



Italian National Agency for New Technologies,
Energy and Sustainable Economic Development

Energy Efficiency for SMEs in Italy

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National Roundtable on Financing Energy Efficiency in Ireland

Dublin, 11 October 2018



About ENEA



ENEA is the Italian National Agency for New Technologies, Energy and Sustainable Economic Development.

It is a public Research and Technology Organization operating in the fields of energy, environment and new technologies to support Country's competitiveness and sustainable development.

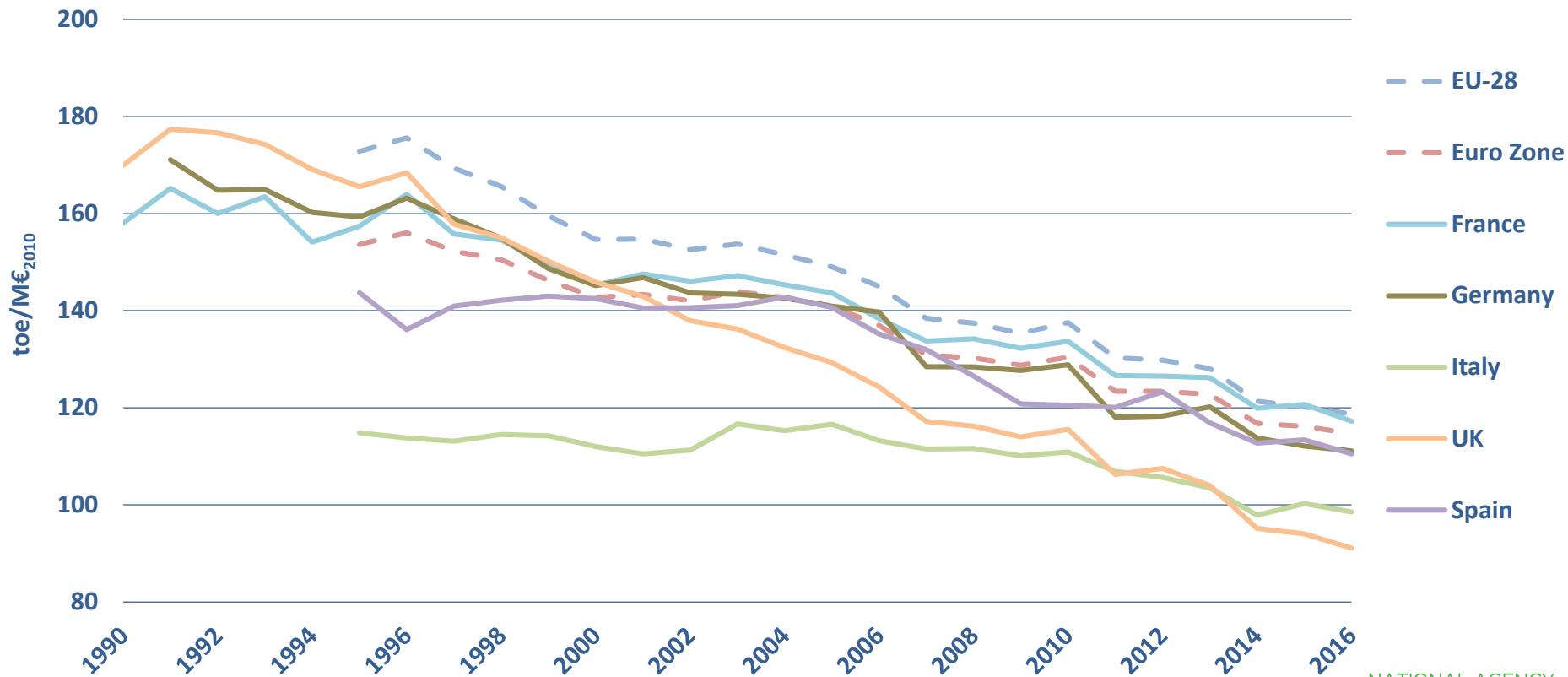
National Agency for Energy Efficiency



An integral part of ENEA is the National Agency for Energy Efficiency, established by the Italian legislative decree no. 115 of 30th May 2008, as transposition of directive 2006/32/EC on energy end-use efficiency and energy services, which offers technical and scientific support to companies, supports the Public Administration in the preparation, implementation and control of national energy policies, and promotes training and information campaigns for the dissemination of energy efficiency culture.

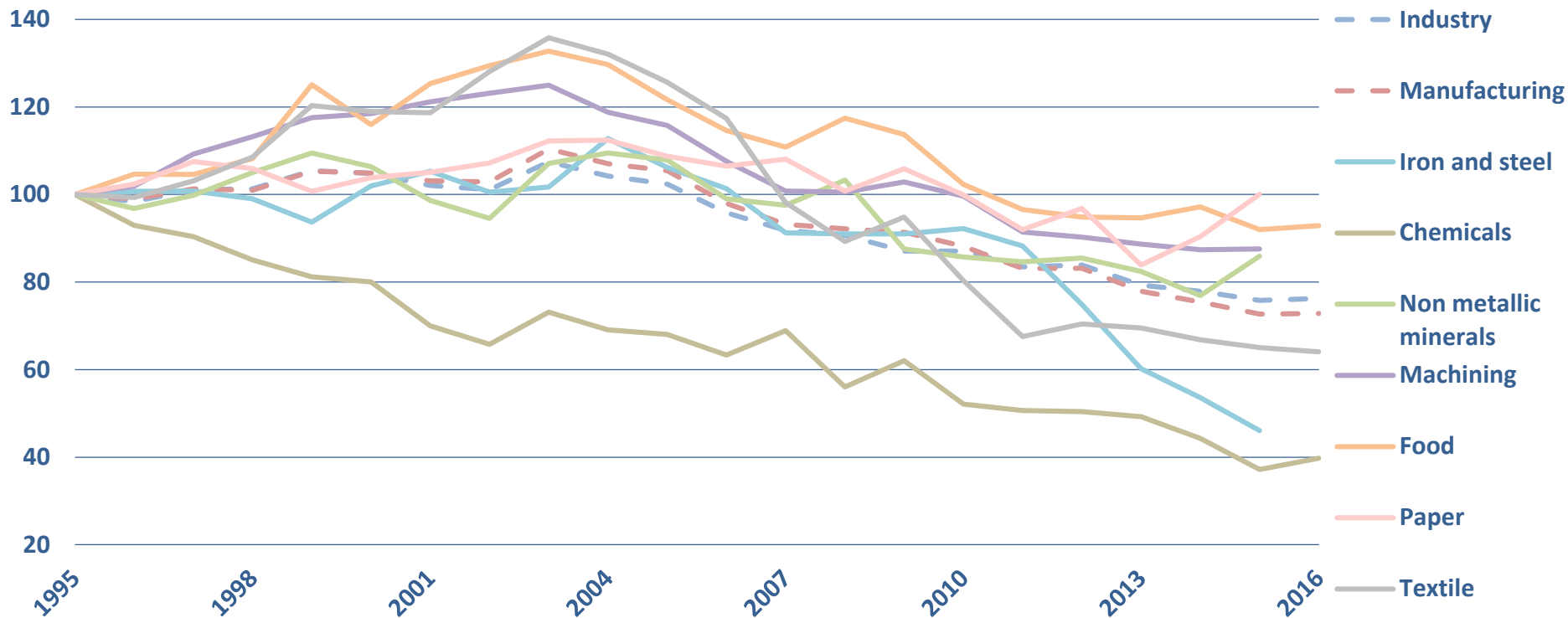


Key figures – Primary energy intensity, EU countries



Source: EUROSTAT

Key figures – Final energy intensity in industry, Italy

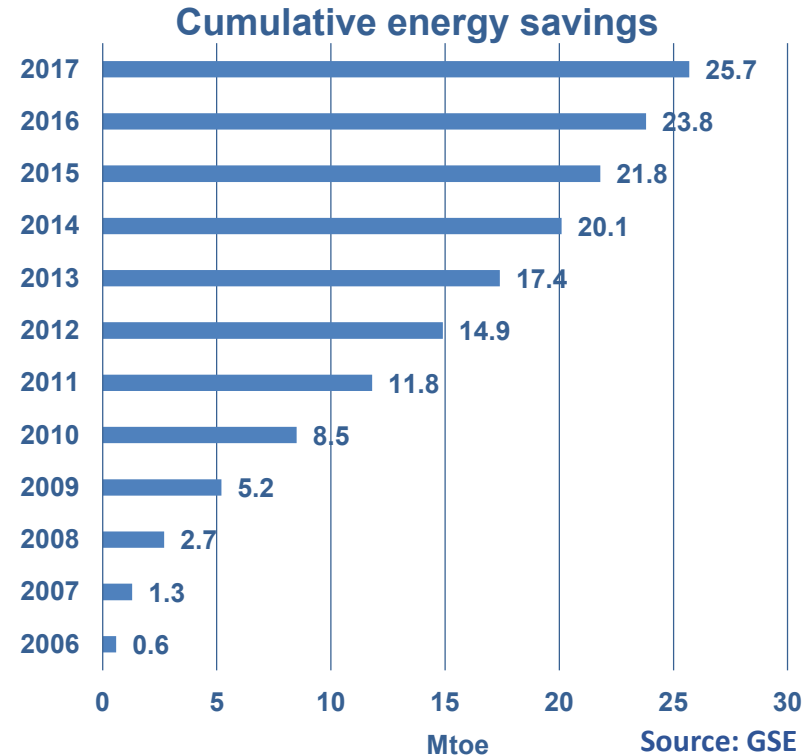


Source: ENEA elaboration of EUROSTAT, ISTAT data

EED art. 7 – Obligation Scheme - White Certificates

Obligation for electricity and gas distributors with more than 50 000 end users to generate each year a certain amount of savings or, alternatively, to purchase an equivalent amount of certificates from non-obliged parties.

Non obliged parties are electricity and gas distributors with less than 50 000 end users, ESCOs, companies with an energy manager or ISO 50001 certified.



EED art. 7 – Alternative measures - Ecobonus / 1

Since 2007, tax deductions scheme for the energy renovation of existing residential buildings resulted as a key driver of energy efficiency improvements in the housing sector, with more than 3.3 million of implemented actions, and almost 35.5 billion euros of leveraged private investments

The Budget Law 2018 has extended the possibility of tax credit transfer to all taxpayers and all eligible actions: tax credit can be transferred to suppliers who implemented works or to other private entities, with the possibility of an only one subsequent transfer to other entities than suppliers, as long as they are linked to the works that implied the tax deduction.

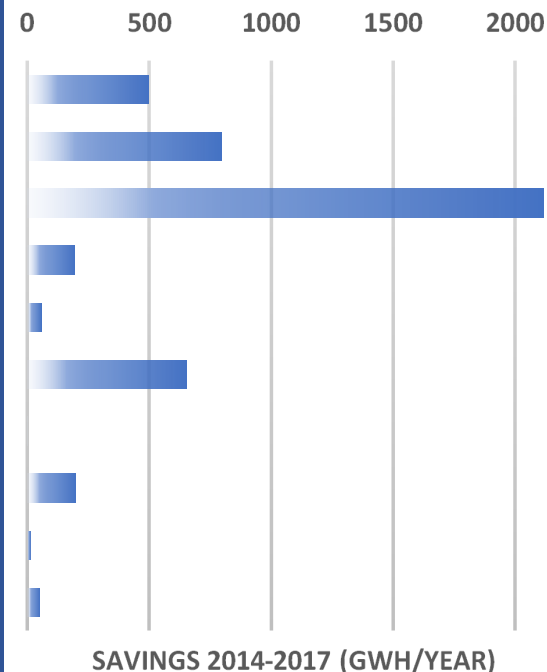
EED art. 7 – Alternative measures - Ecobonus / 2

Eligible actions
at building level

Code	Action	Maximum eligible deduction (€) (^)	Maximum eligible expense (€)	Deduction (%)
344	Reduction of heating energy demand of the whole building	100,000.00		65%
345	a) insulation of vertical walls, roof, slabs (*)	60,000.00		65%
	b) windows and shutters replacement (*)	60,000.00		50%
	c) installing solar shades (*)	60,000.00		50%
	d) actions on common parts, involving over 25% of the building surface area		40,000.00 (#)	70%
	e) same actions as in d) to achieve at least the average quality as per tables 3 and 4 of Annex 1, of the Italy's Ministerial Decree 26/06/2015 "Guidelines for the Energy Certification Decree"		40,000.00 (#)	75%
	f) actions as in d) and e) implemented in seismic zones 1,2 and 3, aimed to reduce seismic risks also, resulting in one lower class of the seismic risk classification		136,000.00 (#)	80%
	g) actions as in d) and e) implemented in seismic zones 1,2 and 3, aimed to reduce seismic risks also, resulting in two or more lower classes of the seismic risk classifications		136,000.00 (#)	85%

EED art. 7 – Alternative measures - Ecobonus / 3

Year	2014-2016		2017	
	GWh/y	%	GWh/y	%
Technology/action				
Walls	351	10.7%	146.6	11.3%
Slabs and roofs	603	18.4%	193.6	14.9%
Windows and shutters	1,531	46.6%	583.8	44.9%
Solar thermal	160	4.9%	36.6	2.8%
Solar shading	33	1.0%	25.6	2.0%
Condensing boilers	428	13.0%	223.2	17.1%
Geothermal plants	3	0.1%	0.5	0.0%
Heat pumps	138	4.2%	61.3	4.7%
Building automation	5	0.2%	10.1	0.8%
Other	30	0.4%	20.0	1.5%
Total	3,282	100%	1,301	100%

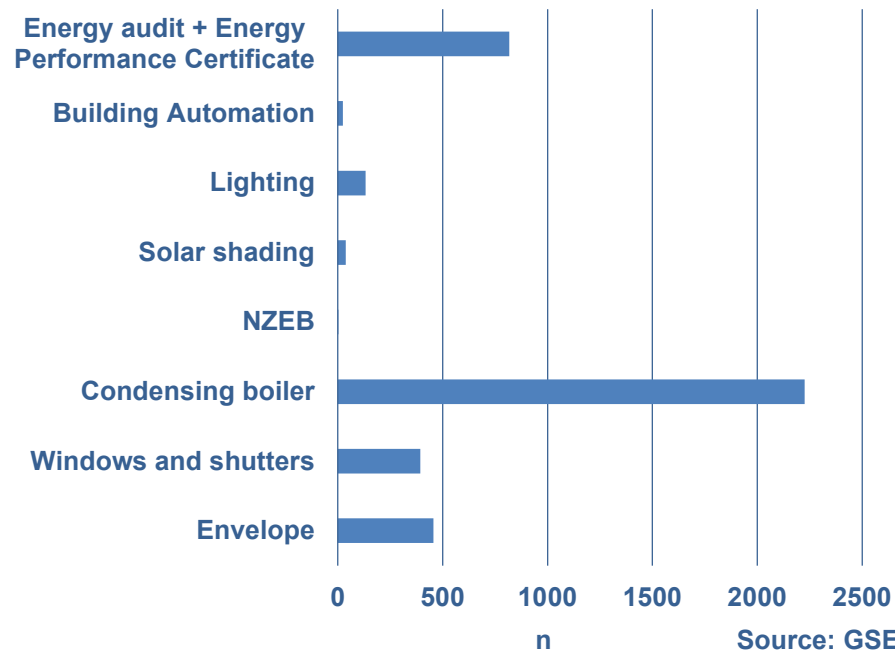


Source: ENEA

EED art. 7 – Alternative measures - Thermal Account

The Ministerial Decree of 28 December 2012 introduced a new incentive system for actions to improve energy efficiency and generate thermal energy from renewable sources. It is the first scheme encouraging public administrations to implement energy efficiency improvement actions in buildings and technical installations.

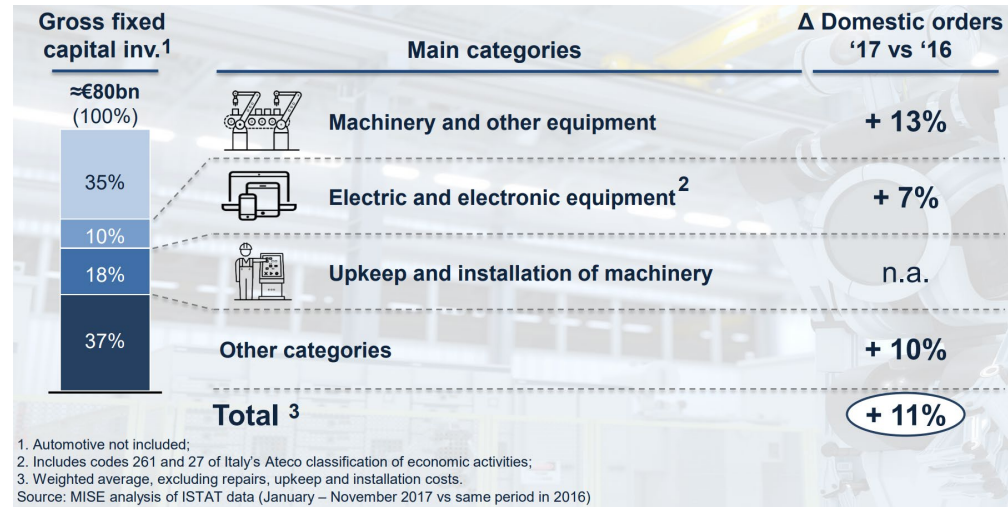
In 2017 clear acceleration for the public sector (from 141 requests in 2016 to 333 in 2017, +136%), for almost 62 million euros of investments.



EED art. 7 – Alternative measures - Impresa 4.0

Hyper depreciation (250%) investments in new tangible assets, devices and technologies enabling companies' transformation to “Impresa 4.0” standards.

Nuova Sabatini: contribution partially covering interest paid by business on bank loans of between 20,000 and 2,000,000 euros, with an annual interest rate of 2.75% and is increased by 30% in the case of investment in “Impresa 4.0” technologies.



Support of innovative startups and SMEs

- **R&D Tax credit**: up to €M5/year, per beneficiary, over the 2015-2019
- **Incentives for investments in innovative startups**: personal income tax deduction of 19% of the investment up to a maximum investment amount of €500,000 or a deduction from corporate income tax of 20% of the investment up to a maximum investment sum of €1.8 million. Higher tax benefit (25% income tax deduction; 27% corporation tax deduction) for innovative “clean-tech” startups.
- **Simplified, free access to the Central Guarantee Fund**: a simplified procedure for innovative SMEs to access the Fund, to facilitate access to bank credit

Support of innovative startups and SMEs

INDICATORS	30/09/2014	30/09/2015	30/09/2016	30/06/2017
No. of startups	2.630	4.704	6.363	7.398
No. of employees	2.607	5.351	9.042	10.262
Average value of production (€)	131.451	131.127	151.884,00	164.000
Total value of production (€)	183.768.452	349.192.469	585.211.807	773.170.993

Source: Infocamere

On 30 June 2017, 1.195 clean tech energy startups, whose value of production is more than 120M€.

Most of these companies operate in the Research and Development sector, particularly in the field of natural sciences and engineering (66.9% of all clean tech startups), and in biotechnologies (20%).

Achieved savings (final energy, Mtoe/year), 2011-2017

Sector	Measure	White Certificates	Tax Relief *	Conto Termico	Impresa 4.0 National Plan *	European Regulations and High-Speed Rail *	Italian Legislative Decrees 192/05 and 26/6/15 **	Energy savings		Achieved target (%)
								Achieved in 2017 **	Expected by 2020	
Residential		0.71	2.08	-	-	-	0.85	3.64	3.67	99.2%
Services		0.15	0.02	0.005	-	-	0.04	0.22	1.23	17.5%
Industry		2.1	0.03	-	0.3	-	0.07	2.5	5.1	49.0%
Transport		0.01	-	-	-	1.68	-	1.69	5.5	30.7%
Total		2.97	2.13	0.005	0.3	1.68	0.96	8.05	15.5	51.9%

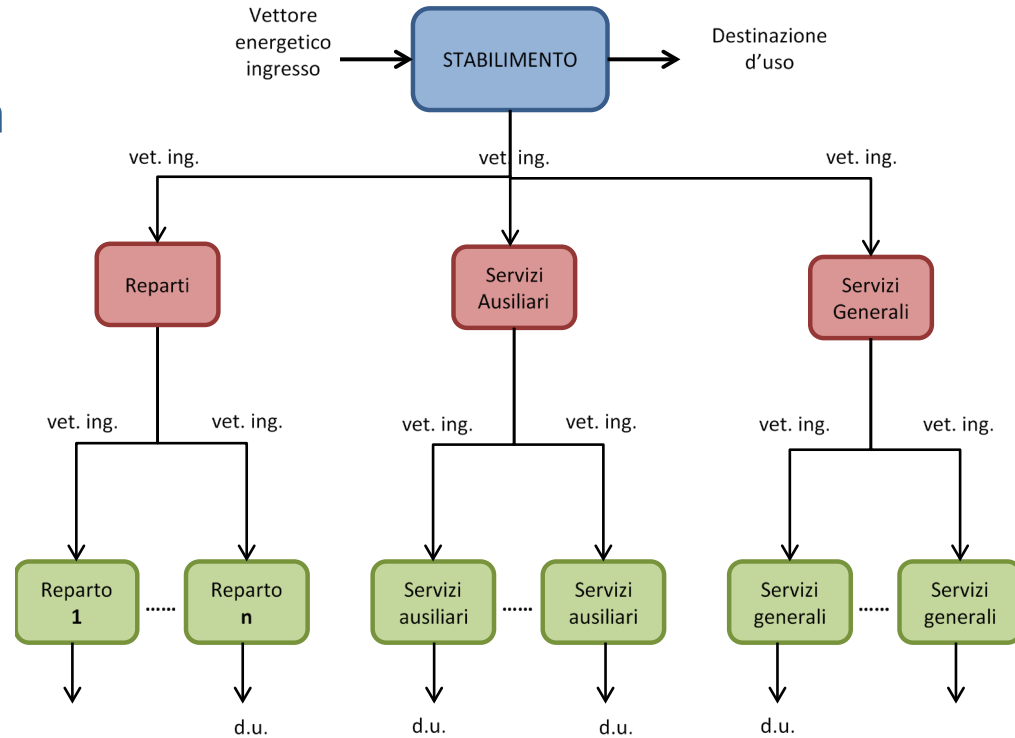
* Estimate for the year 2017.

** Estimate for the period January-September 2017. The residential sector includes the savings from the replacement of large household appliances also.

Source: ENEA elaboration of data from the Ministry of Economic Development, ISTAT, Gestore dei Servizi Energetici S.p.A., ENEA, FIAIP, GFK

Energy audit in the industry / 1

Together with the main stakeholders, ENEA developed an innovative scheme to analyse the energy structure of the audited production site. Through a multi-level procedure, a tree scheme allows to better define the energy performance, for each energy vector (electric, thermal, steam, hot water, etc.), splitting annual consumption by the different users within the production site.



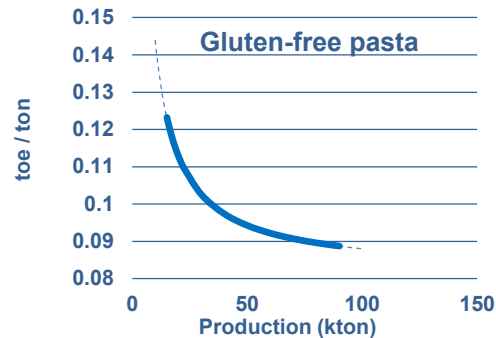
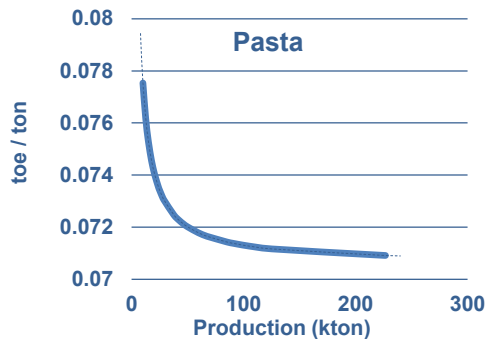
Energy audit in the industry / 2

ENEA developed different documents to provide operational advices to auditors, to standardise reporting and accounting. A logic operational path has been proposed, along which structuring and organising the energy audit. Together with different trade associations, specific guidelines were conceived to make the enterprises fully comply with Legislative Decree 102/2014, in particular for multi-site enterprises.

GAS NATURALE			CONSUMO	TEP ING.	lpg		Consumi monitorati/	Altro	% copertura	E' necessario dettagliare maggiormente la suddivisione dei consumi	
LB	i=2	GAS NATURALE	Smc	tep	tipo misura [costioso, spot o ...]	Smc /	0	0	#DIV/0!		
			0			#DIV/0!	0	0	#DIV/0!		
			CONSUMO	TEP ING.	lpg		D.s.		lps		
LC	1.1	ATTIVITA' PRINCIPALI	0				valore	u.m.	tipo misura [costioso, spot o ...]	valore	u.m. [Smc/D.s.]
	1.1.1	Attività Principale 1									
	1.1.2	Attività Principale 2									
	1.1.3	Attività Principale 3									
	1.1.4	Attività Principale 4									
LC	1.2	SERVIZI AUSILIARI	0				valore	u.m.	tipo misura [costioso, spot o ...]	valore	u.m. [Smc/D.s.]
	1.2.1	Servizio Ausiliario 1							...		
	1.2.2	Servizio Ausiliario 2									
	1.2.3	Servizio Ausiliario 3									
	1.2.4	Servizio Ausiliario 4									
LC	1.3	SERVIZI GENERALI					valore	u.m.	tipo misura [costioso, spot o ...]	valore	u.m. [Smc/D.s.]
LD	1.3.1	Servizio Generale 1							...		

Energy audit in the industry / 3

Energy Performance Index (sub)sector by (sub)sector



Payback Period (PP)	Actions	Energy Saving	Economic saving	Cumulative investments	Cumulative distribution of investments
(years)	(n)	(toe/year)	(€/year)	(€)	(%)
PP ≤ 1	31	2.153	1.377.667	967.771	15%
PP ≤ 2	72	7.414	4.804.171	6.638.898	34%
PP ≤ 3	144	12.235	9.495.087	19.392.559	54%
PP ≤ 5	177	19.370	16.503.089	44.960.815	84%
PP ≤ 10	206	21.036	17.535.726	57.652.769	98%
PP > 10	211	21.389	17.725.494	62.433.144	100%

Energy audit in the industry / 4

	Number of enterprises	Audited sites	Projects with payback time less than 3 years	Potential savings (ktoe)	Necessary investments (M€)
ATECO sector					
A - Agriculture, forestry and fishing	61	108	59	2.5	2.2
B - Mining and quarrying	40	75	31	5.7	3.5
C - Manufacturing	5,131	7,032	5,271	595.3	491.4
D - Electricity, gas, steam and air conditioning supply	232	492	194	38.1	32.2
E - Water supply, sewerage, waste management and remediation activities	324	921	276	24.3	18.7
F - Construction	175	323	97	10.1	6.9
G - Wholesale and retail trade; repair of motor vehicles and motorcycles	892	2,433	896	24.2	21.2
H - Transportation and storage	416	934	272	27.7	18.1
I - Accommodation and food service activities	110	309	112	2.6	3.1
J - Information and communication	160	664	255	19.6	20.6
K - Financial and insurance activities	244	597	151	2.4	2.3
L - Real estate activities	59	114	52	2.2	2.2
M - Professional, scientific and technical activities	255	316	66	1.4	1.0
N - Administrative and support service activities	250	449	62	1.0	0.8
Other	337	693	570	22.5	22
Total	8,686	15,460	8,364	779.6	646

Energy audit in SMEs / 1

ATECO Sector	Enterprises	Sites	Energy Intensive SMEs
A	4	10	0
B	18	25	14
C	2.409	2.951	1.899
D	34	46	6
E	62	105	15
F	22	65	1
G	100	244	11
H	54	125	10
I	26	50	0
J	18	45	3
K	8	28	0
L	13	17	1
M	40	39	4
N	25	135	3
Q	26	52	5
R	20	23	1
Other	17	17	3
Total	2.896	3.977	1.976

Energy audit in SMEs / 2

Region / Province	2015 Prorgamme	2016 Programme	2017 Programme
Abruzzo	298.500 €	298.500 €	300.000 €
Apulia			900.000 €
Basilicata	149.250 €		150.000 €
Calabria		298.500 €	300.000 €
Campania		1.194.000 €	1.200.000 €
Emilia Romagna	1.194.000 €		1.200.000 €
Friuli Venezia Giulia	298.500 €	298.500 €	300.000 €
Lazio			1.350.000 €
Liguria	402.975 €		450.000 €
Lombardy	2.686.500 €	2.686.500 €	2.700.000 €
Marche	447.500 €	447.750 €	450.000 €
Molise			150.000 €
Piedmont	1.194.000 €	1.194.000 €	1.200.000 €
Sardinia	298.500 €	298.500 €	300.000 €
Sicily	895.500 €	895.500 €	900.000 €
Tuscany			1.050.000 €
Trentino Alto Adige			300.000 €
Umbria	298.500 €	298.500 €	300.000 €
Valle d'Aosta	149.250 €		150.000 €
Veneto	1.343.250 €		1.350.000 €
Province of Trento	149.250 €	149.250 €	
Total	9.805.475 €	8.059.500 €	15.000.000 €

Programmes for the cofinancing of the energy audit in SMEs

Source: Ministry of Economic Development

3-year Information & Training Programme: definition



February 7th, 2017: one day of brain storming for the definition of the activities of the second year of the Programme.

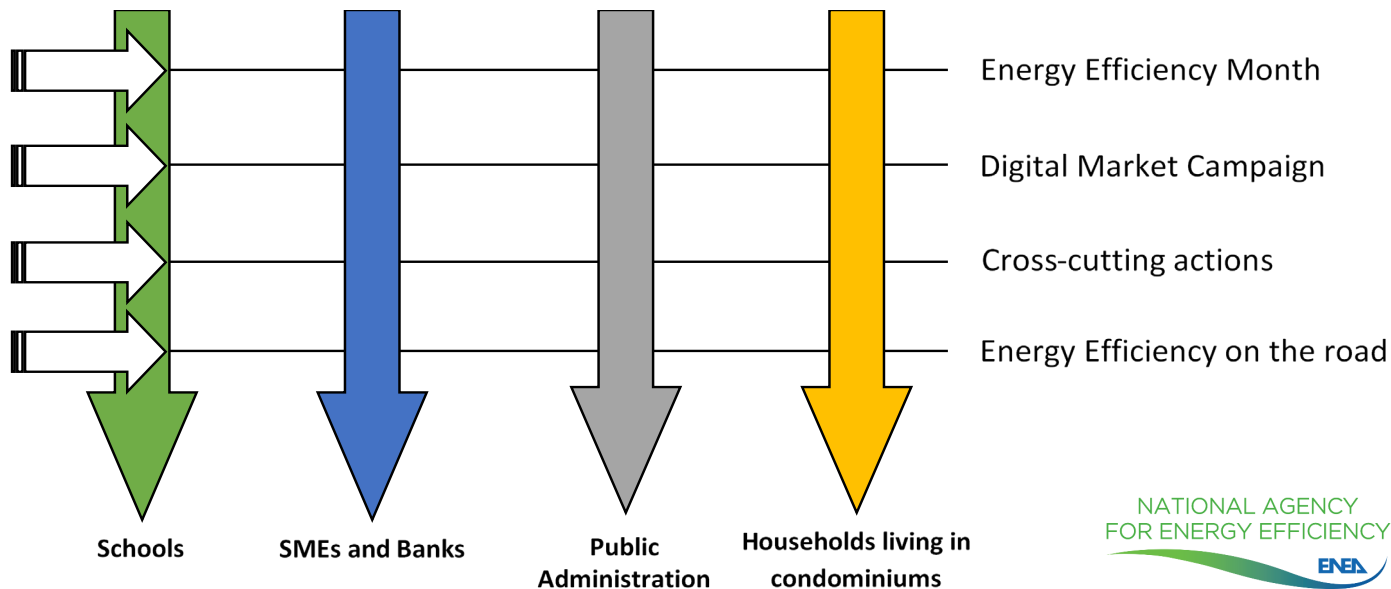
Analysis of barriers, key messages to be delivered and related tools and actions for:

- SMEs and large enterprises
- Credit sector
- Public bodies
- Households and blocks of flat



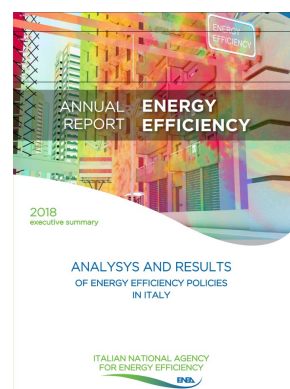
3-year Information & Training Programme

The second year's operational programme was divided into four macro-projects for individual targets (schools, SMEs and banks, the public administration and households living in condominiums) and four horizontal multi-target actions



Conclusions

- **EED energy audit obligation turned into an opportunity (and from “loss” to “investment” for the related cost)**
- **Obligation extended to electricity intensive SME (>2,4 GWh/year of consumption; >1 GWh/year since 2018)**
- **More than 3.000 SMEs involved, whose electricity consumption is more than 2% of total final consumption of Italy in 2016**
- **Shared step-by-step process: common approach for all sectors and derivation of energy performance index**
- **For SMEs, combination of different incentives for both the energy audit and the relative energy efficiency actions singled out**



2018 Energy Efficiency Annual Report
Executive summary in English:
<http://www.enea.it/it/seguci/pubblicazioni/pdf-volumi/2018/raee-2018-executivesummary-en.pdf>

THANK YOU!
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Annual Report on the implementation of legislation in support of innovative startups and SMEs
http://www.mise.gov.it/images/stories/documenti/italian_startup_act_annual_report_to_parliament_2016.pdf



ITALY IN A CLASS
National Energy Efficiency Campaign
<http://www.italiainclassea.enea.it/>



Energy Efficiency roadshow
#ItaliainClasseA: a 6-month journey, 3750 km long
<https://www.youtube.com/watch?v=coljoWlxY4g>