

# Audit on Energy Efficiency in Public Sector Buildings

REPORT No. 3/2018  
2<sup>nd</sup> SECTION





Process No. 19/2017 – AUDIT

## AUDIT ON ENERGY EFFICIENCY IN PUBLIC SECTOR BUILDINGS

Report

January 2018





## Index

<b>ACRONYMS .....</b>	<b>7</b>
<b>GLOSSARY .....</b>	<b>8</b>
<b>TECHNICAL DATA SHEET .....</b>	<b>9</b>
<b>1 EXECUTIVE SUMMARY .....</b>	<b>10</b>
1.1 KEY FINDINGS .....	10
1.2 RECOMMENDATIONS.....	15
<b>2 PREAMBLE .....</b>	<b>17</b>
2.1 SCOPE AND OBJECTIVES OF THE AUDIT.....	17
2.2 ENTITIES INVOLVED IN THE AUDIT .....	17
2.3 OVERVIEW OF THE METHODOLOGY .....	17
2.4 INSTITUTIONAL AND NORMATIVE FRAMEWORK .....	18
2.5 LIMITATIONS OF THE AUDIT.....	19
2.6 ADVERSARY PROCEEDING .....	20
<b>3 PRESENTATION .....</b>	<b>20</b>
3.1 IMPROVING ENERGY EFFICIENCY OF PUBLIC BUILDINGS.....	20
3.1.1 <i>Policies promoting energy efficiency in public buildings</i> .....	20
3.1.2 <i>Strategy adopted to comply with Article 5 of Directive No. 2012/27/EU</i> .....	25
3.1.3 <i>Entities responsible for the execution, follow-up and control of the ‘alternative approach’</i> .....	30
3.1.4 <i>Nearly zero-energy buildings</i> .....	34
3.2 FINANCING THE ENERGY EFFICIENCY IMPROVEMENT OF PUBLIC BUILDINGS .....	36
3.2.1 <i>Investments to comply with the ‘alternative approach’</i> .....	36
3.2.2 <i>Criteria for awarding financial instruments</i> .....	41
3.2.3 <i>Energy savings achieved with the ‘alternative approach’</i> .....	43
3.3 ENERGY EFFICIENCY MEASURES IN LOCAL GOVERNMENT BUILDINGS .....	44
<b>4 REVIEW BY THE ATTORNEY GENERAL'S OFFICE .....</b>	<b>47</b>
<b>5 FEES .....</b>	<b>47</b>
<b>6 FINAL DETERMINATIONS .....</b>	<b>47</b>
<b>7 ANNEXES .....</b>	<b>49</b>
<b>8 ANSWERS IN THE ADVERSARY PROCEEDING .....</b>	<b>61</b>

## Index of Tables

TABLE 1 --NZEB – AVERAGE ENERGY EFFICIENCY INDICATORS, EXPRESSED IN PRIMARY ENERGY .....	36
TABLE 2 – ENERGY PERFORMANCE BENCHMARKS FOR NZEB (OFFICE BUILDINGS) .....	36
TABLE 3 – FUNDING ALLOCATED BY THE FEE .....	38
TABLE 4 – FUNDS AVAILABILITY (2013-2016) .....	39
TABLE 5 – THEMATIC AREA SEUR – PROPOSED FUNDING (OT4) .....	40
TABLE 6 – FUNDING UNDER WAY THROUGH THE POSEUR AND REGIONAL OPS.....	40
TABLE 7 – SUMMARY OF THE REPORTS ON THE PROGRESS ACHIEVED TOWARD NATIONAL ENERGY EFFICIENCY TARGETS. 43	
TABLE 8 – ENERGY SAVINGS ACHIEVED WITH THE ‘ALTERNATIVE APPROACH’.....	44
TABLE 9– DIFFERENCE BETWEEN MINIMUM ENERGY PERFORMANCE REQUIREMENTS AND COST-OPTIMAL LEVELS.....	52
TABLE 10- REGISTERED AND VERIFIED ENERGY PERFORMANCE CERTIFICATES.....	55
TABLE 11– NUMBER OF ENERGY PERFORMANCE CERTIFICATES ISSUED TO PUBLIC SECTOR BUILDINGS .....	56
TABLE 12– ENERGY PERFORMANCE CERTIFICATION OF PUBLIC SECTOR BUILDINGS.....	56

## ACRONYMS

Acronym	Meaning
ADENE	ADENE – Agency for Energy
EC	European Commission
CRP	Constitution of the Portuguese Republic
DGEG	Directorate-General for Energy and Geology
ECO.AP	Energy Efficiency Programme in Public Administration
EPE	Public Business Entity
ESE	Energy Service Company
EU	European Union
EUROSAI	European Organisation of Supreme Audit Institutions
FAI	Fund to Support Innovation
FEE	Energy Efficiency Fund
FPC	Portuguese Carbon Fund
GWh	Gigawatt Hour
IP	Public Institute
ISV	Motor Vehicle Tax
ISP	Tax on Petroleum and Energy Products
IUC	Universal Circulation Tax
IVA (VAT)	Value-added Tax
JESSICA	Joint European Support for Sustainable Investment in City Areas
ktoe	Kilotonne of Oil Equivalent
kWh	Kilowatt Hour
kWh <sub>EP</sub>	Kilowatt Hour of Primary Energy
M€	Million Euros
MWh	Megawatt Hour
NUTS	Nomenclature of Territorial Units for Statistical Purposes
NZEB	Nearly Zero-Energy Buildings
SME	Small and Medium-sized Enterprises
NEEAP	National Energy Efficiency Action Plan
OP	Operational Programme
POSEUR	Operational Programme for Sustainability and Efficiency in Resource Use
PPEC	PPEC – Plan to Promote Efficiency in Energy Consumption
PREMAC	Plan to Reduce and Improve Central Administration
RECS	Regulation on the Energy Performance of Service Buildings
REDSEUR	Specific Regulation for the Area of Sustainability and Efficiency in Resource Use
REH	Regulation on the Energy Performance of Residential Buildings
SA	Corporation
SAI	Supreme Audit Institution
SCE	System for Energy Certification of Buildings
ESA 2010	European System of National and Regional Accounts in the Community
SGCIE	Intensive Energy Consumption Management System
SGPS	Holding Company
tep	Tonne of Oil Equivalent
EU	European Union

## GLOSSARY

Term	Definition
Central administration	All administrative departments whose competence extends over the whole territory of a Member State (Section 9 of Article 2 of Directive No. 2012/27/EU) All central services of the State's direct administration, whose competent jurisdiction encompasses the entire national territory (Section a) of Article 2 of Decree-Law 68-A/2015).
Energy audit	A systematic procedure for obtaining adequate knowledge of the existing energy consumption profile of a building or group of buildings, an industrial or commercial operation or installation or a private or public service, identifying and quantifying cost-effective energy savings opportunities (Section 25 of Article 2 of Directive No. 2012/27/EU ...
Energy performance certificate	A certificate recognised by a Member State or by a legal person designated by it, which indicates the energy performance of a building or building unit, calculated according to a methodology adopted in accordance with Article 3 of Directive No. 2010/31/EU (Section 12 of Article 2).
Final energy consumption	All energy supplied to industry, transport, households, services and agriculture. It excludes deliveries to the energy transformation sector and the energy industries themselves (Section 3 of Article 2 of Directive No. 2012/27/EU and Section f) of Article 2 of Decree-Law 68-A/2015).
Primary energy consumption	Gross inland consumption, excluding non-energy uses (Section 2 of Article 2 of Directive No. 2012/27/EU and Section g) of Article 2 of Decree-Law 68-A/2015).
Energy efficiency management contracts	A contractual arrangement between the beneficiary and the provider of an energy efficiency improvement measure, verified and monitored throughout the whole term of the contract, where investments in that measure are paid for in relation to a contractually agreed level of energy efficiency improvement or other agreed energy performance criterion, such as financial savings (Section h) of Article 2 of Decree-Law 68-A/2015). Corresponds to 'energy performance contract', cf. Section 27 of Article 2 of Directive No. 2012/27/EU).
Energy savings	The amount of saved energy determined by measuring and/or estimating consumption before and after implementation of an energy efficiency improvement measure, whilst ensuring normalisation of external conditions that affect energy consumption (Section 5 of Article 2 of Directive No. 2012/27/EU and Section j) of Article 2 of Decree-Law 68-A/2015).
Nearly zero-energy building	A building that has a very high energy performance, as determined in Annex I of Directive No. 2010/31. The nearly zero or very low amount of energy required should be covered to a very significant extent by energy from renewable sources, including energy from renewable sources produced on-site or nearby (Section 2 of Article 2 of Directive No. 2010/31/EU and Section 2 of Article 16 of Decree-Law No. 118/2013).
Energy efficiency	The ratio of the output of performance, service, goods or energy generated to the input of energy used for this purpose (Section 4 of Article 2 of Directive No. 2012/27/EU and Section o) of Article 2 of Decree-Law 68-A/2015).
Energy	All forms of energy products, fuel, heat, renewable energy, electricity or any other form of energy (Section 1) of Article 2 of Directive No. 2012/27/EU and Section q) of Article 2 of Decree-Law 68-A/2015).
Primary energy	Energy from renewable and non-renewable resources which has not undergone any conversion or transformation process (Section 5 of Article 2 of Directive No. 2010/31/EU and Section x) of Article 2 of Decree-Law 118/2013).
Energy from renewable sources	Energy from renewable non-fossil sources, namely wind, solar, aerothermal, geothermal, hydrothermal and ocean energy, hydropower, biomass, landfill gas, sewage treatment plant and biogases (Section (26) of Article 2 of Delegated Regulation No. 244/2012, Section 6 of Article 2 of Directive No. 2010/31/EU and Section y) of Article 2 of Decree-Law No. 118/2013).
Reactive energy	Energy responsible for creating magnetic fields in coils of devices such as motors, transformers, etc. (the active energy produces the work, for example, to generate heat, light, rotation of a motor's shaft).
ISO 50001	International standard that defines procedures for organisations to establish the systems and processes necessary to improve energy performance, including energy efficiency and the use and consumption of energy.
Energy efficiency improvement	An increase in energy efficiency as a result of technological, behavioural and/or economic changes (Section 6 of Article 2 of Directive No. 2012/27/EU and Section s) of Article 2 of Decree-Law 68-A/2015).
Municipality	Local government with representative bodies elected by citizens of the respective government's area that seeks to pursue the interests of the population residing in the municipality's district.
Cost-optimal level	Energy performance (expressed in kWh/m <sup>2</sup> of primary energy) which leads to the lowest cost during the estimated lifecycle of the residential building (30 years for residential buildings and 20 years for non-residential buildings) (as a result of Section 14 of Article 2 of Directive No. 2010/31/EU).
Deep renovation	Renovation with a good cost-effectiveness ratio, which leads to a refurbishment that reduces both the delivered and final energy consumption of a building by a significant percentage compared with the pre-renovation levels, enabling a very high energy performance, which may be carried out in stages (whereas (16) of Directive 2012/27/EU).

## TECHNICAL DATA SHEET

Name	Category	Academic Education
<b>Audit Team</b>		
José Rosário Silva	Auditor	Master's Degree in Civil Engineering, Master's Degree in Construction
Diogo Maltez de Freitas	Senior Verification Technician	Master's Degree in Economics
<b>Administrative and Technological support:</b>	Cristina M. Fernandes, Technical Assistant	
<b>Coordination:</b>	António Marques do Rosário, Chief Auditor	
<b>General Coordination:</b>	Leonor Côrte-Real Amaral, Coordinating Auditor	

## 1 EXECUTIVE SUMMARY

The action aimed to assess the energy efficiency improvement in public sector buildings, particularly the actions developed as a result of the transposition of Directive No. 2010/31/EU, regarding the energy performance of buildings, and Directive No. 2012/27/EU, regarding energy efficiency, the elaborated plans and measures and their application and monitoring, thus leading to the following conclusions:

### 1.1 Key findings

#### *Policies to promote energy efficiency in public sector buildings*

1. The first major policy measure that aimed to promote the energy efficiency of public administration buildings was the Energy Efficiency Programme in Public Administration - ECO.AP, launched in 2011 (cf. sub-section 3.1.1).
2. The objective of the ECO.AP Programme was to achieve a 20% increase in energy efficiency by 2020, which was later raised to 30%. This Programme continues to form the framework of policies promoting energy efficiency in public sector buildings:
  - i. In 2013, the National Energy Efficiency Action Plan framed the ECO.AP Programme as its instrument of execution, reiterating its measures and objectives;
  - ii. The ‘*alternative approach*’ adopts measures included in the ECO.AP;
  - iii. Decree-Law No. 68-A/2015 establishes that central government bodies must comply with the objective to reduce energy consumption, as defined in the National Energy Efficiency Action Plan (NEEAP), through the measures provided in the ECO.AP (cf. sub-sections 3.1.1 and 3.1.2).
3. The ECO.AP Programme includes the Energy Efficiency Barometer of the Public Administration (ECO.AP Barometer) as a means to monitor the energy performance of public services, where the public bodies shall report annually on the energy consumption of the buildings they occupy. The NEEAP and Decree-Law No. 68-A/2015 also refer to it as a means to follow up with and evaluate the implementation of the objectives set forth. Nevertheless, the ECO.AP Barometer has not been in operation for several years and is currently in the ‘*process of reformulation*’, which calls into question follow-up of the implementation of the ECO.AP Programme and the determination of effective reduction in consumption. As the proposal to reformulate the Barometer on the NEEAP site states, ‘*you can’t manage what you don’t measure*’ (cf. sub-section 3.1.3).
4. Although six years have gone by since the initiation of the ECO.AP Programme, contrary to expectations, only three energy efficiency management contracts were signed, and only by municipalities. A significant number of entities of the direct and indirect administration of the State did not implement the measures provided in the Programme, particularly with respect to designating energy efficiency local managers and elaborating

and implementing energy efficiency management plans (cf. sub-sections 3.1.1 and 3.1.3).

### *Energy efficiency of buildings of public bodies*

5. Portugal did not adopt the ‘*standard approach*’, which consisted of the yearly renovation of 3% of the total floor area of heated and/or cooled buildings owned and occupied by the central government, as provided in Section 1 of Article 5 of Directive No. 2012/27/EU, having opted for the ‘*alternative approach*’, as provided in Section 6 of the same article, to achieve the same energy savings in the same buildings, estimated at 634 MWh per year, through other measures (cf. sub-section 3.1.2).
6. The ‘*alternative approach*’ does not constitute a centralised plan, and it does not allocate the responsibility for implementation, follow-up and supervision to any organisation. It does not define criteria for selection, prioritisation or phasing of interventions (cf. sub-sections 3.1.2 and 3.1.3).
7. This approach presents a low electricity consumption per capita, with a downward trend, and minimal use of HVAC systems, as a result of the country’s economic situation and mild climate, as presuppositions supported by statistical data regarding family houses, but it ignores the following evidence:
  - I. Most of the buildings occupied by central government entities have fixed HVAC appliances (heating and/or cooling);
  - II. HVAC (41%) is responsible for the largest portion of the public administration’s energy consumption, contrary to the data registered for family houses (22%) (cf. sub-section 3.1.2).
8. The ‘*alternative approach*’ consists of implementing a set of actions to promote energy efficiency in public administration, already set forth in the ECO.AP Programme (cf. sub-sections 3.1.2 and 3.1.3).
9. The ‘*alternative approach*’ presents an inventory of 309 buildings/building units without specifying areas and energy efficiency classes, most of which are buildings pertaining to the military. This demonstrates that many of the buildings included therein may be excluded for serving national defence purposes or for having architectural or historical merit (cf. sub-section 3.1.2).
10. The exemplary role of the buildings of public bodies, pursuant to the provisions in Directive No. 2012/27/EU, that each Member State must ensure falls short as a consequence of:
  - I. The reduced number of buildings that the inventory accommodates, as a result of the concept of ‘*central government*’ applied, which is limited to the central services of the State’s direct administration, with a more restrictive scope than that defined in Directive No. 2012/27/EU, and closer to the concept of ESA 2010, and the building registration inadequacies in the *Real Property Information System of the State*;

- II. The low level of demands established as the minimum energy performance requirements, which equates the concept of nearly zero-energy buildings to the 'C' energy efficiency class, in the case of existing buildings (cf. **sub-section 3.1.2**).
11. Furthermore, Decree-Law No. 68-A/2015, which transposed Directive No. 2012/27/EU, does not encompass the regional offices of the direct and indirect administrations (cf. **sub-section 3.1.2**).

### *Funding the energy efficiency improvement of public sector buildings*

12. The amount of funding needed to implement the '*alternative approach*' was not calculated nor was its allocation planned for this specific purpose. However, the investment needed to meet the ECO.AP Programme's objective for the central government, including the indirect administration and the regional governments, to increase energy efficiency by 30% was estimated by the Agency for Development and Cohesion to be between 545.8 and 590.2 M€. The same assessment calculated between 461.3 and 496.8 M€ to be the investment required for the local government to fulfil the objective, also including, in this case, street lighting (cf. **sub-section 3.2.1**).
13. The Fund to Support Innovation, Energy Efficiency Fund and Portuguese Carbon Fund, now integrated into the Environmental Fund, listed in the NEEAP as sources of funding for energy efficiency programmes for public sector buildings, presented financial resources in the total amount of 208.0 M€ at the end of 2016 (cf. **sub-section 3.2.1**).
14. Nonetheless, between 2012 and 2016, support for energy efficiency projects in public buildings totalled only 0.8 M€, granted by the Energy Efficiency Fund to central and local government bodies, pending approval of 1.7 M€, with no funding assigned by the Portuguese Carbon Fund. In 2017, an additional 54.5 M€, approved by the Operational Programme for Sustainability and Efficiency in Resource Use, and 112.2 M€, allocated by the Regional Operational Programmes, within the scope of Portugal 2020, were added to this amount (cf. **sub-section 3.2.1**).
15. The restriction resulting from the definition of '*central government*' applied in the '*alternative approach*' and also contained in Decree-Law No. 68-A/2015 is not reflected in the funding approval within the context of the Energy Efficiency Fund and POSEUR, where the universe of beneficiaries, despite being similarly defined as '*central government*', has a much broader scope, applying the classification concept of the European System of National and Regional Accounts (cf. **sub-section 3.2.2**).

### *Monitoring and control of the implementation of the 'alternative approach'*

16. The '*alternative approach*' does not establish any system to monitor and control the energy savings achieved in buildings owned and occupied by the central government. Therefore, the monitoring and control of the ECO.AP Programme shall be applied. Referring to measures included in the ECO.AP, they determine that monitoring and control shall be exercised by the Executive Committee of the Administrative Structure of



the NEEAP and the Directorate-General for Energy and Geology, entities that were assigned these functions (cf. **sub-section 3.1.3**).

17. It was not evident that the Executive Committee of the Administrative Structure of NEEAP ensured the monitoring and control of the implementation of measures of the ECO.AP Programme or that it disclosed information about its degree of implementation. The Executive Committee did not disclose their activity reports, and the information posted on the NEEAP website on the impact of the measures relating to the State refers to 2013, although last updated in 2014. It also did not respond to requests for information made within the scope of this audit (cf. **sub-sections 2.5 and 3.1.3**).
18. The assessment made by Portugal in the fifth report (2017) on the fulfilment of national energy efficiency objectives quantifies the energy savings achieved in buildings owned and occupied by the central government at 0.035 ktep (162.8 MWh) in 2016 with the 'alternative approach', identifying these savings with the measures foreseen under the energy performance certification of buildings, and quantifies the savings obtained with other measures such as the ECO.AP Programme, Energy Efficiency Fund and POSEUR at 'zero' in 2014 and 2015. This figure, however, must be observed with reservations (cf. **sub-section 3.2.3**).

#### *Nearly zero-energy buildings*

19. The attribution of the 'B-' and 'C' energy efficiency classes, respectively, to the concept of 'nearly zero-energy buildings' for new and existing buildings, represents minimally rigorous requirements, corresponding to significantly higher amounts from the energy efficiency indicator than the NZEB energy performance benchmark ranges recommended by the European Commission (cf. **sub-section 3.1.4**).

#### *Local governments*

20. Within the framework defined in Decree-Law No. 68-A/2015, no centralised programme focusing on the renovation of local government buildings was created. No survey (not even a sample) was conducted of the local government buildings that do not meet the minimum energy performance requirements. There was not even a list of buildings for renovation (cf. **sub-section 3.3**).
21. The Portuguese State, however, considered the funding of projects for energy renovation and integration of renewable energy into local government buildings and infrastructure a priority, including this funding in the Partnership Agreement with the European Commission (Portugal 2020) (cf. **sub-section 3.3**).
22. An assessment of the energy savings achieved with the renovation of local government buildings was not made and is not proposed (cf. **sub-section 3.3**).

#### *Energy performance certification of buildings*

23. The Directorate-General for Energy and Geology calculated the cost-optimal levels of the minimum energy performance requirements of the buildings. In the case of office buildings, the minimum requirements were superior to the calculated cost-optimal levels by more than 15%, which led to establishing more demanding performance requirements (cf. **sub-section 3.1.1**).
24. Most of the buildings and building units occupied by public services with a total useful floor area over 250 m<sup>2</sup> that are visited frequently by the public do not have energy performance certification, with the State being the most non-compliant property owner, with a compliance percentage of 12.5% (cf. **sub-section 3.1.1**).
25. The Directorate-General for Energy and Geology did not demonstrate that it had established and developed any administrative offence proceedings within the scope of the *System of Energy Certification of Buildings*, in spite of being informed of the infringements. It also did not demonstrate that it had enforced the public entities to obtain and display energy performance certificates, despite evidence of widespread non-compliance (cf. **sub-section 3.1.1**).

## 1.2 Recommendations

Within the context of the material disclosed in this audit report and summarised in the preceding conclusions, the following recommendations are made:

### A. To the Ministers of Finance, Economy and the Environment

To make efforts to elaborate and approve the legislative and regulatory measures necessary to establishing a joint follow-up and monitoring system for the implementation of programmes and measures of the National Energy Efficiency Action Plan, as provided in the Resolution of the Council of Ministers No. 20/2013.

### B. To the Minister of Economy

1. To guarantee the effective coordination and monitoring of the ECO.AP Programme and to streamline implementation of the proposed measures, in order to compensate for the delays and fulfil the set global objectives;
2. To ensure the elaboration and approval of a legislative measure that extends the obligation of complying with the provisions of Article 7 of Decree-Law No. 68-A/2015 to the regional services of the direct and indirect administrations, in order to guarantee that the buildings of the public bodies assume an exemplary role in the improvement of energy performance, in accordance with the scope and objectives outlined in Directive No. 2012/27/EU;
3. To make efforts toward the reformulation and effective implementation of the Energy Efficiency Barometer;
4. To consider and implement parameters conducive to the fulfilment of the ECO.AP Programme measures by the entities covered, especially with regard to the designation of energy efficiency local managers and the elaboration and implementation of energy efficiency management plans;
5. To consider and implement measures that encourage the public bodies to obtain and display the energy performance certificates of the buildings they occupy;
6. To ensure the elaboration and approval of the national plan for the restoration of existing buildings, so that they can meet the requirements of nearly zero-energy buildings, as provided in Article 16 of Decree-Law No. 118/2013.

**C. To the Directorate-General for Energy and Geology and the Executive Committee of the National Energy Efficiency Action Plan**

To proceed with the monitoring and control of the ECO.AP Programme.

**D. To the Directorate-General for Energy and Geology**

1. To maintain development of the technical and regulatory framework concerning the energy performance of buildings and the definition of nearly zero-energy buildings, associating this concept to the energy performance benchmarks recommended by the European Commission;
2. To conduct the monitoring and control of the implementation of the '*alternative approach*';
3. To proceed with supervision of compliance with obligations to obtain and display energy certificates;
4. To conduct supervision of compliance with the obligations to reduce the energy consumption of the central government bodies.

**E. To the Executive Committee of the National Energy Efficiency Action Plan**

To ensure the elaboration and disclosure of activity reports.

## 2 PREAMBLE

### 2.1 Scope and objectives of the audit

This ‘*Audit on Energy Efficiency in Public Sector Buildings*’, with the nature of an environmental audit, aims to identify and assess the actions undertaken by Portugal to promote the improvement of energy efficiency in public buildings, especially the actions developed as a result of the transposition of Directive No. 2010/31/EU, of 19 May, and Directive No. 2012/27/EU, of 25 October, both originating from the European Parliament and the Council.

This action is part of the cooperative audit in operation within the *Working Group of Environmental Auditing* of EUROSAI, along with the Supreme Audit Institutions (SAIs) of Estonia, Latvia and Lithuania (*co-leaders*) and Belgium (Flemish Region), Bulgaria, Slovakia and Hungary. The information collected and the conclusions of the audit reports, after approval from the respective Institutions of each country, will be added to a Joint Report, which will be elaborated by the SAI of Estonia.

The timeline of the audit corresponds to the years 2011, the year the Energy Efficiency Programme in Public Administration – ECO.AP was implemented, launched by Resolution of the Council of Ministers No. 2/2011, through 2016, without affecting the data being updated, in some aspects, until the date of the audit.

Considering the overall objective of the audit, the following specific objectives were defined:

- To evaluate the policy for improvement of energy efficiency of public buildings;
- To identify and assess management plans in order to achieve the energy efficiency objectives of the public buildings;
- To identify and assess the system for monitoring the energy efficiency achieved in public buildings.

### 2.2 Entities involved in the audit

The audit was conducted in the Directorate-General for Energy and Geology (DGEG), with information gathered from several entities.

### 2.3 Overview of the Methodology

The audit was developed according to generally accepted methods and techniques, as set forth in the Audit Manuals of the Court of Auditors. Within this scope, the following steps were taken:

- A study of the legal framework concerning energy efficiency in public buildings, as a result of the transposition of Directives Nos. 2010/31/EC and 2012/27/EU and their regulations, implementation and management;
- A study of the normative framework of the DGEG, ADENE, Energy Efficiency Fund and Executive Committee of the National Energy Efficiency Action Plan (NEEAP) and their duties and capacities;
- Gathering of relevant information about application of the measures included in the NEEAP 2008-2015<sup>1</sup> and NEEAP 2016<sup>2</sup> regarding energy efficiency in public buildings;
- Analysis of the organisation among the various players in the implementation process of the programmes and measures that aim to improve energy efficiency in public buildings, their funding and monitoring;
- A survey of 35 entities under the control of Area of Responsibility III – Economic and Social Functions (housing and collective services) and Community Funds, which encompasses 185 buildings, so as to assess the effective implementation of energy efficiency measures included, or not, in the Eco.AP Programme;
- Analysis of relevant information contained in the Reports on the Implementation of the National Energy Efficiency Action Plan, the reports provided in Directives Nos. 2010/31/EU and 2012/27/EU and referred to the European Commission and others prepared by the DGEG and ADENE;
- Specific checks included in the Audit Programme.

## 2.4 Institutional and normative framework

The Directorate-General for Energy and Geology is a central service of the State's direct administration with administrative autonomy, whose mission is to contribute to the conception, promotion and assessment of policies related to energy and geological resources, in the interest of sustainable development and ensuring the security of energy supply<sup>3</sup>.

The Agency for Energy - ADENE is a private associative entity<sup>4</sup> with public utility status, whose mission is to develop activities of public interest in the area of energy and its

<sup>1</sup> Measures related to buildings, included in Sub-sections 5.1 – *Energy Efficiency Programme in the State* and 6.1 – *Mais Programme [More Programme]*.

<sup>2</sup> Sub-sections 2.4 *State* and 3.4.1 *Programmes and Measures* (which includes the *Ep1 Programme – Energy Efficiency of the State* (which includes *Ep1m2 - Energy Efficiency Action Plans in Public Administration - ECO.AP*)).

<sup>3</sup> Cf. Article 1 and Section 1 of Article 2 of Decree-Law No. 130/2014, of 29 August (Organic Law of DGEG).

<sup>4</sup> In 2017, the DGEG, the National Laboratory for Energy and Geology (LNEG), the Directorate-General of Economic Activities, the Portuguese Environment Agency, the National Civil Engineering Laboratory (LNEC), the School of Engineering of the University of Porto, the Metropolitan Area of Porto, the North Portugal Regional Coordination and Development Commission, EDP Electricidade de Portugal SA, Galp Energia SGPS SA, the ISQ - Institute of Welding and Quality, the ITeCons - Institute for Research and Technological Development in Construction Science and the Biomass Centre were partners of ADENE. Pursuant to Section 2 of Article 6 of the bylaws, the partners that are public bodies operating directly in the area of energy policy and in the energy sector

interfaces with other sector policies, in collaboration with other entities with duties in this area, including energy efficiency in the mobility and efficient use of water<sup>5</sup>. ADENE is the managing entity of the System for Energy Certification of Buildings (SCE)<sup>6</sup> and is responsible for the operational management of the Intensive Energy Consumption Management System (SGCIE)<sup>7 8</sup>.

The Energy Efficiency Fund (FEE) was created by Decree-Law No. 50/2010, of 20 May<sup>9</sup>, with the nature of an autonomous asset and the objective of funding the programmes and measures provided in the NEEAP<sup>10</sup>. The FEE includes a Management Regulation, approved by Decree No. 26/2011, of 10 January. Its management was assigned, in technical matters, to the Executive Committee of the NEEAP, presided by the Director-General for Energy and Geology<sup>11</sup>, and, in financial matters, to the Directorate-General of Treasury and Finance<sup>12</sup>.

The POSEUR and five Regional OPs are, respectively, a thematic operational programme and regional programmes within the scope of the European Structural and Investment Funds of Portugal 2020, which support energy efficiency measures in the public infrastructure of the State's direct and indirect administrations and the local administration.

## 2.5 Limitations of the audit

Work relating to the audit was affected by difficulties in obtaining complete information in a timely manner from the Directorate-General for Energy and Geology and by the lack of response from the Executive Committee of the National Energy Efficiency Action Plan to requests for information<sup>13</sup>.

---

overseen by the Government member responsible for the area of energy must always jointly retain more than half of the contribution for equity.

<sup>5</sup> Cf. Bylaws of 'ADENE - Agency for Energy'. The core capacities of ADENE include support for implementation of policies, technical support for implementation of programmes and strategic measures, the promotion and development of projects, market monitoring and management and disclosure of information. ADENE develops its activities within the scope of the NEEAP and the Commitment to Green Growth.

<sup>6</sup> Cf. Article 11 of Decree-Law No. 118/2013, of 20 August.

<sup>7</sup> Cf. Section 4 of Article 3 of Decree-Law No. 71/2008, of 15 April, amended by Law No. 7/2013, of 22 January, and by Decree-Law No. 68-A/2015, of 30 April

<sup>8</sup> These systems aim, respectively, to assess and improve the energy performance of residential, commercial and service buildings and to promote the energy efficiency and monitoring of the energy consumption of facilities with intensive energy consumption.

<sup>9</sup> Amended by Article 22 of Law No. 82-D/2014, of 31 December.

<sup>10</sup> NEEAP 2008-2015 was then in effect, approved by Resolution of the Council of Ministers No. 80/2008, of 20 May.

<sup>11</sup> Cf. Sub-item a) of Section 1 of Article 4 of Decree-Law No. 50/2010, sub-item a) of Section 1 of Article 4 of Decree-Law No. 130/2014 and sub-item a) of Section 1 of Article 4 of the *Regulation for the Administrative Structure of the National Energy Efficiency Action Plan*, approved by Decree No. 1316/2010, of 28 December.

<sup>12</sup> Cf. sub-item b) of Section 1 of Article 4 of Decree-Law No. 50/2010 and Section 2 of Article 16 of the *Regulation*, delegating the 'administration of the treasury and any other eventual financial assets of the FEE, centralising revenues and applying the respective provisions, thereby maximising their capitalisation, in accordance with the financial plan approved by the managing entity of the FEE in technical matters', to the DGTF.

<sup>13</sup> The President of the Executive Committee of the NEEAP affirms, in response within the adversary proceeding, that he 'has no knowledge of any notification of the TC, within the scope (...) [of the audit], addressed to the Executive Committee of the Administrative Structure of the NEEAP, and that ' (...) the EC of the NEEAP has no knowledge of any request for information made in the context of the present audit', an assertion that conflicts with the number of communications made to the Director-General for Energy and Geology, in the capacity as President of the Executive Committee of the NEEAP, with evidence of its reception registered in the audit process.

## 2.6 Adversary proceeding

In accordance with Articles 13 and 87, Section 3, of Law No. 98/97, of 26 August, republished by Law No. 20/2015, of 9 March, the audit report was sent to the Ministers of Finance, Economics and the Environment, the Directorate-General for Energy and Geology, the Executive Committee of the National Energy Efficiency Action Plan and ADENE - Agency for Energy. The Ministers of Economy and the Environment did not issue a reply.

The relevant portions of the allegations were incorporated into this report, with the allegations presented in full in the annexes in order to provide the complete context of the adversary proceeding.

## 3 PRESENTATION

### 3.1 Improving energy efficiency of public buildings

#### 3.1.1 Policies promoting energy efficiency in public buildings

The policy measures taken by the Government to comply with Directive No. 2006/32/EC, of 5 April<sup>14</sup>, on energy end-use efficiency and energy services included approval of the first *National Energy Efficiency Action Plan – Portugal Efficiency 2015* (NEEAP 2008)<sup>15</sup>, whose overall objective was to reduce energy consumption by 1% per year until 2016, through implementation of energy efficiency measures and behavioural changes.

Within the framework of the European objectives included in the ‘2020 Climate & Energy Package’ (or Package ‘20-20-20’), approved by the European Council at the meeting on 8 and 9 March 2007, which strives to reach, by 2020, a 20% reduction in primary energy consumption relative to consumption projections for that same year<sup>16</sup>, through increased energy efficiency. To achieve this purpose, Portugal established a general objective to reduce primary energy consumption by 25% and a specific objective for public administration to reduce consumption by 30%<sup>17</sup>.

The first specific measure taken by the Government to induce the services and bodies of the State’s direct and indirect administrations and other public entities to adopt energy efficiency measures was the launch of the *Energy Efficiency Programme in Public Administration - ECO.API*<sup>18</sup>. It initiated in 2011, while the NEEAP 2008, which reflects the objectives of Package

---

<sup>14</sup>Repealed and replaced by Directive No. 2012/27/EU.

<sup>15</sup>The Plan proposed to make the behaviour of the State a reference for the market, reducing the energy consumed at a rate superior to that proposed in the general objective, and included, among others, the *E8M1 Energy Certification of Buildings of the State* measure, which sought to encourage the energy performance certification process in public sector buildings, to serve as an example.

<sup>16</sup>Executed based on *Baseline 2007*, by application of the PRIMES model of the European Commission.

<sup>17</sup>The energy efficiency measures implemented in buildings owned and occupied by public entities contribute to the objective of 30%, and those implemented in private buildings contribute to the objective of 25%.

<sup>18</sup>Programme approved by Resolution of the Council of Ministers No. 2/2011, of 12 January, and amended by Resolution of the Council of Ministers No. 67/2012, of 9 August.



'20-20-20', was still in effect. The launch of this programme, which involves buildings and equipment, came along with the creation of a specific regime of public procurement for the formation and execution of energy savings performance contracts, to be signed between public bodies and energy service companies, appropriate for the complex and hybrid nature of the services to be contracted<sup>19</sup>.

The measures of the ECO.AP Programme included the obligation of each ministry *'to deliver, until the end of 2013, energy efficiency measures in all entities under its supervision through energy savings performance contracts, as long as this procedure is appropriate to the measures that shall be taken'*. The selection criteria for the entities were that they represent, as a whole, at least 20% of the energy consumption of the respective ministry and, individually or as a group, have a higher consumption equivalent to 100 MWh/year, provided that the energy savings performance contracts entered into are appropriate to the measures adopted, with implementation of these contracts set for the end of 2013<sup>20</sup>.

An amendment was made to the selection criteria in 2012, which went from the entities with higher consumption to the buildings and equipment with greater potential for implementation of measures to improve energy efficiency<sup>21</sup>. This change favoured projects with a lower cost/benefit ratio at the expense of the total consumption volumes of each entity, oftentimes dispersed throughout several sites of operation. On the other hand, so as to ensure that the public bodies properly prepared the energy savings performance contracts to be signed, it also established that the launch of the pre-contractual procedures, which aim for their signing, must be preceded by an agreement to implement the ECO.AP Programme among the ministries involved, to be promoted and coordinated by the Government member responsible for the area of energy and to submit to a prior binding opinion of the Minister of Finance<sup>22</sup>.

This framework was reinforced by Decree-Law No. 68-A/2015, of 30 April<sup>23</sup>, which emphasised the objective of generating reductions in energy consumption that represent a reduction in expenses equivalent to at least 10% in energy savings. The contracts shall provide mechanisms to reduce and not create additional expenses<sup>24</sup>.

---

The ECO.AP Programme consists of measures that shall be applied to most of the buildings and equipment of *'all services and bodies of the direct and indirect administrations of the State, as well as the public firms, universities, public business entities, public foundations, public associations or private associations with mostly public capital'*, and includes, among others, the following measures, as referred in the communication:

- Designation of a local energy manager, responsible for promoting energy efficiency in the different entities of public administration, within a period of 90 days;
- Signing of energy efficiency management contracts for buildings with relevant consumption, until the end of 2013;
- Adoption and implementation of an energy efficiency action plan (by entities not covered by the energy savings performance contracts) until the end of 2011, in order to promote the efficient use of energy resources.

<sup>19</sup>Including: (i) the legal regime applicable to the formation and implementation of energy performance contracts, approved by Decree-Law No. 29/2011, of 28 January; (ii) the *Regulation for the Qualification System of Energy Service Companies*, approved by Normative Order No. 15/2012 of the Secretary of State for Energy, of 26 June, published in the Official Journal of the Republic, 2<sup>nd</sup> series, of 3 July; and (iii) the standard terms of reference of procedures for the formation of energy savings performance contracts, approved by Decree No. 60/2013, of 23 January, published in the Official Journal of the Republic, 2<sup>nd</sup> series, of 5 February.

<sup>20</sup>Cf. sub-items b) and c) of Section 2 of the Resolution of the Council of Ministers No. 2/2011.

<sup>21</sup>Cf. Section 1 of the Resolution of the Council of Ministers No. 67/2012.

<sup>22</sup>Cf. Section 3, as above.

<sup>23</sup>Transposed the Directive No. 2012/27/EU, with delay.

<sup>24</sup>Cf. Article 15, *Energy savings performance contracts*.

The Organic Law of the DGEA attributes as one of its duties '*to ensure the implementation of the Energy Efficiency Programme in Public Administration – ECOAP*'<sup>25</sup>.

The ECO.AP Programme does not include an estimate of the funds needed for its implementation. The Agency for Development and Cohesion<sup>26</sup> evaluated that between 545.8 and 590.2 M€<sup>27</sup> would be needed for the renovation of the buildings of the central and regional governments<sup>28 29</sup>, based on compliance with the objective of the ECO.AP Programme to increase energy efficiency by 30%. The same assessment calculated between 461.3 and 496.8 M€ to be the investment required for local administration to meet the objective<sup>30</sup>.

The estimates made within the framework of the ECO.AP Programme indicated that a 30% reduction in energy consumption would lead to annual savings of 22.5 M€.

The *National Energy Efficiency Action Plan (Strategy for Energy Efficiency – NEEAP 2016)*<sup>31</sup> in execution succeeded the NEEAP 2008. The NEEAP 2016 framed the ECO.AP Programme as a central instrument with the potential to generate effective energy efficiency policy in the State sector<sup>32</sup>, reiterating its measures and objectives and proposing to achieve a 30% increase in the energy efficiency of buildings and equipment by 2020<sup>33</sup>. According to Decree-Law No. 68-A/2015<sup>34</sup>, '*the NEEAP covers significant measures for improving energy efficiency and the expected and/or actual energy savings, with a special focus on measures whose cost-effectiveness ratio provides the greatest energy savings with the smallest investment recovery period (...)*'.

From the perspective of regulatory policies, promoting the improvement of energy performance of buildings resulted in the *System for Energy Certification of Buildings (SCE)*<sup>35</sup>

---

<sup>25</sup>Cf. sub-item ee) of Section 2 of Article 2 of Decree-Law No. 130/2014, of 29 August.

<sup>26</sup>Public Institute whose mission is to coordinate regional development policy and ensure the general coordination of the European Structural and Investment Funds.

<sup>27</sup>Cf. *Ex-ante Assessment of the Financial Instruments of Portugal 2020 Programmes - Financial Instruments for the Energy Efficiency and Efficient Administration of Water and Waste - Final Report*, November 2015.

<sup>28</sup>In the context of the Report, the direct and indirect administrations of the State are covered.

<sup>29</sup>Autonomous Regions of the Azores and Madeira.

<sup>30</sup>The investment, in this case, is partly due to street lighting and is not restricted only to buildings and equipment.

<sup>31</sup>Approved by Resolution of the Council of Ministers No. 20/2013, of 10 April.

<sup>32</sup>Cf. sub-section 3.4 State.

<sup>33</sup>The *Ep1m1 - Energy Certification of Buildings of the State and Energy Savings Performance Contracts* measure has the objective, until 2020, to subject a total of 2,225 buildings of the State to energy performance certification and to enter into energy savings performance contracts involving approximately 500 buildings, projecting 30% savings in energy consumption; The *Ep1m2 – Energy Efficiency Action Plans in Public Administration - ECO.AP* measure includes interventions in buildings with lower energy consumption that are not covered by energy savings performance contracts. The ECO.AP provides that each entity that occupies buildings with lower energy consumption draft energy efficiency action plans, defining both active measures (more efficient lighting, replacement of HVAC equipment for more efficient equipment and the installation of solar thermal collectors for heating water) and passive measures (intervention in the building envelope, such as the placement of thermal insulation in the walls, pavement and roof of the building, installation of interior and exterior shading).

<sup>34</sup>Cf. Section 2 of Article 20.

<sup>35</sup>The SCE has replaced the previous *National System of Energy and Indoor Air Quality in Buildings Certification, Regulation on the HVAC Energy Systems in Buildings, and Regulation on the Thermal Behaviour Characteristics of Buildings*.

<sup>36</sup>, approved by Decree-Law No. 118/2013, of 20 August<sup>37</sup>, and in the provisions included in Decree-Law No. 68-A/2015.

The *System for Energy Certification of Buildings* includes the *Regulation on the Energy Performance of Residential Buildings* (REH) and the *Regulation on the Energy Performance of Service Buildings* (RECS). The elaboration and registration of building energy performance certificates is carried out within this context, with ADENE - Agency for Energy responsible for the follow-up and supervision of the correct application of relevant technical and regulatory methodologies, as the managing entity of the System. It is incumbent upon the Directorate-General for Energy and Geology, as the supervising entity of the same System, to verify the compliance of the owners of the buildings and building units with obligations related to energy performance certification, as well as the existence and display of the certificates in a location visible to the public, in the case of commercial and service buildings.

The Directorate-General for Energy and Geology calculated the cost-optimal levels of the minimum energy performance requirements of the buildings. The differences between the calculated cost-optimal levels and the minimum energy performance requirements in effect are, on average, less than 15% in the case of residential buildings. In the case of office buildings, the minimum requirements were higher than the cost-optimal levels, calculated between 36.8% and 39.8% for new buildings and between 22.2% and 26.5% for existing buildings subject to deep renovation. As a result, in this case, the regulatory framework was altered, setting more stringent performance requirements<sup>38</sup>.

In Decree-Law No. 68-A/2015, the following is relevant:

- Article 7, *Public Administration Buildings*, which establishes the obligation of the central government bodies to fulfil objectives to reduce energy consumption, as defined in the NEEAP; and
- Article 9, *Acquisition and Leasing of Buildings*, which limited acquisition or leasing of installations for central government services to new buildings with an energy efficiency class equal or superior to 'B' and to existing buildings with a class equal to or superior to 'C'.

The execution of energy audits is regulated by Decree-Law No. 68-A/2015, which, in this matter, sets forth obligations only for non-SME companies, being optional for the rest. There is no legal framework for the execution of energy audits directed generally toward final consumers in a process other than obtaining the energy performance certification of buildings<sup>39</sup>.

The financial policies are currently expressed in the NEEAP 2016. In the past, the more relevant financial support within the framework of the NEEAP was from the FEE, and, more

---

<sup>36</sup>See Annex 3.

<sup>37</sup>Transposed the Directive No. 2010/31/EU, with delay.

<sup>38</sup>See Annex 2.

<sup>39</sup>See Annex 4.

recently, the financial grant within the context of the Operational Programme for Sustainability and Efficiency in Resource Use (POSEUR) and the Regional Operational Programmes (OPs) for projects to improve the energy efficiency of public infrastructure, including buildings and their equipment, in the State's central government and local governments.

In spite of this, the survey that was conducted assessed that although more than six years had passed since the launch of the ECO.AP in 2011, which determined that the entities and services not covered by energy savings performance contracts shall adopt and implement energy efficiency action plans by the end of 2011, the majority did not comply with the measure. Only 16.7% of the surveyed bodies of the direct administration had an action plan, representing 11.1% of the buildings of central offices. The percentages were higher in the indirect administration, with 46.7% of the bodies and 36.8% of the buildings. Non-compliance is even greater in regional offices.

The percentage of buildings and building units occupied by a public authority with a total useful floor area over 250 m<sup>2</sup> open to frequent visits by the public that had been issued energy performance certification was discovered to be low, 16.5%, even though they are legally obligated. The most non-compliant owner is the State, in a strict sense, with a compliance percentage of 12.5%.

On the other hand, even in the cases of buildings that had been issued an energy performance certificate, in general, the recommendations contained therein were not implemented. Indeed, there was no record of any case implementing the measures indicated in the certificates in buildings occupied by the direct administration (11 certified buildings out of a total of 67), while there were only four cases in buildings occupied by the indirect administration (17 certified buildings from a total of 97), including a partial implementation and another in progress.

The penalties applicable to infringements to the *System for Energy Certification of Buildings* are established in Decree-Law No. 118/2013, constituting an administrative offence punishable by fine for lacking a valid and correctly displayed energy performance certificate in situations where it is required. Law No. 58/2013, which sets forth the requirements for accessing and exercising activities as a qualified expert for energy performance certification, establishes that the following constitutes an administrative offence punishable by fine: the practise of actions corresponding to those of a qualified expert without the respective professional title; non-compliance by experts with their professional duties; and the incorrect application of relevant technical and regulatory methodologies. The competent jurisdiction for the establishment and instruction of these administrative offence proceedings is assigned to the Directorate-General for Energy and Geology, with the decision to apply fines under the responsibility of the Director-General<sup>40</sup>.

The Directorate-General for Energy and Geology did not file any administrative offence proceedings within the scope of the *System for Energy Certification of Buildings*. In spite of being informed of infringements and general evidence of non-compliance by the State

---

<sup>40</sup>See Annex 5.

sector, it did not demonstrate efforts to ensure that the non-compliant public entities complied with the obligation to obtain and display the energy certificates.

In the adversary proceeding, the DGEG informed that it *'filed administrative offence proceedings and investigation proceedings'* in this context, but it did not forward any evidence or the list of proceedings that were repeatedly requested for throughout the course of the audit. The DGEG even referred that it was not *'informed of any infringements by the State sector'* and that *'the only situations [of inconformity] detected (...) were flagged and corrected by the respective public entities, not giving rise to administrative offence proceedings'*, but it did not comment on the results in these matters in the survey carried out within the scope of this audit and demonstrated in Table 12 of Annex 3.

### 3.1.2 Strategy adopted to comply with Article 5 of Directive No. 2012/27/EU

Directive No. 2012/27/EU<sup>41</sup> establishes that each Member State shall ensure the yearly renovation, beginning 1 January 2014, of 3% of the total area of the heated and/or cooled buildings with an area exceeding 500 m<sup>2</sup> that are owned and occupied by the respective central government<sup>42</sup>. For this purpose, in order to meet at least the minimum energy performance requirements set in the application of Directive 2010/31/EU, the Member State shall establish an inventory of buildings it shall cover until 31 December 2013. Directive 2012/27/EU provided, also, that the Member State *'(...) may opt for an alternative approach (...) whereby they take other cost-effective measures, including deep renovations and measures for the behavioural change of occupants, to achieve, by 2020, an amount of energy savings in eligible buildings owned and occupied by their central government that is at least equivalent to that required (...)'*, notifying the European Commission, by 31 December 2013, of *'the alternative measures that they plan to adopt, showing how they would achieve an improvement equivalent to the energy performance of the buildings (...)'*<sup>43</sup>.

Portugal did not adopt a strategy or national plan to ensure the annual renovation of 3% of the total floor area, having opted for the *'alternative approach'*<sup>44</sup>, and notified the Commission on 31 December 2013 about *'the alternative measures it intends[ed] to adopt in order to achieve an improvement of the energy performance of the heated and/or cooled buildings owned and occupied by its Central Government'*<sup>45</sup>, so as to achieve at least the equivalent of energy savings, as well as the inventory of the buildings covered<sup>46</sup>.

---

<sup>41</sup>Cf. Sections 1 through 5 of Article 5.

<sup>42</sup>Threshold reduced to 250 m<sup>2</sup>, beginning 9 July 2015.

<sup>43</sup>Cf. Section 6 of Article 5.

<sup>44</sup>Seventeen Member States, including Portugal, opted for the 'alternative approach', and only eleven opted for the set standard approach.

<sup>45</sup>Cf. Report 'Directive 2012/27/EU/Article 5/Exemplary Role of Buildings of Public Bodies', DGEG, December 2013.

<sup>46</sup>This inventory contains omissions, resulting from building registration inadequacies in the *Information System on Properties of the State*, even of buildings owned by the State and occupied by bodies of the direct administration. Such is the case for the buildings of the Cabinet for Policy Planning and General Administration, of the Ministry of Agriculture, Forests and Rural Development in the Praça do Comércio, of the Cabinet of Strategy and Studies of the Ministry of Economics on Rua da Prata No. 8 and of the Secretary General of the Ministry of the Environment on Rua do Século No. 51, all in Lisbon, as established in the survey conducted.



The actions for implementing this approach, in accordance with the communication<sup>47</sup>, result from the *Energy Efficiency Programme in Public Administration (ECO.AP)* and ‘(...) allow to project the implementation of a wide range of actions that aim to promote energy efficiency<sup>48</sup>, and, along with other policy mechanisms that aim to promote efficiency in the Central Government, such as the example of the *Plan to Reduce and Improve Central Administration (PREMAC)*<sup>49</sup>, to contribute significantly to ensuring the fulfilment of the energy savings established’.

The ‘alternative approach’ refers only to pre-existing policy measures – the ECO.AP Programme and the Plan to Reduce and Improve Central Administration – under which it falls, and it does not indicate any specific measures for implementation in order to stimulate the deep renovations of buildings. It does not distinguish between types of buildings as a function of use or of the climate zone where they are based. It does not define criteria for selection, prioritisation or scheduling of interventions, highlighting only three of the measures that integrate the ECO.AP Programme – designation of a local energy manager, the signing of energy savings performance contracts and implementation of an energy efficiency action plan – and by referring to the following, in generic terms and as a mere possibility:

*“The energy efficiency measures for implementation may be of either a technological (replacement by more efficient equipment or installation of energy management systems) or behavioural nature and will focus preferably on the following sectors:*

*Heating, ventilation and air conditioning (HVAC);  
Lighting;  
Sanitary hot water;  
Renewable energy;*

<sup>47</sup>The document states that the list is not exhaustive.

<sup>48</sup>In addition to the ECO.AP Programme and the NEEAP, other programmes include among their objectives the reduction of consumption in public administration by increasing energy efficiency:

- ♦ The *Commitment to Green Growth*, approved by Resolution of the Council of Ministers No. 28/2015, of 16 April, published in the Official Journal of the Republic, 1<sup>st</sup> series, of day 30 of the same month, which gives particular importance to energy efficiency, considered the greatest priority of national energy policy, aiming to achieve, by 2020, the objective of reducing energy consumption by 30% in public administration;
- ♦ The *Strategic Framework for Climate Policy*, approved by Resolution of the Council of Ministers No. 56/2015, of 25 June, published in the Official Journal of the Republic, 1<sup>st</sup> series, of 30 July, which includes a specific objective for public administration to reduce final gross energy consumption by 30%;
- ♦ The National Programme for Climate Change 2020/2030, approved by Resolution of the Council of Ministers No. 56/2015, of 25 June, published in the Official Journal of the Republic, 1<sup>st</sup> series, of 30 July, proposes that between the policies and measures for public administration (cf. *Sub-section 4.3.10 - Public Administration*, Table 22), to set the example by creating a low-carbon building park, with the *AP2.2 Decarbonisation of the building park of the State* measure, including:
  - The implementation and broadening of the ECO.AP Programme and
  - The promotion of energy efficiency in the restoration of the building park, considering the recommendations in the *Commitment to Green Growth* and ECO.AP.

<sup>49</sup>The PREMAC had the following objectives: (i) Rationalisation and reduction of the central administrative structures of the State, with an increase in its efficiency of operations; (ii) Promoting a better use for the human resources of the State and (iii) reduction of at least 15% of the total organic structures dependent on each ministry and the number of leadership positions, both at the superior and intermediate levels. No improvements in the energy performance of the buildings resulted from the execution of the PREMAC, and the energy savings deriving from its implementation resulted from the reduction in the number of employees and occupied buildings.

*Building envelope;  
Other equipment.”*

The assumptions of the ‘*alternative approach*’ are based on the milder weather conditions in Portugal, with its less rigorous winters and warmer summers and the consequent reduction in heating needs and increase in cooling needs, and with the predominance of individual HVAC systems on State property, covering only a part of the occupied area. It considers, therefore, low energy consumption when compared with the reference amounts, which oftentimes result only from lighting systems and equipment (computers, printers and others). The demonstration of the minimal use of HVAC systems in national building stock is, on the other hand, based on statistical data related to the ‘*Type of heating system for classic family houses*’<sup>50</sup>, which also refers to the low energy consumption per capita, with a tendency for retraction.

This argument concludes the following:

*“The minimal use of HVAC systems in buildings in Portugal is thus demonstrated as the result of both the economic situation of the country and the existence of a mild climate, with low thermal amplitudes, as a result of the Atlantic and Mediterranean influences on the national territory”.*

The referred assumptions and conclusion drawn do not consider, however, the following evidence:

- Most of the buildings occupied by entities of the central government have fixed HVAC appliances (heating and/or cooling)<sup>51</sup>;
- HVAC consumption by public authority entities make up the majority of total consumption, as the average profile of energy consumption established in the Energy Efficiency Barometer of the Public Administration (ECO.AP Barometer)<sup>52</sup> disclosed: HVAC office equipment 41% / office equipment 29% / lighting 20% / sanitary hot water 2% / other 8%.
- In percentages, this HVAC consumption is approximately double the consumption of family houses, as data from the *Survey on Energy Consumption in Households 2010* evidence: indoor heating 21.5% / indoor cooling 0.5%<sup>53</sup>.

---

<sup>50</sup>Data on cooling equipment are not referenced, and the source is not indicated, with the data not corresponding to data registered in the *Survey on Energy Consumption in Households 2010*, INE, I.P./DGEG, Lisbon - Portugal, 2011, last edition published.

<sup>51</sup>All the entities involved in the survey that responded to questions about the existence of HVAC equipment referred to its existence, and only a very small number of entities did not respond to this question.

<sup>52</sup>See *Graph 3 - ECO.AP Barometer (pilot project) - Distribution of Energy Consumption (2010)*, in *Audit on the Energy Efficiency Programme in Public Administration (ECO.AP)* (Audit Report No. 19/2013 - Section 2), page 43. These data relate to the survey conducted by ADENE in the pilot phase within 29 entities, covering more than 400 buildings. It is noted that the ‘*alternative approach*’ stresses the ECO.AP Barometer as one of the sources of information used.

<sup>53</sup>Cf. *Survey on Energy Consumption in Households 2010*, page 41 (fig. 39).

- The inventory of heated and/or cooled buildings of the central government with a total useful floor area exceeding 250 m<sup>2</sup>, which is included in the ‘alternative approach’ notified to the European Commission, listed 309 buildings or building units<sup>54</sup>, without specifying the corresponding areas and energy performance. Most pertain to the military and militarised forces (Armed Forces (250) and the Republican National Guard (10)), demonstrating that many of the buildings may be excluded, as provided in Article 5 of Directive No. 2012/27/EU<sup>55</sup>. This list was based on a concept of ‘central government’ that identifies with the concept of ‘central services’ established in Law No. 4/2004, of 15 January<sup>56</sup>. In other words, it considers only the “central services”<sup>57</sup> within the direct administration<sup>58</sup>, and, even among these, excludes the local office units, referring to the following:
- ‘(...) The concept of buildings owned and occupied by the central government excludes those owned or occupied by the indirect administration or regional offices, for example, public institutions, public business enterprises, customised funds, universities, public hospitals and social services”.
- This concept of ‘central government’ restricts the scope of the obligation to renovate the buildings of public bodies, as referred in the final part of Section 17 of Directive No. 2012/27/EU, ‘The obligation to renovate the useful area of buildings of the central government applies also to administrative bodies whose competent jurisdiction covers the entire territory of a Member State (...)’ and distances itself from the interpretation given in the Commission Staff Working Document SWD(2013) 445 final<sup>59</sup>.

Directive No. 2012/27/EU, in fact, defines “‘central government’ as all administrative departments whose competence extends over the whole territory of a Member State’. The definition was transposed by Decree-Law No. 68-A/2015 as “‘central government”, all central services of the direct administration of the State, whose competence extends over the whole national territory<sup>60</sup>, which is close to the concept adopted in the ‘alternative approach’. This definition excludes the indirect administration of the State (public institutes)<sup>61</sup>, distancing itself from the classification of the European System of National and Regional Accounts (ESA 2010) which, in subsector S.1311 – Central Government of Sector S.13 – General Government, includes both direct (S.13111 – State) and indirect administrations (S.13112 –

<sup>54</sup>The list does not mention the ‘energy performance of each building’, as specified by the Directive.

<sup>55</sup>In accordance with the provisions of Section 2, Member States may decide not to apply the requirements established for buildings of historical or architectural merit, that serve national defence purposes or as places of worship.

<sup>56</sup>It establishes the principles and rules governing the organisation of the direct administration of the State. The last change was made by Law No. 64/2011, of 22 December.

<sup>57</sup>Central services are those that exercise competent jurisdiction throughout national territory, regardless of possessing, or not, local organic units’ (sub-item a) of Section 4 of Article 11).

<sup>58</sup>The direct administration of the State is integrated by the central and regional services that, due to the nature of their powers and functions, shall be subject to the direction of the respective Government member’ (Section 1 of Article 2).

<sup>59</sup>It considers that the Member States, in view of the fulfilment of Article 5 of the Directive, can draw on to two options to put the definition of ‘central administration’ into practise: (i) the list of central government bodies included in Annex IV of Directive No. 2004/18/EC, relating to public procurement; or (ii) the ‘central government’ subsector (S.1311 ‘ESA 2010’), as set forth in Council Regulation (EC) No 479/2009, on the application of the Protocol on the excessive deficit procedure annexed to the Treaty establishing the European Community.

<sup>60</sup>Cf. sub-item a) of Article 2.

<sup>61</sup>Cf. Section 1 of Article 2 of Law No. 3/2004, of 15 January, which establishes the principles and norms that govern Public Institutions.



*Autonomous Services and Funds*). It shall be noted that the majority of the public institutions, in the same way as the bodies of the direct administration of the State, exercise competent jurisdiction over the whole national territory, and some even have local office units, falling within the definition of ‘central government’ of the Directive.

The DGEG, in the adversary proceeding, considered that ‘(...) *one of the main problems is the lack of information concerning the dimension and characterisation of the real estate of the State, what its property regime is, what areas, what occupation, what the energy needs of these facilities are and what their current consumption is (...) information that is necessary but very incomplete in the current inventory and is expected to be corrected with the use of Barometer Eco.AP, under the responsibility of ADENE*’.

It also ‘reminded that Portugal executed the transposition of Directive [N° 2012/27/EU] through the abovementioned legislation [Decree-Law No. 68-A/2015] and notified the Commission, not receiving any observation or notification of non-compliance from this entity’, stating that ‘the Commission never raised any objections’ to the definition of ‘central government’ in the Decree-Law, refuting the existence of non-compliance or incorrect transposition of the Directive.

The DGEG does not contest the conclusion that the concept of ‘central government’ of the ‘alternative approach’ and Decree-Law No. 68-A/2015 produces a scope that is more restrictive than the one aimed by the Directive, noting, however, that ‘*all subsequent actions of the State (...) have a much wider scope, including the direct and indirect administrations, local services of the direct administration of the State and, even in some cases, the local governments*’, deeming this action as ‘*more ambitious and more inclusive than the one provided in the report notified to the Commission in 2013*’.

The ‘alternative approach’ does not define objectives in terms of target energy efficiency classes of buildings. It quantifies, however, energy savings at 634 MWh [per year] for the listed buildings of the central government to achieve<sup>62</sup>, referring to the expectation that implementation of the ECO.AP Programme may produce much higher energy savings. In accordance with the RECS, the fulfilment of the minimum requirements applicable to non-residential public administration buildings subject to major interventions shall lead to an energy efficiency class of ‘C’ or higher<sup>63</sup>.

Communication of the ‘alternative approach’ option does not contain an assessment of the funds necessary for implementing the alternative measures provided in it.

Having provided only an ‘alternative approach’, instead of a plan for the annual renovation of 3% of the total built area of heated and/or cooled buildings owned and occupied by the central government, it does not establish criteria for selecting buildings for renovation.

---

<sup>62</sup>Amount calculated considering the objective to fulfil the minimum energy performance requirements established in applying Article 4 of Directive No. 2010/31/EU and using the energy efficiency indicator resulting from applying the RECS, which presupposes the execution, at the very least, of efforts to improve the building envelope.

<sup>63</sup>Beginning 31 December 2015.

The total area of buildings was quantified at 7,329,150 m<sup>2</sup> in the reports on the fulfilment of national energy efficiency objectives, corresponding to 283 buildings and building units included in the list, thus quantifying the area of buildings that do not satisfy the minimum energy performance requirements at 82,284 m<sup>2</sup> on 1 January 2017.

Decree-Law No. 68-A/2015 establishes that the central government bodies shall fulfil the objectives to reduce energy consumption, as defined in the NEEAP, through the implementation of measures that allow to achieve energy savings equivalent to those that would result from satisfying the minimum energy performance requirements, which also refers to the measures provided in the ECO.AP and lists, for example<sup>64</sup>, measures that include the execution of ‘*deep renovations*’<sup>65</sup>.

It is noted that the wording of Article 7 of Decree-Law No. 68-A/2015, named ‘*Public administration buildings*’, by taking into account the definition of ‘*central government*’ recorded therein<sup>66</sup>, leaves out the obligation of the indirect administration of the State and the local offices of the direct administration to comply with the objective of reducing energy consumption established therein, which are also left out by other legal provisions applied to the ‘*public bodies at the regional and local level, and the social housing bodies governed by public law*’<sup>67</sup>. For the same reason, the wording of Article 9, *Acquisition and leasing of buildings*, excludes the same bodies from being limited to the acquisition or leasing of new buildings with ‘*B*’ and ‘*C*’ energy efficiency classes, respectively<sup>68</sup>.

### 3.1.3 Entities responsible for the execution, follow-up and control of the ‘alternative approach’

The ‘*alternative approach*’ does not define functions and responsibilities for its execution, and it does not assign any entity to coordinate the implementation of the measures considered. It also does not define who is responsible for the monitoring and control of its fulfilment.

The indication of the measures that seek to obtain energy savings, by referring to the ECO.AP Programme, assigns the responsibility for their implementation within the sphere of duties of the public bodies themselves and assigns the coordination and monitoring to the Ministry of Economics through the Executive Committee of the Administrative Structure of the

---

<sup>64</sup>Cf. Section 3 of Article 7: ‘a) *Energy efficiency action plans*; b) *Energy savings performance contracts*; c) *Behavioural changes*; d) *Replacement of equipment*; e) *Energy management measures*; f) *Deep renovations*’.

<sup>65</sup>Equivalent to ‘*major interventions*’, in the terminology of Decree-Law No. 118/2013 and regulations included therein.

<sup>66</sup>Cf. sub-item a) of Article 2.

<sup>67</sup>With the exception of the Institute for Housing and Urban Rehabilitation.

<sup>68</sup>This legislation does not include provisions that impose the fulfilment of the minimum energy efficiency requirements on buildings whose construction or remodelling is promoted directly by the State, which, therefore, is only due to the purposes of Section 4 of Article 16 of Decree-Law No. 118/2013, which provides that ‘*newly licensed buildings (...) owned by a public entity and occupied by a public entity (...) after 31 December 2018 (...) shall have nearly zero-energy needs*’, and of the legal regulation of urban planning and building (Decree-Law No. 555/99, of 16 December, which establishes that construction works promoted by the State and intended for the installation of public services and social housing must comply with the applicable legal regulations and standards).

<sup>69</sup>Cf. sub-item (ee) of Section 2 of Article 2 of Decree-Law No. 130/2014: ‘*To ensure the execution of the Energy Efficiency Programme in Public Administration - ECO.AP (...)*’.

NEEAP, as determined by Resolution of the Council of Ministers No. 2/2011, and to the DGEG, in the exercise of the powers conferred to it by the respective organic law<sup>69</sup>. The ECO.AP Programme included the creation of the ECO.AP Barometer in its measures, within the context of ADENE – Agency for Energy, as an instrument for monitoring the energy performance of public services<sup>70</sup>.

The DGEG carried on the implementation of the qualification process of energy service companies, which led to a list with 56 qualified businesses<sup>71</sup>, and delegated its powers in ADENE, through a DGEG/ADENE Programme Contract, for the development of energy savings performance contracts and implementation agreements and the corresponding terms of reference and assessment audits. The DGEG, however, does not develop any further actions for the monitoring and control of the ECO.AP Programme, particularly on the adoption and implementation of energy efficiency action plans provided therein for the entities not covered by the performance contracts.

Under this contract, ADENE has developed, since the initiation of ECO.AP, 152 technical advisory actions within the framework of processes aimed at the signing of energy savings performance contracts. Nonetheless, only a small number of these processes relate to buildings ‘*owned and occupied by the central government*’<sup>72</sup>, within the restricted concept used by the DGEG in the ‘*alternative approach*’. Moreover, in spite of the time elapsed, only three energy savings contracts were signed in this context<sup>73</sup>, and only by municipalities.

Resolution of the Council of Ministers No. 20/2013, which approved the NEEAP 2016<sup>74</sup>, assigned the responsibility for monitoring its execution to the Minister of Economics, determining that they would be in charge of the legislative and regulatory measures necessary for the establishment of a joint follow-up and monitoring system for the implementation of the programmes and measures of the NEEAP and the *National Action*

<sup>69</sup>Cf. sub-item ee) of Section 2 of Article 2 of Decree-Law No. 130/2014: ‘*To ensure the implementation of the Energy Efficiency Programme in Public Administration - ECO.AP (...)*’.

<sup>70</sup>All departments and bodies of the direct and indirect administrations of the State, as well as public companies, universities, public business entities, public foundations, public associations and private associations with a majority of government shareholding shall report energy consumption in the ECO.AP Barometer.

The ECO.AP Barometer was developed by ADENE, under the terms established by sub-item f) of Section 2 of Resolution of the Council of Ministers No. 2/2011, to compare and publicly disclose the energy performance of services, in development of the recommendations in Parliament Resolution No. 114/2010, of 29 October.

This resolution recommended that the Government approve a legal regime that establishes the obligation of the annual disclosure of an energy report, accompanied with the respective energy savings plan, by ministry, autonomous region and municipality, by means of the respective websites on the Internet. The reports shall include information relating to the consumption, the quantification of emissions and reduction, the consumption and billing of energy and, also, the identification and indicators relative to the buildings with greater energy consumption of each body. In spite of this, seven years after recommendations from Parliament, there has been no publication of a legal regime that establishes the obligation of the annual disclosure of an energy report by ministry or by municipality, and none of those entities proceeded to disclose the information on the respective website as the recommendation specified. The ECO.AP Barometer itself never responded to the recommendation. See <http://ecoap.NEEAP.pt/faqs/faqs-barometro>.

<sup>71</sup>Available at <http://www.dgeg.pt/?cn=83098476AAAAAAAAAAAAAAAA>.

<sup>72</sup>The 152 buildings / sets of buildings studied are used by 20 entities of the State’s direct and indirect administrations, 5 prisons, 6 hospitals and health centres, 10 universities and colleges, 5 military facilities, a private law foundation, 13 municipalities and an inter-municipal community, 5 public enterprises and a private hospital.

<sup>73</sup>In accordance with information gathered by the Commission of Supervision of Energy Savings Performance Contracts, constituted by Order No. 6954/2013, of the Secretary of State for Energy, in the terms provided in Section 1 of Article 5 of the Standard Terms of Reference approved by Ordinance No. 60/2013, where contracting public entities must proceed with the registration of contracts.

<sup>74</sup>Portugal included the Resolution of the Council of Ministers No. 20/2013, which approved the *National Energy Efficiency Action Plan for the period 2013-2016*, in the list of legislation that transpose Directive No. 2012/27/EU.

*Plan for Renewable Energies*<sup>75</sup>, defining the follow-up methodology and the entities involved, the type and frequency of monitoring, assessment of the measures' impact, and the entities responsible for them. Nonetheless, after four years, it has been verified that no legislative and regulatory measures were taken on this matter.

The NEEAP 2016 provides, under the *Ep1m2 – Energy Efficiency Action Plans in Public Administration - ECO.AP* measure, that the effects of the measures included in the energy efficiency action plans designed for buildings with lower energy consumption that are not the object of energy savings performance contracts are followed up and assessed by the ECO.AP Barometer.

The monitoring and supervision of the NEEAP, at the operational level, are provided in the Regulation for the Administrative Structure of the National Energy Efficiency Action Plan, which determines the following<sup>76</sup>:

- The managers of measures shall make a monthly update of the electronic page regarding the measures under their responsibility;
- The person responsible for each of the technical committees ensures a quarterly update of the electronic page, with the monitoring information on the respective area<sup>77</sup>, which serves as a basis for the reports of the Executive Committee; and
- The Executive Committee presents the activity report annually to the Strategic Council, duly broken down by programmes and measures of the NEEAP, identifying the degree of execution.

In the audit, there was no evidence that the Executive Committee of the NEEAP ensured the execution of any actions to follow up and control the measures of the ECO.AP Programme included in the NEEAP and also in the '*alternative approach*', or that it provided updated information on its degree of implementation. In particular, information on implementation relative to the State published on the NEEAP<sup>78</sup> website is not up to date – the Executive Committee does not disclose the activity reports, and the information concerning the estimated impact of the planned measures was reported until 2013, the year of approval of the NEEAP currently in effect, although last updated in 2014<sup>79</sup> – and it does not come with details or supporting information.

On this matter, the Executive Committee of the NEEAP informed, in the adversary proceeding, that it '*proceeds with publishing the activity and accounting reports of the FEE, until 31 March of each year, on the electronic portal of the NEEAP*' and that '*the activity and accounting reports of the FEE relative to 2016 (...) includes the information on the*

---

<sup>75</sup>Cf. Sections 2 and 3 of the Resolution of the Council of Ministers.

<sup>76</sup>Cf. Article 8, *Processes for monitoring and control*.

<sup>77</sup>Constituted, in the case of the State Area, by the National Public Procurement Agency (currently integrated into the Government Shared Services Entity, I.P. (eSPap)), which coordinates ADENE in the energy component and APA in the environmental component (sub-item d) of Section 1 of Article 7 of the Regulation).

<sup>78</sup><http://www.NEEAP.pt/NEEAP#metasNEEAP>.

<sup>79</sup>Cf. *FEE Activity and Accounting Report - 2016*, published on the NEEAP website after completion of the field work of the audit.

*contribution per programme, on reduction of primary energy consumption in 2014, noting that the indicators provided in the NEEAP for the “State” sector show a degree of implementation of the objective for 2016 of 23%’, informing nothing specifically on the monitoring and control of the ECO.AP Programme measures.*

It should be noted that the preparation and publication of activity reports of the FEE provided in Article 20 of its Administrative Regulation, approved by Ordinance No. 26/2011, are not called into question. The issue is about the reports on activities of the Administrative Structure of the NEEAP, as provided in Section 1 of Article 8 of the respective Regulation, approved by Ordinance No. 1316/2010. It is also observed that the information on this matter contained in the reports of the FEE is restricted to the *‘contribution, per programme, of primary energy saved (in tep) [in percentage] for the objectives of 2016 and 2020’*, identifying only the degree of implementation but remaining silent on the analysis of deviations and proposals for recovery, not satisfying the content specified in the last Article. It also refers that the degree of implementation for the ‘State’ sector is 23% until 2013 and also 2014<sup>80</sup>. The Report does not present any assessments regarding the lack of progress, which corroborates the absence of monitoring.

In conclusion, legislative and regulatory measures necessary to establishing a follow-up and monitoring system for the implementation of programmes and measures of the NEEAP were not taken. The person responsible for the technical committee of the State Area did not ensure the quarterly update of monitoring information on the respective website, and the managers of the measures did not update the information concerning the measures under their responsibility every month<sup>81</sup>.

Decree-Law No. 68-A/2015 does not assign any entity to coordinate the execution of measures implemented to reduce energy consumption, but it assigns the DGEG, in general terms, with the supervision of compliance with the obligations established therein<sup>82</sup>, which includes the implementation of these measures. The legislation does not provide any specific mechanism for the monitoring and control of achieving the *‘objective of reducing energy consumption, as defined in the NEEAP, compared with consumption verified in its buildings and equipment’*, through measures that *‘allow to achieve energy savings equivalent to those that would result from the fulfilment of the minimum energy performance requirements provided in the Decree-Law No. 118/2013’*, in addition to the annual energy consumption report by the central government bodies, through the ECO.AP Barometer<sup>83</sup>.

---

<sup>80</sup>Cf. *FEE Activity and Accounting Report*, of the years 2015 and 2016, respectively. The report for 2014 does not contain this information.

<sup>81</sup>The NEEAP provides for the two measures relating to buildings and included in the Program *Ep1 - Energy Efficiency of the State* (*Ep1m1 - Energy Certification of Buildings of the State and Energy Savings Performance Contracts* and *Ep1m2 - Public Administration Energy Efficiency Action Plans - ECO.AP*), a bottom-up methodology, with the *‘obtained savings [calculated] based on the information contained in the existing energy certificates in the SCE database and the results of the implementation of projects within the scope of the ECO.AP Programme’*.

It also provides for the follow-up and assessment of the effects of these measures through the ECO.AP Barometer, which would measure directly the evolution of consumption and quantify energy savings through a direct comparison between consumption before and after renovation.

<sup>82</sup>Cf. Article 33.

<sup>83</sup>Cf. Sections 1, 2 and 3 of Article 7, Public Administration Buildings.



Despite the foregoing, the ECO.AP Barometer was verified to have been out of operation for several years. The NEEAP website refers to it as being ‘in the process of a reformulation’, which puts into question the follow-up of the implementation of the ECO.AP Programme and other actions that foresee the Barometer as a tool for monitoring and determining effective decreases in consumption. In other words, monitoring and supervision were not executed and, as quoted in the proposal of requirements and responsibilities, ‘ECO.AP / Barometer 2.0 / Definition of Requirements’, included on that website, ‘you can’t manage what you don’t measure’<sup>84</sup>.

### 3.1.4 Nearly zero-energy buildings

Decree-Law No. 118/2013 requires that<sup>85</sup> the new buildings licensed after 31 December 2020, or after 31 December 2018, if owned and occupied by public entities<sup>86</sup>, must have nearly zero-energy needs. The same Decree-Law stipulates that ‘*the Government members responsible for the areas of energy, land-use planning, and finance approve by ordinance the national plan for the renovation of existing buildings in order to meet the requirements for nearly zero-energy buildings, establishing final and intermediate objectives, differentiated by the category of buildings concerned, and the incentives for renovation*’<sup>87</sup>. Nonetheless, after 4 years, this plan has not yet been approved.

In compliance with Article 9 of Directive No. 2010/31/EU, the DGEG prepared the *Portuguese National Plan for Nearly Zero-Energy Buildings*, to increase the number of nearly zero-energy buildings, which was submitted to the European Commission on 22 October 2013. This Plan is currently under reformulation.

The *Portuguese National Plan for Nearly Zero-Energy Buildings* does not present political measures or others that aim to encourage an increase in the number of nearly zero-energy buildings<sup>88</sup>, referring only to compliance with Decree-Law No. 118/2013<sup>89</sup>, of the REH and RECS contained therein and the complementary regulatory framework<sup>90</sup>, whose concept of

---

<sup>84</sup>See <http://ecoap.NEEAP.pt/images/filesecoap/Barometro.pdf>.

<sup>85</sup>The concept of ‘nearly zero-energy building’ (NZEB) combines the reduction of energy needs, to the greatest extent possible, supported by a cost-benefit logic, and energy supply through the use of renewables.

Decree-Law No. 118/2013 established a set of principles that complement the definition of ‘nearly zero-energy building’, in line with the specifications of Directive 2010/31/EU.

The definition of ‘nearly zero-energy building’ was subsequently amended by Decree-Law No. 28/2016, of 23 June, for buildings ‘*that have a very high energy performance, as determined in the provisions of this legislation, in which nearly zero or a very low amount of energy is largely satisfied with the use of energy from renewable sources, namely produced on-site or nearby*’, in wording closest to the definition in Section 2 of Article 2 of Directive No. 2010/31/EU: “‘Nearly zero-energy buildings’, a building that has a very high energy performance, as determined in Annex I. The nearly zero or very low amount of energy required shall be covered to a very significant extent by energy from renewable sources (...) produced on-site or nearby’.

<sup>86</sup>Cf. Section 3 of Article 16, Nearly zero-energy buildings.

<sup>87</sup>Cf. Section 4, as above.

<sup>88</sup>The Plan still does not establish the concept in a set way, stating the following: ‘*In accordance with the current methodology, all new buildings as well as the buildings subject to major interventions shall provide a minimum energy efficiency class of B<sup>-</sup>, with the scale evolving in intervals of 25% until the most efficient class, A<sup>+</sup>. One of the hypotheses to be assessed goes through the analysis of a set of scenarios to determine and validate with utmost rigour the limit at which a building may be classified as NZEB*’.

<sup>89</sup>This legislation defines the concept and establishes the obligation of new buildings or buildings subject to major interventions of having nearly zero-energy needs, with the timetable for implementation provided therein, that differentiates buildings owned by a public entity and those occupied by a public entity (cf. Sections 2 and 3 of Article 16, *Nearly zero-energy buildings*).

<sup>90</sup>The REH and RECS that integrate Decree-Law No. 118/2013 forward the details of the requirements and technical specifications for norms to be adopted by Ordinance of the Government member responsible for the area of energy or by order of the Director-General

“NZEB” it transcribes in the original version. The Plan does not contain any reference to financial measures or others<sup>91</sup> that have been or shall be adopted for the development of the nearly zero-energy buildings. Hence, it is inferred that the policy envisaged to proceed is restricted to the enforcement of compliance with that regime<sup>92</sup>.

The Plan includes some parameters for the performance requirements of buildings and HVAC and sanitary water heating equipment, also presenting the methodologies accounting for renewable energies. These requirements are those of the REH and RECS in effect and others referred to as intermediaries for 2015, in some cases also defining other requirements for the horizon year 2020 (2018 for public sector buildings), although indicating that they lack a profound analysis to validate their feasibility. The plan does not define any benchmark energy efficiency indicators for buildings, expressed in units of primary energy per square meter of area per year (kWh/m<sup>2</sup> per year).

The regulation that complements Decree-Law No. 118/2013 still does not include primary energy indicators of use for nearly zero-energy buildings<sup>93</sup>, expected to occur in legislation to be published, in order to give full support to the requirements of Directive No. 2010/31/EU.

The legislation in effect and the energy efficiency classes currently identified with the concept of nearly zero-energy buildings produce, for large commercial and service buildings in the cities of Lisbon and Porto, the following average energy efficiency indicator amounts, expressed in primary energy:

---

for Energy and Geology, as specified on a case-by-case basis. The following legislation, of a more general technical scope, is highlighted:

- Ordinance No. 349-B/2013, of 29 November, which sets out the methodology for determining the energy performance class for the typology of pre-certified and energy certificates, as well as the requirements of technical performance and efficiency of technical systems of new buildings and buildings subject to major intervention (amended by Ministerial Ordinance No. 319/2016, of 15 December);
- Ordinance No. 349-D/2013, of 2 December, which determines the design requirements relating to the thermal quality of the envelope and the efficiency of technical systems of new buildings, buildings subject to major intervention and existing buildings, regulating the provisions of Decree-Law No. 118/2013 (updated and republished by Ordinance No. 17-A/2016, of 4 February);
- Order No. 15793-H/2013, of 2 December, of the Director-General for Energy and Geology, published in the Official Journal of the Republic, 2nd Series, of 3 December, which publishes the rules of quantification and accounting for the contribution of systems to explore renewable energy sources, according to the type of harvest system (solar thermal, photovoltaic, wind, biomass, geothermal, small hydro, aerothermal and geothermal (heat pumps) systems) and
- Order No. 14985/2015, of 30 October, of the Director-General for Energy and Geology, published in the Official Journal of the Republic, 2nd Series, of 17 December, which publishes the methodology used to calculate the contribution of renewable energy obtained from heat pumps.

It also observes the amendment to Decree-Law No. 118/2013 operated by Decree-Law No. 28/2016, of 23 June, which established the obligatory setting of solar thermal systems for the production of sanitary hot water, which may be replaced by other renewable energy sources that make an equal contribution.

<sup>91</sup>The Plan presents as a measure, for example, the intermediate technical requirements established for 2015.

<sup>92</sup>This *enforcement* is structured around the obligation of new buildings and major interventions to meet the requirements of the REH and the RECS. The obligation that, starting 31 December 2020, all new buildings or those subject to major interventions shall be nearly zero-energy buildings (starting 31 December 2018, in the case of the public sector) comes from the provisions of Ordinance No. 349-D/2013.

<sup>93</sup>The model of energy performance certification of buildings adopted by Portugal is based on the concept of the reference building. This model includes reference buildings depending on the climate zone in which they are located and other aspects, as provided in Ordinance 349-B/2013 (REH) and Ordinance 349-D/2013 (RECS), with there being no single amounts or fixed intervals that correspond to the B- and C energy efficiency classes, currently identified as nearly zero-energy buildings in the case of new buildings and existing buildings subject to deep renovations, respectively.

**Table 1 --NZEB – Average energy efficiency indicators, expressed in primary energy**

(in kWh<sub>EP</sub> /m<sup>2</sup> per year)

Energy class	Mean values of IEEpr	
	Lisbon	Porto
B* (new buildings)	262.77	229.09
C (buildings subject to deep renovations)	288.65	344.96

kWh<sub>EP</sub> = kilowatt hour of primary energy per square meter

IEEpr = energy efficiency indicator expressed in primary energy

Source: ADENE

The amounts of these indicators are significantly higher than those recommended by the European Commission<sup>94</sup> for the Mediterranean and Oceanic areas:

**Table 2 – Energy performance benchmarks for NZEB (office buildings)**

(kWh<sub>EP</sub> /m<sup>2</sup> per year)

	Primary energy		
	Total	Covered by renewable sources on-site	Net
Mediterranean Area	80 - 90	60	20 - 30
Oceanic area	85 - 100	45	40 - 55

kWh<sub>EP</sub> = kilowatt hour of energy per square metre

Source: Commission Recommendation (EU) 2016/1318, of 29 July.

## 3.2 Financing the energy efficiency improvement of public buildings

### 3.2.1 Investments to comply with the ‘alternative approach’

The “*alternative approach*” does not contain an *ex ante* assessment of the financial resources needed to implement the measures it proposes to achieve in eligible buildings owned and occupied by the central government every year, energy savings at least equivalent to the renovation of 3% of the total floor area of these buildings. The same applies to the ECO.AP Programme and NEEAP 2016.

On the other hand, since specific funding instruments are not provided for the measures provided therein, in practise, each public body must bear the expense through its own

<sup>94</sup>Cf. Recommendation (EU) 2016/1318, of 29 July, on guidelines for the promotion of nearly zero-energy buildings and best practises to ensure that, by 2020, all new buildings are nearly zero-energy buildings.



budget<sup>95</sup>, and it may also obtain the necessary funding through national and/or European funds, in this case, to support the national component.

The 2016 NEEAP lists the following funding sources<sup>96</sup>:

- Energy Efficiency Fund;
- Fund to Support Innovation (FAI)<sup>97</sup>;
- PPEC – Plan to Promote Efficiency in Energy Consumption<sup>98</sup>;
- Portuguese Carbon Fund (FPC)<sup>99</sup>;
- Community funding instruments<sup>100 101</sup>.

The FAI and the FPC had no involvement in the funding of actions to improve the energy efficiency of buildings owned and occupied by public entities, and the FEE, expressly created to fund the programmes and measures of NEEAP<sup>102</sup> had a reduced intervention<sup>103</sup>, having only financed the actions listed in the following table:

---

<sup>95</sup>The responsibility for the management of the real estate of the direct administration of the State falls, in general, on the Directorate-General of Treasury and Finance, of the Ministry of Finance, but this responsibility does not include the execution of construction works.

<sup>96</sup>Cf. sub-section 5. *Funding Sources*.

<sup>97</sup>Created by Order No. 32276-A/2008, of 17 December 2008, which also approved its Administrative Regulation, subsequently amended by Order No. 13415/2010, of 19 August 2010, and by Order of the Secretary of State for Energy, of 5 July 2012, which extended the scope of the application of FAI to investment projects in energy efficiency.

<sup>98</sup>Promoted by the Regulatory Authority of Energy Services, within the framework of the National Plan for Climate Change. The 2013-2014 PPEC (5<sup>th</sup> edition) had a budget of € 11,500,000/year, and the PPEC 2017-2018 (6<sup>th</sup> edition) also has a budget of € 11,500,000/year. The PPEC funded and funds several actions, including some promoted by municipalities and public administration bodies.

<sup>99</sup>Created by Decree-Law No. 71/2006, of 24 March, aimed at supporting, among others, projects that lead to the reduction of emissions of greenhouse gases. It was terminated, succeeded by the Environmental Fund, in effect since 1 January 2017, cf. sub-items a) and h) of Article 1 and Article 23 of Decree-Law No. 42-A/2016, of 14 August.

<sup>100</sup>POSEUR and the Regional OPs are important here, as is the initiative Joint European Support for Sustainable Investment in City Areas (JESSICA). The POSEUR and the Regional OPs (North 2020, Centre 2020, Lisbon@2020, Alentejo 2020 and CRESC Algarve 2020) of Portugal 2020, support energy efficiency measures in public infrastructure in the context of the central and local administrations, whose implementation and follow-up is under the responsibility of the Management Authorities of the respective Programmes. Under the scope of POSEUR and the Regional OPs, tenders for the funding of projects to increase energy efficiency in public infrastructure were held until 13 April of the current year, addressing the central administration and local government.

<sup>101</sup>The financial grant by the Funds is the responsibility of the respective management entities: the Executive Committee of the NEEAP, in the case of the FEE; the Executive Committee of the FAI; the Board of Directors of the Regulatory Authority of Energy Services, in the case of the PPEC; the General Secretary of the Ministry of the Environment, in the case of the Environmental Fund, which succeeded the FPC and, in the cases of the POSEUR and the Regional OPs, the respective Management Authorities.

Table 3 – Funding allocated by the FEE

(in units, euros and tep/year)

Reason for funding	Beneficiaries	N° of projects / actions funded	FEE Funding (€)	Decrease in consumption (tep/year)
<b>Energy performance certification of the State (2012)</b>				
Studies and analyses for the energy performance certification of buildings.	Central and Regional Governments (1)	10	205,436.70	-
<b>Audit on elevators (2015)</b>				
Energy audits on elevators to promote improvements in their performance. (3)	Central and Regional Governments (1)	76	33750	-
	Local Governments (2)	2	1290	-
	<b>Total</b>	<b>78</b>	<b>35,040</b>	-
<b>Decrease in reactive energy consumption in the State (2015)</b>				
Decrease in the consumption of reactive energy in buildings and facilities belonging to public entities. (4)	Central and Regional Governments (1)	36	-	-
	Local Governments (2)	209	-	-
	<b>Total</b>	<b>245</b>	<b>594,222.03</b>	-
<b>Efficient Public Administration (2016)</b>				
Replacement of equipment by more efficient equipment and implementation of control devices to optimise conditions of use and energy consumption. (5)	Central and Regional Governments (1)	40	726,224.95	638
	Local Governments (2)	73	1,000,000.00	597
	<b>Total</b>	<b>113</b>	<b>1,726,224.95</b>	<b>1235</b>

- 1) Including the direct and indirect administrations of the State and regional administrations, respective business sectors and other public entities.
- 2) Including local governments, the local business sector where the local governments exercise dominant influence and other public entities 100% owned by municipalities.
- 3) In the final stage of implementation.
- 4) In implementation.
- 5) Awaiting approval and publication of award results.

Source: Reports from the Executive Director of the Administrative Structure of the NEEAP

(At <http://www.NEEAP.pt/aviso-fee/aviso-05>, <http://www.NEEAP.pt/aviso-fee/aviso-18> and <http://www.NEEAP.pt/aviso-fee/aviso-21>).

The FEE and the FPC, listed in the NEEAP as possible sources of funding for energy efficiency measures, had substantial financial resources from 2013 to 2016, as evidenced in the following table:

Table 4 – Funds availability (2013-2016)

(in euros)

Funds	Availability at the end of the year			
	2013	2014	2015	2016
Fund to Support Innovation	19,580,284.07	12,835,058.13	11,569,003.02	8,666,746.01
Energy Efficiency Fund	3,181,568.98	8,565,140.44	8,491,084.89	(*) 26,908,490.57
Portuguese Carbon Fund	118,49, 824.85	238,760,603.61	148,020,083.01	172,426,459.52

(\*) Includes the amount of € 8,273,174 relative to the NER300 Programme, where FEE is the financial vehicle.  
Source: Accountability documents.

The available financial resources mentioned here could have been used to fund the energy performance certification of buildings, the signing of energy savings performance contracts and the implementation of energy efficiency action plans for the buildings of public entities, as provided in the measures *Ep1m1* and *Ep1m2* of the *Ep1 Programme - Energy Efficiency of the State*, of the NEEAP. Nevertheless, the FEE financed actions in the overall amount of approximately 0.8 M€, pending approval of 1.7 M€. The FAI and the FPC did not award any funding in this area.

It shall be noted that, although the FAI is included in the funding sources and Directive No. 2012/27/EU provides that '*Member States may use their revenues from annual emissions allocations under Decision No 406/2009/EC<sup>104</sup> for the development of innovative financing mechanisms to give practical effect to the objective in Article 5 of improving the energy performance of [public bodies] buildings<sup>105</sup>*', the available resources were not used for this purpose<sup>106</sup>.

In the context of Thematic Objective 4 of Portugal 2020, *Supporting the transition to a low-carbon economy in all sectors*, the funds available, until 2020, for projects in the area of energy efficiency are 200 M€ for the central government and 180 M€ for local governments, as evidenced in the following table:

<sup>102</sup> Decree-Law No. 50/2010, which created the FEE, explicitly aimed to fund the programs and measures provided in the NEEAP 2008, which preceded the NEEAP 2016 in effect. The FEE may also support projects not provided in the NEEAP that demonstrably contribute to energy efficiency (cf. Section 2 of Article 2 of Decree-Law No. 50/2010, and Section 3 of Article 3 of Decree-Law No. 68-A/2015).

<sup>103</sup> In the NEEAP 2008 the investment of 2 M€ per year was planned to fund audits and measures within the framework of energy savings performance contracts in the direct and indirect administrations of the State.

<sup>104</sup> It establishes the minimum contribution of each Member State to meet the Community's greenhouse gas emission reduction commitments during the period of 2013 to 2020.

<sup>105</sup> Cf. Section 7 of Article 20.

<sup>106</sup> Decree-Laws Nos. 93/2010, of 27 July, and 38/2013, of 15 March, which regulate trade of gas emission licenses, transposing Directive Nos. 2008/101/EC and 2009/29/EC, do not explicitly provide that the revenue from auctions for emission licenses can be used to fund improvements in energy efficiency of public sector buildings, but this has a place in the wording of Section 3 of Article 17 of Decree-Law No 38/2013, which provides, '*The revenue generated from the auction for emission licenses shall constitute the revenue of the FPC and must be used in actions that contribute to development based on a competitive low-carbon economy for the fulfilment of the national, European and international commitments on the matter of climate change*'.

Table 5 – Thematic area SEUR – Proposed funding (OT4)

Investment Priority	Area of intervention	POSEUR	Regional OPs
4.3. Support for the use of energy efficiency and renewable energy in public infrastructure, particularly in public sector buildings and in the housing sector.	23. Energy efficiency and source diversification in public infrastructure	200 M€	180 M€
	24. Energy efficiency and source diversification in housing	200 M€	111 M€

Source: Agency for Development and Cohesion

In the context of the POSEUR, the interventions funded are those that aim to increase the energy efficiency of buildings and public facilities of the central government<sup>107</sup>, including interventions for the promotion of renewable energy for self-consumption, as long as they form part of the integrated solutions for energy efficiency. Funding is granted by a repayable grant, with a community co-financing rate of 95%, to be paid in full without the payment of interest, within a maximum of 35 years. The Regional OPs fund the same type of interventions in public buildings and equipment of the local authorities. The funding is also granted by a repayable grant, with co-financing rates of 50% and 80% in the Regional OPs of Lisbon and Algarve, respectively, and 95% in the others, to be paid (at least 70%) under the same conditions and terms. This funding is granted through public tenders, which are disclosed through notice of an open contest.

The POSEUR approved funding in the amount of 54.5 M€, with funding in the amount of 112.2 M€ being under analysis by the Regional OPs.

Table 6 – Funding under way through the POSEUR and Regional Ops

(in euros and percentage)

Operational Programme	Maximum co-financing rate	Funding approved	Funding analysis
POSEUR	95%	54,477,628.33	
Regional North OP	95%		70,419,160.00
Regional Centre OP	95%		41,731,929.60
Regional Lisbon OP	50%		N.A.
Regional Alentejo OP	95%		34,251.60
Regional Algarve OP	80%		N.A.
<b>POSEUR Subtotal</b>		<b>54,477,628.33</b>	
<b>Subtotal Regional OPs</b>			<b>112,185,341.20</b>
<b>Total</b>		<b>166,662,969.53</b>	

N.A. - Information not available.  
Source: POSEUR and Regional OPs

<sup>107</sup> The concept of 'Central Government', in this case, is the classification of the European System of National and Regional Accounts, which the *Specific Regulation for the Area of Sustainability and Efficiency in Resource Use* refers to, encompassing the entities included in the list of *Units Classified in the General Government Institutional Sector*, including the direct and indirect administrations of the State and some public business entities (EPE) such as hospital centres.

The NEEAP assigns the DGEG with the responsibility to coordinate the use of the *'different funding instruments'*, considering that this role *'is very important, and proper coordination with the respective management entities is fundamental'*.

The DGEG performs coordination functions of the different financial instruments available. In the case of the POSEUR and the Regional OPs, the DGEG has a relevant role in funding awarded through specialised technical assistance. It draws the reference parameters and calculates the maximum cost-standard levels of investments considered eligible. It participates in the analysis of applications, offering its binding opinion. It also assesses applications for funding by the FEE.

The State Budget Law for 2017<sup>108</sup> provides the creation of fiscal incentives (to be allocated in 2018) to services and bodies of the central and local public administration which, throughout 2017, develop co-funded projects within the framework of improving energy efficiency and provide greater reductions in energy consumption. It also provides the creation, within the framework of the Fund to Support Innovation, of an innovation awards programme for projects that address the energy efficiency of these entities. These incentives, however, have not been subject to necessary regulations.

### 3.2.2 Criteria for awarding financial instruments

The financial grant by FEE and the POSEUR and Regional OPs is awarded based on the selection criteria and prioritisation of applications previously defined in the respective *Administrative Regulation*, in the case of the FEE, and in *Technical Guideline no. 4/2016*, in the context of the *Specific Regulation for the Area of Sustainability and Efficiency in Resource Use* (REDSEUR)<sup>109</sup>, in the case of the OPs, as well as in the notices of tenders open for application submission.

In the context of the POSEUR, which addresses the central government bodies<sup>110 111</sup>, and the Regional OPs, which address the local governments, funding is granted only for projects that include the implementation of energy efficiency measures identified in the energy

<sup>108</sup> Cf. Article 168 of Law No. 42/2016, of 28 December. These incentives are also provided in the Bill on the State Budget for 2018.

<sup>109</sup> Approved by Ordinance No. 57-B/2015, of 27 February, as amended by Ordinance No. 404-A/2015, of 18 November, No. 238/2016, of 30 August, and No. 124/2017, of 27 March.

<sup>110</sup> The projects to increase energy efficiency in public infrastructure within the context of the central government are eligible for funding in Axis I – *To support the transition to a low-carbon economy in all sectors*.

<sup>111</sup> The concept of 'Central Government' used to grant funding by the POSEUR is more comprehensive than the one used in the 'alternative approach' and defined in Decree-Law No. 68-A/2015. The REDSEUR provides, regarding 'Support for energy efficiency, intelligent energy management and the use of renewables in public infrastructure of the Central Government' (cf. section 3, Articles 28 to 34), among the beneficiaries, the 'Central Government Bodies', that the notices for applications specify broadly, based on the *European System of National and Regional Accounts - ESA 95* [2010]:

'3.2. The Central Government Bodies of the State are those entities in the list of Units Classified in the General Government Institutional Sector - 2015, of the INE (...), in the following classifications and with the following limitations:

a) S.13111 - State;

b) S.13112 - Autonomous Services and Funds of the Central Government, provided that their activity is carried out within Public Administration and they oversee the intervention in existing buildings owned and used by the Public Administration, which is limited to the context of the powers and functions of the State. They are excluded from the Funds and Entities by business nature and form, with the exception of the EPEs that have powers and duties of the State'.

performance certificate as necessary for rising two or more energy efficiency classes<sup>112</sup>, at least to the 'C' energy class<sup>113</sup>. For the operation to become eligible for funding, the net present value of the savings should be greater than the net present value of the operation's investment cost, considering a real discount rate of 4%.

There is no established minimum target for energy savings, but the amount of energy saved is a determining factor in the decision to award funding. All the projects are individually analysed and classified so as to establish the order of the allocation of funds available, according to the following criteria:

- Effectiveness (considers the reduction of primary energy consumption);
- Suitability for the sector strategy (considers the contribution of the actions foreseen in the operation to reduce CO<sub>2</sub> emissions);
- Efficiency, sustainability and innovation (considering the ratio between investment and reduction in consumption, prioritising buildings with the worst energy performance and the rise in energy efficiency classification).

Energy savings are determined by measuring and/or estimating consumption before and after application of energy efficiency improvement measures. Due to this purpose, the application for funding shall include an energy performance certificate along with the respective assessment report, characterising the baseline scenario and details on energy efficiency measures to be considered (*ex-ante* assessment). In the case of operations to be implemented under energy savings performance contracts, the *Regulation* provides, as criteria for eligibility of expenses, that the entity demonstrate it has conditions to enter into the contract, in accordance with Decree-Law No. 29/2011<sup>114</sup>.

After the completion of the renovation, the increase in energy efficiency shall be confirmed through issuance of a new energy performance certificate (*ex-post* assessment), which should confirm the change in energy efficiency class, as provided<sup>115</sup>. The process of energy performance certification is completely independent from public entities that own the buildings and is technically controlled by ADENE.

The responsibility for the follow-up and control of the funding of projects for energy renovation of buildings or, in general terms, of investment projects in reducing

---

<sup>112</sup> According to REDSEUR and Technical Guideline No. 4/2016, which governs the financial grant by the OPs.

<sup>113</sup> According to the provisions in Articles 42 to 45 of the RECS and in Annex II of Ordinance No. 349-D/2013, republished by Ordinance No. 17-A/2016, the buildings subject to intervention shall meet the minimum energy performance requirements, which, in this case, and since 31 December 2015, correspond to the 'C' energy efficiency class.

<sup>114</sup> Cf. sub-item g) of Article 31 of REDSEUR.

<sup>115</sup> The methodology applied to calculate energy savings resulting from the building's renovation and the savings achieved is included within the REDSEUR and Technical Guideline No. 4/2016. Pursuant to this *Guideline*, 'the energy assessment, to be executed by a Qualified Expert, shall identify (...) the energy efficiency measures for implementation and the respective necessary investment costs, as well as the energy savings, in other words, the amount of energy saved, determined by measuring and/or estimating consumption before and after the implementation of an energy efficiency improvement measure, while simultaneously ensuring the normalisation of external conditions that affect energy consumption'.

consumption, is allocated to the management bodies of the funding entities. In the case of funding granted within the context of Portugal 2020, the assessment of the implementation of energy efficiency measures in infrastructure and existing equipment will be conducted by the respective management authorities, the POSEUR Management Authority, in the case of the central government buildings, and the Regional OPs Management Authorities, in the case of the local government buildings, with technical support from the DGEG.

### 3.2.3 Energy savings achieved with the ‘alternative approach’

The ‘*alternative approach*’ quantifies expected energy savings at 634 MWh per year but does not provide any mechanism for follow-up or verification. It also does not provide or execute any updates on energy savings due to the amendment to the minimum energy performance requirements that resulted from the implementation of Delegated Regulation (EU) No 244/2012.

The fifth report (2017) on the progress made towards achieving national energy efficiency targets, as provided in Article 24 of Directive No. 2012/27/EU<sup>116</sup>, quantifies energy savings achieved in 2016 in the buildings owned and occupied by the central government with the ‘*alternative approach*’ at 0.035 ktep (162.8 MWh)<sup>117</sup>, identifying it with the measures foreseen under the Energy Buildings Certification. The ECO.AP Programme, the FEE and POSEUR are also listed as measures, with zero energy savings achieved. This report presents the same amount of 0.035 ktep as the total energy savings during the period 2014-2016, which means that total savings obtained in 2014 and 2015 were null.

Table 7 – Summary of the reports on the progress achieved toward national energy efficiency targets

Annual Report	Reporting Year	Total building floor area [m <sup>2</sup> ] of the buildings with a total useful floor area over 250 m <sup>2</sup> owned and occupied by the Member States' central government	Total building floor area [m <sup>2</sup> ] of the buildings which did not meet the energy performance requirements referred to in Article 5(1) on 1 January of the year in which the report is due	Total building floor area [m <sup>2</sup> ] of buildings renovated in the previous year as referred to in Article 5(6)	Amount of energy savings [ktoe] achieved in the previous year in eligible buildings owned and occupied by the central government as referred to in Article 5(6)
2017	2015	7,329,150	82,284	Not applicable	Not applicable
2016	2014	7,329,150	82,284		N.A.
2015	2013		82,284		0

Source: Reports ‘Article 24 (1) and Annex XIV Energy Efficiency Directive 2012/27/EU’

<sup>116</sup> Cf. Section 1 of Article 24 and sub-items c), d) and e) of Part 1) of Annex XIV.

<sup>117</sup> Considering the conversion factor 1 kWh = 215\*10<sup>-6</sup> tep, as stated in Order No. 17313/2008, of 3 June, of the Deputy Director-General for Energy and Geology, published in the Official Journal of the Republic, 2<sup>nd</sup> series, of 26 June.



Table 8 – Energy savings achieved with the ‘alternative approach’

	Alternative approach Article 5(6)	Policy measure (Please, specify the policy measure)	Amount of energy savings [ktoe] achieved in 2016 in eligible buildings owned and occupied by the central government as referred to in Article 5(6)
43-1	Alternative measure 1	Energy measures foreseen under the Energy Buildings Certification	0.035
43-2	Alternative measure 2	Energy Efficiency Programme in Public Administration (ECO.AP)	0
43-3	Alternative measure 3	Energy Efficiency Fund (FEE)	0
43-4	Alternative measure 4	POSEUR - Operational Programme for Sustainability and Efficiency in Resource Use	0
43-11		Amount of energy savings [ktoe] achieved in 2016 in eligible buildings owned and occupied by their central government as referred to in Article 5(6), in primary or final energy	0.035
43-12		Sum of energy savings [ktoe] achieved in eligible buildings owned and occupied by their central government through the implementation of Article 5(6) in primary or final energy over the period 2014 - 2016	0.035

Source: Report ‘Article 24 (1) and Annex XIV Energy Efficiency Directive 2012/27/EU’ (2017)

The savings of 0.035 ktep was justified as the result of accounting for improvement proposals included in the energy performance certificates considered ‘irrecusable’, with payback equal to or less than one year, which would be economically irrational not to carry out. They are potential savings whose effective achievement was not verified. This amount deserves reservations since there are a reduced number of certified buildings, and implementation of measures recommended in the energy performance certificate is an exception. The answers obtained in the survey showed, as mentioned before, that not one entity of the direct administration (which includes the ‘central government’ within the definition considered in the ‘alternative approach’) implemented these measures. In the

indirect administration, measures were implemented only in two hospitality schools, partially implemented in another building and are currently in implementation in one other.

### 3.3 Energy efficiency measures in local government buildings

Directive No. 2012/27/EU determines that ‘Member States shall encourage public bodies, including at the regional and local levels, and social housing bodies governed by public law (...)’ to ‘adopt an energy efficiency plan (...)’, ‘put in place an energy management system, including energy audits (...)’, and ‘use (...) energy service companies (...) to maintain or improve energy efficiency in the long term’<sup>118</sup>.

<sup>118</sup> Cf. Section 7 of Article 5.



Decree-Law No. 68-A/2015 sets forth<sup>119</sup>, in terms similar to those expressed in the Directive, that the local government bodies, '*whenever possible and appropriate*', must adopt energy efficiency plans, implement energy management systems and make use of performance contracts so as to execute measures and plans designed to increase energy efficiency.

Within this framework, no centralised programme was created to address the renovation of buildings belonging to local governments<sup>120</sup>— an autonomous form of regional administration —. So, no inquiry (albeit by sample) was made of the local government buildings<sup>121</sup> that do not meet the minimum energy performance requirements nor was there a list drawn up of buildings set for renovation.

Nonetheless, the Portuguese State deemed it a priority to fund projects for energy efficiency and the integration of renewables in the buildings and infrastructure of the local governments, including that funding in the Partnership Agreement with the European Commission (Portugal 2020).

Applications for funding within the scope of the Regional OPs are the subject of analysis in accordance with their respective regulations and calls for tenders, and awarding and control are carried out according to the terms mentioned above in 3.2.2.

In the case of the renovation of local government buildings financed by FEE (total funding of 1 M€, reduced consumption estimated at 597 tep/year, as referred to above in Table 3), the Fund shall evaluate the energy savings achieved.

Evaluation of the savings achieved as a result of the energy renovation of local government buildings in a global and centralised way is not foreseen.

Of the 152 technical advisory actions developed by ADENE in support of the procedures for contracting energy service companies<sup>122</sup>, mentioned above in 3.1.3, 61 relate to buildings/facilities and two to power distribution substations, belonging to thirteen municipalities and one inter-municipal community.

In spite of this and the time that has elapsed, only three energy savings performance contracts were signed in this context, and only by local governments, but none have been reported to the Supervisory Commission of Energy Savings Performance Contracts. Among these contracts, the following example is featured:

---

<sup>119</sup> Cf. Section 4 of Article 7.

<sup>120</sup> The concept of local government is determined based on the notion of authority, according to Article 235, Sections 1 and 2, of the Constitution of the Portuguese Republic (CRP), which states, '*the democratic organisation of the State comprehends the existence of local governments*', which are '*(...) regional legal entities with representative bodies that seek to further the interests of their respective populations*'. The local governments are public legal entities that are independent and distinct from the State, although they may be supervised and controlled (cf., namely, Article 242 of the CRP) and, although they may be subsidised, they have their own assets and funding (cf. Section 1 of Article 238 of the CRP).

<sup>121</sup> In Portugal, there are currently 278 municipalities in the Continent, which are divided into 2,882 parishes (the parish is the local government that, within the municipal territory, aims to further the interests of the people in their respective constituencies, through representative bodies elected by the citizens registered in the respective area).

<sup>122</sup> REDSEUR includes as beneficiaries the managing entities of financial instruments through which energy service companies may find support, involving partnerships between public and private agents (with the exception of the Algarve OP), in which case, the maximum funding rate applicable is 50% of the eligible investment (cf. sub-item c) of Article 37 and Section 2 of Article 41 of the aforementioned *Regulation*).

### **Performance contract for the implementation of energy efficiency measures in the traffic light system of the municipality of Lisbon**

The first Energy Savings Performance Contract framed by Decree-Law No. 29/2011, of 28 February, was signed by the municipality of Lisbon with the consortium GalpPower, SA/VivaPower Consulting, Ltd., and focused on the implementation of energy efficiency measures in the traffic light system of the city of Lisbon.

The contract provided for the replacement of 20,249 incandescent light bulbs for LED in 8,544 traffic lights<sup>(1)</sup>, with an estimated annual consumption of 6,891,764 kWh, which corresponded to a cost of € 895,929.32<sup>(2)</sup>. The expected savings were 91.6%, with the public entity avoiding a cost of € 820,394.56/year.

The contract had a duration of two years, beginning in 2015 and with the implementation of the conversion of traffic lights done within a period of four months, while payment was made in instalments over two years: € 518,692.40 (2015), € 622,430.88 (2016) and € 103,738.48 (2017), a total of € 1,244,861.76<sup>(3)</sup>.

The energy savings achieved was 92%, exceeding 6.5 GWh/year, reducing CO<sub>2</sub> emissions by around 1300 tonnes/year. Add to this reduction in energy costs, the reduction in the maintenance costs, since the average lifecycle of a LED traffic light is 11 years, while the incandescent light bulbs in traffic lights last less than three months, with cleaning operations also being carried out throughout longer intervals of time.

As shown by these figures, the costs of the municipality fell immediately after the conversion of traffic lights and remained substantially reduced after the contract expired. The savings that exceed the estimates of the contract shall be shared between the Municipality and the successful tenderer, according to the methodology set out in the contract.

This contract had the funding of ADENE, under a contract signed under the ELEnA Programme - European Local ENergy Assistance.

1) In 2013, around 2,500 bulbs had already been replaced, within the scope of the PPEC - Plan to Promote Efficiency in Energy Consumption.

2) Calculation based on a cost of € 0.13/kWh.

3) The amounts indicated do not include VAT. The total, with the inclusion of VAT, is € 1,531,179.96.

## 4 REVIEW BY THE ATTORNEY GENERAL'S OFFICE

It was given to The Attorney General's Office for review, under the terms and for the purposes of Section 5 of Article 29 of Law No. 98/97, of 26 August, republished by Law No. 20/2015, of 9 March, which issued an opinion.

## 5 FEES

In accordance with the provisions of Articles 2, 10 and 11 of the Legal Fees Regime of the Court of Auditors, approved by Decree-Law No. 66/96, of 31 May, with the amendments introduced by Law No.139/99, of 28 August, and Law No. 3-B/2000, of 4 April, and according to the proceedings' invoice, fees in the amount of €17,164.00 are payable, to be borne by the Directorate-General for Energy and Geology<sup>123</sup>.

## 6 FINAL DETERMINATIONS

6.1 This report shall be sent to the following entities:

- Minister of Finance;
- Minister of Economy;
- Minister of the Environment;
- Directorate-General for Energy and Geology;
- Executive Committee of the National Energy Efficiency Action Plan;
- ADENE - Agency for Energy.

6.2 A copy of this Report must be sent to The Attorney General's Office before this Court, pursuant to the provisions in Article 29, Section 4, and Article 54, Section 4, which is applicable under Article 55, Section 2, of Law No. 98/97, of 26 August, republished by Law No 20/2015, of 9 March.

6.3 After delivery of the Report to the aforementioned entities, it must be disclosed on the Court's website on the Internet.

6.4 Within six months, the entities to whom the recommendations are addressed shall inform the Court about their compliance or the respective justification, otherwise.

---

<sup>123</sup> The DGEG, in the context of the adversary proceeding, questioned the legal basis invoked as well as the fact that it was the only entity identified to pay the fees. However, considering that this Directorate-General was the entity audited, although information was gathered from other entities (as described in point 2.2), the fees are charged to this service, in accordance with Article 11, Section 1 of the Legal Fees Regime of the Court of Auditors.



Approved in the Sub-section of the 2<sup>nd</sup> Section of The Court of Auditors, on 25 January 2018.

THE REPORTING COUNSELLOR JUDGE

(António Augusto Pinto dos Santos Carvalho)

THE ASSISTANT COUNSELLOR JUDGES

(Ana Margarida Leal Furtado)

(Maria da Conceição dos Santos Vaz Antunes)

THE DEPUTY ATTORNEY-GENERAL

(Manuela Luís)

## 7 ANNEXES

## Annex 1 – Definition of "public sector buildings"

In the legal and regulatory framework in Portugal, there is no legal definition of '*public sector building*'<sup>124</sup>; in particular, Decree-Law No. 280/2007, of 7 August, which regulates the real estate management of the private and public domain of the State, autonomous regions and local governments, does not define this concept<sup>125</sup>. In accordance with this legislation, the classification of a building as '*public*' may either classify ownership (public because it belongs to a public entity or it integrates the public domain) or use by a public entity, covering in this case, in addition to property, leasing and lending situations. As a general rule, buildings occupied by the entities of the direct administration and by public institutions (indirect administration, distinct from the State in a strict sense, but part of the State in a broad sense) belong to the private domain of the State (in a strict sense), although the institutions and other entities may have their own assets, including buildings owned by them. The autonomous regions and local governments also have their own assets, which includes buildings. The same is true with universities, public foundations, public business entities, public companies, etc. There are still some buildings that are part of the public domain of the State, as is the case with those that integrate port and airport infrastructure.

Decree-Law No. 280/2007 establishes the distinction as a function of the nature of the entities' rights over the property – the State, autonomous regions and local government – and, in relation to ownership, it also distinguishes the domain where property is integrated – the public domain or private domain.

In many cases, the public bodies occupy buildings leased to private entities or to two companies from the public business sector (Estamo – Participações Imobiliárias, SA, and

---

<sup>124</sup> Directive No. 2010/31/EU makes no distinction between buildings based on ownership, public or private. The only distinction identifiable with '*public sector buildings*' concerns the obligation of Member States to ensure the issuance of an energy performance certificate for '*buildings where a total useful floor area over 500 m<sup>2</sup> [250 m<sup>2</sup>, starting 9 July] is occupied by a public authority and frequently visited by the public (...) displayed in a prominent place, clearly visible to the public*' (cf. sub-item b) of Section 1 of Article 12 and Section 1 of Article 13).

Directive No. 2012/27/EU also does not define '*public sector buildings*'. The title of Article 5, '*Exemplary role of public bodies' buildings*' refers to the definition of '*public bodies*' in Section 8 of Article 2, which in turn refers to the '*contracting authorities*', as defined in Directive No. 2004/18/EC. The provisions of this Article, however, address the '*heated and/or cooled buildings owned and occupied by its central government*', leaving it to the discretion of the Member States to apply it to '*administrative departments at a level below central government*'.

<sup>125</sup> The *Registration and Inventory of Real Estate and Rights of the State*, part of the *Registration and Inventory of State Assets*, approved by Ordinance No. 671/2000, of 10 March, published in the Official Journal of the Republic, 2<sup>nd</sup> series, of 17 April, itemises in Article 19, *Real estate assets*, the types of '*urban real estate assets*' to be considered for the purposes of inventory, either belonging to the public or private domain, which include, among others:

"*Residential buildings*" - buildings for residential purposes, such as state housing, social housing, housing for rent or others;

"*Service buildings*" - office buildings, buildings for the installation of public services, whose operational activities are of an administrative, cultural, social or other similar nature, such as notaries, schools, hospitals, and other operational purposes;

"*Palaces, monuments, museums, libraries, archives, theatres*" and other similar buildings with historical and cultural relevance;

"*Cultural goods*" - buildings intended for the exercise of religious worship;

"*Buildings for industrial purposes*" - intended for productive processes of an industrial, agricultural and similar nature, when not located on rural land'.

Parque Escolar, EPE<sup>126</sup>), to whom the building property rights that previously belonged to the State's private domain were transferred.

---

<sup>126</sup> It is worth noting that these two companies integrate sub-sector *S.13112 - Autonomous Services and Funds of the Central Administration*, within the context of the *European System of National and Regional Accounts - ESA 2010*.

## Annex 2 – Minimum energy performance requirements

Directive No. 2010/31/EU ruled that Member States establish the minimum energy performance of buildings and building units, as well as the constructive elements of the building envelope that make a significant impact on their performance, in order to achieve cost-optimal levels<sup>127</sup>. It was then stipulated that if discrepancies between the calculated cost-optimal levels of minimum energy performance requirements and the minimum energy performance requirements in force exceed 15%, Member States should justify the difference or plan appropriate steps to reduce the discrepancy<sup>128</sup>.

The DGEG calculated the cost-optimal levels of the minimum energy performance requirements of buildings, using the comparative methodology framework established in Delegated Regulation (EU) No. 244/2012 of the Commission, of 16 January. This calculation was performed for residential buildings and office buildings, both new and existing<sup>129</sup>. Nonetheless, it did not calculate the cost-optimal levels for the building elements.

Table 9– Difference between minimum energy performance requirements and cost-optimal levels

(in percentage)

Type of building		Private sphere			Social sphere		
		Minimum	Maximum	Average	Minimum	Maximum	Average
Single-family house	Existing	-8.86	+4.43	-1.40	-8.86	+9.61	+0.16
	New	-20.08	-3.16	-11.80	-20.11	-3.16	-11.81
Multi-family building	Existing	-23.19	+13.29	-2.65	-18.28	+12.50	-1.22
	New	-15.70	+7.72	-7.33	-15.70	+7.72	-7.33

Note: The reported amounts refer to the Continent.

The differences reported to the Commission contain calculation errors that the DGEG did not correct.

The amounts of the table were calculated in the context of the audit with the following formulas:

$$\text{Gap [\%]} = \frac{\text{current minimum performance requirements} \left[ \frac{\text{kWh}}{\text{m}^2 \cdot \text{year}} \right] - \text{cost optimal level} \left[ \frac{\text{kWh}}{\text{m}^2 \cdot \text{year}} \right]}{\text{cost optimal level} \left[ \frac{\text{kWh}}{\text{m}^2 \cdot \text{year}} \right]} \times 100$$

$$\text{Average Gap [\%]} = \frac{\text{average current minimum performance requirements} \left[ \frac{\text{kWh}}{\text{m}^2 \cdot \text{year}} \right] - \text{average cost optimal level} \left[ \frac{\text{kWh}}{\text{m}^2 \cdot \text{year}} \right]}{\text{average cost optimal level} \left[ \frac{\text{kWh}}{\text{m}^2 \cdot \text{year}} \right]} \times 100$$

Source: Cost-optimal Levels, DGEG, August 2014, and calculation based on the formulas contained in the *Assessment of cost-optimal calculations in the context of the EPBD* (ENER/C3/2013-414), final report, ECOFYS, 19 November 2015, pgs. 24 and 58.

<sup>127</sup> Cf. Section 1 of Article 11.

<sup>128</sup> Cf. Whereas 14 of Directive No. 2010/31/EU.

<sup>129</sup> According to the document titled *Cost-Optimal Levels*, DGEG, August 2014, the studies were performed by the LNEG - National Energy and Geology Laboratory, LNEC - National Civil Engineering Laboratory, ADENE - Agency for Energy and by the DGEG. This document, dated August 2014, replaced the first report on this subject, which was sent to the European Commission on 31 December 2013.



In the case of residential buildings, the differences between the minimum energy performance requirements and the cost-optimal levels calculated<sup>130</sup> are, on average, less than 15%, corresponding to the few exceptional cases where cost-optimal levels are less demanding than those resulting from application of the reference energy performance<sup>131</sup>.

In the case of office buildings<sup>132</sup>, a category that includes the public sector buildings addressed here, the minimum energy performance requirements<sup>133</sup> were higher than the calculated cost-optimal levels, between 36.8% and 39.8% in the case of new buildings, and between 22.2% and 26.5% in the case of existing buildings subject to deep renovation<sup>134</sup>.

The progress made by Member States to achieve cost-optimal levels of minimum energy performance requirements for new and existing buildings was analysed in the report of the European Commission COM (2016) 464 final.

The energy performance requirements for buildings, set out in the *Regulation on the Energy Performance Regulation of Residential Buildings* and the *Regulation on the Energy Performance of Service Buildings* that integrate the *System for Energy Certification of Buildings* (SCE), approved by Decree-Law No. 118/2013, were amended by Decree-Law No. 28/2016, of 23 June, which republished the legislation, in order to incorporate the adjustment to minimum requirements for various types of buildings as a result of the findings of the cost-optimal studies<sup>135</sup>, thereby setting more stringent performance requirements, particularly for service buildings.

---

<sup>130</sup> Requirements imposed by the *Regulation on the Energy Performance of Residential Buildings* (REH), approved by Decree-Law No. 118/2013, of 20 August.

<sup>131</sup> For the comparison, single-family and multi-family reference buildings were defined, based on existing statistical information and the *System for Energy Certification of Buildings* database, considering the three winter climate zones (I1, I2 and I3) and the three summer climate zones (V1, V2 and V3) defined in the national regulations and the time of construction (prior to 1960 / 1960-1990 / 1990-2012 / new), in a total of 36 sub-categories (28 for the continent and 8 for the autonomous regions) for single-family houses and 40 subcategories for multi-family buildings (24 for the mainland and 16 for the autonomous regions).

<sup>132</sup> Cf. 'Calculation of cost-optimal levels of minimum energy performance requirements of buildings and building components/Non-residential buildings', LNEG - National Geology and Energy Laboratory, LNEC - National Civil Engineering Laboratory, ADENE - Agency for Energy and DGEG, August 2015.

<sup>133</sup> Requirements imposed by the *Regulation on the Energy Performance of Services Buildings* (RECS), approved by Decree-Law No. 118/2013.

<sup>134</sup> Reference buildings were defined for the comparison, in the same way as referred to in footnote 127, and the time of construction (prior to 1990 / 1990-2006 / new (after 2006)), in a total of 4 sub-categories (Lisbon and Porto, summer and winter).

<sup>135</sup> The amendments to Decree-Law 118/2013, operated by Decree-Laws Nos. 68-A / 2015, of 30 April, 194/2015, of 1 September, 251/2015, of 25 November and 28/2016, of 23 June, and complementary legislation have been focused on improving the concept of nearly zero-energy buildings and defining the technical parameters for its application.

## Annex 3 – Energy performance certification

Certification of the energy efficiency of buildings is performed within the scope of the *System for Energy Certification of Buildings (SCE)*<sup>136</sup>. The qualification of the experts, follow-up and supervision of the correct use of the technical and regulatory methodologies applicable to the elaboration and registration of energy performance certificates are assigned to ADENE, as the managing entity of the SCE<sup>137</sup>. The DGEG is the supervising entity<sup>138</sup> responsible for verifying the compliance of owners of buildings and building units with the obligations related to energy performance certification.

The SCE establishes the norms applicable to certification, in accordance with the provisions of Directive No. 2010/31/EU, in particular with the provisions in Article 11 therein<sup>139</sup>. The SCE incorporates the REH and the RECS, which establish the energy performance requirements for buildings that are new or subject to renovation, as well as the parameters and methodologies for characterisation<sup>140</sup>.

ADENE provides an information platform to support the issuance and electronic registration of certificates<sup>141</sup>, where all the energy performance certificates are directly registered by the qualified experts. This computer system performs several validations, highlighting and rejecting registration if certain inconformities arise.

In addition to the verification made in the computer registration process of the certificates, ADENE proceeds to the detailed verification of the quality of information and data registered by qualified experts, relative to a statistically significant sample of energy performance certificates<sup>142</sup>, and promotes the replacement of records when it verifies non-compliance with the established rules and requirements. For this purpose, a *Detailed Supervision*

---

<sup>136</sup> The SCE replaced the previous *National System of Energy and Indoor Air Quality in Buildings Certification* established by Decree-Law No. 78/2006, of 4 April, which transposed Directive No. 2002/91/EC, of the European Parliament and of the European Council, of 16 December, repealed by Directive No. 2010/31/EU.

<sup>137</sup> The powers of the managing entity of the SCE, in accordance with Decree-Law No. 118/2013, are defined in Annex I of Ordinance No. 349-A/2013 of 29 November.

<sup>138</sup> Cf. Article 10 of Decree-Law No. 118/2013.

<sup>139</sup> Decree-Law No. 118/2013 is a framework legislation that sets forth that certain matters are governed by complementary legislation. Thus, the obligations and responsibilities of the managing entity of the SCE were defined by Ordinance No. 349-A/2013, of 29 November. The methodology for determining the energy performance class for the typology of pre-certificates and certificates from the SCE were defined in Ordinance No. 349-B/2013, of the same date. The different types of energy pre-certificate and certificate models were published by Order No. 15793-C/2013, of 2 December, of the Director-General for Energy and Geology, published in the Official Journal of the Republic, 2<sup>nd</sup> Series, of 3 December.

<sup>140</sup> This regulation and existing norms apply to all residential, commercial and service buildings (most public administration buildings fit in this category), irrespective of whether the entity that owns and/or uses the building is public or private.

<sup>141</sup> SCE Portal, at <http://www.adene.en/sce>.

<sup>142</sup> Under the terms set forth in Section 4.2 of Annex I of Decree No. 349-A/2013. The selection criteria of certification procedures for verifying the quality of the processes, methodologies for verification and acceptable deviations are established in Order No. 7113/2015, of 18 June, of the Director-General for Energy and Geology, published in the Official Journal of the Republic, 2<sup>nd</sup> Series, of 29 June. The selection criteria include, among others, the existence of complaints or accusations, qualified experts whose work has not been verified in the last three years, the system alerts relative to potential breaches and the random selection of pre-certificates and certificates or experts. The document does not establish, however, rules for the quantification of the number of processes to select for verification.

*Regulation* is provided to typify and graduate the errors<sup>143</sup> and define the procedures for selection and analysis of the certificates for verification. The following table presents the number of registered and verified certificates<sup>144</sup>:

**Table 10- Registered and verified energy performance certificates**

Year	2009	2010	2011	2012	2013	2014	2015	2016	Total
Registered Certificates	189,446	160,448	112,268	83,670	77,283	180,025	176,668	178,768	1,158,574
Verified Certificates	3,257	4,727	4,237	2,534	1,293	2,907	2,310	2,281	23,546
Sample (%)	1.7	2.9	3.8	3.0	1.7	1.6	1.3	1.3	2.0

Note: The figures include public and private sector buildings.

The definition of the sample is currently established according to a study conducted by the Instituto Superior Técnico in 2013, considering a stratification based on different situations.

Source: ADENE.

The DGEG supervised the display of certificates directly in 97 buildings (through visits) and indirectly in 130 buildings (through requests for certificates and energy audits), covering both public and private sector buildings.

The NEEAP 2016 foresees, in the sub-programme *Eplml - Energy Certification of Buildings of the State and Energy Savings Performance Contracts*, until 2020, the certification of a total of 2,225 buildings of the State. Despite the fact that obtaining energy performance certification is a legal obligation since at least 2009<sup>145</sup>, the number of public buildings that are certified, which has been increasing, is still small when compared with the total of 9,952 service buildings listed in the inventory of the State, the majority owned by the State itself, as can be observed from the following table:

<sup>143</sup>For example, situations involving changes in the assigned energy efficiency class due to non-compliance with the minimum regulatory requirements of quality and/or thermal behaviour and the recurrence of situations of inconformity identified and observed by the expert in previous processes are considered grave.

<sup>144</sup>The sample size exceeds the values recommended by the Directorate-General for Energy of the European Commission (samples of 381 (0.76%) for a population of 50,000 and 383 for populations of 100,000 (0.38%) and 200,000 (0.19%), cf. *Table 1: Sample size for a statistically significant random sample with a confidence interval of  $\pm 5\%$  and a confidence level of 95%, Quality control schemes make the EPCs more reliable*, Wina Roelens and Xavier Loncour, September 2015, pg. 8, <http://www.epbd-ca.eu/wp-content/uploads/2011/05/CA-EPBD-Reliable-EPCs-through-auality-control.pdf>).

<sup>145</sup>The owners of the service buildings or building units with a total useful floor area over 500 m<sup>2</sup> that are visited frequently by the public, including the State and other entities, even private entities, since 1 January 2009, are required to ensure that an energy performance certificate is issued for the buildings, an obligation that, on 9 July 2015, began to include buildings or building units with an area over 250 m<sup>2</sup>.

**Table 11– Number of energy performance certificates issued to public sector buildings**

Year	2010	2011	2012	2013	2014	2015	2016	2017(*)	Total
Services	186	323	185	177	221	403	563	91	2149

\* Months of January and February.

Notes:

The validity of certificates for residential and small service buildings (< 1000 m<sup>2</sup>) is 10 years. For large service buildings, (≥1000 m<sup>2</sup>) it is 6 years for certificates issued until 30 April 2015 and 8 years for those issued after that date.

Data prior to 2010 not available.

Source: ADENE

It should be noted that the number of service buildings with a valid certificate may present a difference in relation to the 2,149 listed in the previous table, since it does not consider certificates issued before 2010, and a part of the certificates issued in 2010 and 2011 have lost their validity.

The survey found that there is a small percentage of buildings and building units occupied by public services with an area over 250 m<sup>2</sup> that are visited frequently by the public that have been issued energy performance certification, only 16.5%. The most non-compliant owner is the State, in a strict sense, with a compliance percentage of just 12.5%. The percentage of buildings with energy performance certification occupied by the 'central government', according to Decree-Law No. 68-A/2015, if those not owned by the State are included, is 66.7%, higher than the overall average, due to the fact that most of those buildings are owned by Estamo, whose buildings are all certified. None of the six buildings covered in the survey and included in the 'alternative approach' inventory (one of them with 5 building units) had been issued an energy performance certificate.

**Table 12– Energy performance certification of public sector buildings**

(number of buildings)

Ownership	Direct administration						Indirect administration						Total
	Central			Local offices			Central			Local offices			Total
	Visited frequently by the public	Energy performance certificate	(%)	Visited frequently by the public	Energy performance certificate	(%)	Visited frequently by the public	Energy performance certificate	(%)	Visited frequently by the public	Energy performance certificate	(%)	(%)
State	4	1	25.0	39	1	4.7	11	4	42	6	18.9	12.5	
Other (State)	2	1	50.0	8	0	10.0	1	1	6	2	42.9	23.5	
Estamo	5	5	100.0	2	1	85.7	5	3	5	0	30.0	52.9	
Private (rental)	1	1	100.0	4	1	40.0	-	-	7	0	0.0	16.7	
Lending	-	-	-	1	0	0.0	-	-	20	0	0.0	0.0	
Total	12	8	66.7	54	3	16.7	17	8	80	8	16.5	16.5	

Source: Drawn from responses to the survey, given in July/August 2017.

## Annex 4 – Energy Audits

Directive No. 2012/27/EU requires that Member States ‘shall promote the availability to all final customers of high quality energy audits which are cost-effective (...) carried out in an independent manner’, providing transparent and non-discriminatory minimum criteria for this purpose, ‘that enterprises that are not SMEs are subject to an energy audit (...) as of 5 December 2015’, and then periodically, and that they create ‘programmes to raise awareness among households about the benefits of such audits’<sup>146</sup>.

Decree-Law No. 68-A/2015 establishes<sup>147</sup> that the energy audits provided therein, when including industrial facilities, must be carried out by technicians with the qualifications provided in Law No. 7/2013, of 22 January<sup>148</sup>, and, when relating to residential, commercial and service buildings, must be performed by technicians with the qualifications set forth in Law No. 58/2013, of 20 August<sup>149</sup><sup>150</sup>. The audits carried out in the context of the SGCIE shall also be performed by technicians with the qualifications provided in Law No. 7/2013<sup>151</sup>.

ADENE, as the managing entity of the SCE, promotes training programmes for the qualification of experts for energy performance certification, energy auditors for residential buildings<sup>152</sup>, auditors of ISO 50001 energy management systems and of technicians for the installation and maintenance of facilities and systems.

ADENE maintains online databases with the registration of technicians and qualified entities to conduct energy audits and rationalisation plans (*‘Directory of Technicians or Recognised Entities’*<sup>153</sup>) and of experts qualified for energy performance certification (*‘Directory of Qualified Experts’*<sup>154</sup>), searchable by location, providing the contact information of the qualified technicians in order to perform the services in question.

Directive No. 2012/27/EU provides that Member States establish a system to ensure and control the quality of the audits carried out by the experts/auditors, namely through an annual random selection, covering at least a statistically significant percentage of audits<sup>155</sup>.

---

<sup>146</sup> Cf. Sections 1 to 4, of Article 8, *Energy audits and energy management systems*.

<sup>147</sup> Cf. Article 14, *Technicians responsible for carrying out energy audits*.

<sup>148</sup> Approves the regime governing the access and pursuit of activities for carrying out energy audits, drawing up plans for rationalising energy consumption and controlling its implementation and progress, within the context of *Intensive Energy Consumption Management System* (SGCIE).

<sup>149</sup> Approves the requirements governing the access and pursuit of activities of qualified experts for energy performance certification and technicians for the installation and maintenance of buildings and systems.

<sup>150</sup> Laws Nos. 7/2013 and 58/2013 provide for the recognition of qualifications of technicians who are citizens of other Member States or of the European Economic Space, who possess professional qualifications acquired outside national territory, in accordance with the provisions of Law No. 9/2009, of 4 March, amended by Law No. 41/2012, of 28 August, which transposes Directive No. 2005/36/EC of the European Parliament and the European Council, of 7 September, relative to the recognition of professional qualifications, allowing technicians who are legally established in another Member State or in the European Economic Area to develop the same activities.

<sup>151</sup> As result of Article 10 of Decree-Law No. 71/2008, in the wording amended by Article 2 of Law No. 7/2013.

<sup>152</sup> Within the European Project ENACT (Energy Auditors Competences, Training and Profiles).

<sup>153</sup> At [http://sgcie.publico.adene.pt/\\_layouts/SGCIE\\_ExternalEntities/ListaNtecnicos.aspx](http://sgcie.publico.adene.pt/_layouts/SGCIE_ExternalEntities/ListaNtecnicos.aspx) and [http://sgcie.publico.adene.pt/\\_layouts/SGCIE\\_ExternalEntities/ListaNtidades.aspx](http://sgcie.publico.adene.pt/_layouts/SGCIE_ExternalEntities/ListaNtidades.aspx).

<sup>154</sup> At <http://www.adene.pt/sce/micro/peritos-qualificados>.

<sup>155</sup> Cf. Section 1 of Article 8 and Annex VI.

The DGEG, the entity to which Decree-Law No. 68-A/2015 delegates the supervision of compliance with the obligations provided therein, proceeds to register non-SME companies and the information concerning the energy consumption of their facilities and to verify previous periodic audits. It also verifies the reduced number of facilities, but still does not verify if the energy audits carried out within the framework of the Intensive Energy Consumption Management System comply with the minimum criteria set forth in Annex VI of Directive 2012/27/EU<sup>156</sup>.

---

<sup>156</sup> Reproduced *ipsis verbis* in Annex IV of Decree-Law No. 68-A/2015.

## Annex 5 – Detection of and penalties for infringements

Decree-Law No. 118/2013 lays down the penalties applicable to infringements to the *System for Energy Certification of Buildings*. An administrative offence is punishable by a fine of € 250 to € 3,740, in the case of natural persons, and € 2,500 to € 44,890, in the case of legal persons. Violations of the legislative norms regarding the scope of the audit consist of the following<sup>157,158</sup>:

- The lack of an energy performance certificate for the building or building unit or its timely renovation<sup>159</sup>;
- The certificate's lack of display in a visible and prominent position at the entrance of the building or building unit<sup>160</sup>.

Law No. 58/2013, which governs the requirements to the access and pursuit of qualified expert activities for energy performance certification, establishes that the following constitutes an administrative offence<sup>161</sup>:

- Practising the actions of a qualified expert for energy performance certification by professionals without the respective professional title is punishable by a fine of € 750 to € 7,500<sup>162</sup>;
- The infringement of professional duties by the experts is punishable by a fine of € 250 to € 3500<sup>163</sup>;
- The incorrect application of relevant technical and regulatory methodologies that determine the registration of irregular technical situations is punishable by a fine of €500 to €7000<sup>164</sup>.

---

<sup>157</sup> Cf. Article 20, *Administrative offences*.

Article 27 of Directive No. 2010/31/EU provides that 'Member States establish the regime of penalties applicable to the violation of the national provisions approved for the purposes of this Directive and take the necessary measures to ensure its implementation. The penalties provided must be effective, proportionate and dissuasive (...)'

<sup>158</sup> Cf. Article 20, *Administrative offences*.

Article 27 of Directive No. 2010/31/EU provides that 'Member States shall lay down the rules on penalties applicable to infringements of the national provisions adopted pursuant to this Directive and shall take all measures necessary to ensure that they are implemented. The penalties provided for must be effective, proportionate and dissuasive (...)'

<sup>159</sup> Cf. sub-item b) of Section 1 of Article 14.

<sup>159</sup> Cf. sub-item g), as above.

<sup>160</sup> Cf. Article 7, *Administrative offences*.

Article 13 of Directive No. 2012/27/EU sets forth the same as the above in relation to Directive No. 2010/31/EU but sets out the Articles whose infringement the sanctions regime shall ensure, where it highlights, given the scope of the audit, Article 8: 'Energy audits and energy management systems', which commits the Member States to promote the availability to all final customers of high quality energy audits carried out in an independent manner by qualified and/or accredited experts or implemented and supervised by independent authorities.

<sup>161</sup> Cf. Section 1, of Article 7.

<sup>162</sup> Cf. Section 2, as above.

<sup>163</sup> Cf. Section 3, as above



The penalties applied to experts regarding practise with a clear and serious violation of professional duties can cumulatively be subject to an additional penalty of being prohibited to carry out the activity for a maximum of two years.

When ADENE detects serious irregularities during the verification process of certificates or when it receives notifications of violations detected by other entities<sup>165</sup>, it sends the corresponding processes to the DGEG in order to initiate and organize the administrative offence proceedings.

The DGEG is in charge of initiating administrative offence proceedings, with the decision on the imposition of fines being within the competence of the Director-General<sup>166</sup>.

The DGEG did not demonstrate that it had initiated any administrative offence proceedings under the *System for Energy Certification of Buildings*, despite being informed of infringements and general evidence of non-compliance by the State sector. The DGEG also did not demonstrate that it had made efforts to ensure that non-compliant public entities fulfil the obligation to obtain and display their energy performance certificates.

---

<sup>164</sup> According to provisions laid down in Sections 2 and 3 of Article 5 of Decree-Law No. 118/2013, it is necessary that the existence of the energy performance certificate be verified by the competent administrative authorities in the process of obtaining construction work permits, when signing contracts for the purchase, sale or rent of any building, or when supervising economic activities. These entities must communicate to ADENE cases in which the existence of a certificate is not evidenced, identifying the building or fraction and the owner.

<sup>165</sup> Cf. Sections 1 and 2 of Article 21 of Decree-Law No. 118/2013 and Section 1 of Article 8 of Law No. 58/2013.

## 8 ANSWERS IN THE ADVERSARY PROCEEDING