



NATIONAL REPORT

ITALY

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NATIONAL REPORT ITALY

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INTRODUCTION

The energy auditor/energy manager competences and professional profiles will be defined and structured building on an organic comparative analysis of scenarios, state of the art and best practices in the three main dimensions.

1. INSTITUTIONAL - EXISTING PROFILES AND LABOUR MARKET DYNAMICS GOVERNANCE MODELS (ACTORS, TOOLS AND PROCEDURES)

1.1 NATIONAL POLICIES

The new **National Energy Strategy (NES)**, approved in March 2013, focuses the efforts of the Country to a substantial improvement of the competitiveness of the energy system together with environmental sustainability. In particular, the NES sets out clearly the main four goals to be pursued in the coming years:

- ✓ Significantly reduce the energy cost gap for consumers and businesses, by bringing prices and costs in line with European levels by 2020 and ensuring that the longer-term energy transition (2030- 2050) will not compromise Italian and European industrial competitiveness.
- ✓ Achieve and exceed the environmental and decarbonisation targets established by the European Union's 2020 Climate and Energy Package (known as the "20-20-20" package) and take on a lead role in defining and implementing the *Roadmap 2050*.
- ✓ Continue to improve our security of supply, especially in the gas sector, and reduce dependency on imports.
- ✓ Foster sustainable economic growth by developing the energy sector. In this context specific attention will be dedicated to the growth of all segments of the "green" economy, a sector with a huge potential that Italy needs to fully tap into. It is estimated that about €170 to 180 billion will be invested by 2020, both in white and green economy (renewables and energy efficiency), and in traditional sectors (electricity and gas networks, LNG terminals, storage facilities, hydrocarbons development). It is essentially private investment, partly supported by incentives, and with a positive economic return for the country.

The **Action Plan for Energy Efficiency 2014**, approved in July 2014 and proposed by the Italian National Agency for New Technologies, Energy and Sustainable Economic Development (ENEA),

outlines energy efficiency goals that Italy has planned to achieve by 2020 as well as running policy measures for achieving them.

Particular attention is given to the description of the new measures introduced by the Directive 2012/27/EC, transposed with Legislative Decree 102/2014.

The most significant measures for ENACT project concern "Information programs and energy consumer education" and the need to develop an Integrated Plan for the Dissemination of Energy Efficiency (PIDEE), in close coordination with the Regions and the leading industry associations. Topics of the Plan are the activities of information and training on energy efficiency; promotion of energy audits as a useful tool to provide the information necessary for the implementation of energy efficiency measures, and planning and delivery of awareness-raising initiatives on the workplace and of training of the Energy Manager within public authorities. Among the methods of dissemination, the provision of training on energy issues (including distance learning mode) will be promoted, together with guidelines on teaching methods and standards on training quality.

Another significant measure concerns "the availability of schemes qualification, accreditation and certification". Italy has already a number of certification schemes for operators and services in the field of energy efficiency, specifically for Energy Management Experts (EME) and ESCOs.

The implementation of an advanced process of identification, validation and certification of skills is presented as a strategic tool of active policy against inactivity, unemployment and retraining of workers. "Build up Skills" results are shown. The initiative "BUILD UP Skills", promoted by EACI (Executive Agency for Competitiveness & Innovation), stressed the importance of creating a system of qualification/certification of all the professionals who work in the energy efficiency of buildings to ensure the effectiveness of energy upgrading projects and hence build public trust. The initiative, which involved 30 European countries including Italy, aimed to align the Vocational training system to the skills and qualifications required in the fields of energy efficiency and renewable energy sources.

Qualification schemes, including, where necessary, suitable training programmes, become or are available for energy managers and inspectors of heating systems in buildings.

Another significant measure concerns energy audits and energy management systems. Following the entry into force of the new legislation, the large companies are subject to an energy audit carried out in an independent and cost-effective manner by qualified and/or accredited experts or implemented and supervised by independent authorities under national legislation by 5 December 2015; also companies with a strong energy consumption, regardless of size, must carry out an audit,

which is optional for companies with high energy consumption with an energy management system ISO 50001.

The energy audits which are carried out in an independent manner by qualified and/or accredited experts according to qualification criteria or implemented and supervised by independent authorities under national legislation.

For the purpose of guaranteeing the high quality of the energy audits and energy management systems, after 24 months from the date of transposition of Directive 2012/27/EU, Italy has provided the certification requirement to UNI 11352 and UNI 11339 or standards to certify energy auditors, currently being drafted, for those who intend to perform energy audits.

The decree submits obliges SMEs to undergo energy audits and develop programmes to set up support schemes for SMEs, including if they have concluded voluntary agreements, to cover costs of an energy audit and of the implementation of highly cost-effective recommendations from the energy audits, if the proposed measures are implemented.

This measure provides also for developing programmes to raise awareness among households about the benefits of such audits through appropriate advice services.

The measure provides for training programmes for the qualification of energy auditors in order to facilitate sufficient availability of experts.

1.2 LEGISLATIVE FRAMEWORK AND NATIONAL QUALIFICATION FRAMEWORK

The figure of energy Auditor has been introduced by the legislation with the Legislative Decree 102/2014. In article 2, the energy auditor is defined as “natural or legal person that performs energy audits”.

Energy audit means a systematic procedure with the purpose of obtaining adequate knowledge of the existing energy consumption profile of a building or group of buildings, an industrial or commercial operation or installation or a private or public service, identifying and quantifying cost-effective energy savings opportunities, and reporting the findings.

But the definition of the competencies, skills and training that energy auditor must have, is still under development.

The legislative Italian framework sees the existence of four main energy profiles that can be of interest for the project ENACT: the energy manager, the expert in energy management, the energy certifier and the inspector of heating systems.

ENERGY MANAGER (EM)

The figure of the Energy Manager in Italy was created by the law 308/82 that established the obligation for all industrial enterprises with a consumption over 10.000 toe/year and with over 1.000 employees to appoint a person “in charge for the rational use of energy”.

After nine years, article 19 of Law 10/1991 extended the mandatory appointment of the energy manager to large energy consumers in the civil and transport sectors, better defined the role of this figure and imposed fines on those companies and authorities failing to make the annual nomination.

To avoid the problems experienced in applying Law 308/1982, in 1992 the task to manage the Energy Manager network and to support and strengthen the appointed subjects was given to FIRE¹, the Italian Federation for the Rational use of Energy.

The nomination is sent to FIRE by the legal representative of the organization every year by April 30th with reference to the consumption in the primary sources for the previous year.

The main goal of this instrument is to guarantee that companies which have an important primary energy consumption have an expert who deals with the analysis of energy flows, promotes energy efficiency measures and support the top management and the policy makers (in the Public Administration) to pursue a sustainable development. The threshold is set in 10.000 toe/year for all subjects operating in the industrial, civil and tertiary sectors users and in 1.000 toe/year for remaining sectors (e.g. public administration).

The appointed Energy Manager can be an employee of the company subject to the obligation or a consultant. The second approach is particularly useful for medium size companies and for small Local Authorities, which don't reach an energy bill capable to justify the hiring of dedicated employees.

In recent years new tasks and opportunities were added by the legislation:

- ✓ the Legislative Decree no. 192/2005 which gives to the Energy Managers operating in the public sector the new task to check and approve the energy efficiency certifications for new and refurbished public buildings in accordance with Law 10/1991.
- ✓ Energy performance of building (Legislative Decree 311/2006, transposition of the directive 2002/91/EC on energy performance of buildings): the energy manager of the bodies obliged to appoint an energy manager, must sign/approve the declaration of heating needs of new or refurbished buildings.

¹ <http://fire-italia.org/> FIRE is a no-profit association founded by ENEA (the Italian Agency for New Technologies, Energy and Environment)

- ✓ Ministerial Decree 21/12/2007: Organizations fulfilling the obligation to appoint an energy manager can participate directly to the White Certificate scheme.
- ✓ Energy services (Legislative Decree 115/2008, transposition of the directive 2006/32/EC on energy services): public bodies with energy manager must indicate the energy manager as counter part in the energy service contracts.

As regards the background of the energy manager is usually based on university degree (especially energy engineering addresses as suggested by the Ministerial Circular 219 / F 1992), eventually integrated by master dedicated to energy efficiency and renewables and/or training. It's also very important to update the professional profile, so there are several initiatives at national level, such as courses on general or specific topics organized by ENEA and FIRE.

EXPERT IN ENERGY MANAGEMENT (EEM)

The expert in energy management (EEM) is a professional profile modern and interdisciplinary, who works in the context of the new European energy market.

This figure combines the technical expertise with a solid expertise in environmental matters, business management and communication.

The skills profile for the expert in energy management has been developed taking into account the results of the Project e-Quem (e-Qualification of the Energy Manager), that was launched in 2007 in the Equal Program.

The action strategy of the project was based on three points:

- ✓ qualification of the professionals
- ✓ process of continuous online learning
- ✓ certification of skills basis

The energy manager expert is certifiable according to UNI CEI 11339 standard.

In order to pass the certification process, EMEs must have appropriate qualifications and pass an examination.

HEATING SYSTEM INSPECTOR

The figure of the heating system inspector is related to Legislative Decree 192/05 and subsequent amendments. According to the latest additions, the scope of the check, renamed an "inspection" now also includes a consultancy on possible cost-effective projects to improve the system's performance and it shall be provided to the Regions and the Autonomous Provinces of Trento and

Bolzano and, on request, any other competent authorities or external bodies, with support in the training and qualification of the staff tasked with performing checks and inspections on heating/cooling systems.

The requirements for external bodies and inspectors are listed in Annex C to Presidential Decree No 74/2013. In greater detail, inspectors must possess “baseline technical and vocational training meeting at least the requirements of Article 4(1)(a) and (b) of Ministerial Decree No 37/08” i.e. a university technical degree or a high school technical diploma plus two years’ relevant work experience.

Point 11 of Annex C also provides that “the Regions and the Autonomous Provinces may, after retraining them where necessary entrust the checks and inspections on heating/cooling systems to personnel with significant prior experience, working directly for them or for delegated entities and bodies, in performing energy efficiency checks on heating/cooling systems under the prior legislation.”

Accordingly, a training course for new inspectors of heating/cooling systems has been designed, as well as an updating course for inspectors.

ENERGY CERTIFICATION ASSESSOR (or ENERGY CERTIFIER)

The Energy Certification Assessor is a technician able to perform an energy audit of the building. He collects data on the building, processes them according to the procedures and determines the energy requirements. He can issue the Energy Performance Certification.

The figure of energy certifier was introduced by the Legislative Decree 192/2005 and subsequent amendments.

The Presidential Decree No 75 of April 16th 2013 lays down the professional requirements and accreditation criteria to ensure the qualification and independence of the experts and bodies to be tasked with the energy certification of buildings.

The Decree identifies the following approved certifying parties:

- Approved technicians holding the appropriate educational qualification (for details see Article 2 of the Decree) as well as the professional qualification;
- 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 the following sector: building, general civil engineering works and associated technical systems, approved by the

Italian National Accreditation Body (ACCREDIA) or other equivalent European body (provided they operate with qualified technicians);

- The energy services companies (ESCOs) operating in accordance with the provisions implementing Directive 2006/32/EU on energy end-use efficiency and energy services, which deliver this service via qualified technicians.

The qualified technicians are divided into two categories:

1. Technicians with degrees (i.e. Electrical engineering, architecture, environmental sciences, etc.) and with high school diplomas (i.e. technological subjects) in specific fields. The technician must also be registered with the relevant professional associations (where existing) and qualified to practice the design of buildings and building plants.
2. Technicians that have degrees/high school diplomas in other fields, but that need to attend a specific training course for energy certifiers.

The Decree provides for training courses for the issue 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 Decree also sets out the minimum contents of the courses.

The criteria for checking the quality of service are also established. They include document checks on the Energy Performance Certificates, and assessment of the correspondence of projects data or energy audits with the findings of on-the-spot building inspections.

Lastly, simplification measures are introduced for updating the EPCs when the renovation works concern only the technical systems.

The decree “Italy destination” modified by the law February 21st ,2014, increases the number of degrees and diplomas that don’t need additional training. Moreover the duration of training courses must be at least of 80 hours (instead of 64 of the previous decree).

Policy evolution about qualification

- Directive 2006/32/EC art.8

With a view to achieving a high level of technical competence, objectivity and reliability, Member States shall ensure, where they deem it necessary, the availability of appropriate qualification, accreditation and/or certification schemes for providers of energy services, energy audits and energy efficiency improvement measures.

- D.Lgs. 115/2008 Art. 16. Qualification of providers and energy services
 1. In order to promote a process of increasing the level of quality and technical expertise for providers of energy services, with one or more decrees of Ministry of Economic Development is approved, following the adoption of appropriate technical standard UNI-CEI, a voluntary certification procedure for ESCO and for experts in energy management.
 2. in order to promote a process of increase of the level of objectivity and reliability to the measures and systems aimed at improving energy efficiency, with one or more decrees of Ministry of Economic Development is approved, following the adoption of appropriate technical standard UNI-CEI, a certification procedure for the energy management system and energy audit.

In Italy two standards were developed in order to promote the qualification of energy efficiency operators: UNI CEI 11339 for EMEs was issued in 2009, UNI CEI 11352 for ESCOs was published in 2010. A new standard for energy auditor is presently under preparation. Both the mentioned standards are recognized from the national legislation within the energy audit obligations for large companies introduced by the EED directive and the white certificate scheme.

The Italian standard UNI CEI 11339 identifies: tasks; skills; evaluation methods.

The evaluation process begins with the verification of documents proving adequate professional experience in the energy sector and continues with the assessment of skills. The process is periodic with a maximum interval between assessments of 5 years. It can be a self-assessment (first party certification), an assessment by the organization in which the candidate EME works (second party certification), or an assessment by third party (third party certification). In the latter case the third party must operate according to the requirements of ISO 17024. After the transposition of the 2012/27/EU directive with the legislative decree 102/2014 a review of the certification rules is in place.

Concerning the national qualification framework, in January 2013 two major acts were approved, introducing significant changes into the national framework:

- Law N. 4, January 14th 2013 - Provisions on non-organised professions.
- Legislative decree N. 13, January 16th 2013 - Definition of the general rules and essential levels of services for identifying and validating non-formal and informal learning and the minimum service standards of the national system for certification of competences.

In particular, law N. 4 refers expressly to the drawing up of UNI standards identifying, for every professional profile not previously covered by a standard, the knowledge, skills and competences

the professional must have in order to operate correctly. Definition of these standards is absolutely necessary to establish a system for the certification of the competences gained by workers in formal and informal settings, as provided for by Legislative Decree No 13.

Implementation of an advanced process for the identification, validation and certification of competences is a key tool in a pro-active policy against December 20th 2012 when the agreement on the national framework for qualifications was signed by the parties to the Interdepartmental Conference and the “First Italian Report” was adopted “relating National Qualifications to the European Qualification Framework for lifelong learning” (EQF). The Report classifies the Italian educational and professional certificates within the eight levels of the EQF.

The Article 12 of the Legislative Decree n. 102 of 4th July 2014, transposition of the Directive 2012/27/EU, says that ACCREDIA² provides to the Ministry of Economic Development and the Ministry of Environment, by December 31th 2014, the patterns of certification and accreditation for:

- ✓ ESCOs (Energy Service Companies);
- ✓ Experts in energy management;
- ✓ Energy management systems;
- ✓ Energy Auditor.

Concerning certification issued under accreditation, the Article 8 of the Legislative Decree n. 102 of 4th July 2014 provides that energy audits of industrial facilities must be performed by ESCO or experts in energy management or energy auditor, all certified by accredited bodies.

Concerning the previous scheme, the applicable rules and their implementation status are listed below:

ESCo - Companies providing energy services:

- Italian standard certification - UNI CEI 11352;
- Accreditation standard - EN 45011 (now UNI CEI EN ISO / IEC 17065).

² <http://www.accredia.it/> The Italian National Accreditation Body appointed by the State to perform accreditation activity. ACCREDIA has been appointed by the Italian Government on 22th December 2009 as the sole National Accreditation Body that performs accreditation with authority derived from the State.

The mission is in full compliance of the national accreditation system with the regulation of the European Parliament and Commission n° 765 of July 9th, 2008, which is applicable from January 1st, 2010, for accreditation and market compliance in all EU countries.

Certifications under accreditation have not been released yet. In fact, the definition of the requirements under which the bodies certify the ESCo is an ongoing activity and ACCREDIA will communicate through a specific document.

Experts in energy management:

- Italian standard certification - UNI CEI 11339;
- Accreditation standard - UNI CEI EN ISO / IEC 17024.

Up to 31th August 2014, 245 professionals are certified by 4 Accredited bodies.

Energy management systems:

- Standard certification - UNI CEI EN ISO 50001;
- Accreditation standard - UNI CEI EN ISO / IEC 17021.

Up to June 2014, 114 organizations have been certified by 10 accredited bodies.

Energy Certifier:

- Standard certification - exclusive scheme
- Accreditation standard - UNI CEI EN ISO / IEC 17024.
- Only SACERT is accredited

Energy Auditor:

- Italian standard certification – under elaboration by UNI-CEI;
- Accreditation standard - UNI CEI EN ISO / IEC 17024.

2. TRAINING OF ENERGY AUDITOR

2.1 THE GEOGRAPHICAL COVERAGE (NATIONAL AND OR REGIONAL)

Italian regions enjoy wide discretionary powers in setting vocational and educational training strategies and programmes. Around 59% of environmental training programmes benefit from public funding (39% EU, 1% national, 17% regional and 2% local).

Initiatives for the promotion of green skills. According to data from the Institute for the Development of Professional Training for Workers (Isfol), in 2009-2010 the total number of environment-related courses included 619 degree courses, 160 post-degree courses and 993 technical courses for individuals holding a secondary-school diploma. In 2010-2011 there were 534 degree courses (about

11-12 % of the total number of existing degrees), 241 post degree courses and 592 training courses. The decrease in the number of total courses is not only due to the process of restructuring of the Italian education system, but also due to the shift of part of the ESF resources from training to exceptional social safety nets for people employed in firms facing temporary difficulties, drawing on an 'anti-crisis' agreement (signed in February 2009 and annually renewed thereafter) between the Central Government and the Regions. According to this agreement, ESF funds were re-oriented so as to finance 'on derogation' benefits for workers not eligible to claim under the ordinary system, upon the condition that benefits are complemented by training initiatives. Some of the training measures have been specifically targeted at green sectors.

The 'green training courses' (i.e. those aimed not only at graduates) for 2010 - 2011 were distributed according to topic as follows: 165 courses in renewable energy sources, 17 in green-building, 241 in de-pollution measures, resource management and saving (50 of which were specifically devoted to waste management), 60 in environmentally friendly agriculture and 38 in economic, normative and political issues related to sustainable development (GreenItaly, 2012).

As for the returns to 'green human capital investment', according to a recent study (Isfol, 2011b), green degrees show a higher return than non-green ones. In addition, the employment rate of green bachelor graduates (the Italian 'laurea triennale') is 43.5 % one year after graduation, with medicine-related and pharmaceutical chemistry graduates registering the highest employment rates (76.9 % and 65.5 %, respectively). By contrast, green graduates in the field of engineering and architecture show lower employment rates after one year (respectively 17.5 % and 15.3 %), mainly because they are more likely to enrol in further study courses. Overall, green bachelor graduates enrol about 7 % more frequently in master's degrees or courses, as compared to other bachelor graduates. The mean employment rate for green graduates reaches 53.4 % three years after bachelor graduation. In order to create job profiles which are suitable for the green economy, post-secondary technical courses are playing an increasing role.

An important issue has to do with the **lack of a common skills certification system in Italy**, which could be useful in many different ways. For instance, in the case of 'greening' already existing job profiles, the existence of a skills certification scheme would represent the opportunity to acknowledge the acquisition of new green skills. The usefulness of this official acknowledgment is twofold: 1) a skills certification scheme would help define 'green workers' and, as a result, they could be the clear object of specific labour market policies/incentives; and 2) such a scheme would facilitate the mobility of workers across regions.

Finally, the most relevant issue which has not been properly addressed in Italy is the lack of a clear definition of the concepts of 'green sector' and 'green employment'. Traditional statistics do not

allow the identification of a green sector and the corresponding green workers (as well as their characteristics, wage levels, etc.). Information on green employment is hence based on ad-hoc surveys, which may adopt different definitions of the green sector and green jobs. This represents a serious shortcoming since the absence of a common definition makes it difficult to carry out cross-national comparable analyses aimed at devising effective policies and evaluating their effects.

At national level, training for energy auditor has not yet been recognized; however, in the following paragraphs are reported:

- A synthetic map of “green VET” system, articulated by educational levels;
- The main VET training courses related to the (initial and continuous) professional development of energy managers & auditors profiles;
- The main master level courses specifically related to the Energy Manager and the Energy Auditor.

2.2 THE TYPE OF TRAINING (CLASSROOM, E-LEARNING, B-LEARNING, ETC.), COMPULSORY OR VOLUNTEER, PEDAGOGIC CONTENTS, INCLUDING EVALUATION AND CERTIFICATION OF TRAINEES.

ENERGY MANAGERS

Since 1992 FIRE has an implementing agreement with the Ministry of Economic Development to collect the names of the energy managers appointed every year, to publish the book listing names and addresses, to organize conferences, working groups and training dedicated to energy managers.

Every year Fire organizes courses for Energy managers³. At National level, we have some statistical data for energy managers⁴.

The Appointed energy managers in Italy in 2013 were 1531. This number refers only to obliged organizations/companies, that have sent the appoint by the deadline and it doesn't include energy managers appointed by the local multisite companies.

The following table shows the appointed energy manager for each sector.

³ <http://www.fire-italia.it/caricapagine.asp?target=corsi.asp>

⁴ “Evolution of the role of energy managers in Italy and statistics” – Fire , 2013

SETTORI	SOTTOSETTORI E NOTE	EM
Agricoltura	<i>(di cui 35 consorzi di bonifica)</i>	41
Industria		587
	<i>Estrazione di minerali da cave e miniere</i>	5
	<i>Attività manifatturiere</i>	406
	<i>Fornitura di energia elettrica, gas, vapore e aria condizionata</i>	94
	<i>Fornitura di acqua, reti fognarie, attività di gestione dei rifiuti di risanamento</i>	78
	<i>Costruzioni</i>	4
Trasporti	<i>(di cui 70 di proprietà pubblica)</i>	324
P.A. (ministeri, amministrazioni centrali, regioni, enti locali, etc.)		144
P.A. allargata		143
	<i>Sanità</i>	110
	<i>Università</i>	19
	<i>Ricerca</i>	9
	<i>Aziende territoriali</i>	5
Terziario privato		223
Servizio energia		69
TOTALE EM NOMINATI		1.531

Fonte: dati FIRE. Per approfondimenti: www.fire-italia.org.
 Nota: la tabella riporta solo i dati relativi ai soggetti obbligati che hanno nominato l'energy manager nei termini di legge, non tiene conto degli eventuali energy manager locali delle aziende multisito (399 EM locali), delle nomine pervenute oltre le scadenze di legge (143 EM primari + 17 EM locali) e di quelle da parte di soggetti non obbligati (530 EM primari + 102 EM locali).

Tabella 1. Responsabili nominati nel 2013 dai soggetti obbligati. Fonte: FIRE.

The next table shows the trend of appointed energy managers in Italy from 2003 to 2013. Data presented here include also the local energy managers appointed by the multisite companies.

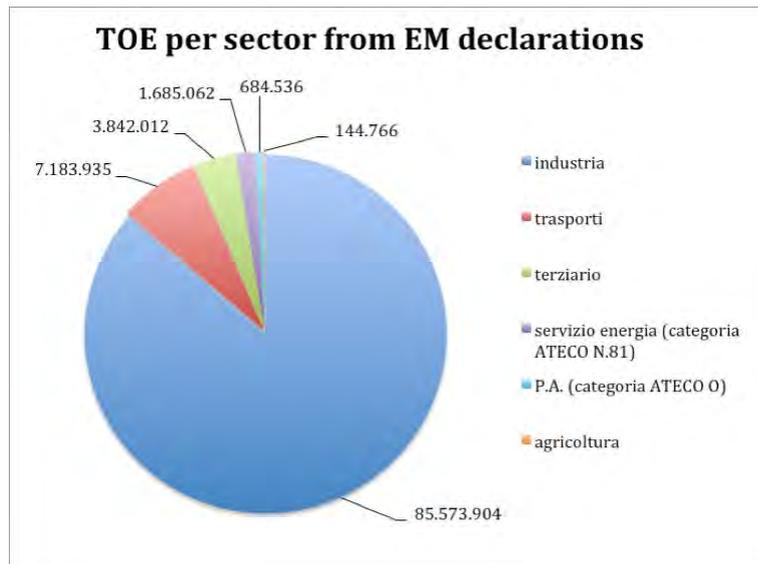
SECTOR	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Agricoltura	36	42	52	50	47	48	51	57	53	67	74
Industry	623	618	642	649	637	639	632	608	615	604	650
	<i>manufacturing industry</i>	<i>620</i>	<i>615</i>	<i>637</i>	<i>645</i>	<i>632</i>	<i>632</i>	<i>624</i>	<i>599</i>	<i>614</i>	<i>600</i>
Energy and network services (*)	179	168	174	174	176	305	328	292	299	316	323
Civil sector (Residential and services)	852	891	900	830	836	727	790	758	726	728	786
	<i>related to public administration</i>	<i>222</i>	<i>231</i>	<i>225</i>	<i>190</i>	<i>190</i>	<i>180</i>	<i>153</i>	<i>161</i>	<i>165</i>	<i>201</i>
Transport	332	364	357	359	374	411	418	408	409	412	385
TOTAL	2.022	2.083	2.125	2.062	2.070	2.130	2.219	2.123	2.102	2.127	2.218

Source: FIRE. For more detailed information: www.fire-italia.org.

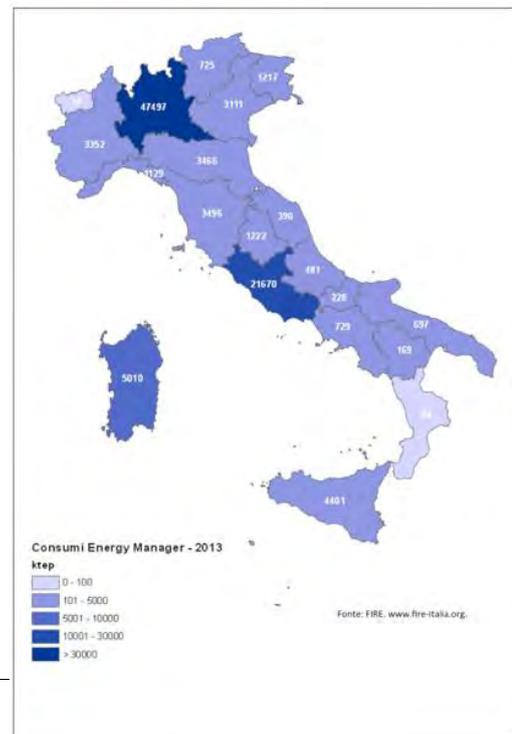
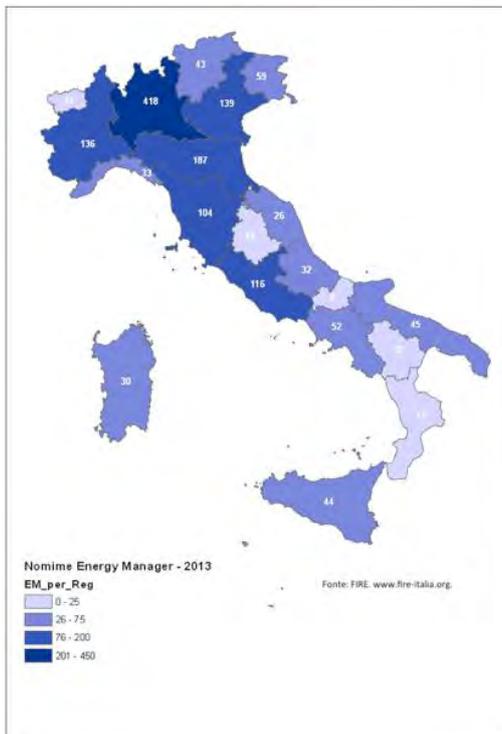
(*) Since 2008 the activities of the waste cycle have been moved from the civil sector to industries with network services.

Additional note: data presented here include the local energy managers appointed by the multisite companies.

The following graph shows the managed consumptions for sector from energy managers declarations.



In these two last pictures, there are represented the number of appointed energy managers and managed energy consumptions by region.



ENERGY MANAGEMENT EXPERT

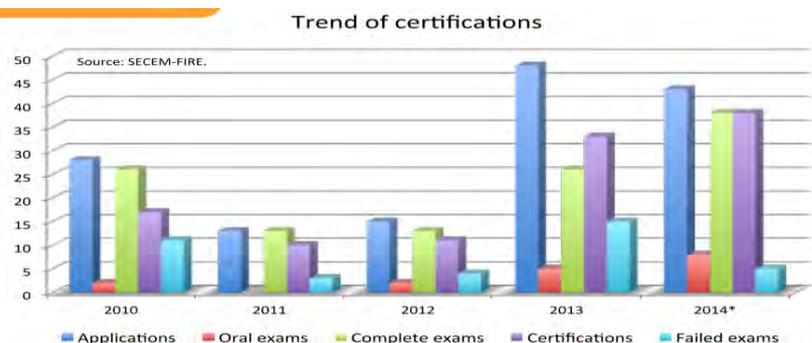
The main relevant institutions delivering training course for EME are:

- TUV Italia (link: <http://www.tuv.it/it-it/attivita/certificazione-del-personale/esperto-in-gestione-dell39energia-ege>);
- Certiquality (link: <http://www.certiquality.it/ege>);
- Khc (link http://www.khc.it/?m1=4&m2=77&lang=ita&cartel=Schemi_di_Certificazione);
- ENIC srl (<http://www.enteitalianocertificazione.it/>);
- SECEM www.secem.eu/.

SECEM, European System for Certification in Energy Management, is a certification body created by the FIRE. SECEM was the first body to offer third-party certification for Energy Management Experts (EMEs) according to UNI CEI 11339 and is accredited according to the ISO/IEC 17024 standard.

In particular, we have some statistics concerning SECEM:

- Up to September 2014: 119 certified EMEs, 23 with double certification; 38 EMEs certified



in 2014, with a projection of more than 50.

ENERGY CERTIFIER

In Italy, according to a change to the Italian Constitution, Part V, energy policies are partly delegated on regions and autonomous provinces, leaving the drafting of the general framework to the central government, while regions have the final right to adapt it to their individual requirements. Expecting long delays in issuing national guidelines, some regions have already developed their own procedures regarding minimum requirements and certification of buildings. Several regions (in grey) currently have an official certification scheme available, the majority of other regions follow issued national guidelines.

The number of energy certifiers by Region are listed in the table below.



REGION	WEBSITE	Number	Last update
Lombardia	http://www.cened.it/trovacertificatore	7662	N.A.
EMILIA	http://sace.regione.emilia-romagna.it/ElencoSoggettiCertificatori.aspx?IDProvincia=8	At least 4471	December 2014
PUGLIA	file:///C:/Documents%20and%20Settings/Administrator/Documenti/Downloads/Elenco_certificatori_26112014.pdf	1420	November 2014
MARCHE	http://www.regione.marche.it/Portals/0/TTE/itaca/2014_itaca_alfa.pdf	615	November 2014
Liguria	http://www.cartografiarl.regione.liguria.it/SiraEnergia/ElencoCertificatori.asp	6856	October 2014
Piemonte	http://www.sistemapiemonte.it/siceefree/base/certificatore/cpRicercaCertificatori.do	8982	N.A.
Valle D' Aosta	http://energia.partout.it/CatastoEnergetico/	342	N.A.
Friuli Venezia Giulia	http://www.aresfvg.it/index.php?q=it/node/948	185*	May 2014
Sicily	http://pti.regione.sicilia.it/portal/page/portal/PIR_PORTALE/PIR_LaStrutturaRegionale/PIR_AssEnergia/PIR_DipEnergia/PIR_2754499.1088975756/PIR_Energia/PIR_Efficienzaenergetica/PIR_Efficienzaenergeticaedilizia/PIR_elencosoggetticerificatore/Elenco%20aggiornato%20al%2030.06.2014.pdf	16170	June 2014
Italy - CASA CLIMA	http://www.agenziacasaclima.it/it/rete-casaclima/la-rete-casaclima/auditori-autorizzati/85-0.html	201	N.A.

2.3 EXISTING TRAINING COURSES (CURRICULA AND PROFILES) FROM THE PUBLIC AND PRIVATE SECTORS

As above stated, here following are reported:

- A general map of main “green VET” system, articulated by educational levels;
- The main VET training courses related to the (initial and continuous) professional development of energy managers & auditors profiles;
- The main master level courses specifically related to the Energy Manager and the Energy Auditor.

MAP OF GREEN EDUCATION & VET

	Organization	Course/Program	
HIGHER EDUCATION	Lazio	HIGH SCHOOLS: Professional Institutes for Agriculture and the Environment HIGH SCHOOLS: Professional Institutes for INDUSTRY	
	CAMPANIA	HIGH SCHOOLS: Professional Institutes for Agriculture and the Environment HIGH SCHOOLS: Professional Institutes for INDUSTRY	
	Emilia	HIGH SCHOOLS: Professional Institutes for Agriculture and the Environment HIGH SCHOOLS: Professional Institutes for INDUSTRY	
	Lombardia	HIGH SCHOOLS: Professional Institutes for Agriculture and the Environment HIGH SCHOOLS: Professional Institutes for INDUSTRY	
Energy and environment regional "POLI" (INCLUDE "IFTS" - postsecondary vocational education)	Lazio	POLO ENERGIA AMBIENTE (ENERGY & ENVIRONMENT HUB) http://www.poloenergiambiente.it/	
	Emilia	CIRI Energia e Ambiente http://www.energia-ambiente.unibo.it/ciri-energia-e-ambiente	
	Lombardia	CLEAN - CLUSTER LOMBARDO ENERGIA AMBIENTE http://www.energialombardia.eu/clea	
	Campania	UNIVERSITA' DI NAPOLI	http://www.unina.it Ingegneria civile e ambientale - Corso di Laurea in Ingegneria per l'Ambiente e il Territorio - Scienze della Pianificazione territoriale, urbanistica, paesaggistica e ambientale - Licenciatura Paesaggio Territorio Ambiente - http://www.unna.unina.it/
		UNIVERSITA' DI SALERNO	http://www.unisa.it Ingegneria civile e ambientale - Ingegneria Civile per l'Ambiente ed il Territorio - http://www.unisa.it
	Emilia	UNIVERSITA' DI BOLOGNA	www.unibo.it Ingegneria civile e ambientale - Ingegneria per l'Ambiente e il Territorio - http://www.unibo.it Scienze e tecnologie agrarie e forestali - Scienze del Territorio e dell'Ambiente Agro-Forestale
		UNIVERSITA' DI PARMA	http://www.unipr.it dell'Ambiente - https://ateneo.cineca.it/of270/web/corso_2012.php?
	Lazio	UNIVERSITA' ROMA LA SAPIENZA (ROMA 1)	http://www.uniroma1.it Ingegneria civile e ambientale - Ingegneria per l'Ambiente e il Territorio - https://ateneo.cineca.it/
	Lombardia	UNIVERSITA' DI BRESCIA	http://www.unibs.it Ingegneria civile e ambientale - Ingegneria per l'Ambiente e il Territorio - http://www.unibs.it
		UNIVERSITA' DI VARESE	http://www.uninsubria.it dell'Ambiente - http://www.uninsubria.it/ele/uninsubria/consultazione_mestre_pacino? Scienze e tecnologie per l'ambiente e la natura - Scienze dell'Ambiente e della Natura
UNIVERSITA DI MILANO		http://www.unimi.it Scienze e tecnologie agrarie e forestali - Agrotecnologie per l'Ambiente e il Territorio - Valutazione e Tutela dell'Ambiente e del Territorio - http://www.valmont.unimi.it/	
UNIVERSITA' DI MILANO BICOCCA		http://www.unimib.it [L-32] Scienze e tecnologie per l'ambiente e la natura - Scienze e Tecnologie per l'Ambiente e il Territorio - http://www.unimib.it	
	POLITECNICO DI MILANO	http://www.polimi.it Ingegneria civile e ambientale - Ingegneria per l'Ambiente ed il Territorio - http://www.polimi.it	
UNDERGRADUATE DEGREE II LEVEL	NATIONAL	LIST OF SECOND CYCLE DEGREE: http://off.cineca.it/pubblico.php/ricerca/ricerca/p/cercauniv	
MASTER (of the main IT Business Schools)	Campania	Università di Napoli Federico II	University Master II level Ingegneria sanitaria ed ambientale: ciclo integrato dei rifiuti
	Lazio	LUISS Guido Carli - Roma	University Master II level Executive Master in Environment, Innovation & Management
		LUISS Guido Carli - Roma	University Master II level Master in Eco-Mobility Management (MEM)
	Emilia	DIMA - Sapienza Università di Roma	University Master II level Master in Efficienza Energetica e Fonti Energetiche Rinnovabili - EFER
	Lombardia	Università degli studi di Roma Tor Vergata	University Master II level GEOINFORMAZIONE E SISTEMI DI INFORMAZIONE GEOGRAFICA A SUPPORTO DEI PROCESSI DI GESTIONE URBANA
		Università di Bologna	University Master I level Il progetto sostenibile: recupero edilizio e rigenerazione urbana (Sustainable Building)
VET	Campania	Università Bocconi - Milano	University Master I level MEMAE, Master in Economia e management dell'ambiente e dell'energia
		Università Bocconi - Milano	University Master I level MaGER - Master in Green Management, Energy and Corporate Social Responsibility
	Lazio	Teleservizi IT S.p.a	specialization course Esperto in Sistemi Informativi Territoriali e Geomarketing
		FONDAZIONE "VILLAGGIO DEI RAGAZZI" - DON CARLO	specialization course Progettazione e la gestione di impianti per la produzione di energie rinnovabili
	Lazio	ASSOCIAZIONE MASTER SCHOOL	specialization course ESPERTO nella gestione ambientale
		CONSORZIO FORMA ARL	specialization course ESPERTO PROCEDURE MONITORAGGIO E GESTIONE DATI QUALITÀ ARIA, ACQUA E SUOLO (L.R. 05/2013, REGIONE CAMPANIA)
	Lazio	CONSORZIO per la Formazione e la Comunicazione	specialization course ENERGY MANAGER
		AISFOR srl	specialization course SVILUPPO DELLE FILIERE AGROENERGETICHE
	Emilia	LABOCONSULT SRL	specialization course ESPERTO DI TECNOLOGIA PER LE ENERGIE RINNOVABILI E LA MOBILITA' SOSTENIBILE
		LABOCONSULT SRL	specialization course TECNICO BIODILE: risparmio energetico e sostenibilità ambientale per aziende e pubblici
Lombardia	CONSORZIO FORMEDIL EMILIA-ROMAGNA	specialization course Tecnico del risparmio energetico nell'edilizia sostenibile	
	DINAMICA soc.cons.r.l	specialization course Esperto in architettura verde e biosostenibile	
Lombardia	TECHNE Società Consortile a responsabilità limitata	specialization course Tecnico esperto in analisi e sistemi di gestione del biorifiuto da raccolta differenziata	
	CTQ Spa	specialization course Corso di specializzazione per Esperti in Gestione dell'Energia e dell'Ambiente	
	ESEM - Ente Scuola Edile Milanese	specialization course Tecnico del risparmio energetico nell'edilizia sostenibile	
	ESEM - Ente Scuola Edile Milanese	specialization course Tecnico di progettazione e gestione degli interventi di adeguamento sismico del patrimonio	

Here following the main master lever or specialization courses for **energy managers and/or auditors**.

Course Title	Certificate/ level	Organization	Link	Contents & Notes
Green Energy Audit (http://www.green-energy-audit.it/)	NA	Nextville	http://www.nextville.it/index/1325	Green Energy Audit Book <i>Overall initiative and book together with:</i> - Kyoto Club - GBC (Green Building Council) Italia
4 levels training course on Green Audit	NA	GBC	http://www.gbcsitalia.org/for_mazione?locale=it	1) Information level 2) Knowledge level

				3) Application level 4) Specialization level	Assessment Method) certifications (the first US, the second UK)
GFS Green Facility Specialist"	Green Facility Specialist (as professional recognition)	IFMA (partnership with GBC)	http://www.gbceitalia.org/pagine/show/corsi-di-formazione-in-collaborazione-con-altri-enti--2?locale=it	3 modules: 1) environmental sustainability, "green building", energy efficiency 2) facility management; 3) Application of 27/2012 rules and international procedures of energy auditing; international rating system; best practices on energy efficiency management	Linked to LEED
Expert of ITACA protocol/system	Professional recognition	IISBE	http://www.iisbeitalia.org/ there is a public list of experts: http://www.iisbeitalia.org/formazione/esperti-protocollo-itaca/avanzato		Linked to ITACA protocol The International organization IISBE (http://iisbe.org/imosb) organize the iisBE International Masters Programme (Erasmus Mundus) of 120 ECTS credits
Energy Audit	VET short specialisation courses/webinars and workshops	Energy Audit	http://www.the-energyaudit.it/	Energy School for Energy Manager (http://www.the-energyschool.it/)	
Energy Auditor		Enforce Adiconsum	http://www.enforce-eeen.eu/ita/eventi/formazione-energy-auditors	2012	See ENFORCE comparative study: http://ec.europa.eu/energy/intelligent/projects/sites/iee-projects/files/projects/documents/enforce_european_comparison_energy_audit_ors_training_en.pdf
Energy manager	VET short specialisation courses/webinars and workshops	FIRE in partnership with ENEA	http://www.fire-italia.it/caricapagine.asp?target=corsi.asp	Training for Energy Manager and e-Quem	

Here following the main relevant Master level courses more specifically "Energy Auditor" related.

Master Ridef Energia per Kyoto	Politecnico di Milano www.ridef.it/
Master in Gestione delle risorse energetiche	Safe – Sostenibilità ambientale fonti energetiche www.Master-safeonline.it/
Master in Green Management, Energy and Corporate Social Responsibility – MaGER	Università Bocconi www.unibocconi.it/mager
Master in Management e regolazione dell'energia sostenibile	LUISS Guido Carli http://energiasostenibile.postlauream.lui-ss.it/
Executive Master in Ambiente ed energia	Strategies Business School http://www.master.it/master/46-executive-master-in-ambiente-ed-energia/
Master per Esperti in gestione dell'energia – MeGE	Ctq – Consulenza e training di qualità http://www.guidamaster.it/ricerca-master/risultato-ricerca.html
Master in Energy Management	Università della Calabria http://www.unical.it/portale/portaletempiates/view/view.cfm?19233
Master in Governance dello sviluppo sostenibile	Università degli studi di Padova, Dipartimento di studi storici e politici http://www.unipd.it/elenco-master/master-scienze-politiche/governance-dello-sviluppo-sostenibile
Master in Manager dei sistemi di gestione dell'energia, certificazione energetica, risparmio energetico, energie rinnovabili.	Csad – Centro studi ambientali e direzionali http://www.csad.it

2.4 EXISTING EDUCATIONAL AND VET CURRICULA AND TRAINING PROGRAM (PUBLIC AND PRIVATE)

At the **international level** the main specialization are referred to:

- **BPI Building Analyst Energy Auditor** - The Building Performance Institute, Inc. helps establish standards for improving home energy efficiency. Accredited BPI energy auditors must score at least 70 on a written exam and successfully complete a field exam. Certification is renewed every three years.
- **RESNET HERS Rater** - Individual, accredited RESNET Home Energy Raters (HERS Raters) are required to score at least an 80 on an online test, successfully complete two energy ratings, and perform three ratings under supervisions
- **AEE Certified Residential Energy** - Certified AEE residential energy auditors are required to have a prerequisite minimum of engineering, architecture, or industry experience, take 12 hours of preparatory training, and pass a standardized exam. AEE residential energy auditor certification is recognized by the U.S. Green Building Council (USGBC), which administers LEED programs
- **LEED Accredited Professional (LEED AP)** - international professional standard linked to the LEED certification. LEED certification specialist guiding building design and construction according to the LEED certification. He has not a certification role/power;

At national level, as already stated in the first part of the report, according to the ENFORCE evidences, 4 are ECA relevant qualifications:

- Energy Manager (Law 10/1991),
- Boiler Inspector (DPR 412/93),
- Energy Management Expert (Qualification according to Technical Standard UNI 11339)
- Energy Certification Assessor (Regional laws or Ministerial Decree June 26th

In Italy, the Ministry Decree 30-05-2008 authorizes the following criteria for the accreditation of building energy performance assessors:

Professionals who are registered at the official association, demonstrating suitable design or energy auditing experience.

Any person with a technical-scientific background who attended a specific training course that required a final examination.

The background qualification diplomas have to be recognised by the regions and autonomous provinces.

The training courses have to be organised or authorised by the regions and autonomous provinces.

Within the **NQF**, the profile of the Energy Auditor is referentiated to the energy saving professional area and to which diverse professional profiles are referred such as the renewable energy expert or the solar plant designer (<http://professionioccupazione.isfol.it/scheda.php?limite=1&id=3.1.3.6.0>).

Finally, a recent work of the Ministry of Labour and Welfare (through its Agency Italia Lavoro) has better defined the professional profile of the Energy Auditor, detailing its competences, Training materials have been also realized. Both learning resources and professional profile analysis can be found at the link:

http://www.cliclavoro.gov.it/Progetti/Green_Jobs/Documents/Edilizia_sostenibile/Energy_Auditor.pdf

These general principles, stated at a national level, can be slightly modified to suit the **regional frame**: in Emilia-Romagna and Lombardy, for example, skilled HVAC designers or building energy auditors who can demonstrate long term experience are not required to attend a training course. Before signing a certificate and in order to guarantee an unbiased approach to the evaluation procedure, the assessors have to declare:

a) For new buildings, the absence of any conflict of interest, namely the absence of direct or indirect involvement in the design or construction process, the suppliers of the materials and components, or in respect to any advantage to the owner;

b) For existing buildings, the absence of any conflict of interest, that is to say the absence of direct or indirect involvement with the suppliers of the materials and components, or in respect of any advantage to the owner.

Because of the different regional implementations, energy auditors are working to different standards. Another issue is that the rule on independence is not satisfactory as building designers can certify themselves, which means that building designers might issue a certificate for their own buildings, or that housing or property companies may be allowed to rate their own certificates etc.

Some additional examples of the professional profiles (and standard minimum requirements) defined at regional level can be found at the following links, with reference to Liguria and Toscana Regions:

www.regione.liguria.it/.../10408-sintesi-filiere-green-economy.html;

<http://web.rete.toscana.it/RRFP/gateway#>

REFERENCES, CONTACTS AND LINKS

Italy's National Energy Strategy: for a more competitive and sustainable energy

Energy efficiency action plan 2014

Energy manager as an obligation for large end users: the Italian experience – Fire