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Date: Rome, 30 April 2015

To: Permanent Representation of Italy to the European Union

and for information to:

Office of the Prime Minister, Department for European Policy

Ref.: 0009453

**Subject: Directive 2012/27/EU – Annual Report on Energy Efficiency 2015**

Please find enclosed the Annual Report on Energy Efficiency as provided for by Article 24(1) of Directive 2012/27/EU, for forwarding to the Energy Efficiency Unit within the European Commission's Directorate-General for Energy.

*Enclosures: Annual Report on Energy Efficiency*

Ministry of Economic Development  
Directorate-General for the Electricity Market, Renewables and Energy Efficiency, and  
Nuclear Energy

Annual Report on Energy Efficiency  
Results achieved and targets for 2020

April 2015

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This report was drawn up by ENEA in accordance with Article 17(2) of Legislative Decree No 102 of 4 July 2014 transposing Directive 2012/27/EU on energy efficiency.

## 1 Introduction

This report, drawn up in compliance with Article 24(1) of Directive 2012/27/EU (the Directive or the EED), sets out Italy's 2020 energy efficiency targets and the results achieved as at 2013. The document also shows the results achieved in 2014 concerning the mandatory energy efficiency measures laid down in Articles 5 and 7 of the EED. Lastly, the report describes the main measures already completed and in progress to meet the energy efficiency targets. The annual report, prepared using the European Commission's template, is provided in Annex 1.

## 2 Energy efficiency targets for 2020

The national energy efficiency targets for 2020, already set out in previous Annual Reports, provide for a programme of energy efficiency improvements aimed at saving 20 Mtoe/year of primary energy and 15.5 Mtoe/year of final energy.

Table 2.1 shows expected savings for final and primary energy by 2020, by sector and by intervention measure.

Table 2.1 – Energy efficiency targets for 2020 (final and primary energy, Mtoe/year)

Sector	Planned measures for 2011-2020					Expected savings by 2020	
	White certificates	Tax relief	Thermal Energy Account	Regulatory standards	Mobility investment	Energy	Primary energy
Residential	0.15	1.38	0.54	1.6		3.67	5.14
Services	0.1		0.93	0.2		1.23	1.72
Government body	0.04		0.43	0.1		0.57	0.8
Private	0.06		0.5	0.1		0.66	0.92
Industry	5.1					5.1	7.14
Transport	0.1			3.43	1.97	5.5	6.05
Total	5.45	1.38	1.47	5.23	1.97	15.5	20.05

Source: PAEE 2014

In order to meet these targets, Legislative Decree No 102 of 4 July 2014 has been passed, transposing all the requirements of Directive 2012/27/EU which were not already in national law and which are consistent with the recommendations in the National Energy Strategy.

In particular, the white certificates scheme constitutes the energy efficiency obligation scheme required by the Directive. This scheme should guarantee an energy saving of not less than 60 % of the cumulative national energy saving target, which has been put in place in compliance with Article 7 of the Energy Efficiency Directive. The remaining energy savings will be achieved through the current incentive measures<sup>1</sup>.

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<sup>1</sup> By 31 December 2016 (and after that, by 31 December 2018), the Ministry of Economic Development, supported by ENEA and GSE, must prepare a report on the extent to which the obligation has been met. If the energy savings achieved are below the required level, the Ministry of Economic Development, in agreement with the Ministry of the Environment, the Protection of Natural Resources and the Sea and on the basis of proposals by the Regulatory Authority for Electricity, Gas and Water, shall introduce policies to strengthen the

The Decree also sets up the *National Energy Efficiency Fund*, an important financial instrument designed to support the energy upgrading of buildings owned by the public authorities and actions to reduce energy consumption in the industry sector and the services sector. A special portion of the Fund will be dedicated to supporting investment in district heating and district cooling systems.

The financial resources for implementing the additional measures required by the Decree total more than EUR 800 million. To ensure the actions financed by the Fund and the energy efficiency measures are properly coordinated, the Decree makes provision for a special control unit, which has recently been set up<sup>2</sup>. It is run by the Ministry of Economic Development and involves the Ministry of the Environment, the Protection of Natural Resources and the Sea, and has a Technical Administration in which ENEA, GSE and the Public Domain Agency take part. One of the main objectives of the unit is the rapid implementation of the energy upgrading programme for buildings owned by the public authorities, for which the government has set aside EUR 350 million for the 2014-2020 period.

### 3 Energy consumption and energy saving

#### 3.1 Demand for and uses of energy

In line with the downward trend observed from 2010, in 2013 there was a 3 % dip in demand for primary energy to 153.7 Mtoe.

Final energy consumption in 2013 amounted to 118.7 Mtoe (excluding non-energy uses), a reduction of 2.8 % compared with 2012 which was primarily owing to the industry sector (-8.2 %) and the transport sector (-1.9 %), for which similar consumption was recorded, at 27 Mtoe and 38.7 Mtoe respectively. Energy consumption in 2013 in the civil sector was just above 50 Mtoe (residential sector: 34.2 Mtoe; services: 15.8 Mtoe).

The distribution of energy usage in 2013 between the different sectors (Figure 3.1) reveals that civil uses took a major share (42.4 % in total): residential: 28.8 %; services: 13.4 %. About a third of all consumption was by the transport sector (32.6 %). Industry followed with 22.7 %. Lastly, agriculture consumed a 2.2 % share of the total.

Figure 3.1 – Final energy usage by sector (%), 2013

Italian	English
Industria	Industry
Trasporti	Transport
Residenziale	Residential
Servizi	Services
Agricoltura	Agriculture
Altro	Other

Source: Eurostat data processed by ENEA

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support system based on white certificates and new policies which should make measures to promote energy efficiency more effective, while keeping within public spending limits.

<sup>2</sup> Interministerial Decree of 9 January 2015, *Energy efficiency*.

### 3.2 Energy intensity

In 2013 primary energy intensity in Italy was 117.2 toe/€ million<sub>2005</sub><sup>3</sup> (down 2 % on 2012) against the backdrop of a 1.85 % decrease in GDP. Italy's primary energy intensity values are well below the average both for the 28 Member States and for those in the euro area (see Figure 3.2). The gap with respect to both groups is constantly diminishing: in 1995 the difference between Italy and the average for the euro area countries was around 40 toe/€ million<sub>2005</sub>; in 2013 it was around 20 toe/€ million<sub>2005</sub>.

Figure 3.2 - Primary energy intensity in the EU 27 (toe/€ millions<sub>2005</sub>), 1991-2013  
EU 28

Italian	English
tep/M€ <sub>2005</sub>	toe/€ million <sub>2005</sub>
Zona Euro	euro area
Francia	France
Germania	Germany
Italia	Italy
Regno Unito	United Kingdom
Spagna	Spain

Source: Eurostat data processed by ENEA

### 3.3 ODEX energy efficiency index

The improvement in energy efficiency in the various sectors was measured using the ODEX index, developed as part of the European ODYSSEE-MURE project to provide a better estimate with respect to energy intensity due to the removal of the effects of structural changes and other factors not linked to efficiency. This summary index for energy efficiency is constructed from detailed unit consumption indicators<sup>4</sup> (e.g. differentiated by end use, type of system or appliance, method of transport) and weighted by their share of final consumption for the sector. The indices are calculated on a rolling basis<sup>5</sup>: progress with energy efficiency is measured in relation to the previous year. The index is set at 100 for the reference year; index values below 100 represent an improvement in energy efficiency in the sector in question.

In 2013 the ODEX index for the whole Italian economy was 86.6, remaining practically constant in the last 3 years, going against the trend of constant improvement up to 2011 (Figure 3.3). This is mainly because of a drop in energy efficiency in the transport sector.

<sup>3</sup> Primary energy intensity is the ratio between gross domestic consumption and GDP at values linked with the reference year 2005. Primary energy consumption is gross domestic consumption excluding non-energy uses.

<sup>4</sup> The indices are calculated for individual branches of industry (10 branches), for modes of transport in the transport sector (8 modes of transport or vehicle types), and for usage for residential (3 final uses and 5 large household appliances). The indices for each element are summarised in the sector indices and then in the general index, weighted by the related final consumption.

<sup>5</sup> The summary index can fluctuate significantly from year to year owing to the very irregular trends observed for certain sectors or end uses, which are affected by a variety of factors such as imperfect climatic corrections, behavioural factors and, especially in recent years, the influence of the economic cycle. To reduce such fluctuations, which can make it difficult to assess energy efficiency progress, from 2006 onwards ODEX has been calculated as a three-year rolling average.

Figure 3.3 - ODEX energy efficiency index, 1990-2013

Italian	English
Indice di Efficienza Totale	Total efficiency index
Industria manifatturiera	Manufacturing industry
Trasporti	Transport
Residenziale	Residential

Source: ODYSSEE

Different sectors have contributed to this trend in different ways: the residential sector made steady progress throughout the 1990-2013 period; manufacturing industry achieved significant improvements from 2005, though with a step backwards in 2013 owing to a slight loss of efficiency in the non-metallic mineral products sector (excluding cement) and the textile sector. The transport sector has had the greatest difficulty making energy efficiency improvements because of the nature of the Italian freight transport system, which is almost exclusively road-based: the number of journeys has increased, as has energy consumption, but with a drop in the amount of freight being carried.

We should highlight the fact that during the years when all three sectors were registering improvements, the improvement of energy efficiency overall was more rapid: during the 2004-2009 period the energy efficiency improvement recorded by the ODEX index was 1.5 % per year compared with 0.5 % per year in the 1990-2013 period.

### 3.4 Energy savings

To comply with Article 7 of the Energy Efficiency Directive, Italy has to meet a minimum energy saving target of 25.5 Mtoe of final energy cumulatively during the 2014-2020 period. Italy is proposing to meet this target by means of the white certificate obligation scheme, which is expected to deliver a saving of around 16.03 Mtoe, combined with two alternative measures, tax relief (3.92 Mtoe) and the Thermal Energy Account (5.88 Mtoe). Figure 3.4 summarises the energy savings targets assigned to the schemes proposed for the 2014-2020 period. As explained in the report sent to the Commission in accordance with Article 7 of the EED, against the minimum overall final energy savings target of 25.5 Mtoe, the proposed schemes should generate a cumulative saving of 25.8 Mtoe, approximately 62 % of which should result from the white certificate obligation scheme. Tracking of the annual results supplied by the tried and tested monitoring instruments associated with the three schemes will make it possible to take prompt action if savings performance is found to fall short of the targets.

Figure 3.4 – Achievement of energy saving targets (Mtoe/year of final energy), 2014-2020

Italian	English
Mtep	Mtoe
Conto Termico	Thermal Energy Account
Detrazioni Fiscali	Tax relief
Certificati Bianchi	White certificates
Totale	Total

Source: Ministry of Economic Development

In addition to these binding final energy savings targets, which are only a part of the energy efficiency targets set, there are also other targets stemming from the application of regulatory standards and measures and investments in the mobility field. For those actions a total contribution of 7.2 Mtoe/year is expected. However, no allowance has been made for the effects of measures promoted locally which are also financed from the structural funds. An estimate for these is provided below.

The following measures aimed at improving energy efficiency were therefore analysed:

- Energy efficiency certificates (white certificates) scheme;
- Tax relief (55 %) for the energy upgrading of existing buildings;
- Thermal Energy Account;
- Transposition of Directive 2002/91/EC and implementation of Legislative Decree No 192/2005 with regard to the requirement of minimum energy performance standards for buildings (MEPS);
- Purchase of large household appliances in the residential sector;
- Street lighting projects financed from the European Regional Development Fund (ERDF);
- Incentive measures for the environmentally sustainable renewal of cars and commercial vehicles up to 3.5 tonnes and implementation of Regulation (EC) No 443/2009;
- Modal shift.

However, tax relief (20 %) for the installation of high-efficiency electric motors or inverters was not taken into account because the savings these measures deliver are so small.

**Targets for 2016 in the 2011 Energy Efficiency Action Plan (PAEE).** As regards the targets for 2016 set in the 2011 PAEE, during the 2005-2013 period the total energy saving for final energy was 7.6 Mtoe/year, which is around 70 % of the target for 2016 (Table 3.1). Looking at the sectors individually, we can see that industry has already exceeded its target of 17 % and residential is well on the way to achieving the level of energy savings expected by 2016. On the other hand, transport has not yet achieved half of its target, and the services sector lags even further behind (below 10 %), although improvements are expected soon owing to the strengthening of the Thermal Energy Account incentive scheme.

Table 3.1 – Annual energy savings achieved by sector (Mtoe/year) in the period 2005-2013, and targets for 2016

Sector	White certificates	55 %/65 % tax relief	Legislative Decree No 192/2005	Environmental incentives and EU Regulations	Other measures	Energy saving		% of target achieved
						Achieved as at 2013*	Target for 2016	
Residential	1.46	0.79	2.21	-	0.09	4.47	5.16	86.6 %
Services	0.12	0.02	0.07	-	-	0.20	2.11	9.7 %
Industry	1.82	0.04	0.16	-	-	2.03	1.73	117.0 %
Transport	-	-	-	0.79	0.09	0.87	1.87	46.7 %
Total	3.40	0.85	2.44	0.79	0.18	7.57	10.88	69.6 %

\* With duplications removed and allowing for the extra saving achieved in the industrial sector owing to incentives granted for engines and inverters in the period 2007-2010, not described in detail on account of the small saving in energy achieved (12 GWh/year).

Source: ENEA



**Targets for 2020 in the 2014 PAEE.** With regard to the targets set by the National Energy Strategy for the period 2011-2020, which were subsequently reviewed in the 2014 PAEE, Table 3.2 shows the total energy savings for the period 2011-2013: approximately 3.2 Mtoe/year of final energy (corresponding to 3.73 Mtoe/year of primary energy), which is 20.6 % of the target for 2020 (or 18.6 % in the case of primary energy). More than half of those savings are due to the white certificates obligation scheme. In terms of final energy, the residential sector is more than a third of the way towards meeting its 2020 target (35.2 %), while industry is more than a quarter of the way there (26.6 %).

Table 3.2 – Annual energy savings achieved by sector in the period 2011-2013, and targets for 2020

Primary energy (Mtoe/year)								
Sector	White certificates	55 % /65 % tax relief	Legislative Decree No 192/2005	Environmental incentives and EU Regulations	Other measures	Energy saving		% of target achieved
						Achieved as at 2013*	Target for 2020	
Residential	0.371	0.348	0.746	-	0.028	1.41	5.14	27.4 %
Services	0.045	0.009	0.056	-	-	0.11	1.72	6.4 %
Industry	1.642	0.017	0.025	-	-	1.68	7.14	23.6 %
Transport	-	-	-	0.502	0.023	0.52	6.05	8.7 %
Total	2.058	0.374	0.827	0.502	0.051	3.73	20.05	18.6 %

Final energy (Mtoe/year)								
Sector	White certificates	55 % tax relief	Legislative Decree No 192/2005	Environmental incentives and EU Regulations	Other measures	Energy saving		% of target achieved
						Achieved as at 2013*	Target for 2020	
Residential	#	#	#	-	#	#	#	#
Services	0.036	0.009	0.025	-	-	0.07	1.23	5.6 %
Industry	#	#	#	-	-	#	#	#
Transport	-	-	-	0.452	0.021	0.47	5.50	8.6 %
Total	1.611	0.354	0.827	0.452	0.034	3.19	15.50	20.6 %

\* With duplications removed.

Source: ENEA

# Translator: Figure illegible

**Results achieved in 2013.** Table 3.3 gives a breakdown for 2013: for final energy the energy saving was slightly more than 0.9 Mtoe/year, which corresponds to around 1.1 Mtoe/year for primary energy.

Table 3.3 – Annual energy savings achieved by sector in 2013, and targets for 2020

Primary energy (Mtoe/year)								
Sector	White certificates	55 %/65 % tax relief	Legislative Decree No 192/2005	Environmental incentives and EU Regulations	Other measures	Energy saving		% of target achieved
						Achieved as at 2013*	Target for 2016	
Residential	0.103	0.133	0.224	-	0.008	0.42	5.14	8.1 %
Services	0.013	0.003	0.006	-	-	0.02	1.72	1.3 %
Industry	0.455	0.007	0.013	-	-	0.47	7.14	6.7 %
Transport	-	-	-	0.175	0.004	0.18	6.05	3.0 %
Total	0.570	0.143	0.243	0.175	0.012	1.09	20.05	5.5 %

Final energy (Mtoe/year)								
Sector	White certificates	55 %/65 % tax relief	Legislative Decree No 192/2005	Environmental incentives and EU Regulations	Other measures	Energy saving		% of target achieved
						Achieved as at 2013*	Target for 2016	
Residential	0.073	0.126	0.224	-	0.004	0.38	3.67	10.3 %
Services	0.009	0.003	0.006	-	-	0.02	1.23	1.5 %
Industry	0.324	0.007	0.013	-	-	0.34	5.10	6.7 %
Transport	-	-	-	0.157	0.004	0.16	5.50	2.9 %
Total	0.407	0.136	0.243	0.157	0.008	0.90	15.50	5.8 %

\* With duplications removed.

Source: ENEA

**Results achieved in 2014 as regards compliance with the requirements of Articles 5 and 7 of the Directive.** The main indicators for results achieved in 2014 as regards compliance with the requirements of Articles 5 and 7 of the Directive<sup>6</sup> are given below. In particular, Table 3.4 gives the total area covered by the 2 904 buildings in government use and the floor area of the buildings for which action to improve energy efficiency was planned or in progress as at the end of October 2014.

Table 3.4 – Energy upgrading for central government – 2014 results (estimated)

Total building floor area of buildings with a total useful floor area over 500 m <sup>2</sup> owned and occupied by central government, that do not meet the energy performance requirements referred to in Article 5(1) of the EED	13 640 112 m <sup>2</sup>
Total building floor area of heated and/or cooled buildings owned and occupied by central government, that were renovated or for which renovation was planned during 2014	561 090 m <sup>2</sup>

Source: ENEA

<sup>6</sup> To estimate the results, the common calculation methods and principles mentioned in Annex V to the EED were used.

The table below shows the estimated savings achieved in 2014. It should be explained that the values are in the process of being checked. In the case of the white certificates, the values are normally calculated on the basis of the primary energy saving but for a definitive value for the final energy saving, a detailed analysis is needed of the individual approved practices. In the case of tax relief, for fiscal reasons users are allowed to alter the data concerning the intervention until September 2015.

Table 3.5 – Mandatory savings in accordance with Article 7 of the EED – 2014 results (estimated)

Notified policy measures	Savings achieved (estimated) Mtoe	Cumulative savings expected by 2020 Mtoe
	<b>2014</b>	
Obligation scheme – White certificates	0.597	16.00
Alternative measure 1 – Thermal Energy Account	0.0000047	5.88
Alternative measure 2 – Tax relief	0.16	3.92
<b>Total savings</b>	<b>0.757</b>	<b>25.80</b>

Source: ENEA

## 4 Main energy efficiency measures

### 4.1 White certificates

**Updates to the legislation.** In an economic crisis such as the current one, the white certificates scheme has demonstrated its fundamental role in driving energy efficiency initiatives, particularly in the industrial sector. The entry into force on 1 January 2014 of the regulatory provisions in the White Certificates Decree<sup>7</sup> concerning eligibility for the scheme only of projects ‘yet to be initiated’ or ‘in progress’ does not seem to have slowed the number of applications for new projects to improve energy efficiency.

The definition by the Regulatory Authority for Electricity, Gas and Water (AEEGSI) of methods for calculating the tariff contribution to cover the costs for distributors of meeting the obligation<sup>8</sup> introduced a new formula for calculating the contribution, which takes account not only of changes in the value of electricity, gas and diesel, but also of the price of stock exchange trading, as required by the White Certificates Decree.

The update of the Guidelines provided for by Legislative Decree No 102/2014 is an important opportunity to improve the effectiveness of the scheme by making adjustments to the required size threshold, and also to improve the scale of the savings stemming from behavioural measures and the prevention of speculative behaviour. The Legislative Decree also promotes the development of operators in the energy efficiency field with proven experience and expertise by restricting membership of the scheme, as from July 2016, to energy services companies that have UNI 11352 certification and to enterprises that, voluntarily or under obligation, appoint a person with UNI CEI 11339 certification to be responsible for energy

<sup>7</sup> Article 6(2) of the Decree of 28 December 2012 setting the National energy saving targets to be met by electricity and gas distribution companies from 2013 to 2016 and to strengthen the white certificates scheme.

<sup>8</sup> Decision No 13/2014/R/EFR, Definition of the tariff contribution to cover the costs for distributors of Energy Efficiency Certificate obligations as from 2013.

use and energy saving.

**Results achieved.** There was inevitably an impact in 2013 from the implementation of the above measures, with a peak in the submission of applications close to the entry into force of the legislation.

The number of applications to join the scheme tripled on the previous year, with the result that more than 21 000 procedures were initiated, particularly in relation to standard applications for initiatives in the civil sector (double glazing, thermal insulation). Until 2 July 2013 this incentive was granted cumulatively with tax relief. The GSE data show an extraordinary peak of 1 000 proposals for projects and measuring plans submitted in December 2013, which was the final deadline before Article 6(2) came into force. As explained above, Article 6(2) stipulated that only projects yet to be started or still in progress would be eligible for the scheme.

In terms of the results achieved, at the end of 2013 a total of 6 118 546 Energy Efficiency Certificates (EECs), had been approved, corresponding to an additional 2 449 160 toe, of which around 80 % was achieved by the industrial sector (Figure 4.1) either through heat generation or recovery for cooling, drying, firing, casting, etc.) (category IND-T, 52.6 % share), or through the energy optimisation of production processes and equipment layout to achieve measurable, lasting reductions in final energy demand without affecting the quantity or quality of production (category IND-FF, 25.6 % share). More than 600 000 white certificates were issued for actions related to high-efficiency cogeneration.

Figure 4.1 – Energy Efficiency Certificates issued by category\* (%), 2013

[Pie chart]

Italian	English
Altro	Other

\* For the meaning of the code associated with each category, please refer to Annex 2.

Source: Gestore Servizi Energetici SpA

Despite the fact that from 1 January 2014 access to the scheme was restricted to projects yet to be initiated or still in progress, in the first 11 months of 2014 GSE received more than 900 project and measuring plan proposals (PPPMs) with an average each month of around 75 metered projects (*progetti a consuntivo*), in line with the previous year. The scheme continued to produce excellent results in terms of both the number of EECs issued and new accreditations: more than 7 400 000 EECs were issued (of which more than 750 000 were for high-efficiency cogeneration), including quarterly issues related to standard applications, which equate to more than 2 million toe extra saved; approximately 420 new operators were accredited.

With reference to the project and measuring plan proposals, in the two-year period 2013-2014 there was strong interest from the industrial sector (Figure 4.2): nearly 90 % of EECs for approved PPPMs fell into the IND-FF and IND-T categories (52.5 % and 33.8 % respectively).

Figure 4.2 – EECs approved for PPPMs by category\* (%) January 2013 - November 2014

[Pie chart]

Italian	English
Altro	Other

\* For the meaning of the code associated with each category, please refer to Annex 2.

Source: Gestore Servizi Energetici SpA

The trend is also evident as regards Applications for Verification and Certification (RVCs) for the categories IND-T (42.6 %) and IND-FF (28.4 %). The data supplied by GSE also show the prevalence of EECs for savings of natural gas (Type II), which make up around 54 % of the total, achieved using metered projects (Figure 4.3).

Figure 4.3 – EECs approved by RVCs by category\* (%) January 2013 - November 2014

[Pie chart]

Italian	English
Altro	Other

\* For the meaning of the code associated with each category, please refer to Annex 2.

Source: Gestore Servizi Energetici SpA

As regards the type of operators that obtained EECs (Figure 4.4), the most common type was energy services companies (SSEs, 70.5 %) and the remainder was almost entirely companies under an obligation to appoint an energy manager (SEMs, 25.4 %).

Figure 4.4 – EECs approved by RVCs by operator type\* (%) January 2013 - November 2014

[Pie chart]

\* For the meaning of the code associated with each operator type, please refer to Annex 2.

Source: Gestore Servizi Energetici SpA

Overall, the primary energy savings achieved by launching the white certificates scheme in 2013 amount to 4.85 Mtoe. In terms of final energy, the saving is approximately 3.4 Mtoe (Table 4.1).

Table 4.1 – Annual energy savings stemming from the white certificates scheme, 2005-2013

Type of specification	Cumulative to 2008 Primary Energy (toe/year)	Cumulative to 2009 Primary Energy (toe/year)	Annual in 2010 Primary Energy (toe/year)	Annual in 2011 Primary Energy (toe/year)	Annual in 2012 Primary Energy (toe/year)	Annual in 2013 Primary Energy (toe/year)	Cumulative to 2013 Primary Energy (toe/year)	Cumulative to 2013 Final Energy (toe/year)
Standard and analytical*	1 132 074	2 046 252	89 957	79 937	87 811	266 952	2 570 909	1 556 062
Metered (PPPM)	88 966	270 650	384 779	396 442	924 108	303 180	2 279 159	1 842 906
Total	1 221 040	2 316 902	474 736	476 379	1 011 919	570 132	4 850 068	3 398 968

\* The list of measures for which standard and analytical specifications can be used is available on GSE's website.

Source: Data from the Regulatory Authority for Electricity, Gas and Water and from Gestore Servizi Energetici SpA processed by ENEA

## 4.2 Tax relief

**Updates to the legislation.** The original end date of the scheme was 31 December 2012<sup>9</sup>, but it was extended<sup>10</sup> for the first time to 30 June 2013 and the rate of tax relief was confirmed as 55 % (a rate reduction to 50 % had been planned as from 1 January 2013). The rate was then increased to 65 % for expenditure incurred from 6 June 2013, which was the date of entry into force of the measure<sup>11</sup> extending the incentives to 31 December 2013 for actions in the private domain and to 30 June 2014 for actions concerning the communal part of buildings containing multiple dwellings or affecting all the dwellings in the building.

The 2014 Stability Law<sup>12</sup> extended the tax relief once again: in the case of actions in the private domain, the tax relief was extended at a rate of 65 % for expenditure incurred from 6 June 2013 to 31 December 2014 and at 50 % for expenditure incurred from 1 January 2015 to 31 December 2015. For actions concerning the communal parts of buildings containing multiple dwellings or affecting all the dwellings in the building, the tax relief was extended at a rate of 65 % for expenditure incurred from 6 June 2013 to 30 June 2015 and at 50 % for expenditure incurred from 1 July 2015 to 30 June 2016.

<sup>9</sup> Law No 214/2011, Conversion into law, with amendments, of Decree-Law No 201/2011 (known as 'Save Italy') introducing urgent provisions for growth, fairness and the consolidation of the public accounts.

<sup>10</sup> Law No 134/2012, Conversion into law, with amendments, of Decree-Law No 83/2012 (known as the 'Development Decree'), introducing urgent measures for the country's growth.

<sup>11</sup> Law No 90/2013, Conversion into law, with amendments, of Decree-Law No 63/2013 on urgent provisions for the transposition of Directive 2010/31/EU of the European Parliament and of the Council of 19 May 2010 on the energy performance of buildings, owing to the definition of the infringement procedures launched by the European Commission and other provisions on social cohesion. The measure also confirmed the tax relief for all actions for which incentives had already been granted, including those originally excluded by Decree-Law No 63/2013: replacement of heating systems with high-efficiency heat pumps and low-enthalpy geothermal installations; replacement of traditional water heaters with heat pump water heaters for domestic hot water.

<sup>12</sup> Law No 147/2013, Provisions for the drawing up of the annual and multiannual State budget.

By means of the 2015 Stability Law<sup>13</sup>, the tax relief was recently extended again until 31 December 2015, at the rate of 65 % (and the same tax relief term of 10 years) for energy upgrading in the private domain and of communal parts of buildings containing multiple dwellings or affecting all the dwellings in such buildings. The law confirmed the incentives for all actions for which incentives had already been granted, extending the benefit to expenditure incurred from 1 January 2015 to 31 December 2015 for solar screens<sup>14</sup> (maximum tax relief EUR 60 000) and for the purchase and installation of heating systems using biomass-fuelled heat generators (maximum tax relief EUR 30 000). Reference should be made to the implementing decrees shortly to be issued for operational information about the Law.

**Results achieved.** The tax relief has been a key driver of energy efficiency improvements in the housing sector. In the eight or so years from the introduction of the tax relief in 2007 to November 2014, more than two million applications for tax relief were received by ENEA, which is responsible for managing the scheme.

The 356 000 applications for tax relief received in 2013 were a significant increase on 2012 (by more than a third). This is certainly due to the increase in the rate of tax relief to 65 % for expenditure incurred from 6 June 2013 and to the fact that its extension was limited to only six months (until 31 December 2013) for actions in the private domain, under legislation at the time (Law No 90/2013). This certainly prompted users to bring forward to 2013 energy upgrading work that they might still have done in subsequent years. The replacement of doors and windows in particular represented more than two thirds of the total work (Table 4.2).

Table 4.2 – Applications for tax relief received by type of measure, 2007-2013

Type of measure	2007	2008	2009	2010	2011	2012	2013	Total
Complete upgrading	3 180	5 700	5 600	1 917	1 450	3 579	3 566	24 992
Insulation of opaque surfaces and replacement of doors and windows	39 220	112 600	127 800	226 720	170 400	135 283	244 421	1 056 444
Electric water heater replacement	20 140	37 100	35 300	47 106	29 350	33 801	26 851	229 648
Efficient heating systems	27 560	57 700	68 000	129 883	79 500	72 571	81 123	516 337
Multi-selection	15 900	34 700	-	-	-	-	-	50 600
Total	106 000	247 800	236 700	405 626	280 700	245 234	355 961	1 522 060

Source: ENEA

The total cost of the energy upgrading work done in the entire implementation period up to 2013 was approximately EUR 22 billion, of which 3.85 billion was done in the final year.

<sup>13</sup> Law No 190/2014, Provisions for the drawing up of the annual and multiannual State budget.

<sup>14</sup> Annex M to Legislative Decree No 311/2006, Corrective and supplementary provisions to Legislative Decree No 192/2005 on the implementation of Directive 2002/91/EC on the energy performance of buildings.

Table 4.3 shows a breakdown of the energy savings achieved for the different types of measure: in the seven years in which the scheme was running, the total primary energy saving was 0.91 Mtoe/year, equivalent to 0.85 Mtoe/year of final energy.

Table 4.3 – Energy savings generated by the 55 %/65 % tax relief, 2007-2013

Primary energy (Mtoe/year)								
Type of measure	2007	2008	2009	2010	2011	2012	2013	Total
Complete upgrading	0.006	0.014	0.010	0.004	0.003	0.003	0.006	0.045
Insulation of opaque surfaces and replacement of doors and windows	0.016	0.043	0.043	0.065	0.052	0.047	#	0.335
Electric water heater replacement	0.008	0.025	0.021	0.022	0.014	0.011	0.012	0.112
Efficient heating systems	0.023	0.053	0.054	#	0.065	0.047	#	0.371
Multi-selection	0.015	0.034	-	-	-	-	-	0.049
Total	0.068	0.169	0.128	0.175	0.123	0.108	0.143	0.913
Final energy (Mtoe/year)								
Type of measure	2007	2008	2009	2010	2011	2012	2013	Total
Complete upgrading	0.006	0.014	0.010	0.004	0.003	0.003	0.006	0.045
Insulation of opaque surfaces and replacement of doors and windows	#	#	#	#	#	#	#	0.335
Electric water heater replacement	0.004	0.011	0.010	0.010	0.006	0.005	0.005	0.052
Efficient heating systems	0.023	0.053	0.054	0.083	0.055	0.047	0.057	0.371
Multi-selection	0.015	0.034	-	-	-	-	-	-
Total	0.063	0.155	0.116	0.163	0.116	0.102	0.136	0.852

Source: ENEA

Translator: # = illegible

An estimate of the impact on employment of the energy upgrading of buildings, at least for the portion of the work benefiting from the tax incentives, can be made using the employment impact indicators identified by the Watchdog<sup>15</sup>, applied to recorded investment for 2013 and estimated investment for 2014. The amount of investment that benefited from tax relief was around EUR 4 billion in 2013: that investment corresponds to 40 000 direct jobs and 60 000 jobs in total. The figures for 2014 are even higher: 48 000 direct jobs and 72 000 jobs in total.

Looking at the whole 2007-2014 period when the incentive for energy upgrading was available, the overall impact on employment is estimated to be 271 000 direct jobs, and 406 000 if you also include indirect jobs. On average for the period, 34 000 direct jobs were created and 51 000 jobs overall each year; there was strong acceleration of this trend in the last two years.

As well as tax relief of 55 %/65 % for energy upgrading, since 1998 there has also been tax relief available for building restoration, currently covering 50 % of the cost (from 26 June 2012; prior to that it was 36 % or in some years 41 %). Table 4.4 gives the data for applications submitted to the Italian tax agency, *Agenzia delle Entrate*, for both types of tax relief. The overall turnover generated by both schemes in 2013 was approaching EUR 27.4 billion.

<sup>15</sup> Public Procurement Watchdog (AVCP), Report to Parliament, 2008.



Table 4.4 – Comparison between tax relief for building restoration and tax relief for energy upgrading, 1998-2013

	Building restoration				Energy upgrading			
	Applications submitted	Expenditure (€ millions)	Amounts subject to tax relief (€ millions)	Tax relief applied	Applications submitted	Expenditure (€ millions)	Amounts subject to tax relief (€ millions)	Tax relief applied
1998	240 413	3 385	1 388	41 %				
1999	254 989	3 590	1 472	41 %				
2000	273 909	4 392	1 581	36 %				
2001	319 249	5 119	1 843	36 %				
2002	358 647	5 750	2 070	36 %				
2003	313 537	5 666	2 040	36 %				
2004	349 272	4 888	1 760	36 %				
2005	342 396	6 848	2 465	36 %				
2006	371 084	6 313	2 588	41 %				
2007	402 811	7 938	2 858	36 %	106 000	1 453	799	55 %
2008	391 688	7 365	2 651	36 %	247 800	3 500	1 925	55 %
2009	447 728	8 070	2 905	36 %	236 700	2 563	1 410	55 %
2010	494 006	8 705	3 134	36 %	405 600	4 608	2 534	55 %
2011	779 400	14 400	5 184	36 %	280 700	3 099	1 704	55 %
2012	883 600	16 325	7 279	36 %/50 %	245 200	2 891	1 590	55 %
2013	1 273 800	23 535	11 768	50 %	356 000	3 849	2 260	55 %/65 %
Total	7 496 529	132 289	52 986		1 878 000	21 963	12 223	

Source: CRESME<sup>16</sup> for building restoration; ENEA for energy upgrading

The comparison of the data confirms that the two incentive measures are not only not in competition with each other because they cover different types of work, but that the measures are mutually supportive: when building restoration work can no longer be put off, they encourage those using the incentive on restoration to carry out energy upgrading while the work is in progress, where this has been identified as necessary to reduce the cost of energy bills.

The increase from 36 % to 50 % in the rate of tax relief for restoration of the existing building stock, the increase in the expenditure ceiling from EUR 48 000 to EUR 96 000 per housing unit<sup>17</sup>, and the furniture and household appliances bonus for sums up to EUR 10 000<sup>18</sup>, certainly helped to increase the number of applications for the incentives for building restoration and consequently also the number of applications for tax relief on energy upgrading work. Given that the two incentives exist alongside one another, it would be legitimate to assume that efficient (4-star) boilers that did not qualify for the 55 %/65 % tax relief for energy upgrading still qualified for the 36 %/50 % tax relief for building restoration (e.g. when the installation of a new heating system was included in more extensive building restructuring works, for which other incentives not related to the energy upgrading of the building are available).

<sup>16</sup> Chamber of Deputies, Environment Department Research Service and CRESME, The restoration and energy upgrading of the existing building stock: an assessment of the incentive measures, Second edition, No 83/1, 17 June 2014.

<sup>17</sup> Provisions in force from 26 June 2012 through the Development Decree, subsequently extended to the whole of 2013 and 2014.

<sup>18</sup> From 6 June 2013, to furnish a building being restructured. For more details see the Furniture and household appliances bonus handbook produced by Agenzia de Entrate.

Table 4.5 shows the savings generated by the installation of efficient heating systems (4-star boilers), net of the incentives already received through the tax relief of 55 %/65 % for energy upgrading work: for the more than 1.3 million sold from 2006-2013, the energy saving is 0.46 Mtoe/year<sup>19</sup>.

Table 4.5 – Energy savings generated by the 36 %/50 % tax relief for 4-star boilers\*, 2006-2013

Type of measure	2006	2007	2008	2009	2010	2011	2012	2013	Total
Number of 4-star boilers	102 116	191 731	211 457	181 958	145 675	189 010	162 005	137 721	1 321 672
Energy saving (Mtoe/year)	0.036	0.067	0.074	0.063	0.051	0.066	0.057	0.048	0.461

\* Not including those for which the 55 %/65 % tax relief for the energy upgrading of buildings was granted

Source: Assotermica data processed by ENEA

### 4.3 Thermal Energy Account

**Updates to the legislation.** Now that the start up phase of its first year of operation is over, the Thermal Energy Account is receiving increasing interest from the general public and from government bodies. Legislative Decree No 102/2014 set an incentive ceiling of 65 % of expenditure incurred, thus preventing the risk of over-remuneration, and allowed parties not in receipt of income from business or agriculture to join the scheme. One important innovation is the method of paying the incentive for government bodies. They can now opt for an advance payment at the start of the project and subsequent instalments based on the progress of the work. The Legislative Decree also sets the minimum content of energy performance contracts signed with the public sector or tender specifications. These must contain specific information about the scale and monitoring of the savings achieved, guarantees, and penalties if the saving targets are not met.

The scheme was further enhanced by the *Sblocca Italia*<sup>20</sup> Decree, which called for further procedural simplification of the scheme by using preprinted forms, and technological diversification and innovation was introduced, allowing social housing organisations and residents' cooperatives to access the categories of incentives available to government bodies.

The constant monitoring of the scheme and continuous dialogue with associations representing the sector, with support from GSE, made it possible to identify and analyse problems that arose in the first 16 months of the scheme's implementation, understand the operators' requirements, and come up with more appropriate measures to simplify and improve the Thermal Energy Account.

During the process of updating that incentive scheme, it was necessary first of all to simplify the methods of access, particularly with reference to the Registers and the procedures for completing the application form.

<sup>19</sup> Where energy saving refers solely to thermal energy, the savings in terms of primary energy are the same as those for final energy.

<sup>20</sup> Decree-Law No 133/2014, coordinated with conversion Law No 164/2014 on Urgent measures on the opening of shipyards, the completion of public construction works, the digitalisation of the nation, bureaucratic simplification, the problem of hydrogeological instability and the recovery of manufacturing.

To make the most of the knowledge gained by GSE when carrying out technical examinations of appliances and in order to make that knowledge available to operators, the Decree will require the preparation of a list of 'suitable products' with a thermal input of up to 35 kW and 50 m<sup>2</sup> for solar thermal collectors. The public will be able to use this list, which will be regularly updated. A semi-automatic procedure is applied to the products on the list for the purpose of paying the incentive, with a consequent reduction in the administrative costs for beneficiaries and a greater probability of the examination having a positive outcome. In accordance with the provisions introduced by Legislative Decree No 102/2014, for all measures eligible for the Thermal Energy Account using the direct access procedure (private individuals and government bodies) the draft Decree will require the amount payable to be released as a single payment for amounts up to EUR 5 000. For greater simplicity, the draft Decree will also extend the current payment procedures so that evidence of the expenditure incurred, including by means of online payments and/or those made with a credit card, can be certified with the associated purpose of the payment. Lastly, the Decree will require that GSE streamline the information required to complete the application form and the supporting documentation from the operator (in the Application Rules), by optimising the use of the data supplied and reviewing the system for submitting applications to make it easier for the operator (preprinted forms).

Among the measures aimed at improving the Thermal Energy Account, as regards small-scale energy efficiency improvement measures for government bodies only, the Decree updating the rules will make projects to improve the energy efficiency of indoor and outdoor lighting systems (in the grounds) of government buildings and measures to adopt efficient building automation systems eligible for the Thermal Energy Account, in view of the importance of these when calculating the building's energy performance class.

To overcome the (often financial) barriers to the spread of the scheme, and to encourage the completion of structural works, promoting the extensive upgrading of government buildings and their transition to 'nearly zero-energy buildings', the draft Decree includes an increase in the incentive as follows:

- an incentive of 50 % of the investment cost incurred for the thermal insulation of the roofs, floors and walls (opaque surfaces) determining a space to be heated and/or cooled in government buildings in climate zones E and F;
- an incentive of 55 % of the investment cost incurred for integrated building/installation measures in climate zones E and F;
- an incentive of 65 % of the investment cost incurred for work to make a building 'nearly zero-energy' in accordance with the provisions of the decrees required by Article 4 of Legislative Decree No 192/2005, as amended.

Table 4.4 gives a breakdown of the type of energy efficiency improvement works in existing buildings.

Table 4.4 – Thermal Energy Account: Measures aimed at increasing the energy efficiency of existing buildings

Code	Type of measure
1.A	Insulation of opaque building envelope: Thermal insulation of opaque surfaces determining a space to be heated and/or cooled
1.B	Replacement of transparent doors, windows or other apertures: Replacement of transparent doors, windows or other apertures, including frames, determining a space to be heated and/or cooled
1.C	Condensing heat generators: Replacement of heating systems with condensing heat generators of any rated power
1.D	Sun shading and/or screening systems: Installation of sun shading and/or screening systems, for transparent doors and windows facing east-south-east to west, fixed or mobile, non-transportable

Source: Gestore Servizi Energetici SpA

**Results achieved.** The results achieved in the first period in which the Thermal Energy Account was active, explained below, concern applications for direct access sent to GSE from June 2013 for which contracts had been signed by December 2014 (the Direct Access procedure concerns almost all applications submitted to GSE).

Every specific application for the incentive can concern several actions carried out at the same time (known as multi-action applications); for this reason the number of actions carried out is greater than the number of applications for which contracts were signed by 31 December 2014.

Table 4.5 gives a summary of the interventions carried out by public entities accepted for the scheme: as we have said, applications submitted by government bodies and accepted for the incentive are often for multiple actions, typically thermal insulation of the opaque building envelope and/or replacement of doors and windows combined with the replacement of existing heat generators with condensing heat generators.

Table 4.5 – Thermal Energy Account: actions carried out by government bodies and key technical information

Type of action	Number of actions carried out	Technical details
1.A – Insulation of opaque surfaces	37	Total surfaces insulated [illegible figure]
1.B – Transparent doors and windows	28	Transparent surfaces replaced: 4 544 m <sup>2</sup>
1.C – Condensing heat generators	47	Total power [illegible]
1.D – Sun screens	1	Extent of sun screening system: 100 m <sup>2</sup>
Total	113	
EA + EPC*	71	

\*EAs (Energy Audits) and EPCs (Energy Performance Certificates) are not counted as actions

Source: Gestore Servizi Energetici SpA

Table 4.6 gives the number of public buildings subject to at least one energy efficiency measure, classified by use and useful floor area.

Table 4.6 – Thermal Energy Account: summary of public buildings subject to energy efficiency measures

Use	No of buildings subject to measure	Useful floor area (m <sup>2</sup> )
Educational	42	84 036.43
Residential	16	11 393.59
Public offices	12	18 622.54
Sport	8	10 834.66
Halls of residence/Barracks	4	7 276.08
Other <sup>21</sup>	4	2 792.60
Total	86	134 955.90

Source: Gestore Servizi Energetici SpA

As Figure 4.5 shows, most of the measures were implemented in buildings used for educational activities. ‘Residential’ refers mainly to measures carried out in buildings managed by the former *Istituti Autonomi Case Popolari* which, for Thermal Energy Account purposes, is classed as a public body.

Figure 4.5 – Thermal Energy Account: distribution of use of buildings subject to the measures (%)

Italian	English
Attività scolastiche	Educational
Residenziale	Residential
Uffici pubblici	Public offices
Attività sportive	Sport
Collegi/caserme	Halls of residence/Barracks
Altro	Other
Numero di interventi	Number of measures
Superficie utile	Useful floor area

Source: Gestore Servizi Energetici SpA

For the 37 projects concerning work on the building envelope, the overall energy performance index data are available for before the work was done and after. Based on that data a saving of 4.7 toe/year<sup>22</sup> has been calculated for this work.

#### 4.4 Energy upgrading programme for central government (PREPAC)

Legislative Decree No 102 of 4 July 2014 implementing Directive 2012/27/EU identifies measures to guarantee full implementation of the commitments made at EU level for energy efficiency improvements and reduction in the consumption of central government buildings.

Article 5 of the Legislative Decree requires energy upgrading work to be carried out on central government buildings, including buildings in outlying areas, using EUR 355 million set aside for this purpose. The work must cover at least 3 % per year of the cooled/heated

<sup>21</sup> The ‘Other’ category consists equally of buildings classed as theatres, cinemas, concert halls and performance venues, prisons/young offenders’ institutions and nursing homes.

<sup>22</sup> See Table 3.4

useful floor area of the buildings or alternatively deliver a cumulative energy saving for the period 2014-2020 of at least 0.04 Mtoe.

Every year as from 2014 the Ministry of Economic Development, in liaison with the Ministry of the Environment, the Protection of Natural Resources and the Sea and in consultation with the Ministry of Infrastructure and Transport, and working with the Public Domain Agency, must prepare a programme of works to improve the energy performance of central government buildings.

Under a joint effort of the Ministry of Economic Development and the Public Domain Agency, in early 2013 Italy started to draw up an inventory of the buildings owned and occupied by central government bodies meeting the following criteria:

- a) having a useful floor area (subject to heating and/or cooling) of more than 500 m<sup>2</sup>;
- b) not being buildings officially protected because of their special architectural or historical merit;
- c) not being buildings owned by the armed forces or central government and serving national defence purposes, apart from single living quarters or office buildings for the armed forces and other staff employed by national defence authorities;
- d) not being buildings used as places of worship and for religious activities.

The inventory contains information on the cooled/heated useful floor area in square metres and energy consumption figures (including the energy performance certificate, if one exists).

The data are supplied directly by the government bodies concerned via a website managed by the Public Domain Agency. Under Article 12 of Decree-Law No 98/2011, converted, with amendments, by Law No 111/2011, the Public Domain Agency is responsible for allocating the funds for the maintenance of the buildings owned and occupied by central government bodies and is the contracting authority for the award of maintenance contracts.

The inventory currently includes 2 904 buildings occupied by central government bodies with a total gross floor area greater than 500 m<sup>2</sup>, giving a total area of 13 763 975 m<sup>2</sup>, for which – except for some missing data – information is available on gross floor area, annual fuel and electricity consumption and the associated costs. A detailed assessment of buildings with a gross floor area of between 250 and 500 m<sup>2</sup> has also been carried out so that the upgrading obligation can be extended to such buildings as from 9 July 2015. This revealed that there were a further 1 179 buildings with a total floor area of 437 227 m<sup>2</sup>, which is 3 % higher than for buildings with a floor area greater than 500 m<sup>2</sup>.

The table below shows the floor area of buildings owned by the central government bodies mentioned.

Table 4.7 – Division by central government body

Body with ownership	Building floor area (m <sup>2</sup> )
Office of the Prime Minister	73 455
Ministry of Foreign Affairs	128 600
Ministry of Labour and Welfare Policies	15 619
Ministry of Justice	5 456 924
Ministry of Health	82 662
Ministry of the Environment, the Protection of Natural Resources and the Sea	10 951
Ministry of Infrastructure and Transport	956 849

Ministry of Agricultural Food and Forestry Policy	645 271
Ministry of Economic Affairs and Finance	1 499 693
Ministry of the Interior	3 947 343
Ministry of Education, Universities and Research	54 818
Ministry of Economic Development	209 681
Ministry of Cultural Assets and Activities	501 185
Other	180 924
Total	13 763 975
Extension of the obligation to buildings with a useful floor area between 250 m <sup>2</sup> and 500 m <sup>2</sup>	437 227
Total as from 9 July 2015	14 201 202

On 15 September 2014 all central government bodies were invited to submit proposals by the deadline of 15 October 2014 for energy efficiency improvements to their buildings in accordance with the provisions of Article 5 of Legislative Decree No 102/2014. Thirty projects were submitted and are in the process of being evaluated. There is a new deadline for the submission of projects on 30 June 2015. A large number of energy upgrading projects had already been planned in 2014 by the Public Domain Agency under the centralised maintenance system referred to in Article 12 of Decree-Law No 98/2011, converted, with amendments, by Law No 111/2011. These could also be included within the perimeter described above.

#### 4.5 Regulatory measures for energy efficiency in buildings

**Law No 90/2013<sup>23</sup> on improving the energy performance of buildings.** This Law made substantial changes to Legislative Decree No 192/2005 to bring it into line with Directive 2010/31/EU. The main new features it introduced, which will be the subject of specific technical implementing decrees, include:

- Nearly zero-energy building (NZEB). The Law defines the concepts of system boundary, energy produced on site (energy produced or collected within the boundaries of the system) and cost-optimal level. From 1 January 2019 newly constructed buildings that are publicly-owned or are occupied by government bodies must be NZEBs; all other new buildings must meet this requirement from 1 January 2021.
- Methodology for calculating the energy performance of buildings. This is updated with reference to the standards UNI TS 11300<sup>24</sup> (parts 1 to 4) and Recommendation 14 of the Italian Thermo-technical Committee (CTI)<sup>25</sup>.
- Minimum energy performance requirements. These will be defined on the basis of technical and economic evaluations produced by applying a comparative methodology<sup>26</sup> and will be updated every 5 years according to the following criteria:
  - The minimum requirements comply with technical and economic cost-

<sup>23</sup> Law No 90/2013 converted into law, with amendments, Decree-Law No 63/2013 on urgent provisions for the transposition of Directive 2010/31/EU of the European Parliament and of the Council of 19 May 2010 on the energy performance of buildings, owing to the definition of the infringement procedures launched by the European Commission and other provisions on social cohesion.

<sup>24</sup> For more details see: <http://11300.cti2000.it/>.

<sup>25</sup> For more details see: <http://www.cti2000.it/index.php?controller=news&action=show&newsid=35069>.

<sup>26</sup> Defined in *Regulation (EU) No 244/2012*.

- effectiveness assessments, based on the cost-benefit analysis of the economic life cycle of the buildings;
- For new buildings and major renovations, the requirements are laid down using a ‘reference building’, according to the type of building and climate zone;
  - To assess compliance with energy performance requirements, specific building parameters are laid down (thermal performance and transmittance indices) as well as overall parameters (overall energy performance indices, expressed both in total primary energy and in non-renewable primary energy).
  - Energy Performance Certificate (EPC). The Law places an obligation on anyone selling or letting a building to produce an EPC with the contract, containing a set of information and indicators including:
    - The overall energy performance of the building in terms of total primary energy and non-renewable primary energy using the respective indices;
    - The energy rating calculated by means of the building’s overall energy performance index expressed in non-renewable primary energy;
    - The minimum energy efficiency requirements under the law;
    - CO<sub>2</sub> emissions;
    - Exported energy;
    - Recommendations for improving the building’s energy efficiency with proposals for the most effective and cost-effective actions;
    - Information such as energy audits and financial incentives.

**Tax relief.** The measure extends the deadline for the 50 % tax relief on renovations and extends the tax relief to furnishings; it also increases the tax relief rate for energy upgrading from 55 % to 65 %<sup>27</sup>.

**Presidential Decree No 74/2013 on heating/cooling systems.** This measure<sup>28</sup> lays down a set of obligations and criteria applicable to public and private buildings. In particular these include new ambient temperature limits for heating for all buildings<sup>29</sup> (the weighted average air temperature measured in the individual heated environments of each building unit must not exceed 18 °C + 2 °C tolerance for buildings for industrial or similar use, and 20 °C + 2 °C tolerance for all other buildings) and for cooling (the weighted average air temperature measured in the individual cooled environments of each building unit must not be below 26 °C-2 °C tolerance for all buildings).

The measure also sets limits for how long heating systems may be in operation during the year and each day, depending on climate zone. They may only be kept running for longer in particular weather conditions for a length of time each day that does not exceed half of the permitted limit<sup>30</sup>.

The Decree revises the general criteria, requirements and parties responsible for the operation, management, inspection and maintenance of heating and cooling systems. In particular, the

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<sup>27</sup> See paragraph 1.3.3.

<sup>28</sup> Regulation defining general criteria for the operation, management, control, maintenance and inspection of heating and cooling systems and for heating domestic hot water in accordance with Article 4(1)(a) and (c) of Legislative Decree No 192/2005.

<sup>29</sup> The temperature requirements do not have to be met by hospitals, clinics and similar facilities. For industrial activities, municipal authorities may grant exemptions if technological or manufacturing requirements demand different temperatures, or if the heating or cooling energy could not be used in any other way.

<sup>30</sup> The daily limits do not apply to hospitals, clinics and similar facilities, or to heating systems that use heat produced by cogeneration plants, or radiant panel heating systems.



inspection and maintenance of the system must be carried out by companies approved in accordance with Decree No 37/2008 of the Ministry of Economic Development<sup>31</sup>. Moreover, the competent regional authorities in cooperation with the local authorities are responsible for performing energy efficiency checks, verifications and inspections on heating/cooling systems, and for establishing the criteria to be used for those checks.

The Decree provides for the promotion of programmes for the qualification and professional development of those responsible for carrying out heating system inspections, and annual programmes to check the compliance of the inspection reports.

Lastly, the measure introduces a requirement for a local register of systems, to be drawn up by the Regions in cooperation with the local authorities. Regional registers of Energy Performance Certificates will also be set up, and the Regions will be encouraged to connect their register with the registers of other Regions.

In implementation of the Decree, the Ministry of Economic Development<sup>32</sup> defined a template for a heating or cooling system log book and another for an energy efficiency report, and arranged for the CTI to make available examples for the most common types of system to facilitate and standardise completion of the log books and energy efficiency reports.

In November 2014, in liaison with the Ministry of Economic Development and with support from CTI, ENEA prepared some guidelines for implementation of the Decree as regards the operation, maintenance and inspection of building heating and cooling systems<sup>33</sup>.

**Presidential Decree No 75/2013 on the energy performance certification of buildings.** The Decree<sup>34</sup> authorised the following types of people to carry out the energy performance certification of buildings:

- Technicians with appropriate educational qualifications and professional approvals;
- Public entities and bodies governed by public law operating in the energy and building sectors, which run the certification service via one or more qualified in-house technicians;
- Public and private bodies duly authorised to perform inspections in the following sectors: building, general civil engineering works and associated technical systems, approved by the Italian National Accreditation Body (ACCREDIA) or another equivalent European body (provided they operate with qualified technicians);
- Energy services companies (ESCOs) operating in accordance with the provisions implementing Directive 2006/32/EC on energy end-use efficiency and energy services, which deliver this service via qualified technicians.

The Decree provided for training courses for the issuing of professional qualification to be held at national level by universities, research bodies and agencies, and professional bodies and councils authorised by the Ministry of Economic Development and at regional level by the Regions and Autonomous Provinces, or by other regional-level authorised bodies. The

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<sup>31</sup> Regulation concerning the implementation of Article 11-quaterdecies(13)(a) of Law No 248/2005, revising the provisions concerning the installation of systems inside buildings.

<sup>32</sup> Decree of 10 February 2014, Heating/cooling system log book template and energy efficiency report template as required by Presidential Decree No 74/2013. This was amended by the Decree of 20 June 2014, Extension of the deadline for bringing into compliance the templates for log books and energy efficiency reports for heating/cooling systems.

<sup>33</sup> Guidelines for defining the rules for performing checks and inspections of building heating and cooling systems in accordance with Legislative Decree No 192/2005, as amended, and Presidential Decree No 74/2013. For more details see section 3.4.2.

<sup>34</sup> Regulation introducing rules on the accreditation criteria to ensure the qualification and independence of experts and bodies to carry out the energy performance certification of buildings in accordance with Article 4(1)(c) of Legislative Decree No 192/2005.

Decree also set out the minimum content of the courses.

The criteria for checking the quality of service were also established. They include document checks on the Energy Performance Certificates, and assessment of the correspondence of project data or energy audits with the findings of on-the-spot building inspections. Lastly, simplification measures were introduced for updating EPCs when renovation works concern only the technical systems.

#### 4.6 Other energy efficiency measures in the transport sector

**National Infrastructure Plan to set up electric vehicle charging points (PNIRE).** The funding allocated to the implementation of the Plan<sup>35</sup>, to be achieved by means of the signing of special programme agreements totals EUR 47.6 million for the three-year period 2013-2015, including EUR 14.3 million for 2014 and EUR 4.9 million for 2015. The funding, from a special fund in the Ministry of Infrastructure and Transport's budget, will be used for the co-financing (up to 50 %) of projects for the installation of systems to develop infrastructure networks for recharging vehicles as part of programme agreements with regional and local authorities.

The Plan also makes provision for incentives for buying vehicles with overall low emissions worth a total of EUR 108 million in the three-year period 2013-2015, including EUR 31.3 million for 2014 and EUR 40.4 million for 2015. The Plan, already in its startup phase, will be used as a reference for future guidelines for the balanced creation of an electric vehicle recharging system, taking account of the specific features of Italy and actual need in different situations. The Plan emphasises the importance in the short term of infrastructure in the most polluted urban areas and on main roads into the major cities. Unless amendments are made to reflect sudden changes in electric vehicle usage, the Plan provides for the following:

- By 2016: 90 000 recharging points accessible to the public;
- By 2018: 110 000 recharging points accessible to the public;
- By 2020: 130 000 recharging points accessible to the public.

The Plan also highlights the need to make the infrastructure part of integrated urban transport planning. Finally, it provides for the creation of a single national platform to provide all the available information about public infrastructure in Italy.

As a result of the public consultation on the Plan, a call for proposals<sup>36</sup> was issued to seek finance to meet the most pressing needs in urban areas with high levels of traffic congestion, by developing infrastructure networks for the recharging of electric vehicles: the finance allocated was EUR 5 million. The actions proposed by the Regions and the Autonomous Provinces must provide good value for money in terms of the improvements made. Each body was allowed to submit up to three projects each at a maximum cost per project of EUR 238 000, in the following sectors:

- Sustainable mobility in urban/metropolitan areas;
- Public and private vehicle fleets;
- Petrol stations;

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<sup>35</sup> Prime Ministerial Decree of 26 September 2014, Infrastructure Plan for Electric Vehicles, in accordance with Article 17-septies of Decree-Law No 83/2012.

<sup>36</sup> Ministry of Infrastructure and Transport, Call for proposals on behalf of the Regions for finance for an electric vehicle recharging network. The deadline for the submission of applications for funding expired on 16 September 2013.

- Two-wheeled vehicles (motorcycles).

The following in particular will qualify for finance: the drafting of plans for the installations; the cost of the infrastructure; the cost of ancillary works; public information about the location and nature of the infrastructure; the cost of any linked ancillary services.

**National Action Plan on Intelligent Transport Systems.** The Plan<sup>37</sup> specifies the requirements for the deployment of intelligent transport systems throughout Italy, identifying actions and sectors of intervention. It also describes priority actions aimed at the efficiency, streamlining and cost-effectiveness of using ITSs. These include the setting up of a steering and technical coordination committee for ITS initiatives.

In implementation of Directive 2010/40/EU, the national plan for the deployment of Intelligent Transport Systems was adopted in 2014<sup>38</sup> and sets out in detail the organisational and operational framework for the deployment of ITSs in the freight and passenger road transport sector. The Plan identifies the priorities, timescales and implementing instruments, as well as the expected benefits for the nation. In particular it identifies four priorities up to 2017:

- Optimal use of roads, traffic and travel data;
- Continuity of traffic and freight management ITS services;
- ITS road safety and security applications;
- Linking the vehicle with the transport infrastructure.

The introduction to the Action Plan reports that operation of the systems implemented to date globally within and outside cities has led to effective energy savings through the deployment of ITS in the range of 10-12 %, for relatively modest investment (much less than the investment required to build new transport infrastructure).

#### 4.7 National Energy Efficiency Fund

The Legislative Decree transposing Directive 2012/27/EU on energy efficiency provides for the creation of the National Energy Efficiency Fund at the Ministry of Economic Development. The aim of the Fund is to support energy efficiency projects undertaken by government bodies, ESCOs and businesses to increase the energy efficiency of their buildings, industrial installations and production processes. The actions financed by the Fund aim to improve the energy performance of buildings owned by government bodies, create district heating and/or district cooling networks, improve the efficiency of public services and infrastructure including street lighting, improve the energy efficiency of entire buildings including social housing buildings and reduce energy consumption in industrial processes.

The Fund is a revolving fund and has two sections which operate to:

- issue guarantees on loans granted to businesses to implement energy efficiency projects for individual operations and/or for operations within a portfolio;
- grant loans directly or through banks and financial intermediaries, including the European Investment Bank, also by subscribing for units of closed mutual investment funds which invest in new issues of credit securities or grant new loans in the forms allowed by law, or by investing in securities issued on the basis of Law No 130 of 30 April 1999, within the framework of securitisation transactions concerning lending

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<sup>37</sup> Ministry of Infrastructure and Transport, Interministerial Decree of 1 February 2013, Deployment of Intelligent Transport Systems (ITSs) in Italy.

<sup>38</sup> Ministry of Infrastructure and Transport, Ministerial Decree of 12 February 2014, National Action Plan on Intelligent Transport Systems (ITSs).

by private parties to SMEs and ESCOs for energy efficiency investments.

The Fund should favour the approval of projects and programmes aimed at:

- creating new jobs;
- upgrading the energy efficiency of whole buildings;
- promoting new nearly zero-energy buildings;
- introducing earthquake-performance measures in addition to energy performance upgrades.

The Fund will receive resources amounting to EUR 490 million in the period 2014-2020. Further steps still need to be taken to identify the criteria, conditions and methods of financing the Fund and the entity responsible for managing it. The Fund is expected to be operational by 2015.

#### 4.8 Fund for energy efficiency in school buildings (Kyoto Fund)

The 2007 Budget Law (Article 1(1110)) established a revolving fund held at the *Cassa Depositi e Prestiti* for financing measures to reduce greenhouse gas emissions, aimed at implementing the Kyoto Protocol. The total amount in the Fund is around EUR 600 million, distributed in three programming cycles of EUR 200 million each.

Article 9 of Decree-Law No 91/2014, converted by Law No 116 of 11 August 2014, provides for urgent work to be undertaken to improve the energy efficiency of publicly-owned buildings used for schools and universities and buildings used as higher education colleges of art, music and dance, authorising the use of the revolving fund referred to in Article 1(1110) of Law No 296 of 27 December 2006 on financing measures to reduce greenhouse gas emissions. The measure aims to concentrate the sums remaining in the Kyoto Fund (around EUR 350 million) on measures aimed at improving the energy end-use efficiency of school and university buildings, using *Cassa Depositi e Prestiti SpA* to manage the Fund. The incentives paid out on the basis of this measure, which qualify for the 50 % reduction in interest rate referred to in the Decree of the Minister of Economic Affairs and Finance of 17 November 2009, are granted by way of a derogation from Article 204 of Legislative Decree No 267 of 18 August 2000, as amended. The funding is accessed on the basis of an energy audit including the issuing of an energy performance certificate, and the work done must improve the energy efficiency of the building by at least two rating classes over a maximum period of three years, certified by a third party technical organisation. The duration of the financing may not exceed 20 years, but for energy efficiency work related solely to analysis, monitoring, auditing, diagnostics, certification and planning, the maximum duration of the financing is 10 years.

#### 4.9 Sustainable Development Fund

The Fund was set up by the Ministry of Economic Development in March 2013<sup>39</sup> and is used in situations where the market is not functioning efficiently and this is limiting the economic growth of national companies. It supports programmes, projects or activities in the public interest, which the beneficiary companies would not have carried out without the support of the Fund or which they would have carried out to a lesser extent or over a longer period of time.

In particular the Fund supports initiatives aimed at:

- Projects of strategic importance for improving the competitiveness of the production

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<sup>39</sup> Decree of 8 March 2013, Identification of the priorities, forms and maximum levels of aid that can be granted from the Sustainable Development Fund, in accordance with Article 23(3) of Decree-Law No 83/2012.

system, including by consolidating companies' research and development centres and facilities;

- Strengthening the nation's production fabric, reusing manufacturing facilities and reviving areas in complex crisis situations of national importance;
- An international presence for Italian companies and attracting investment from abroad.

In September 2013 a call for proposals<sup>40</sup> was issued, aimed primarily at SMEs for small and medium-sized research and development projects in the technology sectors identified in the Horizon 2020 programme, to use funding made available of EUR 300 million. The call for proposals used a 'first come, first served' evaluation procedure and offered assistance with R&D projects worth between EUR 800 000 and EUR 3 million, in the form of assisted finance for a certain percentage of the eligible costs (70 % for small companies, 60 % for medium-sized companies and 50 % for large companies), with rates at 20 % of the base rate on the date when the funding was granted, fixed on the basis of the rate established by the European Commission (so not less than 0.8 %).

#### 4.10 Fund for home purchase and/or renovation (*Plafond casa*)

Within the framework of the government's housing policy, Article 6 (1)(a) of the Decree-Law of 31 August 2013, converted into Law No 124 of 28 October 2013, allocates EUR 2 billion to support access to home-buying loans.

Through mortgage-backed loans, the Fund finances the purchase of residential properties, giving priority to the main residence, preferably in energy classes A, B or C, and/or supports renovation and energy efficiency improvement projects, giving priority to young couples, families with one or more disabled persons and large families.

The implementing provisions are laid down in an agreement between *Cassa Depositi e Prestiti* and ABI – the Italian Banking Association.

#### 4.11 Electricity System Research Fund

The activities carried out in the context of Electricity System Research are designed to promote a safer and more efficient electricity system that favours the containment of electricity prices for consumers and companies, contributes to the country's economic and social development, and promotes ever more innovative, efficient and competitive technologies by improving quality of service and reducing costs and environmental impact.

The Electricity System Research activities are financed from a fund built up from revenue from component A5 of the electricity supply tariff. The amount of this component is periodically decided by the Electricity and Gas Authority.

The activities, objectives and financial allocations are established by three-year plans and annual operational plans drawn up by the Ministry of Economic Development. They are implemented by means of programme agreements and projects selected through public calls for proposals. In the context of the 2012-2014 Three-Year Plan, the 2013 Operational Plan<sup>41</sup> was approved in March 2013, which provided total resources of EUR 108.6 million for the

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<sup>40</sup> Ministry of Economic Development, [Ministerial Decree of 20 June 2013](#)

<sup>41</sup> Ministry of Economic Development, Ministerial Decree of 13 March 2014, [Approval of the 2013 Annual Operational Plan \(2013 AOP\) for National Electricity System Research](#). The distribution of the available resources is defined in the relevant [Annex](#).

following actions:

- Basic research wholly benefiting users of the Italian electricity system: EUR 74.6 million, of which EUR 58.6 million was to finance research carried out under the programme agreements between the Ministry of Economic Development and ENEA, Italy's national research council (CNR), and the company Ricerca Sistema Energetico SpA (RSE SpA), and EUR 16 million was to finance research projects accepted on the basis of a competitive procedure;
- Research activities benefiting users of the Italian electricity system and at the same time of specific interest to operators in the electricity sector: EUR 34 million.

In December 2014 the 2014 Operational Plan<sup>42</sup> was approved, with resources of EUR 58 million (equal to the resources not committed to finance the 2012 and 2013 annual operational plans plus cost savings from the management of projects accepted for funding in the past). This amount was broken down as follows:

- EUR 26.3 million for the programme agreement with ENEA;
- EUR 2.8 million for the programme agreement with CNR; and
- EUR 28.9 million for the programme agreement with RSE SpA;

#### 4.12 Call for proposals for the co-financing of energy audits in SMEs

Article 8(2) of Directive 2012/27/EU provides that Member States should develop programmes to encourage SMEs to undergo energy audits and the subsequent implementation of the recommendations from those audits. On the basis of transparent and non-discriminatory criteria and without prejudice to EU State aid law, Member States may set up support schemes for SMEs to cover the costs of an energy audit and of the implementation of highly cost-effective recommendations from those audits.

Legislative Decree No 102 of 4 July 2014 implementing Directive 2012/27/EU, and in particular Article 8(9) of the Legislative Decree, provides that by 31 December 2014 the Ministry of Economic Development, in agreement with the Ministry of the Environment, the Protection of Natural Resources and the Sea, publish a call for proposals for the co-financing of programmes submitted by the Regions to support the performance of energy audits of SMEs or the adoption of management systems compliant with ISO 50001 by SMEs. The support programmes submitted by the Regions stipulate that the incentives be paid to the beneficiary companies in compliance with State aid rules and only once the energy efficiency measures identified in the energy audit have been implemented or ISO 50001 certification has been obtained.

For this purpose EUR 15 million has been allocated for each year from 2014 to 2020.

The call for proposals is currently being prepared and it is expected to be ready for issuing in the first half of 2015.

#### 4.13 Qualification of operators

Article 12 of Legislative Decree No 102 of 4 July 2014 implements Article 16 of the EED and concerns the availability within Italy of qualification, accreditation and certification schemes for operators in the energy services sector.

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<sup>42</sup> Ministry of Economic Development, Ministerial Decree of 11 December 2014, [Approval of the 2012-2014 Three-Year Plan for National Electricity System Research](#). The distribution of the available resources is defined in the relevant [Annex](#).

On the basis of consultation with CTI concerning links with sectoral rules, Article 12(1) gives Accredia the task of preparing accreditation schemes for energy management experts, energy services companies and energy management systems by 31 December 2014. The schemes are approved by the Ministry of Economic Development and the Ministry of the Environment, the Protection of Natural Resources and the Sea. The schemes, which are at an advanced stage of preparation, will be published and become operational in the first half of 2015.

To encourage the widespread use of energy audits by all end customers, Article 12 also provides for the updating and publication of technical standards for performing energy audits to a high standard and for the voluntary certification of auditors in the residential, industrial, services and transport sectors.

Consequently, in August 2014 the standards UNI CEI EN 16247-2 'Energy audits – Part 2: Buildings', UNI CEI EN 16247-3 'Energy audits – Part 3: Processes' and UNI CEI EN 16247-4 'Energy audits – Part 4: Transport', prepared by CEN/CLC JWG1 'Energy audits', were published by CTI. These three parts supplement UNI CEI EN 16247-1:2012 'Energy audits – Part 1: General requirements', which has already been published.

The preparation by ENEA, with assistance from trade associations and the Regions, following consultation with CTI, of training programmes on the above subjects was also defined.

To promote enhanced quality and technical expertise in the energy services sector, provision has also been made for energy services providers to be able to join the white certificates scheme 24 months after the entry into force of the Legislative Decree, though only if they are certified to UNI CEI 11352 or UNI CEI 11339.

ENEA was also given the task, in collaboration with Accredia, GSE, FIRE and CTI, of defining a protocol for registration on the lists, subdivided by quality mark, for the following entities:

- ESCOs certified to UNI CEI 11352;
- organisations certified to ISO 50001;
- energy management experts certified to UNI CEI 11339.

The lists are published on ENEA's website.

**Annex 1 – Annual Report as required by Article 24(1) of the Energy Efficiency Directive**

**Table 1 – Main energy indicators – Eurostat data**

	Annual report	2015						
	Reference year	2013						
	Member State	Italy						
<b>Number</b>	<b>Value</b>	<b>RY indicator</b>	<b>Eurostat indicator</b>	<b>Eurostat code</b>	<b>Sector/ product</b>	<b>Unit of measurement</b>	<b>Latest update</b>	<b>Definition of the national statistics - for numbers (17), (19), (22)-(24) and (26)-(28)</b>
1	153 700	(i) primary energy consumption	Primary Energy Consumption	B_100910	-	ktoe		
2	118 696	(ii) total final energy consumption	Final Energy Consumption	B_101700	All products	ktoe		
3	26 995	(iii) final energy	Final Energy Consumption - Industry	B_101800	All products	ktoe		



		consumption - industry						
4	38 703	(iii) final energy consumption - transport	Final Energy Consumption - Transport	B_101900	All products	ktoe		
5	256	final energy consumption in pipeline transport	Consumption in Pipeline transport	B_101945	All products	ktoe		
6	34 231	(iii) final energy consumption - households	Residential	B_102010	All products	ktoe		
7	15 847	(iii) final energy consumption - services	Services	B_102035	All products	ktoe		
8	2 602	final energy consumption - agriculture	Agriculture/Forestry	B_102030	All products	ktoe		
9	320	final energy consumption - other sectors	Other sectors	B_102000	All products	ktoe		
10	296 237	(iv) gross value added -	- Industry (except construction)	- B-E - F	Value added, gross	Million euro, chain- linked volumes,		

		industry	- Construction			reference year (at 2005 exchange rates)		
11	959 091	(iv) gross value added - services	<ul style="list-style-type: none"> <li>- Wholesale and retail trade, transport, accommodation and food service activities</li> <li>- Information and communication</li> <li>- Financial and insurance activities</li> <li>- Real estate activities</li> <li>- Professional, scientific and technical activities; administrative and support service activities</li> <li>- Public administration, defence, education, human health and social work activities</li> <li>- Arts, entertainment and recreation; other service activities; activities of household and extra-territorial organisations and bodies</li> </ul>	<ul style="list-style-type: none"> <li>- G-I</li> <li>- J</li> <li>- K</li> <li>- L</li> <li>- M-N</li> <li>- O-Q</li> <li>- R-U</li> </ul>	Value added, gross	Million euro, chain-linked volumes, reference year 2005 (at 2005 exchange rates)		

12	1 072 566	(v) disposable income for households	Disposable income, gross	<u>Until 2017:</u> S14 (if available) or S14_S15; <u>From 2017 on:</u> S14 only	'Households' (if available) or 'Households; non-profit institutions serving households' (Until 2017)	Million euro, current prices		
13	1 365 227	(vi) gross domestic product (GDP)	Gross domestic product at market prices	B1GM		Million euro, chain-linked volumes, reference year 2005 (at 2005 exchange rates)		
14	17 081	(vii) electricity generation from thermal power generation	- Gross electricity generation Main activity electricity only - Nuclear - Gross electricity generation Main activity CHP plants - Nuclear - Gross electricity generation Autoproducer electricity only - Nuclear - Gross electricity generation Autoproducer CHP plants - Nuclear - Gross electricity generation Main activity electricity only - Geothermal - Gross electricity	- 15_107030 - 15_107031 - 15_107032 - 15_107033 - 15_107038 - 15_107048 - 15_107054 - 15_107039 - 15_107049 - 15_107055 - 14_1070422 - 15_107040 - 15_107050 - 15_107052 - 15_107056 - 15_107041	Electrical energy	ktoe		

			generation Main activity electricity only - Combustible Fuels - Gross electricity generation Main activity electricity only - Other Sources - Gross electricity generation Main activity CHP plants - Geothermal - Gross electricity generation Main activity CHP plants - Combustible Fuels - Gross electricity generation Main activity CHP plants - Other Sources - Gross electricity generation Main activity electricity only - Solar Thermal - Gross electricity generation Autoproducer electricity only - Geothermal - Gross electricity generation Autoproducer electricity only - Combustible Fuels - Gross electricity generation Autoproducer	- 15_107051 - 15_107053 - 15_107057 - 14_1070432				
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			<p>electricity only - Heat from Chemical Sources</p> <p>- Gross electricity generation Autoproducer electricity only - Other Sources</p> <p>- Gross electricity generation Autoproducer CHP plants - Geothermal</p> <p>- Gross electricity generation Autoproducer CHP plants - Combustible Fuels</p> <p>- Gross electricity generation Autoproducer CHP plants - Heat from Chemical Sources</p> <p>- Gross electricity generation Autoproducer CHP plants - Other Sources</p> <p>- Gross electricity generation Autoproducer electricity only - Solar Thermal</p>					
15	7 850	(viii) electricity generation from CHP	<p>- Gross electricity generation Main activity CHP plants - Nuclear</p> <p>- Gross electricity generation Autoproducer CHP plants - Nuclear</p>	<p>- 15_107031</p> <p>- 15_107033</p> <p>- 15_107039</p> <p>- 15_107049</p> <p>- 15_107055</p> <p>- 15_107041</p>	Electrical energy	ktoe		

			<ul style="list-style-type: none"> <li>- Gross electricity generation Main activity CHP plants - Geothermal</li> <li>- Gross electricity generation Main activity CHP plants - Combustible Fuels</li> <li>- Gross electricity generation Main activity CHP plants - Other Sources</li> <li>- Gross electricity generation Autoproducer CHP plants - Geothermal</li> <li>- Gross electricity generation Autoproducer CHP plants - Combustible Fuels</li> <li>- Gross electricity generation Autoproducer CHP plants - Heat from Chemical Sources</li> <li>- Gross electricity generation Autoproducer CHP plants - Other Sources</li> </ul>	<ul style="list-style-type: none"> <li>- 15_107051</li> <li>- 15_107053</li> <li>- 15_107057</li> </ul>				
16	5 169	(ix) heat generation from thermal power generation	<ul style="list-style-type: none"> <li>- Gross heat production Main activity CHP plants</li> <li>- Nuclear</li> <li>- Gross heat production Main activity heat only</li> </ul>	<ul style="list-style-type: none"> <li>- 15_107060</li> <li>- 15_107061</li> <li>- 15_107062</li> <li>- 15_107063</li> <li>- 15_107064</li> </ul>	Derived heat	ktoe		

			plants - Nuclear	- 15_107072			
			- Gross heat production	- 15_107076			
			Autoproducer CHP plants	- 15_107080			
			- Nuclear	- 15_107086			
			- Gross heat production	- 15_107068			
			Autoproducer heat only	- 15_107066			
			plants - Nuclear	- 15_107074			
			- Gross heat production	- 15_107078			
			Main activity CHP plants	- 15_107082			
			- Geothermal	- 15_107084			
			- Gross heat production	- 15_107088			
			Main activity CHP plants	- 15_107070			
			- Combustible Fuels	- 15_107065			
			- Gross heat production	- 15_107069			
			Main activity CHP plants	- 15_107073			
			- Heat Pumps	- 15_107077			
			- Gross heat production	- 15_107081			
			Main activity CHP plants	- 15_107087			
			- Electric Boilers	- 15_107067			
			- Gross heat production	- 15_107071			
			Main activity CHP plants	- 15_107075			
			- Other Sources	- 15_107079			
			- Gross heat production	- 15_107083			
			Main activity CHP plants	- 15_107085			
			- Solar	- 15_107089			
			- Gross heat production				
			Autoproducer CHP plants				
			- Geothermal				
			- Gross heat production				
			Autoproducer CHP plants				
			- Combustible Fuels				
			- Gross heat production				

		Autoproducer CHP plants - Heat Pumps - Gross heat production Autoproducer CHP plants - Electric Boilers - Gross heat production Autoproducer CHP plants - Heat from Chemical Sources - Gross heat production Autoproducer CHP plants - Other Sources - Gross heat production Autoproducer CHP plants - Solar - Gross heat production Main activity heat only plants - Geothermal - Gross heat production Main activity heat only plants - Solar - Gross heat production Main activity heat only plants - Combustible Fuels - Gross heat production Main activity heat only plants - Heat Pumps - Gross heat production Main activity heat only plants - Electric Boilers - Gross heat production					
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			<p>Main activity heat only plants - Other Sources</p> <ul style="list-style-type: none"> <li>- Gross heat production Autoproducer heat only plants - Geothermal</li> <li>- Gross heat production Autoproducer heat only plants - Solar</li> <li>- Gross heat production Autoproducer heat only plants - Combustible Fuels</li> <li>- Gross heat production Autoproducer heat only plants - Heat Pumps</li> <li>- Gross heat production Autoproducer heat only plants - Electric Boilers</li> <li>- Gross heat production Autoproducer heat only plants - Heat from Chemical Sources</li> <li>- Gross heat production Autoproducer heat only plants - Other Sources</li> </ul>					
17	not available	Waste heat produced in industrial installations	ESTAT data not available. Please provide national data with definitions/explanations in column K.					

18	5 079	(x) heat generation from CHP	<ul style="list-style-type: none"> <li>- Gross heat production Main activity CHP plants</li> <li>- Nuclear</li> <li>- Gross heat production Autoproducer CHP plants</li> <li>- Nuclear</li> <li>- Gross heat production Main activity CHP plants</li> <li>- Geothermal</li> <li>- Gross heat production Main activity CHP plants</li> <li>- Combustible Fuels</li> <li>- Gross heat production Main activity CHP plants</li> <li>- Heat Pumps</li> <li>- Gross heat production Main activity CHP plants</li> <li>- Electric Boilers</li> <li>- Gross heat production Main activity CHP plants</li> <li>- Other Sources</li> <li>- Gross heat production Main activity CHP plants</li> <li>- Solar</li> <li>- Gross heat production Autoproducer CHP plants</li> <li>- Geothermal</li> <li>- Gross heat production Autoproducer CHP plants</li> <li>- Combustible Fuels</li> <li>- Gross heat production Autoproducer CHP plants</li> </ul>	<ul style="list-style-type: none"> <li>- 15_107060</li> <li>- 15_107062</li> <li>- 15_107064</li> <li>- 15_107072</li> <li>- 15_107076</li> <li>- 15_107080</li> <li>- 15_107086</li> <li>- 15_107068</li> <li>- 15_107066</li> <li>- 15_107074</li> <li>- 15_107078</li> <li>- 15_107082</li> <li>- 15_107084</li> <li>- 15_107088</li> <li>- 15_107070</li> </ul>	Derived heat	ktoe		
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			<ul style="list-style-type: none"> <li>- Heat Pumps</li> <li>- Gross heat production Autoproducer CHP plants</li> <li>- Electric Boilers</li> <li>- Gross heat production Autoproducer CHP plants</li> <li>- Heat from Chemical Sources</li> <li>- Gross heat production Autoproducer CHP plants</li> <li>- Other Sources</li> <li>- Gross heat production Autoproducer CHP plants</li> <li>- Solar</li> </ul>					
19	not available	Waste heat recovered from industrial installations	ESTAT data not available. Please provide national data with definitions/explanations in column K.					
20	47 134	(xi) fuel input for thermal power generation	<ul style="list-style-type: none"> <li>- Transformation input - Nuclear Power Stations</li> <li>- Transformation input - Conventional Thermal Power Stations</li> <li>- Transformation input - District Heating Plants</li> </ul>	<ul style="list-style-type: none"> <li>-B_101002</li> <li>-B_101001</li> <li>-B_101009</li> </ul>	All products	ktoe		
21	48 739	(xii) passenger	Railway TRA_COV: Total transport	- TOTAL	-	Millions of passenger-kilometres		

	770 590	kilometres (pkm)	Road VEHICLE: Total	- TOTAL	-	Millions of passenger-kilometres		
22		passenger kilometres (pkm)	- Domestic Maritime: ESTAT data not available. Please provide national data with definitions/explanations in column K.					
23		passenger kilometres (pkm)	- Total Aviation National: ESTAT data not available. Please provide national data with definitions/explanations in column K.					
24		passenger kilometres (pkm)	Total Aviation International: ESTAT data not available. Please provide national data with definitions/explanations in column K.					
25	19 037	(xiii) tonnes kilometres (tkm)	Railway TRA_COV: Total transport	- TOTAL	-	Millions of Tonne-kilometre		
	127 241		Road TRA_OPER: Total - Total transport	- TOTAL	CARRIAGE: Total	Millions of Tonne-kilometre		

	89		Waterway TRA_COV: Total transport	- TOTAL	NST07: Total transported goods (TOTAL) TYPPACK: All types of packaging (TOTAL)	Millions of Tonne-kilometre		
26		tonnes kilometres (tkm)	- Domestic Maritime: ESTAT data not available. Please provide national data with definitions/explanations in column K.					
27		tonnes kilometres (tkm)	- Total Aviation National: ESTAT data not available. Please provide national data with definitions/explanations in column K.					
28		tonnes kilometres (tkm)	- Total Aviation International: ESTAT data not available. Please provide national data with definitions/explanations in column K.					
29	60 782 668	(xv) population	Population on 1 January - total	JAN	-	Persons		

30		Total number of households	ESTAT data not available. Please provide national data with definitions/explanations in column K.					
31	2 254	Energy transmission and distribution losses (all fuels)	Distribution Losses	B_101400	All products	ktoe		
32	90	Heat generation from district heating plants	Transformation output - District Heating Plants	B_101109	Derived heat	ktoe		
33	127	Fuel input in district heating plants	Transformation input - District Heating Plants	B_101009	All products	ktoe		

**Table 2 – Additional Information – Article 24(1), Annex XIV, Part 1(a) Energy Efficiency Directive**

In the sectors where energy consumption remains stable or is growing, the Member States shall analyse the reasons for it and attach their appraisal to the estimates.

			2012 final energy consumption (ktoe)	2013 final energy consumption (ktoe)
34	Industry	2013 consumption fell compared with 2012.	29 392	26 995
35	Transport	2013 consumption fell compared with 2012.	39 449	38 703
36	Residential	2013 consumption fell compared with 2012.	34 349	34 231
37	Services	2013 consumption fell compared with 2012.	15 931	15 847
38	Agriculture	2013 consumption fell compared with 2012.	2 625	2 602
39	Other sectors	2013 consumption fell compared with 2012.	357	320

**Table 3 – Additional Information – Article 24(1), Annex XIV, Part 1(b) Energy Efficiency Directive**

Updates on major legislative and non-legislative measures implemented in 2014 which contributed towards the overall national energy efficiency targets for 2020.

40	Major legislative measures in 2014	Legislative Decree No 102 of 4 July 2014 transposing Directive 2012/27/EU on energy efficiency
41		Decree of 10 February 2014 - Heating/cooling system log book template and energy efficiency report template as required by Presidential Decree No 74/2013, which supplements the tools available to end users to improve the energy efficiency of heating and cooling systems through energy efficiency inspections
42		Decree-Law No 133 of 12 September 2014, converted, with amendments, by Law No 164 of 11 November 2014 on 'Urgent measures on the opening of shipyards, the completion of public construction works, the digitalisation of the nation, bureaucratic simplification, the problem of hydrogeological instability and the recovery of manufacturing' and in particular Article 22 on measures to improve the Thermal Energy Account incentive scheme
43		Law No 190 of 23 December 2014 increasing to 65 % the tax relief on the energy upgrading of the existing building stock until 31 December 2015
44		
45		
50	Major non-legislative measures in 2014	National Energy Efficiency Action Plan (2014 PAEE) approved by means of the Decree of 17 July 2014 of the Minister of Economic Development in agreement with the Minister of the Environment, Protection of Natural Resources and the Sea, published in Official Gazette No 176 of 31 July 2014 and later sent to the European Commission in accordance with Article 24(2) of Directive 2012/27/EU
51		
52		
53		
54		



**Table 4 – Additional Information – Article 24(1), Annex XIV, Part 1(c) Energy Efficiency Directive**

60	Total building floor area of buildings with a total useful floor area over 500 m <sup>2</sup> owned and occupied by central government, that do not meet the energy performance requirements referred to in Article 5(1) of the EED	13 640 112 m <sup>2</sup>
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**Table 5 – Additional Information – Article 24(1), Annex XIV, Part 1(d) Energy Efficiency Directive**

61	Total building floor area of heated and/or cooled buildings owned and occupied by central government that were renovated or for which renovation was planned during 2014	561 090 m <sup>2</sup>
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**Table 6 – Additional Information – Article 24(1), Annex XIV, Part 1(e) Energy Efficiency Directive**

Energy savings achieved through the national energy efficiency obligation schemes referred to in Article 7(1) of the EED or the alternative measures adopted in application of Article 7(9).

	Notified policy measures	Savings achieved (estimated) – Mtoe	Cumulative savings expected by 2020 – Mtoe
		2014	
63	Obligation scheme - White certificates	0.77	16.00
64	Alternative measure 1 - Thermal Energy Account	0.0000047	5.88
65	Alternative measure 2 - Tax relief	0.16	3.92
73	Total savings		25.80

## Annex 2 – White certificates – Eligible actions and beneficiaries

**Table A.1 – Categories of incentive measure under the white certificates scheme**

Description of measure	Abbreviation
Private lighting: installation of new efficient systems or complete renovation of existing systems	IPRIV-NEW
Private lighting: installation of new efficient systems or complete redesign of existing systems	IPRIV-RET
Street lighting: retrofitting to make existing systems more efficient	IPUB-RET
Street lighting: installation of new efficient systems or complete renovation of existing systems	IPUB-NEW
Actions to improve the efficiency of electricity and natural gas networks	RETI
Industrial processes: generation of electricity from recovery or from renewable sources or cogeneration	IND-GEN
Industrial processes: heat generation or recovery for cooling, drying, firing, casting etc.	IND-T
Industrial processes: actions other than the above, for the energy optimisation of production processes and equipment layout to achieve measurable, lasting reductions in final energy demand without affecting the quantity and quality of production	IND-FF
Industrial processes: efficient drive systems, automation and power factor correction actions	IND-E
Residential, agricultural and services sectors: consumer electronics	CIV-ICT
Residential, agricultural and services sectors: heating and cooling systems for space conditioning and water heating	CIV-T
Residential, agricultural and services sectors: passive building design and work on the building envelope to reduce space cooling and heating requirements	CIV-FC
Residential, agricultural and services sectors: work on the building envelope to reduce the need for artificial lighting	CIV-FI
Residential, agricultural and services sectors: small electricity generation and cogeneration systems	CIV-GEN
Residential, agricultural and services sectors: reduction in hot water demand	CIV-FA
Residential, agricultural and services sectors: reduction of energy demand by and for ICT applications	CIV-INF
Residential and services sectors: washing machines and food preservation appliances	CIV-ELET
Transport systems: improvement of vehicle energy efficiency	TRANSPORT

Source: Gestore Servizi Energetici SpA

**Table A.2 – Types of operators accepted into the white certificates scheme**

Operator description	Abbreviation
Electricity distribution companies	DE
Natural gas distribution companies	DG
Companies and organisations that voluntarily employ an energy manager	EMV
Companies obliged to employ an energy manager (Article 19, Law No 10/1991)	SEM
Energy services companies	SSE

Source: Gestore Servizi Energetici SpA