



Italian Energy Efficiency Action Plan

Summary

July 2011

1. INTRODUCTION

The first National Energy Efficiency Action Plan (EEAP), presented in July of 2007 in compliance with Directive 2006/32/EC, outlined the direction the Italian Government intended to take in order to achieve the goals of improving both energy efficiency and energy services.

The European Energy Efficiency Action Plan 2011 highlights the role of energy efficiency as an essential tool for reducing consumption within Member Nations, in order to achieve the more ambitious goal of a 20% reduction by 2020 and to stimulate the efficient use of resources.

In parallel with this, the National Renewable Energy Action Plan (NAP), issued by the Ministry for Economic Development and the Ministry of the Environment, in transposition of Directive 2009/28/EC, provides further pointers for encouraging energy efficiency, as an essential prerequisite for achieving the objectives relating to renewable energy and the reduction of CO₂, hence leading to an evaluation of the implementation of Directive 2006/32/EC within a strategic context even outside the sphere of its own sector. In effect, the gross final reduction in energy consumption by 2020, to be achieved through programmes and measures for improvements in energy efficiency, will facilitate the effective pursuit of the goal of producing energy from renewable sources.

In this sense EEAP 2011 lays the foundation for the preparation of a strategic plan of energy efficiency measures and the reporting of all savings, not only of final energy consumption.

2. SPECIFIC ASPECTS OF CALCULATING THE OBJECTIVES

Directive 2006/32/EC establishes that Member States must draw up an Energy Efficiency Action Plan that aims to achieve an overall national indicative energy savings target by 2016, of 9% for the ninth year of application, to be reached by way of energy services and other energy efficiency improvement measures. The methodology for calculating the target lays down that the average annual quantity consumed by Member States be assessed as the average of the amount of energy distributed or sold to final customers during the years 2001-2005, not adjusted for degree days, nor for structural changes or production changes, with the exclusion of energy consumption sourced from activities covered by the Emissions Trading Directive (ETS)¹.

¹ Energy activities (thermal power stations and other combustion plants), production and transformation of ferrous materials, mineral product industries (cement, lime, glass, ceramic and brick products), paper and board.

The national indicative energy savings target shall:

- a) consist of 9% of the annual average amount of consumption referred to above;
- b) be measured in 2016;
- c) be the result of cumulative annual energy savings achieved² throughout the nine-year application period of this directive;
- d) be reached by way of energy services and other energy efficiency improvement measures.

The national energy savings, compared with the national indicative energy savings target, shall be measured from 1 January 2008, but the effects of so-called "early actions" may be taken into account, that is activities carried out prior to that date.

In EEAP 2011 the methodology for calculating the target remains unaltered from that of 2007, as does the total value of the energy savings expected by 2016. For this reason the types of actions have remained substantially the same, even though other areas of intervention that could add to the savings already defined for 2016 are listed within the document, albeit not exhaustively.

The NAP issued in 2010 in transposition of Directive 2009/28/EC, whose technical specifications and timescales differ from those of the EEAP, sets binding targets up to 2020 with regard to the amount of energy to be obtained from renewable energy sources (RES). Directive 2009/28/EC lays down that each Member State must adopt a national renewable energy action plan (NAP), and:

- set sectoral targets (electricity, heating and cooling, transport) for the consumption of energy from renewable sources;
- specify the measures adopted and to be adopted in order to achieve the targets and to comply with the provisions of the directive.

In particular, the calculation of the NAP's overall target is based on the fact that the amount of energy from RES, that is the ratio of the gross final consumption of renewable energy (electricity, heating, transport) to the gross final consumption-GFC_{TOTAL}³ (energy commodities delivered for energy purposes to industry, transport, households, services, agriculture, forestry and fisheries, auxiliary services for the generation of electricity and heat, losses of electricity and heat in distribution) must be greater than or equal to 17%; a similar approach is to be taken for transport with the ratio to be maintained above 10%.

In this regard, a scenario (Primes 2009) has been prepared that takes account of the effect of the economic crisis and the measures planned in the EEAP for containing consumption and that estimates a gross final consumption for Italy as at 2020 of 145.6 MTOE. As can be seen in the NAP, to calculate the estimate of the gross final consumption as at 2020, it was assumed that additional effort would be made with regard to energy efficiency, in line with what is laid down in Law 99/2009. On the hypothesis of having to maintain an RES ratio of around 17% and that the GFC_{TOTAL} for Italy as at 2020 is to all intents and purposes equal to 133 MTOE, as indicated in the NAP, the further reduction of final consumption will be about 12 MTOE, as depicted in the following graph.

² The unit of measurement in which data are expressed is GWh and the factor for the conversion of consumption into final energy is as follows: 1 GWh= 86 TOE (in the case of thermal energy).

³ In this document all energy savings are calculated in terms of Gross Final Consumption (GFC).

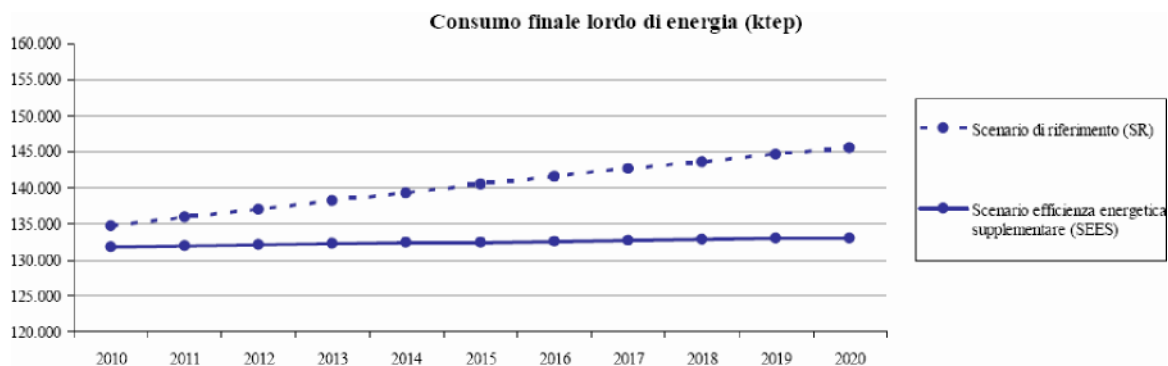


Fig. 1– Estimate (NAP) of GFC evolution for Italy through to 2020

The initiatives identified to cover the above-mentioned reductions involve the definition of a plan for improving the energy efficiency of public buildings and social housing, establishing a framework of incentives in the medium term, reinforcing Green Procurement, promoting the efficiency of data processing centres, implementing actions to develop electricity distribution networks (on the Smart Grid model) as well as improvements in efficiency in urban areas.

For the transport sector a programme will be put in place to improve the efficiency of the vehicles on the road, to increase the number of vehicles using alternative propulsion (electric and bio-fuel) and to finance rapid mass transit lines in metropolitan areas in support of the initiatives of the Regions and Local Bodies.

3. PRINCIPAL FEATURES OF EEAP 2011

The purpose of EEAP 2011 is to follow up, in a consistent and ongoing way, actions and initiatives already provided for in the first EEAP 2007 and it sets out to present medium to long term proposals backed up by innovative scenarios.

The second EEAP 2011 illustrates the results achieved up to 2010 and updates the energy efficiency measures to be adopted for the achievement of the general target through to 2016, that will remain at 9.6%.

In addition to the measures relating to White Certificates (or Energy Performance Certificates) and to the incentives for energy efficiency improvement work on buildings, consideration is also given to the effects of Legislative Decree 192/2005, that transposes Directive 2002/91/EC in relation to the energy performance of buildings. In comparison to the existing legal framework, this decree introduced important changes to design methodologies, minimum standards and the inspection of installations as well as introducing the energy certification of buildings. The decree, already comprehensive with regard to the part relating to winter climate control, also lays down implementation provisions, among which the following standards have been issued: the decree of the President of the Republic of 2 April 2009, No. 59 and the decree of the Minister of Economic Development of 26 June 2009 relating to the National Guidelines for the energy certification of buildings. The break-down of EEAP 2011 has been left largely unchanged in comparison with EEAP 2007 with the exception of some modifications aimed at optimising energy efficiency measures, related mechanisms providing incentives and, in some cases, a revision of the calculation methodology.

In particular, with regard to the residential sector, the replacement of single glazing with double glazed units and the installation of solar heating panels for hot water have had an excellent effect, whereas the insulation of opaque surfaces of residential buildings has achieved poorer results than expected, probably due to the higher costs common for this type of work. Nevertheless, new forms of incentive will be

investigated and implemented in order to stimulate work on the opaque fabric of buildings, the part of the building/plant package that offers the greatest potential for energy savings. In EEAP 2011 the work of insulating opaque walls has been replaced by the provisions of Legislative Decree 192/2005 (RES.1).

In the service sector a measure has been introduced in connection with the transposition of Directive 2002/91/EC and the implementation of Legislative Decree 192/2005.

In the industrial sector instead, the result produced in connection with the mechanical compression of steam was poor and so it was decided to give greater scope, within the context of the WC mechanism, to initiatives for the recovery of heat from production processes.

Finally, in the transport sector the principal innovation related to the algorithm for the assessment of potential energy savings, also in the light of the data from monitoring and from new standards that came into force with effect from 2007. These changes have made it necessary to review the package of measures to be implemented and have made necessary the introduction of other measures, as shown in the following table.

Measures to improve energy efficiency		Annual energy savings achieved in 2010	Annual energy savings expected in 2016	CO ₂ Emissions avoided in 2016
Measures		[GWh p.a.]	[GWh p.a.]	[MT CO ₂]
Residential Sector:				
RES 1	Actions to comply with Directive 2002/91/EC and to implement Leg, Dec, 192/05	5,832	13,500	3.51
RES 2	Replacement of incandescent (GLS) bulbs with fluorescent (CFL) bulbs	*3,744	4,800	2.11
RES 3	Replacement of dishwashers with class A rated appliances	21	44	0.03
RES 4	Replacement of refrigerators and freezers with class A+ and A++ rated	82	2115	0.93
RES 5	Replacement of washing machines with appliances rated higher than class A	2	420	0.18
RES 6	Installation of solar heating panels for hot water	1,400	2,200	0.97
RES 7	The use of efficient air conditioning systems	24	540	0.24
RES 8	The use of efficient central heating systems	13,929	26,750	6.66
RES 9	Balanced flues and wood-fired boilers	325	3,480	0.83
RES 10	Natural gas decompression, PV plant	190	300	0.13
RES 11	Low flow rate water aerators	5,878	5,878	1.60
Total Residential Sector		31,427	60,027	17,18
Service sector:				
TER 1	Upgrading energy efficiency of existing buildings	80	11,166	2.90
TER 2	Offering of incentives for the use of efficient air conditioning systems	11	2,510	1.10
TER 3	Energy efficient lighting and control systems	100	4,300	1.89
TER 4	Efficient lamps and luminous flux regulating systems (public lighting)	462	1,290	0.57
TER 5	Low flow rate water aerators	385	340	0.11
TER 6	Transposition of Directive 2002/91/EC and implementation of Leg, Dec, 192/05	4,004	4,984	1.30

constructions since 2005				
Total Service Sector		5,042	24,590	7.87
Industrial Sector:				
IND-1	Energy efficient lighting and control systems	617	1.360	0,60
IND-2	Installation of more highly efficient electric motors	16	2.600	1,14
IND-3	Installation of inverters on electric motors	121	300	0,13
IND-4	High-efficiency co-generation	2,493	6.280	1,26
IND-5	Refrigeration, inverters on compressors, replacement of boilers, recovery of	5,023	9.600	3,08
Total Industrial Sector		8,270	20,140	6.21
Transport Sector:				
TRA-1	State incentives 2007, 2008, 2009 to encourage environmentally friendly cars and lorries up to 3,5 tonnes	2,972	2.186	0,59
TRA-2	Application of Community Regulation EC 443/2009 that defines levels of performance in connection with emissions from new vehicles within the context of the integrated Community approach aimed at reducing CO ₂ emissions from light vehicles		19.597	5,30
Total Transport Sector		2,972	21,783	5.89
Total Energy Savings		47,711	126,540	37.16

(*This value was reduced to 50% of the registered figure, on the conservative hypothesis that the number of efficient lamps actually installed is at least half of the total of those sold/distributed with the EPC system; the RES.1 figure replaces the following specified in EEAP 2007: insulation of opaque surfaces on pre-1980 residential buildings; replacement of single glazing with double glazing; transposition of Directive 2002/91/EC and implementation of Legislative Decree 192/05; the PV included in RES.10 represents the proportion not incentivised by the Energy Account and contributes just 43GWh p.a. to the total figure; measure TER.1 reflects a low monitoring value, that does not take account of the coming into force of the new regulation;** the definition of this figure has been changed from that in EEAP 2007 for reasons of clarity).

With regard to the achieving of the primary energy savings targets for 2020, as established in the European Union's "Energy Package", the second Plan, as required by the European Commission, addresses the achieving of the target of a 20% reduction in the primary energy demand by 2020, even if to achieve such an ambitious target may require that other measures be brought into play.

In relation to the achieving of the intermediate 2010 target, defined at the time, the first Plan made it possible to exceed the target set for 2010 (3.6% against the 3% expected).

A significant part of the measures laid down in the Action Plan is linked to non-structural incentive mechanisms; for this reason a stable and financially viable incentive scheme (e.g. a review of the white certificates system with an upward revision of the targets) is being prepared to enable the ambitious energy efficiency targets that the European energy strategy specifies for 2020⁴ to be reached.

3. ENERGY SAVINGS ON A NATIONAL SCALE

During the period 2007-2010 the primary energy demand in Italy fell from 194.5 to 185.2 MTOE, 83% of which was satisfied with fossil fuels, of which 39% was petroleum, 37% natural gas, and 7% coal and other solids, with the remaining part coming from renewable sources and the importation of electrical energy (respectively 12% and 5%). This reduction was caused by the lower demand from the industrial sector brought about by the economic crisis, the effects of which weighed heavily on both exports and domestic consumption, causing an increase in the cost of credit and a reduction in the flow of financing and contributing to the fall, in 2009, of gross domestic product and a reduction in the levels of employment.

In this context, the energy intensity of the GDP of the last four years was further reduced having remained stable from 1990-2006. Factors contributing to this reduction were both a real improvement in efficiency and a gradual erosion of the Italian economy, with the continual growth of the less energy-intensive services sector at the expense of industry.

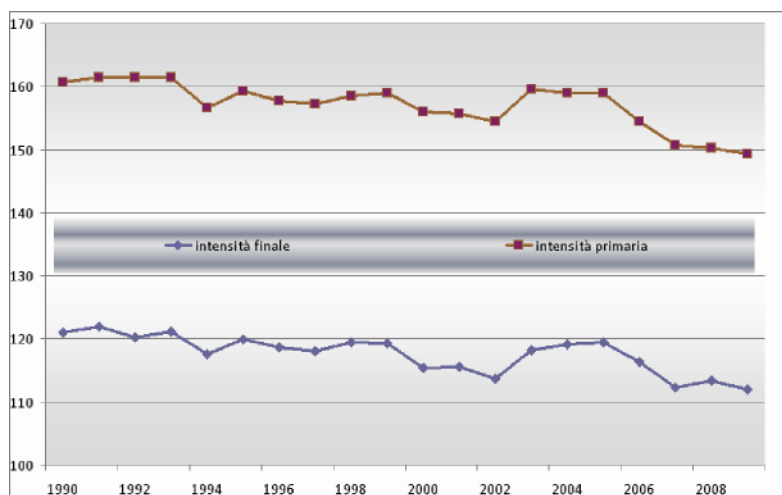


Fig. 2 – Energy intensity for Italy (TOE/M€ - Source ENEA)

Energy consumption in the final use sectors fell from 139.3 MTOE in 2007 to 137.5 MTOE in 2010 (provisional figures), indicating a particularly significant downward trend from 2008 to 2009 (-5.6 percent). Overall final energy uses increased by 8.7% during the period 2000-2005 and fell by 9.2% during the years 2005-2009.

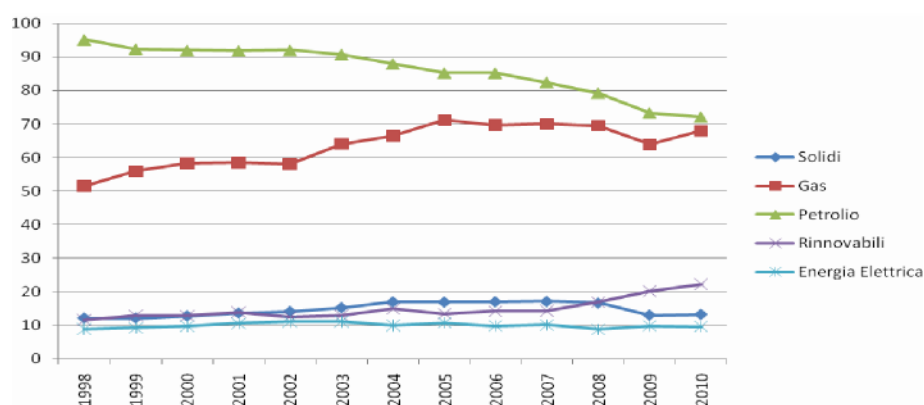


Fig. 3 – Primary energy demand (MTOE) by individual source in Italy (Source REA2009)

⁴ ENEA, Energy and Environment Report, Analyses and Scenarios 2010

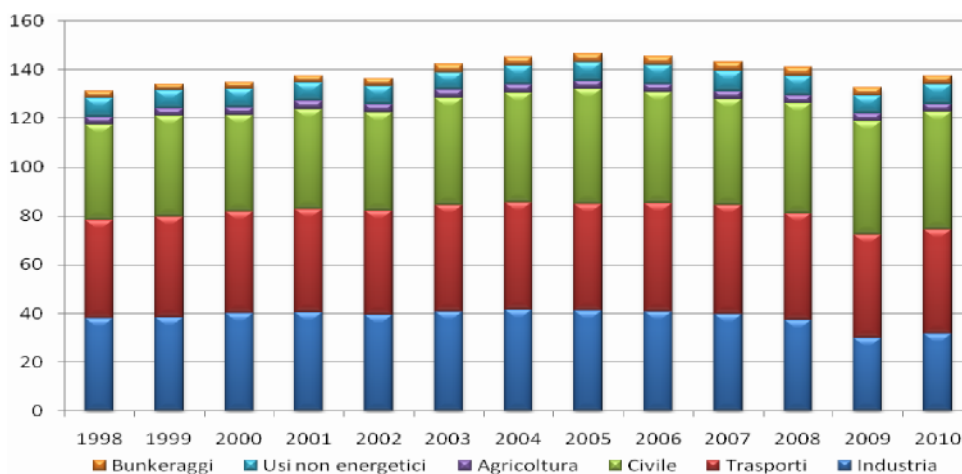


Fig. 4 – Final Energy Consumption (MTOE) in the User Sectors

This reduction can be attributed primarily to the industrial sector and to non energy uses, whereas there was an increase in consumption in the civil sector (residential and service sectors) and a slight reduction in the transport sector.

In 2010, instead, although the figures are still provisional, we can see a reduction in the use of this source in the transport sector (0.3%), industry (0.1%) and civil uses (4.8%). Furthermore, in 2010 the use of renewable sources increased (14.5% compared with 2009). The use of natural gas saw a recovery of 7% compared with 2009, due particularly to the industrial sector (+7.1%), transport (+13.2%) and civil uses (+7.1%).

During the triennium 2007-2009, the division between the various sectors remained more or less unchanged (Fig. 4), with civil and transport uses each accounting for 31.5% of end-use, the industrial sector 26.5%, while 5.7% was consumed for non energy uses, especially in the petro-chemical industry. The remainder was used in the agricultural sector and for bunkering.

In the industrial sector, use was made predominantly of gas and electrical energy (about 70% of the total consumption). In 2010 this sector partially recovered (+5.5%) the significant contraction in its consumption recorded in 2009 in line with the strong downturn in industrial production that confirmed the negative trend of the 2007-2009 triennium following the slow-down caused by the dynamics of energy pricing, the introduction of more stringent environmental standards and structural factors such as the fall in the influence of heavy industry.

4. NATIONAL POLICIES AFTER 2007

From the date on which EEAP 2007 was issued until now new legal dispositions, implementation standards and guidelines have been issued, that all contribute to achieving the predetermined targets.

Among the various provisions special mention should be made of Legislative Decree 115/08, that implements Directive 2006/32/EC, MD 26 June 2009 containing the National Guidelines for Certification of Building Energy Performance in implementation of Legislative Decree 192/2005 and Law 99/2009 and Legislative Decree No. 28 of 3 March 2011 in implementation of Directive 2009/28/EC.

Legislative Decree 115 relates to efficiency in end uses and energy services, addresses a broad spectrum of different issues that interest the energy sector and sets up the Technical Unit for Energy Efficiency (TUEE) within the structure of ENEA (the National Agency for New Technologies, Energy and Sustainable Economic Development), with the task of carrying out technical-scientific support and consultancy activities for the State and Public Administration (regional and local bodies).

The MD of 26 June 2009 containing the National Guidelines for Certification of Building Energy Performance gives effect to the key element of Directive 2002/91/EC of the European Parliament concerning the certification of a building's energy performance. This contains a regulation with the calculation methodologies and the minimum energy performance requirements for buildings and heating systems for central heating in winter and the provision of hot water for personal use, in respect of the designing of buildings and the designing, installation, operation, maintenance and inspection of heating systems.

With the aim of creating a long-term global strategy for the development of the national energy sector that is consistent with the principles that govern a free energy market, in 2009 Law No.99 was issued that provides the regulatory basis for the formulation of a new energy policy. The law contains a provision that, for the definition of the new National Energy Strategy, the Ministry for Economic Development (MED) will organise a national conference on energy and the environment in collaboration with the Ministry of the Environment and Protection of the Land and Sea.

Leg. Dec No. 28 issued in 2011 implements the transposition of Directive 2009/28/EC on the promoting of the use of energy from renewable sources. The decree also introduces provisions on the matter of energy efficiency in connection with the creation of a web portal for energy efficiency, the implementation of a training programme for people installing and maintaining heating systems, the introduction of a new programme of incentives for small-scale energy efficiency measures and for the creation of new standardised technical specifications for actions undertaken in the context of the white certificates process.

5. REVIEW OF THE TARGETS AND RESULTS RELATING TO ENERGY SAVINGS

This paragraph presents the results of the activities carried out to monitor energy savings achieved up to 31 December 2010 through measures undertaken in the context of the primary instruments for the improvement of energy efficiency, that for the most part were already provided for in EEAP 2007.

Directive 2006/32/EC on energy end-use efficiency and energy services required Member States to adopt an indicative energy saving target of 9% to be achieved by 2016, the ninth year of application of the Directive, by means of energy services and other measures for improving energy efficiency.

EEAP 2007 provided for programmes and measures for the improving of energy efficiency and energy services in the various sectors of the economy (residential, services, industry and transport) for an expected annual energy saving by 2016 of 126,327 GWh p.a. This saving, equal to 9.6% of the reference average annual amount consumed nationally (the average of the amount of energy distributed or sold to final customers during the last five years preceding the implementation of the Directive, not adjusted for degree

days nor for structural changes or production changes), is the result of the sum of the energy savings obtained in 2016 following lasting measures and actions carried out during the years of the reference period and that were fully effective as at 31 December 2016.

The quantitative assessment of the savings was carried out with reference to the following measures for the improvement of energy efficiency:

- a) Transposition of Directive 2002/91/EC and implementation of Legislative Decree 192/05;
- b) Allowing of tax deductions (55%) for improving the energy efficiency of existing buildings;
- c) Allowing of tax deduction (20%) for the installation of high efficiency electric motors and inverters;
- d) Incentive measures to encourage environmentally sustainable replacement of cars and lorries up to 3.5 tonnes;
- e) Mechanism for awarding White Certificates (WC) – or Energy Performance Certificate (EPC) – pursuant to the Ministerial Decrees of 20 July 2004.

In view of the types of measures introduced and the related (partial) overlap in certain cases, as well as the broad spectrum of possible actions considered, the Bottom Up approach adopted during the modelling phase made it possible to quantify with greater reliability the energy savings from individual actions rather than for measures at a general level.

Table 2 presents the annual energy saving targets, overall and by sector, expected by 2010 (intermediate objective) and by 2016 (final objective) set out in EEAP 2007, as well as the results achieved by 2010; the annual energy saving achieved was 47,711 GWh p.a. equal to 3.6% of the average annual amount of the reference national consumption. From the table it can be seen that about 70% of the annual energy saving achieved by 2010, amounting to 31,427 GWh p.a., came from the residential sector.

Table 2 Overall annual energy savings achieved by 2010 and expected by 2010 and 2016 (FEC)–
Summary by Sector

Measures to improve energy efficiency	Annual energy saving achieved by 2010 [GWh p.a.]	Annual energy saving expected by 2010 EEAP 2007 [GWh p.a.]	Annual energy saving expected by 2016 EEAP 2007 [GWh p.a.]
Total Residential Sector	31,472	16,998	56,830
Total Service Sector	5,042	8,130	24,700
Total Industrial Sector	8,270	7,040	21,537
Total Transport Sector	2,972	3,490	23,260
Total expected energy saving (national target)	47,711	35,658*	126,327*

(*Targets defined in EEAP 2007)

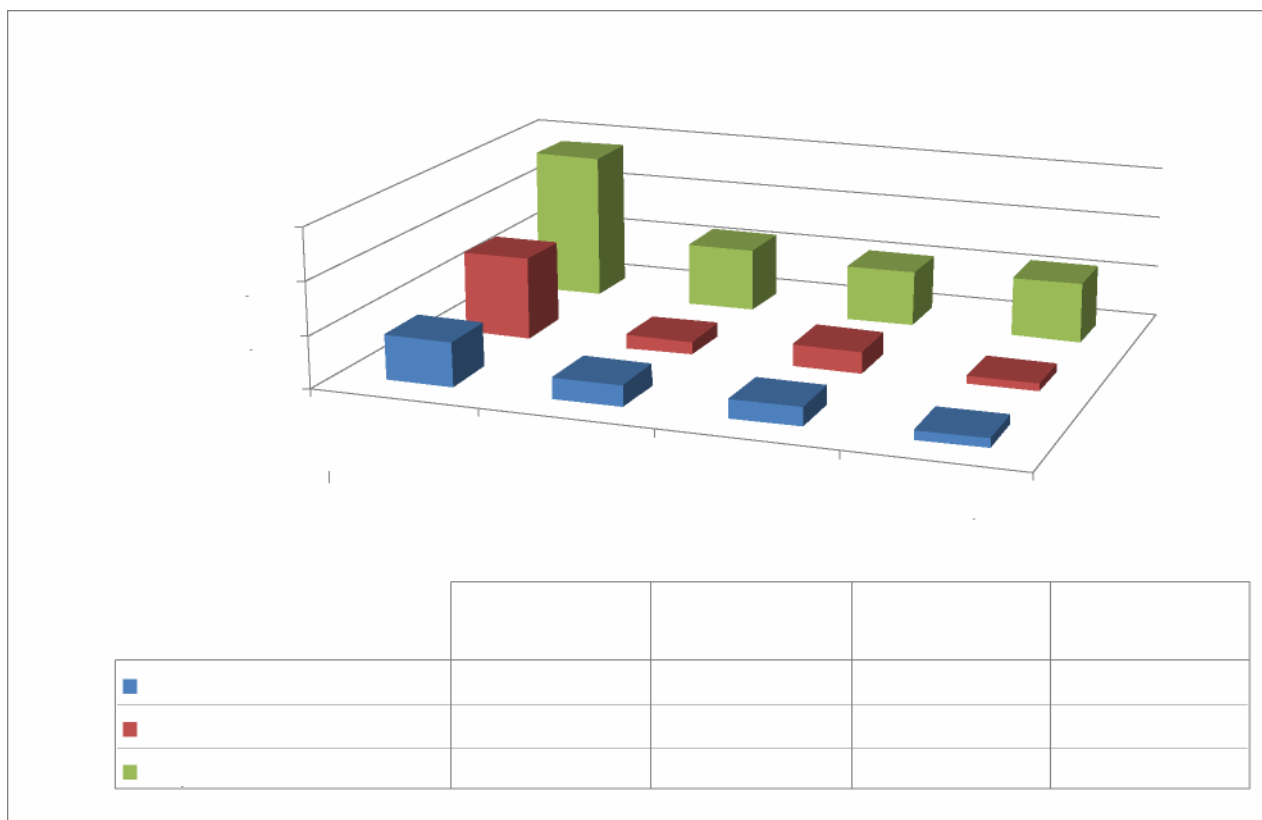


Fig. 5 – Annual energy savings sub-divided by various sectors

6. ESTIMATE OF SAVINGS ACHIEVABLE BY IMPROVING THE EFFICIENCY OF THE ELECTRICITY DISTRIBUTION AND TRANSMISSION NETWORK

The development and upgrading of the national transmission grid is a necessity in order to overcome the critical problems that still exist, that limit the use of energy produced by the most economical plants and the creation of a single energy market, given also the prospect of potential new uses of electrical power in sectors such as heating/cooling (the spread of heat pumps) and transport (electric vehicles), where today the use of electricity is marginal.

No less necessary appear to be steps to upgrade the transmission grid in order to reach wind farms that are becoming widespread across south-central Italy and the islands and to ensure the distribution of the energy generated without creating congestion. It is also worth remembering that the availability of an adequate transportation system enables the high efficiency thermal power stations, such as the cogeneration plants, to continue operating even when there is peak production of wind energy at the time of specific meteorological conditions.

With regard to the distribution network, the need to develop it and increase its efficiency in terms of reducing leakages is justified not just by the continuing growth in demand from the residential and service sectors, but above all by the significant spread of generation by small-scale plants (from renewable sources – photovoltaic, biomass and mini-hydro – and from small and micro cogeneration plants). The estimate of savings obtainable following improvement work comes to about 550 GWh p.a.

The works planned for the National Transmission Grid are aimed at improving the efficiency of the national electricity system because it makes it possible to reduce the leakages of power from the network and reduces congestion, allowing for greater use of plants using renewable sources (in particular wind power), the estimate of the savings obtainable with the targeted actions coming to about 3.8MTOE.

7. ENERGY SCENARIOS FOR ASSESSING THE IMPACT OF ENERGY EFFICIENCY MEASURES BY 2020

The measures identified for achieving the 2016 target have also been considered from the point of view of their extension to 2020 in order to highlight their contribution in the light of the broader targets of the 20-20-20 directive, the results being presented in the following table and depicted in the graph in Fig. 6.

Table 3 Reduction of final use of energy expected by 2016 and 2020 and CO₂ emissions avoided by 2020

Sectors	Reduction of final energy in 2016		Reduction of final energy in 2020		CO ₂ avoided in 2020
	GWh p.a.	MTOE p.a.	GWh p.a.	MTOE p.a.	M tonnes
Residential	60.027	5,16	77.121	6,63	18,0
Services	24.590	2,11	29.698	2,55	9,45
Industry	20.140	1,73	28.678	2,47	7,20
Transport	21.783	1,87	49.175	4,23	10,35
Totals	126.540	10,88	184.672	15,88	45,0
(% of the average GFC of the years 2001-2005)	(9,6%)		(14%)		

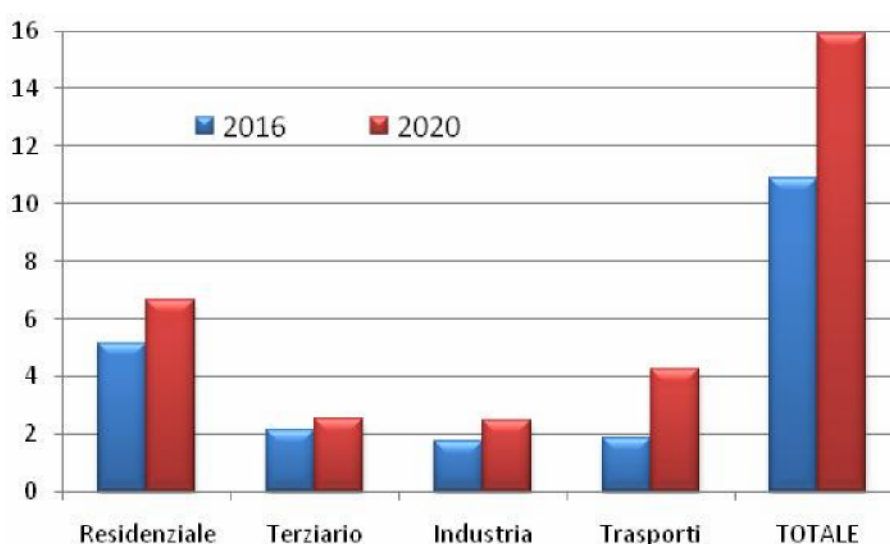


Fig. 6 Reduction of final energy overall and by sector, years 2016 and 2020 (MTOE)

In 2020 the package of measures identified in the Plan (and extended to 2020) results in a reduction in terms of primary energy of about 18 MTOE, of which about 55% is attributable to methane gas, 40% to petroleum and 5% to other sources.

Overall in 2020 CO₂ emissions avoided as a result of the measures laid down in the Plan (and extended to 2020) are over 45m tonnes. The figure below shows the contribution by sector to the reduction of emissions in the year 2020.

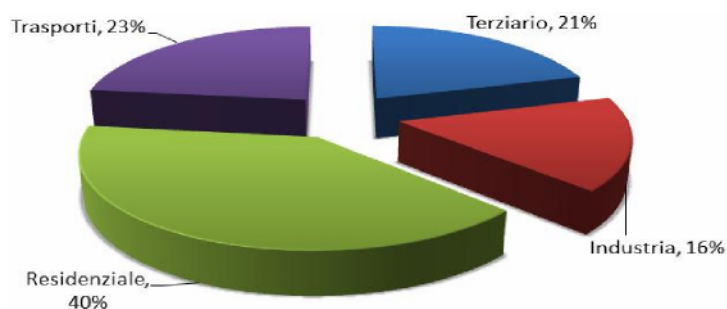


Fig. 7 – Contribution to the reduction of CO₂ by 2020 by sector

8. THE EXEMPLARY ROLE OF THE PUBLIC SECTOR

The exemplary role of the public sector is highlighted through the presentation of various initiatives carried out at a central and local administrative level, that have made or will in the short-term make a significant contribution to improving energy efficiency in the public sector.

The goal of the Interregional Operating Programme, Renewable Energy and Energy Savings (IOP Energy) 2007-2013, is to increase the amount of consumed energy derived from renewable sources and to improve energy efficiency and energy savings, by promoting opportunities for local developments, highlighting the connection between the production of renewable energy and the improving of efficiency and the social and economic fabric of the Convergence Objective Regions (Calabria, Campania, Puglia and Sicily).

The financial contribution granted to the Ministry of the Environment within the scope of the IOP Energy is EUR 53m for carrying out work to improve efficiency and save energy in public buildings by implementing emblematic and easily replicated programmes.

The resources set aside to-date amount to EUR 415m and have enabled work to be started on school buildings (EUR 20m), hospitals (EUR 60m) and buildings owned by Municipalities of up to 15,000 inhabitants (EUR 60m). Still within the scope of the IOP Energy, work has started on improving the energy efficiency of cultural and valued assets (museums and archaeological sites) (EUR 40 m), military buildings, barracks, military academies (EUR 30m) and airport facilities (EUR 17.3m). Furthermore, of particular importance is the support for the creation of Sustainable Communities within the scope of which local development initiatives will be promoted through pilot projects on energy efficiency and the production of energy from renewable sources.

Another tool for economic policy through which public resources are made available for the granting of concessionary financing in support of investments contributing to the reduction of climate-changing emissions and that, as a result, comply with the obligations of the Kyoto Protocol, is the Revolving Fund, set up with the Italian Finance Law of 2007. The resources available to the Fund amount to EUR 600m; the method of dispensing the resources is governed by the decree adopted on 25 November 2008 by the Ministry of the Environment and the Ministry for Economic Development. The Revolving Fund will be made operational by the issuing of a Circular, through the banking circuit, that is applicable to all parties that could obtain concessionary financing in the form of targeted loans, to be repaid at a special fixed rate (0.5% p.a.). The energy efficiency related measures that can be financed through the Fund are as follows:

- diffused micro-cogeneration measures;
- electric motor measures;
- "end-use" measures.

Finally a series of announcements will be issued by the Regions in connection with the Regional Operational Programme (ROP) 2007-2013, co-financed by the European Regional Development Fund.

The provisions chosen, with reference to the Green Public Procurement (GPP) instrument, have been described as having the goal of integrating environmental considerations into the procurement processes of Public Administration and of orienting their choices towards goods, services and works that have the lowest environmental impact, as reported in the Action Plan for the environmental sustainability of consumption in the Public Administration sector, provided by the Ministry of the Environment.

APPENDIX A

The following table details the targets and the results achieved in relation to the execution of only those measures laid down in EEAP 2007, due to which an overall energy saving of 32,334 GWh was achieved.

Table A.1 Annual energy saving achieved in 2010, expected in 2010 and 2016 (FEC) – Detailed by individual measure laid down in EEAP 2007

Measures		Annual energy savings achieved in 2010 (net of duplications)	Annual energy savings expected in 2010 (EEAP 2007)	Annual energy savings expected in 2016 (EEAP 2007)
		[GWh p.a.]	[GWh p.a.]	[GWh p.a.]
Residential Sector:				
RES 1	Insulation of opaque walls of residential buildings post 1980; Replacement of single glazing with double glazed units; transposition of Directive 2002/91/EC and implementation of Leg. Dec. 192/05	5,832	3,722	13,730*
RES 2	Replacement of incandescent (GLS) bulbs with fluorescent (CFL) bulbs	3,744	1,600	4,800
RES 3	Replacement of dishwashers with class A rated appliances	21	305	1,060
RES 4	Replacement of refrigerators and freezers with class A+ and A++ rated appliances	82	1,210	3,860
RES 5	Replacement of washing machines with appliances rated higher than class A	2	31	410
RES 6	Installation of efficient electric water heaters	1,400	700	2,200
RES 7	The use of efficient air conditioning systems	24	180	540
RES 8	The use of efficient central heating systems	13,929	8,150	26,750
RES 9	Balanced flues and wood-fired boilers	325	1,100	3,480
Total Residential Sector		25,359	16,998	56,830
Service Sector:				
TER 1	The use of efficient central heating systems	80	5,470	16,600
TER 2	Offering of incentives for the use of efficient air conditioning systems	11	835	2,510
TER 3	Energy efficient lighting and control systems	100	1,400	4,300
TER 4	Efficient lamps and luminous flux regulating systems (public lighting)	462	425	1,290
Total Service Sector		653	8,130	24,700
Industrial Sector:				
IND-1	Energy efficient lighting and control systems	617	700	2,200
IND-2	Replacement of 1-90 kW class EFF2 electric motors with those of class EFF1	16	1,100	3,400
IND-3	Installation of inverters on electric motors of 0.75-90 kW	121	2,100	6,400
IND-4	High-efficiency co-generation	2,493	2,093	6,280
IND-5	Use of mechanical steam compression	103	1,047	3,257
Total Industrial Sector		3,350	7,040	21,537
Transport Sector:				
TRA 1	The introduction of an emission limit of 140 g of CO ₂ / Km (average of the range of vehicles sold)**	2,972	3,490	23,260
Total Transport Sector		2,972	3,490	23,260
Total Energy Savings		32,334	35,658	126,327

(* This figure is the sum of the estimated values of the EEAP 2007 in relation to measures Nos. 1 and 2, the monitored value also taking account of actions taken due to the implementation of Legislative Decree 192 and Directive 2002/91/EC on new buildings.

**This value achieved in 2010, in reality relates to the monitoring of state incentives 2007, 2008 and 2009 promoting the environmentally sustainable replacement of cars and lorries up to 3.5 tonnes)

Table A.2 shows measures that were not specified in EEAP 2007, that led to a significant additional contribution of 15,377 GWh (1.2% of national consumption), due to which the total energy savings in 2010 amounted to 47,711 GWh p.a., equal to 3.6% of national consumption.

Finally, other energy savings were achieved totalling 5,288 GWh p.a., relating to maintenance operations on heat generators in the residential sector (not reported in the table because they were outside the calculation methodology used to assess the estimate of RES.1), that take the total savings achieved up to 52,999 GWh p.a.

Table A.2 Annual energy saving achieved in 2010 (FEC) – Detailed by individual measure not laid down in EEAP 2007

Measures		Annual energy saving achieved in 2010 (net of duplications)
		GWh p.a.[GWh p.a.]
Residential Sector:		
RES10	Decompression of natural gas, FV < 20kW, cogeneration, district heating systems	190
RES11	Low flow rate aerators for showers, water kits, aerators for taps	5,878
RES12	Automatic switch-off devices for appliances in standby mode	0
Total Residential Sector		6,068
Service Sector:		
TER5	Low flow rate aerators for showers in hotels and sports facilities	385
TER6	Transposition of Directive 2002/91/EC and implementation of Leg. Dec. 192/05	4,004
Total Service Sector		4,389
Industrial Sector:		
IND6	Refrigeration, inverters on compressors, replacement of boilers, recovery of thermal waste	4,920
Total Industrial Sector		4,920
Total Energy Savings		15,377

Graphics

Fig. 1

Gross final energy consumption (KTOE)

- Reference scenario
- Supplementary energy efficiency scenario

Fig. 2

final intensity primary intensity

Fig. 3

- Solids
- Gas
- Petroleum
- Renewable sources
- Electrical energy

Fig. 4

- Bunkering
- Non-energy uses
- Agriculture
- Civil
- Transport
- Industry

Fig. 5

Overall annual energy savings

- Residential sector
- Service sector
- Industrial sector
- Transport sector

expected savings 2010
actual savings 2010
expected savings 2016

Fig. 6

- Residential
- Services
- Industry
- Transport
- TOTAL

Fig. 7

Transport
Services
Industry
Residential