



COMPARISON OF BUILDING CERTIFICATION AND ENERGY AUDITOR TRAINING IN EUROPE

ENFORCE - EUROPEAN NETWORK FOR
ENERGY PERFORMANCE CERTIFICATION OF BUILDING

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CONTENTS

1. Introduction	4
1.1 The EPBD Directive	4
1.2 Analysis and comparison of EPBD Directive implementation	5
2. Brief overview of the energy performance certificate market	6
3. Energy auditor training and qualification	11
3.1 Is training mandatory (or is it foreseen to be so)?	11
3.2 Who manages the training scheme?	12
3.3 Trainer training	13
3.4 Training activities in progress	14
3.5 Energy certification assessor categories (ECA)	16
3.6 Minimum Requirements and Licence Validity for energy certification assessors	18
3.7 Quality assurance of training	22
3.8 Quality assurance of energy certification assessors and inspectors	22
3.9 Main outcomes	24
4. National and regional incentives and subsidies	30
5. National information and communication campaigns	34
5.1 Effective ways to reach consumers	34
5.2 Activities in progress	36
5.3 Main outcomes	38
6. Conclusions: Best Practices & Recommendations	42
6.1 Creation of a well-structured network platform of independent energy certification assessors	43
6.2 Training of independent energy certification assessors should be mandatory	43
6.3 Limited validity of the professional category of independent energy certification assessors	44
6.4 Monitor and control of the independent energy certification assessors certification activities	44
6.5 Regulation on EPC elaboration costs	45
6.6 Linking financial instruments to EPC	45
6.7 Creation of a central EPC data collection managed by an national official entity	46
6.8 Organised awareness building campaign properly targeting the various actors	47
7. References, contacts and links	48

1 INTRODUCTION

1.1 THE EPBD DIRECTIVE

Emissions produced by the amount of fossil fuels used to meet growing energy demands all over the world are causing dangerous climate changes in the planet. In order to contribute to solving these problems, the European Commission has engaged Member States in attempts to reduce greenhouse gas energy consumption by 20% and reach the 20% target for energy from renewable sources, in 2020.

Residential and commercial buildings represent a potential source of energy savings; if well exploited, these savings could lead to an 11% reduction in energy consumption in the European Union, by 2020.

Interventions aimed at achieving energy improvements in the residential field not only improve citizens' wellbeing, but also reduce energy needs, as well as reliance on other countries for energy supply. They also have a positive impact on climate and reduce the cost of energy bills for families. Furthermore, they lead to an increase in job opportunities and promote local development. Lastly, they satisfy both cost and benefit conditions, as energy upgrade costs for the residential sector are much lower than the cost of similar interventions in other fields.

The 2002/91/CE Directive of the European Parliament and Council, related to energy performance of buildings (EPBD Directive) complies with the European energy strategy and is a useful legal tool, on a European level, to improve the energy performance of buildings, in an effective way.

IN FACT, THE EPBD DIRECTIVE:

- Has brought the issue of energy performance of buildings to the attention of citizens and to Public body agendas, within Member States;
- Has introduced the energy certification tool, in order to ensure compliance with the energy requirements established by law;
- Has established that Energy certification of existing buildings shall include suggestions regarding possible interventions aimed at improving energy efficiency;
- Has included energy certification among the required documents to be included with real-estate sales deeds or tenancy contracts, so that the real estate market may become more transparent and develop a virtuous mechanism, where offer and demand concern increasingly efficient buildings;
- Has engaged Member States in organising information campaigns targeted at citizens, focused on the energy efficiency of buildings, so their choices will take into account not only the aesthetic aspect of a house, but also the associated energy costs.

1.2 ANALYSIS AND COMPARISON OF EPBD DIRECTIVE IMPLEMENTATION

Taking into account the importance of the EPBD Directive, we have considered it useful to carry out a comparative analysis within the Member States involved in the Enforce project (Italy, Greece, Portugal, Slovenia and Spain), regarding Directive implementation. In particular, this analysis referred to Energy Certification Assessor (ECA) training, ECA qualification and monitoring methods and tools, and citizen information initiatives concerning the various project Partners.

The results of this comparative analysis provided us with the opportunity to highlight the Best Practices adopted in the various States, regarding the aforementioned topics, thus allowing interested Public authorities to focus on these issues and possibly adopt them in other EU Member States.

In addition to Member States that are Project Partners, this study also involved Austria, where implementation of this Directive has reached an advanced stage, as occurs in other countries involved in the project.

Comparative analysis has been carried out with the support of Adene (Portugal), Renael (Italy), ZRMK (Slovenia), common partners to the Enforce and Concerted Action EPBD. Important information has been gathered due to their cooperation, thus allowing the creation of extremely detailed National Reports for all countries involved in the project.

Data have been collected in six National Reports, which have not only provided information on EPBD Directive implementation and the political strategies of each country, but have also included important details on what has actually been done on political, social, training and information levels, as well as the kind of results achieved and the demographic targets reached.

This European Report presents a comparative analysis of the certification market background in partner countries within the Mediterranean area, outlining the best practices for every kind of activity (information, training, monitoring, results achieved, etc.) carried out in each country. It is essential to improve or, in some cases, implement the building certification process in the field, with focus on main issues, such as:

- Energy auditor training and qualifications
- Incentives and subsidies
- Divulcation campaigns

2 BRIEF OVERVIEW OF THE ENERGY PERFORMANCE CERTIFICATE MARKET

The emphasis given to the EPBD (Energy Performance of Buildings Directive) in the European real-estate sector reflects the very high level of energy consumption observed in buildings. Although buildings account for about 40% of total energy consumption in the EU, they also have the greatest potential for reducing conventional energy consumption.

The energy performance certification needs to become the one tool used by aware and competent citizens to increase the demand for energy efficient buildings.

Although the regulatory framework has already been prepared in all Mediterranean countries, the certification process has yet to start in most cases and the level of knowledge of the EPBD by general citizens improved.

At the present date, only Portugal and Austria have an official certification scheme, already available and in course. In Spain and Italy, such a scheme is only available in a few regions; in Greece and Slovenia, the performance certification procedure has not started yet.

In most cases, no official figures or estimations are available regarding EPC assessors. In Spain and Italy, requirements concerning energy certification assessor and inspector qualifications depend on local or regional authorities. In Portugal and Austria, the number of energy assessors able to issue EPCs is approximately 1,300.

In Greece, since the energy performance certification procedure has been implemented yet, a large number of energy auditors will be required within the next years, so that most Greek buildings may be assessed and certified. The exact number of auditors that will be required is not known. However, according to statistical data from 2001, Greece boasts approximately 4,000,000 buildings. A realistic approach would be to assume that 50% of these buildings would be certified within the next 5 years. If it is assumed that an auditor is able to assess approximately 110 buildings per year (1 building each two working days) and a limit of 5 years is set for completion of the first stage of the certification process, a minimum of 3,600 auditors will be required.

In terms of the number of EPCs issued, this is the reality in Portugal, Austria and some regions of Spain and Italy.

Nearly all licensing (new buildings) and transaction processes (existing buildings) have been certified in Portugal, with 315,244 EPCs issued between 1 July of 2007 and 31 August of 2010. A nearly identical figure was reached in Italy, although only concerning 4 regions of the country (the autonomous province of Bolzano and the Lombardy, Emilia Romagna and Liguria Regions).

Regarding Austria and Spain, no official figures are available. Estimations are also very difficult to obtain, due to the lack of a central registry of EPCs issued during real-estate sales or renting transactions.

Although no official certification scheme has been implemented in Slovenia, 127 energy certificates (calculated or asset rating) were issued in pilot certification projects (implemented by ZRMK), between 2002 and 2010. These projects refer mostly to residential (109) buildings, although hotels, offices and public buildings have also been included. Pilot certificates were issued for many prefabricated buildings, large residential complexes and public access buildings (127 buildings or 2,064 flats).

Knowledge of the EPBD by citizens needs to be increased in almost all Mediterranean countries. Especially when buying or renting a home, it appears that many consumers see the EPC an inconvenient legal obligation rather than as useful information on building's energy performance. This can be assumed to be a consequence of weak communication of this issue when the law came into force. In fact, a lack of legal consequences for not obtaining an EPC may lead to a common practice by citizens of ignoring this law.

In Austria, for example, as there are no legal penalties, the EPC is basically required for building permissions and subsidies. In this field, the obligation of obtaining an EPC has been communicated by regional authorities and it appears that the EPC is well established.

In Portugal, fast establishment of the certification system was achieved through an adequate regulatory framework, which foresees non-compliance penalties, as well as close contact with market agents (public and private notaries, real-estate agencies, banks, etc.)

When the certification scheme is put into real practice, on a mass scale, cost is always an inevitable issue, as people will look for value for the money paid to the expert.

TABLE 1_ AVERAGE CERTIFICATION COSTS.

	EPC COST DEFINITION	ESTIMATION OF FORESEEN COSTS
AUSTRIA	<p>Not fixed (market)</p> <p>Depends on location, building type, blueprint and construction detail availability, building complexity and size, and assessor</p>	<p>For existing residential buildings:</p> <p>Single family houses</p> <p>Up to 200 m² → €350</p> <p>Between 200 and 1,500 m² → €350 + €0.80 per m² of useful floor area</p> <p>Between 1,501 and 5,000 m² → €350 + €0.60 per m² of useful floor area</p> <p>More than 5,001 m² → individual offer</p>
ITALY	<p>Not fixed (market)</p> <p>Depends on location, building type, possibility to perform on-site measurements and many other factors affecting the assessor's work.</p>	<p>Fees range from €300 for a flat to €600 for a detached house.</p>
GREECE	<p>Fixed costs</p> <p>Exact costs will be determined after completion of draft regulations and the Presidential Decree</p>	<p>Whole building (excluding dwellings)</p> <ul style="list-style-type: none"> • With area of up to 1,000 m²: €2.5/m² with a minimum of €300 • With area of over 1,000 m²: €2.5/m² for the first 1,000 m², €1.5/m² for the remaining area <p>Whole building or part of it (dwellings)</p> <ul style="list-style-type: none"> • Entire condominiums: €1.0/m² with a minimum of €200 • Part of condominium (apartment): €2.0/m² with a minimum of €200 • Detached house: €1.5/m² with a minimum of €200
PORTUGAL	<p>Costs are partly fixed and partly determined by the market.</p> <p>A fixed legislative tax of €45 for single flats or single family houses, and €250 for non-residential buildings, is charged for each certificate issued in the system, which is used to support EPC system management and promotion, plus the fee charged by the expert</p>	<p>€100 - €400 residential</p> <p>€2 - €5/m² non residential</p>

>>	EPC COST DEFINITION	ESTIMATION OF FORESEEN COSTS
SLOVENIA	The maximum price of the energy performance certificate will be defined by a ministerial decree	<p>New buildings with full documentation</p> <p>Up to 200m² of usable area: €400</p> <p>Between 200m² and 400m²: €800</p> <p>Over 400m² to 1,000m²: an additional €2/m²</p> <p>Over 1,000 m²: an additional €1/m²</p> <p>Additional fees for incomplete project documentation, according to the actual situation:</p> <p>Minor imperfection: a factor of 1.10</p> <p>Major imperfection: a factor of 1.20</p> <p>Additional building complexity fees:</p> <p>Simple geometry and basic systems: factor of 1.0.</p> <p>Geometry of intermediate complexity for the building, basement, and basic systems: factor of 1.10.</p> <p>Difficult and complex geometry of buildings or more zones: factor of 1.2.</p>
SPAIN	Costs are not fixed or pre-defined. Qualified energy certification assessors and companies freely set their own prices.	<p>Price assumptions in 2009:</p> <p>€1,400-€1,500 for issuing a certificate for a detached house and €2,000-€2,500 for issuing a certificate for a block of flats.</p>

The information gathered shows a variety of situations, which not only reflect the various technical approaches and practices in certification, but also reflect the various social and economic realities observed in the MS.

TABLE 2_ DATA ON EPBD IMPLEMENTATION

	NO. OF ENERGY AUDITORS NEEDED/ ESTIMATED	NO. OF ENERGY AUDITORS ALREADY IN THE MARKET (AVAILABLE)	NO. OF CERTIFICATES ISSUED	AVERAGE COSTS OF CERTIFICATION/ RESIDENTIAL SINGLE HOUSE
PORTUGAL	2,000	1,300	315,244 (1st July 2007 until August 2010)	1.5-4€/m ²
SPAIN	3,700-3,900	Not available	Not available	450 €
ITALY	110,000	42,090	295,547 (only 4 regions)	200 +2€/m ²
GREECE	3,500 (for the next 5 years)	-	none	Not defined
SLOVENIA	-	-	127 (issued within the scope of a pilot project, in 2002-2010)	200-300€
AUSTRIA	-	1,300-1,500	Not available	450€

For a certification scheme to be successfully put into real practice, on a mass scale, it is easy to perceive that member states must particularly focus on the following 3 key points:

- Energy auditor training and qualifications
- Incentives and subsidies
- Divulcation campaigns

These aspects shall be presented in detail and the most important lessons outlined in the next sections of this document.

3 THE ENERGY AUDITORS TRAINING AND QUALIFICATION

Qualified Energy certification assessors or energy auditors have a central role with regards to the success or failure of the EPBD implementation in member states, consequently their competencies, knowledge and the whole mechanism of approving/registering energy certification assessors are crucial to the EPBD implementation success

3.1 IS TRAINING MANDATORY (OR IS IT FORESEEN TO BE SO)?

In Greece, Portugal and Slovenia, obtaining the licence of independent experts energy certification assessors requires an obligatory training and a qualifying exam, however, the process has only been put into practice in Portugal so far.

Although official training has not yet been set up in Slovenia, a great deal of informal training and workshops on energy efficiency have been provided since 2001 mainly by the Building and Civil Engineering Institute, and aimed at investors (private and public – country, municipal,...), designers, building companies, real estate companies, sellers of building material and energy infrastructures, energy advisers, energy managers, owners of public buildings (country, municipal), other interested members of energy and building profession, totalling around 6000 participants, with a typical course format of one day (6 hours) or two days(10 hours)

In Greece, no formal courses have been organised although there have been several informal short seminars and medium-duration training courses since Law 3661/2008 came into force.

In Portugal, mandatory training is a requirement in order to become an accredited energy auditor licensed to issue EPC. Professionals have to attend recognized courses and pass a demanding national examination that evaluates their knowledge on technical matters related to building regulations and details of the certification system itself. There are now about 1,300 qualified energy certification assessors in the market that have fully satisfied the certification system

In Spain training courses of energy certification are voluntary and professionals can carry out building energy certification without attending the training courses. In Austria, there are only informal voluntary training processes. Exceptions to this are the energy consultants working for the regional authorities: they have to participate in and pass an exam according to the ARGE EBA curriculum, which assures a minimum qualification. However, not all energy consultants are allowed to issue energy performance certificates as well.

In Italy, the training scheme varies from region to region. Nevertheless, the general principles that are established at a national level in some regions, such as Emilia-Romagna and Lombardy, skilled

HVAC designers or building energy auditors who demonstrate long-term experience do not require to attend training courses.

CONCLUSION

The information scheme adopted in Portugal appears to be the most appropriate to ensure that all energy certification assessors appointed to issue EPCs receive adequate and uniform professional training, since each professional wishing to issue EPCs must have a degree in engineering or architecture and attend a compulsory training Course, whose educational programme is defined by public authorities. In order to obtain the qualification to issue EPCs, professionals must pass the final exam of this Course and enrol in a specific registre

3.2 WHO ADMINISTERS THE TRAINING SCHEME?

In Slovenia, Greece and Portugal, the training of professionals who will carry out building certification is provided at a national level by official authorities. In Slovenia, the ministry prepares common training material (to ensure no difference in training). In Greece the official training is to be carried out by the Technical Chamber of Greece (TCG). In Portugal, the specific training courses for qualified energy certification assessors must be recognized by a Commission that consists of the Directorate-General of Energy and Geology, the Portuguese Environmental Agency, the Counsel of the Public Works and Transport, the Architects Association, the Engineers Association and the National Association of Engineering Technicians. Any officially-recognised university or training entity must fulfil a number of requirements defined by this commission. One of the demands is that each accredited training course must include at least two qualified trainers in the training team.

In Austria, Italy and Spain, the training scheme is organized on a regional level.

In Spain, training is organized on a regional/local level (regional government, regional energy agencies).

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 currently have an official certification scheme available (Lombardy, Piedmont, Liguria, Emilia Romagna, Province of Bozen, Province of Trento, etc.); the majority of other regions follow recently issued national guidelines

Finally, **in Austria**, training is offered by the regional governments together with the Chambers of Commerce and of Civil Engineers. Also regional energy agencies or energy departments of regional authorities provide training.

CONCLUSION

Several Member States delegate the responsibility for organizing Training courses on Public Bodies or Agencies (or entities acting under the supervision of Public Bodies).

However, it would be useful for private bodies or organizations to be allowed to organize and handle training courses aimed at Energy Certification Assessors, provided these courses comply with national quality standards and the educational programmes agreed by the National authorities are adopted.

We do not consider it opportune to provide Regions with a wide margin of decision regarding training courses (as occurs in Italy), in order to avoid serious differences in the professional competences of Energy Certification Assessors. Exceptions could be allowed for specific climate issues or relevant differences in building construction.

3.3 TRAINER TRAINING

In Slovenia, no specific training course for trainers of qualified energy certification assessors has been established. To become trainers, applicants must provide evidence of adequate professional references in building design, measurements and energy auditing of buildings, knowledge about legislation/regulation on energetic and building construction and knowledge about EU regulations in the field of energy efficiency in buildings. On the other hand, in Spain there are ongoing courses for training trainers in energy certification of buildings directed at technicians that can later take on the training of the agents that participate in the construction environment. In Portugal, the first training courses related to Energy Certification of buildings, began in October 2006, and were organized by ADENE-Portuguese Energy Agency (SCE managing entity). The training activities were aimed at the trainers of future qualified energy certification assessors (training trainers). Two professional categories were taken into consideration: one of accredited qualified expert (if the other minimum professional requirements were fulfilled) and another of accredited trainer of qualified energy certification assessors. About two hundred people, including engineers and architectures, have concluded these training activities.

CONCLUSION

Trainer training should be carried out by a Public Body, on a national level, and be compulsory for every trainer. In fact, uniform professional qualifications for Energy Certification Assessors throughout the national territory can only be ensured by a uniform trainer training system. In this way, (compulsory) Energy Certification Assessor training could be carried out by private organizations. Once again, the legal framework currently applicable in Portugal should be considered as a reference

3.4 TRAINING ACTIVITIES IN PROGRESS

TABLE 3_ TRAINING ACTIVITIES IN PROGRESS (PROVIDED BY AN OFFICIAL ENTITY, NUMBER OF HOURS OR DAYS, EXAMINATION, COST, NUMBER OF ACTIVITIES)

AUSTRIA

Number of Hours	Examination	Cost	Activities
<p>Variable</p> <p>Austrian Chamber of Commerce provide on average a 2 to 5pm, 5-day course</p> <p>Styrian Energy Agency (Landesenergieverein) organized a specialized training course of 17 days maximum duration (partly e-learning)</p>		<p>Cost for these informal training courses range between €400 and €1,200.</p>	<p>About two trainings per year and per region are offered. Each course has between 10 to 20 participants.</p>

ITALY

Number of Hours	Examination	Cost	Activities
<p>ENEA+FIRE, training courses for energy managers last a week (30 hours)</p> <p>Lombardy Region, Liguria Region and Bozen Province among others have their own methods for EPC assessor training, and their accreditation scheme. In Emilia Romagna, training costs are between 850 and 1,200 €, for 72 hours of training (60-hour lecture and 12 hours of project work included).</p>		<p>ENEA+FIRE training courses for energy managers - €1,000.</p>	<p>ENEA+FIRE have provided, 6 -7 training courses/year with 100 participants since 1992</p> <p>Energy Certification Assessors:</p> <p>Lombardy: 11,000 assessors Emilia Romagna: over 20,000 Assessors and over 100 training courses.</p> <p>CasaClima (Province of Bolzano): over 160 assessors</p>

GREECE

Number of Hours	Examination	Cost	Activities
<p>Official training courses foresees:</p> <p>60 hours for the Building (envelope) category</p> <p>30 hours for the Boiler & Heating system category</p> <p>30 hours for the Air-Conditioning system category</p> <p>Several informal short duration seminars have been given: between 20 - 40 hours and medium-duration training courses between 60 - 120 hours</p>	<p>Chamber of Greece (TCG) are responsible for carrying out the final seminar exams for the candidate auditors</p>		

PORTUGAL

Number of Hours	Examination	Cost	Activities
<p>Mandatory pass mark in both : Technical module (minimum 21 hours plus a 3-hour examination) Certification module (22.5 to 32 hours, plus a 4-hour examination) given by ADENE</p>	<p>Each module is followed by an examination ADENE's final examination has 2 components: multiple choice test and problem-solving case study</p>	<p>Technical module - €500-€1000 - taught by recognized organisations (74) Certification module - €800-€1,000-ADENE</p>	<p>Nearly 100 training courses given by ADENE</p>

SLOVENIA

Number of Hours	Examination	Cost	Activities
	<p>To be done by authorized organisations Written part of exam (max. 1.5 hour with questions related to the training topics) and an oral exam -max. 45 min, both done on the same day.</p>		<p>Official activities are still pending; 24 candidates for assessors attended the pilot training for energy certification (as a part of EIE BUDI project), where they learned about the calculation methodology and the envisaged procedures for certification. An extended training was organized for 9 assessors who continued with the field test in certification of a selected apartment building in Ljubljana.</p>

SPAIN

Number of Hours	Examination	Cost	Activities
<p>On-line courses vary significantly from 25 hours to 200 hours. Castilla and León offer 36-hour training courses In the Madrid region, training requires 100 hours</p>		<p>In Castilla and León fees are about €60 In the Madrid region, the training fees are about €180, and the administration covers 80% of total cost.</p>	<p>About 40 courses have been carried out in 2008 and 50-60 courses in 2009 by public institutions and 8-10 by private centres.</p>

3.5 ENERGY CERTIFICATION ASSESSOR (ECA) CATEGORIES

A first approach reveals that there are 7 potential categories of energy certification assessors within the scope of the EPBD. These are qualified energy certification assessors/energy auditors for issuing Energy Performance Certification for:

1. Certification of new domestic buildings.
2. Certification and drafting accompanying report for existing domestic buildings.
3. Certification of new non-domestic buildings.
4. Certification and drafting accompanying report for existing non-domestic buildings.
5. Certification and drafting of report for public buildings for display purposes.
6. Boiler plant inspection and reporting.
7. Air-conditioning plant inspection and reporting

However, a recent survey indicates that very few member states are opting for a maximum number of categories.

In Spain there are two categories of energy certification assessors: one for certification of buildings and another for inspection of boilers & air-conditioning

In Greece two classes of energy auditors are foreseen (Class A and B) for the following audit categories:

- Building (envelope)
- Boiler & heating system
- Air conditioning system

Class A License will permit energy audits only in residential buildings with a total surface area of less than 1,000 m². Class B License will permit energy audits in all buildings regardless of their use or total surface.

In Italy, there is no one professional who carries out all Energy Auditor tasks! Tasks are covered by several professionals such as:

- Energy Manager (Law 10/1991) only foreseen for Public Bodies,
- 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 2009).

In Austria, craftspeople in certain trades and engineers are allowed to issue energy performance certificates of new residential buildings, existing residential, building, new non-residential building, existing non-residential buildings and for boilers/heating systems and air-conditioning systems inspections. EPC and inspections have to be performed by energy certification assessors with trade-

law permission for planning, installation, modification, maintenance or inspection of heating systems and/or AC systems.

In Portugal the accredited energy certification assessors are subdivided into the following categories:

- Professionals in RCCTE - Regulation on Thermal Behaviour of Buildings (applied on residential and small non-residential)
- Professionals in RSECE - Regulation on Heating Ventilation Air Conditioning (HVAC) Systems in Buildings - Energy Component (for large non residential)
- Professionals in RSECE - Regulation on Heating Ventilation Air Conditioning (HVAC) Systems in Buildings – Indoor Air quality (IAQ) Component

CONCLUSION

The easiest and most effective solution to avoid excessive segmentation of the Energy Certification Assessor training system, might consist of subdividing ECAs into three categories:

1. Energy Certification Assessor of new domestic buildings, able to issue accompanying reports for existing domestic buildings.
2. Energy Certification Assessor of new non-domestic buildings, able to issue accompanying reports for existing non-domestic buildings.
3. Energy Certification Assessor for boiler plant inspection and reporting.

This division takes into account the differences in the professional competencies required for Energy Certification Assessors, which result from significant differences in the construction characteristics of residential and non-residential buildings, as well as the different inspection and control conditions required for heating systems.

3.6 MINIMUM REQUIREMENTS AND LICENCE VALIDITY FOR ENERGY CERTIFICATION ASSESSORS

In Slovenia, the amended Energy Act (27/2007) defined mandatory qualification of assessors as having an engineering degree in technical studies or architecture (5 years study and/or 3 years professional study and professional degree diploma in technical education - engineering or architecture). Minimum 5 years of working experience in their own professional area is needed. Professional experience is not defined in detail and it could be that it is relevant to the profession itself but not to energy efficiency in buildings. In order to keep the licence the expert must undertake further training and pass an exam every 5 years .

In Spain, energy certification assessors qualified to carry out certification are qualified to design a building and its technical installations (architects, engineers). No official data is elaborated about evaluation on the selection criteria for the Energy Auditors qualification.

According to the draft Presidential Decree **in Greece**, minimum qualification requirements are defined according to the different categories of energy auditors assessors, class A (allows audits only in residential buildings with a total surface of less than 1000 m²) and class B (allows energy audits in all buildings regardless of their use or total surface):

Engineers, graduates of technical universities (Class A & B)

- Graduates of technological educational institutes (only Class A, eligible for upgrade to Class B after having 5-year professional expertise as Class A Auditors)
- Already registered Energy Auditors in another EU country

In all cases, candidate auditors must successfully complete a training seminar, carried out by the Technical Chamber of Greece (TCG), and prove a 5-year professional or scientific expertise on subjects relevant to energy audits. TCG will also be responsible for carrying out the final seminar exams for the candidate auditors. Energy Auditors Licenses will have 10-year duration, after which a re-evaluation of the Auditor will take place. A Legal Entity (Company) may also apply for the Energy Auditors Registry if its members – partners (persons) are registered Energy Auditors

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

1. Professionals who are registered at the official association, demonstrating suitable design or energy auditing experience.
2. Any person with a technical-scientific background who attended a specific training course that required a final examination.
3. The background qualification diplomas have to be recognised by the regions and autonomous provinces.
4. The training courses have to be organised or authorised by the regions and autonomous provinces.

These general principles, stated at a national level, can be slightly modified to suit the regional conditions: 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 assessors 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

In Austria, qualification of Energy Certification Assessors is regulated by the Austrian Trade Law. The Austrian Federal Ministry of Economy, Family and Youth (BMWFJ) has published a decree on which professions are permitted to issue energy certificates. Legally authorized parties are:

- Chartered engineering consultants with relevant authorization,
- Engineering agencies of expertise within their trading license, master builders and master carpenters (timber construction)
- General legally accredited energy certification assessors in the relevant areas of expertise
- Accredited inspection authorities
- Technical departments of public enterprise bodies.

Additional training or an exam is not required. However, informal voluntary trainings do exist. People who are not amongst the professions mentioned above – even if they are experienced Energy Consultants – are not allowed to issue energy performance certificates.

For independent energy certification assessors that carry out the inspection of boilers, the requirements of ÖNORM EN 15378 ‘Heizanlagen in Gebäuden – Inspektion von Heizkesseln und Heizsystemen’ apply. For independent energy certification assessors for the inspection of air-conditioning and ventilation systems, the requirements of ÖNORM EN 13313 apply.

In Portugal, recognition of a qualified expert by their professional association requires:

1. Full membership of the Architects Association, or the Engineers Association (OE) or the National Association of Engineering Technicians (ANET).
2. Minimum of five years experience, on the basis of peer-analysis of their CV, carried out by elected boards within the professional associations.
3. Attendance of recognized courses and the passing a demanding national examination procedure that evaluates knowledge about the technical issues of the building regulations and the details of the certification system itself.

A list of qualified energy certification assessors is available online for the public at the ADENE website

It is expected that the validity of the professional category of independent energy certification assessors will be limited until future revision of the specific legislation. When that revision occurs, independent energy certification assessors will have to attend new training courses to obtain approval, and this will enable a constant control over energy certification assessors' level of knowledge, know-how and the work carried out.

All countries have acknowledged the competence of skilled technicians with long-term experience in building energy issues. National solutions differ in the selection of additional proofs (shorter training, exam, etc.). Training courses are usually an option for technicians with insufficient experience; however, course duration may vary significantly.

CONCLUSION

In order to progressively involve all existing buildings, Energy Certifications need to be perceived by consumers as a useful tool to improve the energy efficiency of the buildings and to increase transparency within the real-estate market.

An essential condition to achieve this goal is that Energy Certification Assessors should be able to provide strong and verifiable guarantees of professionalism and independence.

Such conditions are absolutely essential for consumers to consider Energy Certification not just another useless bureaucratic task.

For these reasons, Public Authorities should define minimum standards, as well as Energy Certification Assessor qualifications, according to the following principles:

1. Independence of ECAs regarding the commercial interests of the companies involved in construction and plant engineering, which should be verified both by self-certification of the interested subjects, valid from a public and criminal point of view, and by a control procedure carried out by Public Bodies.
2. Enrolling of ECAs in Public Professional Associations of Graduates from Universities of Engineering and Architecture, levels A and B (Professional Registers).
3. Professional Qualification of ECAs, through compulsory attendance of Training Courses organized by public or private Bodies or Organizations, based on educational programmes defined by Public Authorities.
4. Final Course exam, carried out the Public Body responsible for the educational programme, and qualification of ECAs, who, after passing the exam, should enrol in specific National or Regional Registers, managed by the same Public Body.
5. The Public Body responsible for Registers should then collect and file the Energy Certifications (EPC) issued by Energy Certification Assessors.
6. Random monitoring activities should be carried out to assess the quality of Certifications issued by ECAs, through document checking, as well as on-site visits and recalculation of energy performances for the buildings involved.
7. ECAs should undergo a compulsory professional update, at least every 5 years, regarding innovative energy technologies; in order to confirm the official validity of energy certifications.

3.7 QUALITY ASSURANCE OF TRAINING

In Austria, it can generally be assumed that the level of professionalism has been positively influenced by training activities. However, since training activities are voluntary, the number of participants is low compared with the number of professionals with permission to issue energy performance certificates. Since training activities in Austria are informal, official feedback and the monitoring system on the level of professionalism achieved is not in place yet. This means that no study on the qualification of the energy certification assessors and the influence of training is yet available.

In Portugal, quality assurance of training of all national audit assessors candidates is guaranteed by the final national examination required by ADENE. On the other hand, ADENE has promoted several meetings with recognised training organizations in order to monitor exams results and find out what subjects candidates show higher failure rates and what areas should be improved.

In the case of **Greece**, an official feedback system has not been set up and the different (positive and negative) results of the training cannot be monitored.

Quality assurance criteria applicable to training **in Italy** (e.g., in the Emilia Romagna region) include compliance of training courses with rigid schemes, approval of training course proposals by local authorities (Province education department) and random verification of administrative and educational quality (compliance with rules).

CONCLUSION

MS where training is already applied tend to have some sort of quality assurance system in place for checking compliance with applicable standards. Methods differ, including preparation of exams by external authorities and checking of correct procedures, ex-ante and ex-post.

The system adopted in Portugal for assessing the quality level of Training Courses appears to be the most effective: The Public Body that defines educational programmes and organizes courses is also responsible for preparing the final exams required for awarding qualifications.

3.8 QUALITY ASSURANCE OF ENERGY CERTIFICATION ASSESSORS AND INSPECTORS

In Spain and Greece, an official feedback system has not been created and the level of professionalism gained is not monitored.

In Slovenia, it is recommended that technical quality of calculated or metered indicators should be regularly checked against accuracy and repeatability (a suggested 1% to be checked).

In Austria, there is no standardised method for quality checks of energy performance certificates. Random checks on regional level have shown that there is a high number of inaccurate energy performance certificates, which may result from insufficient instruction among other reasons.

In Portugal, a mandatory QA (Quality Assurance) scheme was set up by ADENE- Portuguese Energy Agency, together with the system's supervisory entities and covers new and existing residential and non-residential buildings. One level of QA is a simple verification of the form and Energy Performance Certificate, checking that it accords with determined methodologies, without any complicated calculations or additional information requests to qualified energy certification assessors.

Another level of QA includes a full data review of calculations and a building audit in order to check its accordance with requirements and methodologies. Such an audit involves checking all the supporting documentation prepared and used by the expert (e.g. projects, drawings, reports, photos, etc.) and identification of possible differences and mistakes. In the case of existing buildings, energy certification assessors are requested to schedule a site visit and accompany the auditing team. Conclusions of the audit are shared with the expert and penalties may be applied when relevant faults occur. ADENE decides which certificates to check, based on several criteria, including initial certificates issued by the expert, any well-supported complaint, best-rated buildings, new buildings without mandatory solar systems and, of course, random selections in the database. At the moment, around 4,000 detailed QA processes have started and fines have already been issued due to incorrect application of thermal regulations and certification methodologies. The target is to reach a minimum 8% of audited certificates every year by 2011. In Portugal, such control mechanism means a strong (positive) pressure on the entire system, increasing the level of compliance of the different technical agents involved particularly engineers and architects. By the end of 2009, close to 4% of the certificates issued each month were subject to a detailed quality control.

The method for QA of EPC in Italy, proposed by the Ministry Guidelines and followed by most regions, is to appoint a public organisation for exerting a control of EPC compliance, based on analysis of issued documents, and/or possible in-situ checks. There is a fine foreseen in the transposition decree for false certification, due to the risk of altering the market.

CONCLUSION

There is a general tendency to define a QA system for EPCs, at least in the MS where low quality has been experienced for final products. No common views exist regarding organisation of an adequate system, the percentage of EPCs to be checked and required results accuracy.

Member States should seriously consider continuous quality monitoring of Certifications issued by ECAs. In fact, high levels of EPC accuracy have been found in cases where such monitoring has been carried out.

A valid system consists of carrying out random EPC monitoring, both through document checks and on-site visits, as well as recalculation of the energy performances of buildings.

3.9 MAIN OUTCOMES

TABLE 4 - OUTLINING THE STRENGTHS AND WEAKNESSES

1. Mandatory training

AUSTRIA	Yes	<input checked="" type="checkbox"/> No	Foreseen
	<u>Strength</u> Sufficient number of experts to issue EPC due to extensive qualification procedures	<u>Weakness</u> Great differences in the qualification of energy certificate assessors. No consistent training available	
ITALY	<input checked="" type="checkbox"/> Yes (some regions)	No	Foreseen
	<u>Strength</u> Wide range of training; A sufficient number of assessors is rapidly obtained through the training system.	<u>Weakness</u> Insufficient control regarding the work, level of knowledge and know-how of a large number of experts.	
GREECE	Yes	No	<input checked="" type="checkbox"/> Foreseen
	<u>Strength & Weaknesses</u> An official feedbacksystem has not been created and the different positive and negative aspects of the outcome of training cannot be monitored		
PORTUGAL	<input checked="" type="checkbox"/> Yes	No	Foreseen
	<u>Strength</u> It provides professionals with the same level of expertise	<u>Weakness</u> Risk of having insufficient experts in the field carrying out certification of buildings	
SLOVENIA	Yes	No	<input checked="" type="checkbox"/> Foreseen
	<u>Strength</u> Detailed training will be needed to bring a common approach to the assessors' core decisions	<u>Weakness</u> –	
SPAIN	Yes	<input checked="" type="checkbox"/> No	Foreseen
	<u>Strength</u> Professionals may carry out building energy certification without having attended a training course	<u>Weakness</u> Large differences in the qualification of energy certificate assessors	

2. National/Regional Exam

AUSTRIA	Yes	<input checked="" type="checkbox"/> No	Foreseen
	<u>Strength</u> –	<u>Weakness</u> A minimum level of quality is not ensured Large differences in the qualification of energy certificate assessors and in the quality of the issued certificates	
ITALY	Yes	<input checked="" type="checkbox"/> No	Foreseen
	<u>Strength</u> Approved training organisations responsible for regional exams. The system is simplified and quickly implemented	<u>Weakness</u> An internal exam is not always sufficiently demanding	
GREECE	Yes	No	<input checked="" type="checkbox"/> Foreseen
	<u>Strength & Weaknesses</u> An official feedback system has not been created and the different positive and negative) aspects of the outcome of the training cannot be monitored		
PORTUGAL	<input checked="" type="checkbox"/> Yes	No	Foreseen
	<u>Strength</u> It harmonises the level of knowledge demand It establishes a high level of training and tests outcomes in real practice	<u>Weakness</u> Risk of not having enough experts in the field to carry out certification processes of buildings	
SLOVENIA	Yes	No	<input checked="" type="checkbox"/> Foreseen
	<u>Strength</u> To be carried out by authorized organisations in order to ensure impartiality	<u>Weakness</u> Results are not yet available.	
SPAIN	Yes	<input checked="" type="checkbox"/> No	Foreseen
	<u>Strength</u> Professionals may carry out building energy certification without having attended a training course	<u>Weakness</u> Without an exam there may be significant differences in the qualification of energy certificate assessors and in the quality of the issued certificates	

3. Accredited training providers

AUSTRIA	Yes	<input checked="" type="checkbox"/> No	Foreseen
	<p><u>Strength</u> Energy advisors and experts can become trainers without additional education. The choice of trainers depends on the organisers of the training. No lack of trainers in the market</p>	<p><u>Weakness</u> Lack of quality in the training provided; no uniform training available</p>	
ITALY	Yes	<input checked="" type="checkbox"/> No	Foreseen
	<p><u>Strength</u> No lack of trainers in the market Each training organisation is responsible for trainer training (organisations must submit training proposals, for which approval is required).</p>	<p><u>Weakness</u> Training proposal lacks uniformity</p>	
GREECE	Yes	<input checked="" type="checkbox"/> No	Foreseen
	<p><u>Strength</u> —</p>	<p><u>Weakness</u> —</p>	
PORTUGAL	<input checked="" type="checkbox"/> Yes	No	Foreseen
	<p><u>Strength</u> Improvement on the level of training Promotes the availability of consistent training</p>	<p><u>Weakness</u> Limit the number of training courses in the market</p>	
SLOVENIA	Yes	<input checked="" type="checkbox"/> No	Foreseen
	<p><u>Strength</u> Professionals need only to demonstrate evidence of professional references in building design; No lack of trainers in the market</p>	<p><u>Weakness</u> —</p>	
SPAIN	<input checked="" type="checkbox"/> Yes	No	Foreseen
	<p><u>Strength</u> It improves consistency in the training</p>	<p><u>Weakness</u> —</p>	

4. Official entity for training administration

AUSTRIA	Yes	<input checked="" type="checkbox"/> <u>No</u>	Foreseen
	<p><u>Strength</u> Many possibilities to acquire knowledge - market offers different training activities so the expert can choose what is most suitable (e-learning, seminars, etc.)</p>	<p><u>Weakness</u> Available training not consistent</p>	
ITALY	<input checked="" type="checkbox"/> <u>Yes</u>	No	Foreseen
	<p><u>Strength</u> Training scheme is organized at a regional level- Many possibilities to gain knowledge - different trainings</p>	<p><u>Weakness</u> Training proposal lacks uniformity</p>	
GREECE	<input checked="" type="checkbox"/> <u>Yes</u>	No	Foreseen
	<p><u>Strength</u> To avoid differences in trainings</p>	<p><u>Weakness</u> Risk of excessive inflexibility</p>	
PORTUGAL	<input checked="" type="checkbox"/> <u>Yes</u>	No	Foreseen
	<p><u>Strength</u> To ensure reliability of training offer</p>	<p><u>Weakness</u> Risk of excessive inflexibility</p>	
SLOVENIA	<input checked="" type="checkbox"/> <u>Yes</u>	No	Foreseen
	<p><u>Strength</u> To avoid differences in the training</p>	<p><u>Weakness</u> Risk of excessive inflexibility</p>	
SPAIN	Yes	<input checked="" type="checkbox"/> <u>No</u>	Foreseen
	<p><u>Strength</u> The training scheme is organized at a regional level, many possibilities to acquire knowledge</p>	<p><u>Weakness</u> No consistent training available</p>	

5. Training activities monitoring

AUSTRIA	Yes	<input checked="" type="checkbox"/> No	Foreseen
	<u>Strength</u> Experts that were already active in the field of energy efficiency before the EPBD have now the possibility to open a new market without complicated restrictions	<u>Weakness</u> This means that no study about the qualification of the experts and the influence of trainings is yet available. A minimum level of quality is not ensured	
ITALY	<input checked="" type="checkbox"/> Yes	No	Foreseen
	<u>Strength</u> Compliance control is performed by Provincial educational departments, which may delegate this task on Universities or other public bodies .	<u>Weakness</u> –	
GREECE	<input checked="" type="checkbox"/> Yes	No	Foreseen
	<u>Strength & Weaknesses</u> An official feedbacksystem has not been created and the different positive and negative aspects of the outcome of training cannot be monitored		
PORTUGAL	<input checked="" type="checkbox"/> Yes	No	Foreseen
	<u>Strength</u> To improve the level of training offered and find out what topics candidates have higher failure rates in order to improve training in specific areas	<u>Weakness</u> Costly system	
SLOVENIA	Yes	<input checked="" type="checkbox"/> No	Foreseen
	<u>Strength</u> –	<u>Weakness</u> –	
SPAIN	Yes	<input checked="" type="checkbox"/> No	Foreseen
	<u>Strength</u> –	<u>Weakness</u> Differences in the level of knowledge and know-how of professionals who are allowed to issue the EPC	

6. Minimum field experience demand

AUSTRIA	Yes	<input checked="" type="checkbox"/> No	Foreseen
	<u>Strength</u> Specific professions have permission to issue EPC	<u>Weakness</u> Lack of quality in Energy Performance Certificates results in a loss of confidence in the certificate on the part of owners of buildings, etc	
ITALY	Yes	<input checked="" type="checkbox"/> No	Foreseen
	<u>Strength</u> Professionals will work with the necessary knowledge of the processes and technologies in compliance with laws and standards.	<u>Weakness</u> Professionals are not properly trained to provide home-owners with independent cost-effective recommendations, which leads to lack of credibility on the part of home owners	
GREECE	Yes	No	<input checked="" type="checkbox"/> Foreseen
	<u>Strength</u> 5 years experience	<u>Weakness</u> Engineering background criteria deprives graduates of physics, environmental etc, university schools, of the opportunity to become registered Energy Auditors, regardless of their background, post-graduate studies or professional experience.	
PORTUGAL	<input checked="" type="checkbox"/> Yes	No	Foreseen
	<u>Strength</u> Ensure the future quality of their certification activities in the field (5 years experience)	<u>Weakness</u> Limits the number of qualified experts in the field	
SLOVENIA	Yes	No	<input checked="" type="checkbox"/> Foreseen
	<u>Strength</u> 5 years experience	<u>Weakness</u> Limits the number of experts in the field	
SPAIN	Yes	<input checked="" type="checkbox"/> No	Foreseen
	<u>Strength</u> The same as demanded for designing buildings and their technical installations	<u>Weakness</u> Differences in the level of knowledge and know-how of professionals that are allowed to issue EPC	

4 NATIONAL AND REGIONAL INCENTIVES AND SUBSIDIES

Incentives are provided in all these countries and it has been proven that they have helped to promote investment in energy efficiency measures. Each country has its own experience with financial instruments, such as subsidies; revolving funds; (European) structural funds; regional funds; tax reduction; soft loans; financial penalties, etc.

The following table gives an overview of the most common financial instruments linked to energy-saving systems in buildings in the 6 countries within the Enforce Project.

TABLE 5 _ MOST EFFECTIVE FINANCIAL INSTRUMENTS

AUSTRIA

SUBSIDIES	SOFT LOANS	TAX REDUCTION	OTHER
Direct subsidies: a certain amount of money is refunded (% of investment costs, capped) (Housing subsidy scheme: EPC is required or higher subsidies can be allocated with an EPC than without one)	Soft loans for energy efficiency and RES use are linked with the social housing subsidy scheme. Subsidized loans: allowances on the annuity, beneficial interest rates, etc (exchange of boilers, installation of solar thermal system and PV systems and heat pumps and energy consultancy)	–	Feed-in tariffs for renewable energy (mainly from PV)

ITALY

SUBSIDIES	SOFT LOANS	TAX REDUCTION	OTHER
Municipalities open calls for providing citizens with subsidies, new RES systems oriented (i.e. they deliver a grant of 20% of the price of the residential PV system installed).		From 1997 until 2010, 55% income tax deduction of costs of energy saving refurbishment on both renovation of exterior building surfaces and technical equipment (electric, absorption cycle and geothermal heat pumps, condensing boilers, solar thermal collectors). The EPC is compulsory for all major interventions	The feed-in tariff is a national support scheme for upgraded /repowered, totally or partially renovated, reactivated or new plants meeting the following requirements: i) use of RES ii) nominal real power not exceeding 1 MW (200 kW for on-shore wind plants); and iii) commissioning after 31 Dec. 2007. Duration: 15 years. PV in buildings (up to 20 kWp) has an additional advantage, net metering. Many Italian banks are now proposing simplified (with low interest rates) PV financing systems

GREECE

SUBSIDIES	SOFT LOANS	TAX REDUCTION	OTHER
<p>National funding for retro-fitting buildings in terms of energy efficiency improvements:</p> <p>A 35% subsidy of the new technology air-conditioning unit price (with a limit of €500) was provisioned for each substituted unit. New units had to be certified as 'Energy Class A' as well as implement 'inverter' technology while old units had to be handed in for recycling at the point of purchase. This lasted from June to August 2009.</p> <p>Public funds were made available for the following measures categories: thermal insulation, replacement of window panes, green roofs, use of cool materials, shadow systems, night cooling and upgrade of the electromechanical and lighting equipment of the building</p>	<p>A number of banks have launched 'green' loans for facilitating private investors to initiate RES investments, mainly targeted at funding new PV stations. Moreover, a number of banks offer consumer loans regarding environment-friendly products and innovative technology related to saving energy</p>		

PORTUGAL

SUBSIDIES	SOFT LOANS	TAX REDUCTION	OTHER
<p>Grants of 50% non-refundable support on investment in solar thermal energy, particularly for the residential market. The support scheme foresees a rebate of €1,600 per system - for pumped and thermosiphon systems not dependant on size.</p>		<p>110% increase in the deduction related to house loans in the Individual Income Tax for class A/A+ level homes; (national incentive)</p> <p>A reduction of 25% to 50% of Municipality Tax on properties for class A/A+ level homes (until now only in force for houses in the Lisbon municipality, but others may follow)</p> <p>Insofar as the promotion of building energy, there is also a tax deduction of Individual Income Tax of 30% for investments in renewable energies and insulating materials up to a maximum of €803.</p>	

SLOVENIA

SUBSIDIES	SOFT LOANS	TAX REDUCTION	OTHER
<p>For households (Min. of Environment) 1996-2009 - loft insulation, draught-proofing, replacement of windows, heat billing and metering, installation of thermostatic valves and hydraulic balance of the system and insulation of the entire envelope</p> <p>2008 - 2009 for citizens to use RES and RUE in residential buildings (€1.5 million) Installation of solar heating systems, etc.</p>	<p>Environmental Public Fund (Eko Sklad) 2004-2008 allowed replacement of external doors and windows, thermal insulation of external envelope - walls, roofs, floor insulation, thermal insulation of panel of the unheated basement, etc.</p> <p>2010-2011 soft loans planned for citizens to use RES and RUE in residential buildings (€12 million); Interest rate: fixed nominal rate; 3.2% for loans with repayment term of 5 years; 3.9 % for loans with repayment term from 5 to 10 years</p>		

SPAIN

SUBSIDIES	SOFT LOANS	TAX REDUCTION	OTHER
<p>Castilla-León Region</p> <p>Direct subsidy for existing buildings of €50/m² for energy qualification 'A' and 15€/m² energy qualification 'B' in order to subsidise the extra cost of improving the certification class</p> <p>New buildings 75% of the total cost of the energy certificate.</p> <p>Envelope refurbishment</p> <p>New efficient heating systems</p> <p>Catalonia Region</p> <p>Incentive of 22% of eligible cost for new installations</p> <p>Control systems, energy tele-management, the incentive is 35% of the eligible cost</p> <p>Madrid region</p> <p>High efficiency glazing: renewal plan for window glazing €110 /m² including glazing plus carpenter</p> <p>Boiler renewal plan. Replacement of old boiler by condensing boiler: the incentive is €250 per boiler</p> <p>Domestic appliance renewal plan: the incentive is the replacement of old white appliances and ovens with a new A or A+ appliance.</p> <p>Indoor lighting: 22% of the total investment for the replacement.</p> <p>Elevators of high efficiency: maximum 35% of total investments cost.</p>	<p>Bonus on the interest rate of the loan needed to make the investment</p>		

Different experiences with financial instruments can be seen in the several countries, which makes it difficult to compare them with one another. There are advantages and disadvantages in all financial instruments:

- Subsidies are very popular and have a direct financial impact on building owners. Furthermore, they can be linked so as to encourage refurbishment, refurbishment of single components and for new buildings
- On the other hand, subsidy schemes have an impact on the market, which could lead to an increase in market prices
- Soft loans have a great effect, sometimes with less money than subsidies. They are less bureaucratic than public subsidies, and conditions can be adapted to the market easily at short notice.
- On the other hand, loans schemes have some negative impact on building owners who do not want to get into debt or who are already too far indebted to get further loans.
- Tax reduction has a great effect; for example, it can be provided by elements belonging to the building (i.e. heating system, solar system, isolation material, windows, etc)
- On the other hand, tax reduction in some cases may require specific conditions and involve bureaucracy, and thereby sometimes only attractive if they are long-term reduction taxes .

CONCLUSION

Citizens have to be clearly informed about the offers to help finance their energy saving measures in buildings, so there must be visibility for these financial instruments to become effective

All countries must adapt their financing instruments in order to request EPC and obtain proper information and the best solutions for saving energy in their buildings. The future involves linking national financial incentives to the certificates , and consequently promoting the evolvement of energy certification assessors

5 NATIONAL INFORMATION AND COMMUNICATION CAMPAIGNS

5.1 EFFECTIVE WAYS TO REACH CONSUMERS

The problem of the limited availability of informed and motivated professionals can only be tackled by specific training and education programmes. Information campaigns targeted at raising quality awareness amongst consumers and installers may ensure the added value of EPC and that energy efficiency solutions are used most effectively.

Society is moving towards providing consumers with more information and implementing a single labelling system is a positive measure. The information that is sent out and labels used should be simple, easy to understand, and should permit comparison between different energies only if the information is set out in the same manner.

Promoting energy efficiency and renewable solutions is constrained by the tendency of consumers to be sensitive to costs and their lack of awareness about the amount of energy they are currently consuming in the house. This makes it difficult for them to understand the benefits of energy efficiency measures in EPC.

The following activities may provide a suitable framework to allow the certification system to be applied quickly:

- Hire professional specialists to define and establish the best way to spread the message to the public and certain sector agents.
- Establish close contacts (protocols) with key players: municipalities (training sessions should be organised with their technical staff), real estate agencies, banks, consumers' associations, property owners associations and notaries (mailings); about 100 training sessions were organized in Portugal for over 1,500 municipality technical staff members.
- Mass media coverage (TV spots, regular articles in the press and magazines)
- Appear regularly in fairs, seminars and workshops; this has become a best practice in the several member states and effectively helps to disseminate information about the added value of EPC.
- Creation of call-centres

The ENERBUILDING project (equally funded within the IEE programme), with the same partners as ENFORCE (Spain, Italy Portugal and Greece), have provided assistance with very good results to consumers through a call-centre on energy performance of buildings in residential sector. In Portugal, ADENE (national managing body for the Energy Certification process) has a call centre, which provides information related to EPC and buildings regulations. The same phone number is used by different users but homeowners and qualified energy certification assessors are usually given priority. Citizens in Slovenia get their first contact to an energy advisor by phone within the scope of the energy

advisory network ENSVET, which includes 75 licensed energy advisors working on a part-time basis.

Creation of a structured network of independent energy certification assessors: a national network guaranteeing a certain level of quality or that serves as a communication and exchange platform for energy certification assessors.

In Slovenia, the Energy Advisory Network, ENSVET, has been giving advice since 1991 on energy-efficient refurbishment or new construction to improve energy efficiency. It includes 35 energy advisory offices at the municipal level (2 million inhabitants). These activities have proven successful throughout the years and there is a visible trend for the final energy consumption for heating in the country to lower. In Portugal, the ADENE network (national managing body for Energy Certification process) provides the general public with a list of contacts of all qualified energy certification assessors in the country, which is a starting point for consumers. A Slovenian network has been set up on a volunteer basis (there still is no national legislation governing such a network) while in Portugal the network has been set up following national legislation for the implementation of the European Directive. Both these network, the first informal and on a voluntary basis, have proved to be a very efficient means to give advice to consumers and to promote the certification of buildings.

In Austria, energy consultants of the provinces work with a pool of energy certification assessors that have been trained in line with the ARGE EBA curriculum and have passed an additional exam. The energy consultants are evaluated on a regular basis and have to deal with the results of their evaluations. This pool of energy consultants can be considered a form of network. It is often organised through an internet-based secured platform where consultants get comments, process documentation and receive feedback, news and other important information. Consumers know that if they decide to take advantage of the subsidized consultancy, they will receive valuable information for refurbishment measures.

In Italy, ADICONSUM manages the call centre for the Ministry tax credit initiative and has been working with end users for several years, providing information and advice (about 12,000 phone calls were received and processed between August 2007 and October 2009).

- **FAQS - Frequently Asked Questions**

The ENERBUILDING project foresaw the creation of a website with FAQ and had over 30,000 visitors. This work will also be carried out through the Enforce project. **In Portugal**, FAQ are available for the public at the ADENE website (national managing body for the Energy Certification process) and is regularly updated. **In Austria**, FAQ are provided on a wide range of websites on energy performance certificates, for example, those provided by the regional authorities and energy agencies.

- **Creation of central EPC databases**

In Portugal energy certification assessors issue EPC through a web-based centralised platform, and there is now data on nearly 300,000 buildings. **In Austria** there are some regional systems managed by the Länder (provinces) where they collect EPC that have been handed in to get the building permission or apply for subsidies. The provinces Salzburg, Carinthia and Styria use a database system called ZEUS, while Vorarlberg has its own system.

In Italy, most regions have created an online EPC database

The centralized data system is vital in order to extract the added value EPC as it allows for statistical analysis and improvement of requirements and incentive schemes, benchmarking for the revision of building regulations, what the average label is in the building stock market, the most recommended energy efficiency measures, etc. Additionally, it allows for the checking of the consistency of data, the quality control of the qualified energy certification assessors or energy consultants activities.

5.2 ACTIVITIES IN PROGRESS

In Austria there is no national information campaign dedicated to the energy performance certificate. The national programme 'klima:aktiv' includes the matter but it is not the main focus. There are regional official information campaigns. They include web-based information, brochures, FAQ, seminars and information events, etc. and they differentiate in content and comprehension. A list of links is provided in the National Report for Austria. The result of these official regional information campaigns is that the consumer can find some substantiated, independent information they can rely on because private information (companies, assessors, etc.) is not always accurate.

As in Austria, there is no national information campaign **in Italy** devoted to EPC. Information campaigns on energy certification in particular have been developed so far mainly at a local-regional level. Examples of such campaigns are those by the forerunners CasaClima and EcoAbita schemes or those implemented by local energy agencies. In relation to energy efficiency and energy saving in buildings (and related incentives-tax credits), national level information campaigns were promoted by ENEA (a wide range of booklets on general topics and on specific RES or EE systems), APAT (how to save energy and money in homes and apply for incentives) and RENAEL (brochure and seminars), often in cooperation or on behalf of the Ministries of Environment and Economic Development. Consumers associations also are playing an important role in informing and raising awareness among the public. The campaign developed by ADICONSUM within the scope of the ENERBUILDING project, whereby technical manuals and brochures were distributed and divulged, has shown to be quite effective (number of distributed materials: 163,200 GUIDES). NGOs (WWF, Legambiente, etc.) are also engaged in energy-saving initiatives and campaigns (see project "Un milione di condomini efficienti", etc.)

In Greece, since the drafting of the Regulation for the Energy Efficiency of Buildings and the Presidential Decree for the creation of the body of Energy Auditors, no major campaigns or activities have been carried out by public institutions. The Centre for Renewable Energy Sources (CRES), which is the Greek national organisation for the promotion of renewable energy sources, rational use of energy and energy conservation, has hosted a number of events related to energy efficiency in buildings, where Directive 2002/91 and Greek Law 3661/2008 and their impact were presented and publicly discussed on June 20, 2008, in Athens, under the projects REMODECE and EL-TERTIARY and on July 2, 2009, in Athens, under the project GREENBUILDING CRES. In the last 4 years, there have also been numerous workshops and conferences, organized by various associations, presenting the EPBD, the Greek Law 3661 adopting the Directive in the National Legislative Framework, as well as the draft Regulation for the Energy Efficiency of Buildings. Several events focused on energy efficient/sustainable buildings and cities, and others on broader or specific themes mostly energy efficiency/RES. In most cases, the European and Greek legislation on building energy efficiency, and issues concerning building energy certification and retrofitting schemes were widely presented and discussed.

In Portugal in the first stage of certification system, an information campaign focused essentially on municipalities and specialists and professionals in the building sector, hence, certification was only required for new buildings when they requested a construction permit. Now, practically all municipal services include the certificate in the list of documents required in a licensing process. For the residential sector, ADENE engaged with the key players involved in home buying and selling (notaries, real estate agencies, banks, etc.) to ensure they were aware of the changes and to get their involvement and support for the certification. These and other activities provided a suitable framework that allowed a fast application of certification. An advertising campaign was developed for the launch

of the SCE - Energy and Indoor Air Quality Certification System. The campaign slogan, 'Let's save energy to save Portugal' is being promoted on television channels, in the press and on the Internet. The concept to be conveyed is that all residential or service buildings will have a colour classification and one day, all will be 'green', that is economically efficient and environmentally friendly. This is represented by the image of a Rubik's Cube in a clear reference to the SCE's ultimate goal: to turn all of the cube's sides the same colour, in this case green.

In Slovenia, Energy advisory network ENSVET has been giving advice for energy efficient refurbishment or new construction to improve energy efficiency since 1991. In the course of this, the following activities were carried out to promote energy efficiency: 200 radio emissions and 200 professional articles/year, 100 lectures for households and homeowners and for young people at primary and secondary schools, more than 5,000 calls for professional, independent and free of charge advice for households have motivated a significant number of households to share their experience with ENSVET with other interested homeowners. In the course of the international EIE projects many energy awareness activities were carried out on this topic, i.e.: EIE E-Tool (municipalities, energy auditors), EIE BUDI (municipalities, public buildings, social housings, professionals), EIE Efcobuild (municipalities, citizens), EIE Datamine (government, municipalities, energy energy certification assessors, technology providers). In addition leaflets designed for citizens (E-Toll, BUDI, Efcobuild, Datamine) and brochures (E-Toll, BUDI, Efcobuild, Datamine) for key actors (municipality, building owners, energy auditors) were also prepared.

A national campaign focused on energy certification of buildings has not yet been implemented **in Spain**. Nevertheless, specific national campaigns that are managed by National Energy Agency should be pointed out:

- 'Campaign for Efficient Lighting' for residential sector
- 'Biomcasa programme': biomass incentives for the residential sector
- Publication of guidebooks on Normalisation, Energy Efficiency in Households, and Isolation Materials are elaborated by National Energy Agency and some local and regional energy agencies. Several campaigns are performed about energy efficiency and renewable energy sources in most regions.

CONCLUSION

Energy certification development depends on the consumer's level of awareness, which is strictly linked to both quantity and quality of the information given to citizens. All countries have implemented effective strategies of communication. Nevertheless a professional category able to properly access consumers is still missing in some countries. Straighten and focus on the attitude of the energy certification assessors in the market, must also be taken in consideration, as these professionals are the face of the certification scheme and represent a vehicle for stimulating more extensive dissemination and credibility of the EPC.

5.3 MAIN OUTCOMES

Contact with key players

AUSTRIA	ITALY	GREECE
<p>Yes</p> <p>Regional level</p> <p>Web-based information, newsletters and brochures</p> <p>Seminars</p> <p>National level</p> <p>Climate protection initiative 'klima:aktiv'</p> <p>4 clusters - one of them is buildings</p> <p>Training for professionals</p> <p>Building standards</p> <p>Best practice database</p> <p>Consultancy</p> <p>Networking</p> <p>Website AEA: one of the first to provide information on EPC</p> <p>PRIVATE INITIATIVES</p> <p>Banks, ESCOs, assessors, building networks, software companies, etc.</p> <p>Mainly websites</p>	<p>To be developed to reach different actors</p> <p>Information campaigns on energy certification have been developed so far at local-regional level mainly.</p> <p>Examples of such campaigns are: CasaClima and EcoAbita schemes or the ones implemented by local energy agencies</p> <p>Energy efficiency and energy saving in buildings at a national level, several promotions by ENEA (wide range of booklets on general topics and on specific RES or EE systems), APAT (how to save energy and money in house and apply for incentives) and RENEAL (brochure and seminars), often in cooperation with or on behalf of the Ministries of Environment and Economic Development</p>	<p>To be developed to reach different actors</p> <p>The Centre for Renewable Energy Sources (CRES) has hosted a number of events related to energy efficiency in buildings</p> <p>Technical Chamber of Greece (TEE-TCG) has also hosted a number of events related to energy efficiency in buildings</p> <p>The last couple of years, an increasing number of organizations and private firms operating in the area of the building market, real estate, environment, education, technology development, energy consulting, etc. have become involved in promotional activities concerning the potential implementation of the EPBD</p>
PORTUGAL	SLOVENIA	SPAIN
<p>Yes,</p> <p>Municipalities (about 100 training meetings were organized for over 1,500 municipality technical staff), Energy agencies, Banks, real estate agencies, property owners associations, consumers associations, notaries</p>	<p>To be developed to reach different actors</p> <p>100 lectures for households & homeowners and for young people</p> <p>more than 5,000 calls for professional advices on best energy solutions for households</p> <p>EIE E-Tool municipalities, energy auditors,</p> <p>EIE BUDI municipalities, public buildings, social housings, professionals),</p> <p>EIE Ecobuild (municipalities, citizens),</p> <p>EIE Datamine (government, municipalities, energy experts, technology providers).</p>	<p>To be developed to reach different actors</p> <p>National campaigns managed by National Energy Agency</p> <p>'Campaign for Efficient Lighting' in the residential sector</p> <p>'Biomcasa programme': biomass incentives for residential sectors</p> <p>Publication of guidebooks about Normalisation, Energy Efficiency in Households, and Isolation Materials are organised by the National Energy Agency and some local and regional on energy agencies</p>

Mass media coverage

AUSTRIA	ITALY	GREECE
<p>Yes, but not focusing only on the Energy Certification system</p> <p>Climate protection initiative 'klima:aktiv'</p> <p>Information material (brochures, flyers, website) and awareness raising (TV, fairs, events, etc.)</p> <p>National public broadcasting company ORF (TV and radio)</p>	<p>Yes, at a regional level, focusing only on consumers</p> <p>A more relevant budget should be available and spent on communication of Energy certification of buildings aspects-campaigns towards consumers.</p>	<p>Yes, at press level, magazines, newspapers</p>

PORTUGAL	SLOVENIA	SPAIN
<p>Yes,</p> <p>National campaign SCE- Energy and Indoor Air Quality Certification System. The campaign slogan, 'Let's save energy to save Portugal' is being promoted on television channels, in the press and on the Internet</p>	<p>Yes</p> <p>Energy advisory network ENSVET: 200 radio emissions and 200 professional articles/ year</p>	<p>Yes</p> <p>Publication of guidebooks about Normalisation, Energy Efficiency in Households, and Isolation Materials are organised by the National Energy Agency and local and regional energy agencies</p> <p>Consumer organizations, such as CECU, OCU, etc. write articles about energy efficiency.</p> <p>NGO as WWF, Greenpeace, organize campaigns about efficient lighting and the non-utilization of fossil fuels.</p>

Regular promotion on fairs, seminars and workshops

COMMON PRACTICE PERFORMED IN EVERY COUNTRY,
<p>Raising citizens' awareness about the added value of building's certification must be carried out not only in fairs, seminars, and workshops related with Energy Savings and Sustainability, it must also be promoted in fairs and workshops related to building matters, real-estate, leisure events (summer festivals, etc), equipment providers (boilers, air conditioning, solar collectors, etc), etc.</p>

Creation of call Centres

AUSTRIA	ITALY	GREECE
Not implemented	<p>Yes</p> <p>The ENERBUILDING project (funded within the IEE programme), with the same partners as ENFORCE (Spain, Italy Portugal and Greece), has provided assistance to consumers through a call centre on energy performance of buildings in the residential sector with very good results</p>	Not implemented

PORTUGAL	SLOVENIA	SPAIN
<p>Yes,</p> <p>ADENE (the national managing body for energy certification process) has a call centre, which provides information about EPC and buildings regulations</p>	<p>Yes</p> <p>In the scope of the energy advisory network ENSVET, including 75 licensed energy advisors working on a part-time basis, citizens get their first contact with an energy advisor on the phone</p>	<p>Yes</p> <p>The ENERBUILDING project (funded within the IEE programme), together with same partners as ENFORCE (Spain, Italy Portugal and Greece), have provided assistance to consumers through a call centre on energy performance of buildings in residential sector with very good results</p>

Creation of network of independent energy assessors

AUSTRIA	ITALY	GREECE
<p>Yes, not specifically of energy assessors</p> <p>Energy consultants of the provinces work with a pool of recognized experts that can be considered a kind of network. It is often organized through an internet-based secured platform where consultants get information, process documentation and receive feedback, news etc.</p>	Not implemented	Not implemented

PORTUGAL	SLOVENIA	SPAIN
<p>Yes,</p> <p>ADENE provides citizens with a list of contacts of all qualified experts in the country, which is a starting point for consumers</p>	<p>Yes, not specifically of energy assessors</p> <p>An Energy advisory network ENSVET has since 1991 been giving advices for energy efficient refurbishment or new construction to improve energy efficiency. It includes 35 energy advisory offices on the municipal level (2 million inhabitants).</p>	Not implemented

Official FAQs

AUSTRIA	ITALY	GREECE
<p>Yes,</p> <p>In Austria, FAQ are provided on a wide range of websites about EPC, for example provided by the regional authorities and energy agencies</p>	<p>Not implemented in the scope of EPC system</p> <p>The ENERBUILDING project foresaw the creation of a website with FAQ and was visited by over 30,000 visitors,</p>	<p>Not implemented in the scope of EPC system</p>
PORTUGAL	SLOVENIA	SPAIN
<p>Yes,</p> <p>Available on ADENE's website; easy way to clarify legislation and improve the training process/materials. Preparation of FAQs is a good starting point to decrease the volume of queries about the EPC system.</p>	<p>Yes,</p> <p>In the scope of the energy advisory network ENSVET</p>	<p>Not implemented in the scope of EPC system</p> <p>The ENERBUILDING project foresaw the creation of a website with FAQ and has had over 30,000 visitors so far.</p>

Creation of central data base of EPC

AUSTRIA	ITALY	GREECE
<p>Yes, in some regions</p> <p>In Austria, there are some regional systems managed by the Länder (provinces) where they collect EPC that have been handed in to get building permission or to apply for subsidies. The provinces Salzburg, Carinthia and Styria use a database system called ZEUS, while Vorarlberg maintains their own system.</p>	<p>Not implemented</p>	<p>Not implemented</p>
PORTUGAL	SLOVENIA	SPAIN
<p>Yes,</p> <p>web-based centralised platform with data on nearly 300,00 buildings so far.</p>	<p>Not implemented</p>	<p>Not implemented</p>

These best practices have been identified in order to guarantee suitable and effective communication to consumers and a real awareness-raising at all society levels.

It worth mentioning the Austrian conclusions as they are relatively common to each country. Each member state has a broad range of ongoing activities. However, the quality of information material differs a great deal and official campaigns should therefore be promoted.

It is therefore recommended that national and regional authorities invest in improving the quality of information provided on the already existing information platforms rather than creating new activities.

6 CONCLUSIONS: BEST PRACTICES & RECOMMENDATIONS

The need for a consolidated and properly structured network of energy auditor is based on the following identified best practices:

1. Creation of a well-structured network platform of independent energy certification assessors
2. Training of independent energy certification assessors should be mandatory
3. Limited validity of the professional category of independent energy certification assessors
4. Monitor and control of the independent energy certification assessors certification activities
5. Regulation on EPC elaboration costs
6. Linking financial incentives to EPC
7. Creation of a central EPC data collection managed by an national official entity
8. Carry out periodic information campaigns aimed at consumers

These best practices guarantee consumers, and therefore the system, that the qualification of auditors is of a high standard, which thereby guarantees that the paid price for the work carried out is proportional to the quality of the service received.

Furthermore these best practices also guarantee that the auditors have a suitable and proper work market and ensures their jobs.

6.1 CREATION OF A WELL-STRUCTURED NETWORK PLATFORM OF INDEPENDENT ENERGY CERTIFICATION ASSESSORS

WHY

To create the necessary framework to bring together major qualified professionals and enterprises at end users service on a European level, so as to connect people and help final consumers with energy certification and performance of buildings and related issues, thereby improving ways to exploit shared resources.

The network thus offers advantages to both consumers and energy certification assessors. Consumers receive a service from members of a qualified, recognized and structured network that also acts as a guarantee for the needs and levels of service. In fact, the creation of a network of independent and qualified experts guarantees that valid and useful energy certifications are issued to end users, thus encouraging them to obtain EPCs for existing buildings, as well as increasing the transparency of the real-estate market and promoting energy upgrading in buildings. Experts, as part of the network, can promote their services to consumers as a quality one.

6.2 TRAINING OF INDEPENDENT ENERGY CERTIFICATION ASSESSORS SHOULD BE MANDATORY

WHY

To ensure that all qualified energy certification assessors have a similar level of knowledge. These professionals must attend recognised national or regional courses (with officially established requirements) and pass a demanding national examination that evaluates their knowledge about the technical requirements of the building regulations and the details of the certification system itself. This way the general public can assured about the credibility of EPC, which will then promote further reproductions of the building's energy rating works.

Training of energy certification assessors should also be proportional to the level of achieved qualifications, the participants' level of education, course duration and the level of achieved certification. There should consequently be more than one course and each should train energy certification assessors for specific types of certification.

By making training mandatory (furthermore if it modulated), consumers can be guaranteed a high professional level of services offered by the energy certification assessors as well as limiting the number of energy certification assessors and this will help the job market of energy certification to grow (in quantitative terms) proportionally to the needs of consumers.

In fact, if anybody (without specific requirements or continuous training) could be an auditor, there would be too many auditors (quantitatively) without very high standards and the job market would be saturated.

6.3 LIMITED VALIDITY OF THE PROFESSIONAL CATEGORY OF INDEPENDENT ENERGY CERTIFICATION ASSESSORS

WHY

To ensure that professionals are subject to renewal pending proof of continued training (with exam) and absence of malpractice. This will in the long term guarantee consumers a proper level of professionalism in energy certification assessors and therefore in the services they offer.

It is essential that Energy Certification Assessors attend training courses (involving a final exam) at least every 5 years, in order to remain updated regarding new technologies, thus confirming their registration with specific Energy Certification Assessor lists (Registers).

6.4 MONITOR AND CONTROL OF THE INDEPENDENT ENERGY CERTIFICATION ASSESSORS CERTIFICATION ACTIVITIES

WHY

To ensure that assessments and inspections are carried out and certificates and recommendations for improvements are issued in an objective and fair/consistent manner. Companies may be involved to ensure quality assurance, although managed and supervised by an official national or regional entity to avoid conflicts of interest. Similar buildings (maybe even the same house) can be certified by different consultants and they would need to come to the same conclusion or at least to results which are very close, otherwise, the whole scheme would be undermined and open to criticism.

An effective EPC quality monitoring system has been adopted in Portugal: random analysis of EPCs sent to the Public Body responsible for managing the network, both through document checks and on-site visits, as well as recalculation of energy performances for the buildings involved.

6.5 REGULATION ON EPC ELABORATION COSTS

WHY

Consumers look for value for the money they pay to the qualified expert. In situations where the price is not regulated, there is no guarantee about the relationship between the quality of the service and the price paid, especially if it is a national obligation and the market is not controlled.

For example in Italy as prices are not regulated and as certification is a national obligation, energy certification assessors tend to increase prices for no real reason. In Portugal, one part of the cost is fixed and the other part determined by the market. A fixed legislative tax of €45 for single flats or single family houses and €250 for non-residential buildings is charged for each certificate issued in the system, plus the price charged by the expert for their work. The fixed cost, or the registration fee paid for each EPC, is used to finance the activity of quality assurance control of independent experts.

6.6 LINKING FINANCIAL INSTRUMENTS TO EPC

WHY

Consumers' sensitivity about costs and their lack of awareness is an obstacle for promoting energy efficiency and renewable solutions. Consumers are very cost-oriented and tend to prefer to invest in cheaper technologies as compared to more environmentally friendly technologies. So, to achieve real energy savings in this sector, there have to be good incentives for improving existing buildings. This is seen as vital for the effectiveness of the scheme.

All countries must adapt their financing instruments to require an EPC so that citizens can be properly informed and given best solutions for saving energy in their buildings and consequently for saving money. The future requires linking national financial incentives to certification.

6.7 CREATION OF A CENTRAL EPC DATA COLLECTION MANAGED BY AN NATIONAL OFFICIAL ENTITY

WHY

In order to store all energy results and data (at national or even at regional level) in a central database for future monitoring of progress (incl. EPBD implementation). It will enable statistical analysis of information such as: number of energy certification assessors, number of certificates issued, geographic distribution, primary energy consumption, CO₂ emissions (estimated), energy demand by type of use, type of energy systems used, solar collectors installed, ventilation rates, etc. It will also facilitate quality control, given that with a central EPC data, results of any unusual or suspect data can be easily detected and become the basis for audits (access control) to be carried out. Furthermore, such a database will also be used to produce useful information for the process of periodical revision of technical regulations, where a possible tightening of minimum requirements, as well as a change or optimization of some operational rules, is likely to occur.

6.8 ORGANISED AWARENESS BUILDING CAMPAIGN PROPERLY TARGETING THE VARIOUS ACTORS

(NATIONAL OR REGIONAL OFFICIAL INFORMATION CAMPAIGNS, SETTING UP CALL-CENTRES MANAGED BY AN INDEPENDENT OFFICIAL EXPERT ENTITY, FAQs)

NATIONAL OR REGIONAL OFFICIAL INFORMATION CAMPAIGN

WHY

To explain and focus the message to everyone from policy makers to the general public of the added value of EPC, especially with regard to saving energy and thus money while improving home comfort. Furthermore, to encourage key players to become involved in building construction and home buying and selling (municipalities, notaries, real estate agencies, banks, etc.) and ensure they are aware of the changes in legislation and to make them more involved in and supportive of certification.

CREATION OF CALL-CENTRE MANAGED BY AN INDEPENDENT EXPERT ENTITY

WHY

To promote an easy and direct channel for communication, making information about EPC always available, and also to provide qualified energy certification assessors with data and information that they require for their certification works.

OFFICIAL FAQs

WHY

They have demonstrated that they are an easy way to clarify legislation and to improve the training process/materials. Preparation of FAQs is a good starting point to decrease the volume of queries. The ENERBUILDING project foresaw the creation of a website with FAQs and had over 30,000 visitors. This will also be carried out through the Enforce project.

Member states who are just getting started will benefit from these best practices and lessons learned from other countries. This helps them design and implement policy in their own countries. Member states that are already more advanced will be inspired by the other countries and adjust or improve their policy or implementation.

7 REFERENCES, CONTACTS AND LINKS

- National reports elaborated in the scope of ENFORCE project
- Report_CT5_financial_instruments_berlin09, Financial instruments- maximising the impact of EPBD, Berlin Meeting, June 15, 2009
- Feasibility Analysis for energy efficiency technologies in residential buildings of Portugal, partnership of ADENE and Manchester Business School, University of Manchester, 2nd November 2009.
- Extracting Added Value from EPC databases, Amsterdam meeting, January 2010

The Enforce project aims to provide final consumers (individuals, citizens, householders, building and local administrators, young students, pensioners, public- and private-sector decision makers, etc.) with a means to obtain independent and third-party information and assistance on energy certification and performance of buildings, in order to remove non-technological (particularly commercial) obstacles to efficient and intelligent energy consumption patterns. The project will

- Carry out studies at a national level on the current state of implementation (activities undertaken and results achieved) of the European Directive 2002/91/EC on Energy Performance of Buildings (EPBD) and a European comparative study containing also identified best-practices,
- Create a trans-national network of independent, third-party expert energy auditors (through a validation procedure and the signature of agreements to be defined) to assist final consumers on all energy-performance related issues
- Set up a call-centre in each participating country which will act as first contact point and provide the consumer with information and act as mediator with the network
- Launch a large-scale awareness-raising and public information campaign to promote the call-centre and network services and thus qualify the market for implementation of the EPBD.

This document is an outcome of these project, and it presents a comparative analysis of the certification market background in partner countries within the Mediterranean area, outlining the best practices in each country, essential to improve or, in some cases, implement the building certification process in the field, focusing on main issues, such as:

- Energy auditor training and qualifications
- Incentives and subsidies
- Divulcation campaigns

This comparative report on building certification and energy auditors training in Europe is an outcome of the ENFORCE project (European Network for Energy Performance Certification of Buildings) supported by Intelligent Energy - Europe, 2008 program, and with co-funding from 6 national teams (ADENE, Portugal; ADICONSUM, Italy; EPTA, Greece; ESCAN, Spain; ZRMK, Slovenia and AEA, Austria)

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