ministry of the Interior and the Ministry of Development.
Monitoring and verification report	The calculation methodology to be used is the anticipated savings method by applying a standard savings rate of 5 % on the final energy consumption of each building by 2016 and a savings rate of 15 % over the period 2017-2020. The selection of the highest energy-saving rate was made because an electronic platform was developed to maximise the energy footprint of each building separately.
Verification report	Monitoring of the implementation in every building of the public and the broader public sector is ensured by the Secretary-General of each Ministry, to which the relevant body is subject or supervised, who must inform the Secretaries-General of the Ministry of Interior and the Ministry of Development in writing and at regular intervals.

M19. EEC - Other reason for issue

This measure concerns cases of issue of an EEC for reasons other than those required by consumers in the residential and tertiary sectors under applicable legislation. This measure is considered to be a behavioural one, since the recording of the existing power situation and the drawing up of recommendations can lead to a rational use of power.

EEC - Other reason for issue	
Obligated parties	Energy inspectors and building owners of the residential and tertiary sector.
Target sectors	Residential and tertiary sector.
Energy savings target level	The total of new energy savings in the 2014-2020 period is estimated at 18.4 ktoe.
Length of obligation period	The length of the implementation period of the measure is 2014-2020. The length of the measure is 2 years.
Eligible categories of measures	Education and training operations.
Quality standards	Quality standards have been set by the Environment, Constructions, Energy and Mines Inspectorate of the Ministry of the Environment and Energy.
Monitoring and verification report	The calculation methodology to be used is the anticipated savings method by applying a standard savings rate of 10 % on the final energy consumption of each building as shown by the energy audit.
Verification report	The correct implementation of the measure will be certified by means of random checks carried out by the Environment, Constructions, Energy and Mines Inspectorate of the Ministry of the Environment and Energy.

M20. Energy upgrading of street lighting

This measure concerns the funding programme ‘Implementation of operations to improve the energy efficiency of local authority organisations facilities’, which is an initiative of the Greek Consignment Deposits and Loans Fund, with the collaboration of the Centre for Renewable Energy Sources and Saving (CRES). This initiative aims at supplying and installing more energy-efficient equipment in street lighting facilities of first and second-degree local authority organisations.

Energy upgrading of street lighting	
Obligated parties	The Greek Consignment Deposits and Loans Fund, the Municipalities and the Centre for Renewable Energy Sources and Saving (CRES).
Target sectors	Local Authority Organisations
Energy savings target level	The total of new energy savings in the 2018-2020 period is estimated at 10 ktoe.
Length of obligation period	The length of the implementation period of the measure is 2017-2020. The life of the measure is more than 10 years.
Eligible categories of measures	<p>The actions eligible for funding under the programme are:</p> <ol style="list-style-type: none"> 1. Supply of state-of-the-art lighting fixtures, transportation to the installation site, installation, connection to the network, and performance of functional tests. 2. Supply of state-of-the-art technology lamps, transportation to the installation site and installation inside existing lighting fixtures. 3. Supply and installation of new lighting fixture brackets in cases where the state-of-the-art lighting fixtures cannot be mounted on the existing brackets. 4. Supply and installation of lightning protection equipment for street lighting facilities. 5. Supply of lighting fixture components (power supply, etc.) for storage. 6. Dismantling, removal, transport and disposal of the existing obsolete lighting fixtures, in accordance with applicable legislation. 7. Disconnection, removal, transport and disposal of the lighting fixture brackets, in accordance with applicable legislation.
Quality standards	Quality standards have been set by the Greek Consignment Deposits and Loans Fund and the Centre for Renewable Energy Sources and Saving (CRES).

Energy upgrading of street lighting

Monitoring and verification report

The calculation and verification methodology was developed by the Centre for Renewable Energy Sources and Saving (CRES) and is available in the Guides to programme studies.

Verification report

The correct implementation of the measure will be certified by means of audits carried out by the Centre for Renewable Energy Sources and Saving (CRES).

M21. Energy upgrading of pumping equipment

This measure concerns the funding programme ‘Implementation of operations to improve the energy efficiency of local authority organisations pumping facilities’, which is currently in the design phase and is an initiative of the Greek Consignment Deposits and Loans Fund. This initiative aims at supplying and installing more energy-efficient equipment in the pumping stations of first and second-degree local authority organisations.

Energy upgrading of pumping equipment	
Obligated parties	The Greek Consignment Deposits and Loans Fund and the Municipalities.
Target sectors	Local Authority Organisations
Energy savings target level	The total of new energy savings in the 2019-2020 period is estimated at 4 ktoe.
Length of obligation period	The length of the implementation period of the measure is 2019-2020. The life of the measure is more than 10 years.
Eligible categories of measures	The operations eligible for funding by the programme are not specified at this planning stage.
Quality standards	The quality standards will be set by the Greek Consignment Deposits and Loans Fund.
Monitoring and verification report	The calculation and verification methodology will be developed by the Greek Consignment Deposits and Loans Fund and will be available in the Guides to programme studies.
Verification report	The correct implementation of the measure will be certified by means of audits carried out by the Greek Consignment Deposits and Loans Fund.

M22. Imposition scheme

Article 9(1) of Law 4342/2015 (Government Gazette, Series I, No 143, 9.11.2015) introduced an energy efficiency obligation scheme from 1 January 2017, which ensures that energy distributors and/or retailers defined as obligated parties operating in the Greek territory will achieve a specific cumulative end use energy savings target by 31 December 2020.

Ministerial Decision No 174063/11.4.2017 (Government Gazette, Series II, No 1242) established the Operation Regulation on the Energy Efficiency Obligation Scheme including, inter alia, the list of obligated parties, the exact allocation of the objective, the procedures required for its implementation and the measurement, control and verification system for the energy efficiency improvement measures implemented by the obligated parties. The Centre for Renewable Energy Sources and Saving (CRES) has been designated as the Operator of Energy Efficiency Obligation Calculation, Monitoring, Control and Verification.

Imposition scheme	
Obligated parties	Suppliers of electricity, natural gas and petroleum products (excluding aviation fuels). The obligated parties for each energy product selected to be the energy providers in each individual year, are energy providers that account for at least 95 % of the energy sold at final consumption and have an energy market share of more than 1 % of the energy sold.
Target sectors	All sectors of final energy consumption.
Energy savings target level	The total of new energy savings in the 2017-2020 period is estimated at 135.8 ktoe. The total energy savings in the end use to be achieved by the obligated parties during the period 2017-2020 is set at 333 ktoe.
Length of obligation period	The length of the implementation period of the measure is 2017-2020. The length of eligible interventions is included in the list of indicative measures to improve energy efficiency in the residential, tertiary, transport and industrial sectors, available on the Operator's website.
Eligible categories of measures	All interventions (whether technical or behavioural) that can lead to final energy savings. The list of indicative measures to improve energy efficiency in the residential, tertiary, transport and industrial sectors is available on the Operator's website.

Imposition scheme	
Quality standards	The quality standards are set by the obligated parties and are verified by the Operator.
Monitoring and verification report	Measurement of energy savings from eligible energy efficiency improvement measures is based solely on the 26 ‘bottom-up’ calculation formulas developed by the Operator.
Verification report	The Operator has developed and implemented a Control and Verification mechanism, which aims at the effective control and reliable verification of the actual implementation of the energy efficiency improvement measures implemented by the obligated parties in the context of implementation of the scheme. The Control and Verification Mechanism involves the implementation of three different stages. In the 1 st stage, preliminary controls are carried out, in which the obligated parties have to submit separately for each energy efficiency improvement measure that has been implemented, specific documents and data to substantiate their implementation. In the 2 nd stage, the Operator determines the sample to be subject to more extensive control and verification procedures, whereas in the 3 rd stage the Operator will perform thorough checks of the selected sample for each measure improving energy efficiency separately.