



CHANGE BEST

Energy Efficiency Services

Market development

Energy and energy service companies

Task 2.3: Analysis of policy mix and development of Energy Efficiency Services

Change Best: Promoting the development of an energy efficiency service (EES) market – Good practice examples of changes in energy service business, strategies, and supportive policies and measures in the course of the implementation of Directive 2006/32/EC on Energy End-Use Efficiency and Energy Services.

A project supported by the Intelligent Energy Europe Programme of the European Commission (IEE/08/434/SI2.528383).

A main objective of the Directive 2006/32/EC on energy end-use efficiency and energy services (ESD) is to stimulate the market for energy services and for the delivery of other energy efficiency improvement measures to final consumers. In order to achieve this objective, the ESD gives a special role to energy distributors, distribution system operators and retail energy sales companies. On the other hand, there are different types of "pure" energy service companies (ESCOs) in the market ready to expand their business in the field of energy efficiency services (EES).

Against this background, it is important to know, how and to which extent the EES market could be further developed, what are appropriate business strategies and promising services not only for "advanced" companies but also for "beginners", what is a policy framework suitable to stimulate market development and to overcome existing barriers, and which role energy companies developing towards sustainable ESCOs could play.

The main objectives of ChangeBest are:

- to assist energy companies and ESCOs in entering the B2B and B2C market for EES,
- to contribute to the development of the EES market as part of the implementation of the ESD,
- to demonstrate good practice in implementing the ESD.

In order to achieve the objectives specified, the project work will consist of:

- empirical analysis of the EES market and the respective economic and policy framework in the course of the implementation of the ESD,
- exchange of experiences, national workshops and a European conference,
- a large bundle of promising EES business cases and strategies implemented in "field tests",
- communication and dissemination activities, and
- induced further action and networking by energy (service) companies.

The analysis of the, positive or negative, effect of policy measures on the provision of Energy Efficiency Services is the main objective of this report.

For the purpose of this paper, the following definitions have been applied:

Energy Efficiency Service (EES): Agreed task or tasks designed to lead to an energy efficiency improvement and other agreed performance criteria. The EES shall include energy audit as well as identification, selection and implementation of actions and verification. A documented description of the proposed or agreed framework for the actions and the follow-up procedure shall be provided. The improvement of energy efficiency shall be measured and verified over a contractually defined period of time through contractually agreed methods [prEN 15900:900].

Partial services connected to EES: Services that just include parts ("components") of the EES chain like energy audits, but are designed to directly or indirectly lead to an energy efficiency improvement.

Energy Efficiency Service Company (EESC), ESCO or EES provider: an entity that delivers EES

Partial EES provider: an entity that delivers partial services connected to EES

Date

15 April 2010

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SEVEn	Czech Republic
ESB - Energy Saving Bureau	Estonia
ARMINES	France
EDF – Electricity of France	France
ASEW -	Germany
ULUND - Lund University	Sweden
HELESCO S.A.	Greece
eERG - Politecnico di Milano - Energy Department	Italy
Ekodoma	Latvia
ISR – University of Coimbra	Portugal
ECN - Energy research Centre of the Netherlands	The Netherlands
BSREC - Black Sea Regional Energy Centre	Bulgaria
Energy Piano	Denmark
REACM - Regional Energy Agency of Central Macedonia	Greece
KISE - Krakow Institute for Sustainable Energy	Poland
CESYS - Center for Energy Systems	Slovakia
IJS - Jozef Stefan Institute – Energy Efficiency Centre	Slovenia
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Introduction

The analysis of the positive or negative effect of policy measures on the provision of Energy Efficiency Services (EES) is the main objective of this report. To this end an analysis structure has been developed that describes in general how policy measures stimulate energy savings and how they can influence the demand for, and supply of, EES in countries. Based on this structure the policy measures of countries have been selected and analysed as to their effect on EES.

First the country reports from WP2.1 have been used as a source, as they contain a section on policy mix and EES, for the inventory of policy measures. As additional sources were used:

- the MURE-database on (existing) policy measures [MURE]
- the National Energy Efficiency Action Plans (NEEAPs) on (planned) policy measures, due to the Energy Service directive [NEEAP, 2007].
- Survey on Energy Service companies (ESCO) from JRC [Bertoldi, 2007].

In order to limit the work on the vast number of policy measures in MURE and NEEAPs the analysis has been limited to categories of policy measures that are relevant for EES. These policy measures, either existing or proposed, promote EES in one way or another, but some can also restrict the EES market. Special attention was given to the effect of policy on EESC (Energy Efficiency Service Company).

The report is structured as follows: in **chapter 1**, the general analysis structure is presented, including relevant characteristics of EES in relation to policy.

In Chapter 2 an overview is given of sources and the policy measures that affect the market for EES.

Based on these findings an analysis per country is done in chapter 3 on policy mix and EES.

Finally, conclusions are drawn and recommendations are made in chapter 4. The detailed findings are presented with an inventory table in annex A.

1 Policy measures, provision of EES and energy savings

This introductory chapter shows how energy efficiency policy measures stimulate energy savings and how Energy Efficiency Services (EES) fit in. Based on this analysis a structure is defined for the analysis of the influence of policy measure types on the supply of, and demand for, EES.

1.1 Policy measures types, actors and energy savings

1.1.1 Policy and means to realise energy savings

Figure 1 shows a general scheme with policy, actors and savings. In line with the categorization in [MURE] the policy measures can be divided in the following types:

- Regulation on implementation (standard), information (label), inspection or advice
- Financial support: subsidy on advice, subsidy or fiscal deduction on measures, cheap loans or fund/guarantee
- Taxes (energy and/or CO₂)
- General information (awareness) and education
- Co-ordination (voluntary agreements)
- Market instruments
- Procurement

These policy measures stimulate energy savings for end-users by the following means [Boonekamp, 2007]:

- providing saving options with help of R&DD¹
- raising awareness on the need to save energy
- giving information on the saving possibilities
- lifting organisational restrictions, such as the split incentive between renters and landlords, by agreements with both parties
- lifting the financing problem by external financing (off-balance), soft loans or other funding schemes
- making saving measures more attractive by energy taxes or financial support
- enforcing proven saving measures by mandatory implementation or performance standards
- ensuring a proper use of efficient systems and buildings by structurally influencing daily energy consumption
- creating market based mechanisms to stimulate implementation of cost-effective measures for energy savings.

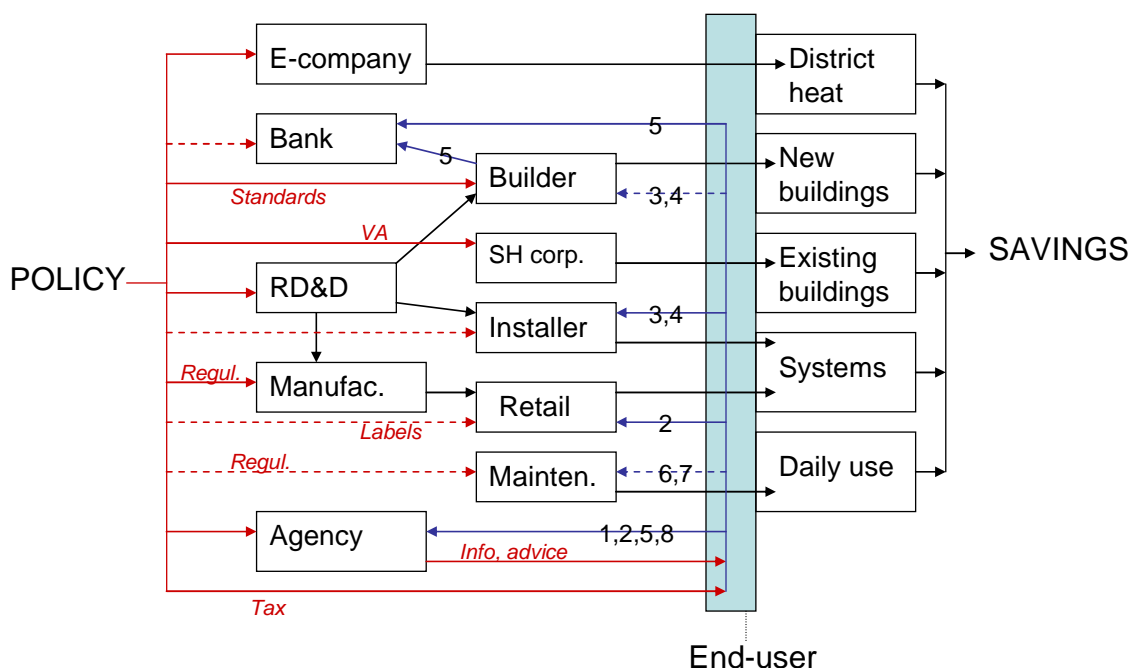
¹ Research & Development and Demonstration.

1.1.2 End-use savings and intermediate actors

The energy savings for end-users can be roughly divided into savings for new buildings, existing buildings, energy using systems and savings in daily energy use (see figure 1). The use of district heat instead of fuels for heating can also save energy, provided that the heat is produced efficiently in cogeneration units.

Most policy measure types focus on energy efficient buildings or the implementation of new more efficient systems, such as cars, industrial processes and appliances (see also Annex B). Only policy measures, such as an energy tax and information campaigns, also influence behaviour or organisational structures that determine daily energy use.

Figure 1: Scheme on policy, actors and end-use savings, with EES-activities²



Part of the policy measure types influences directly the end-users, such as taxes, information and subsidies for efficient appliances. However, many policy measure types focus on so-called intermediate actors (see Figure 1):

- energy companies (E-company), e.g. policy on district heating
- building companies (Builder), policy on standards new buildings
- installation / maintenance companies (Installer / Mainten.), mandatory inspection
- social housing corporations (SH corp.), voluntary agreement
- retail shops (Retail), mandatory labels
- manufacturers of appliances (Manufac.), minimum efficiency standard
- banking sector (Bank), tax deduction for green financing.

² The numbers depict EES activities (see section 1.2)

These intermediate actors realise energy savings at the end-user's place by means of constructing new low-energy buildings, insulating existing buildings, installing efficient energy systems, selling efficient appliances or promoting energy saving behaviour. Moreover, energy companies can provide district heating to end-users which saves primary energy.

1.2 Provision of EES

1.2.1 EES categories

The European standard on Energy Efficiency Services [CEN, 2009] defines EES as an agreed task or tasks, designed to lead to an energy efficiency improvement and other agreed performance criteria³. The energy efficiency improvement (EEI) can be of a technical nature (i.e. replacing or improvement of energy systems), organisational nature (better use of technology) or behavioural nature (changing daily energy use).

EES can be categorised as to different aspects: target group (sectors and type of use), technology addressed (space cooling, industrial process or solar boilers), provider type or type of activity. In this general analysis a distinction is made as to activity types. As to providers of EES the focus is on EESC which can be independent or being a subsidiary of an energy company or a subsidiary of other companies. Where relevant, the other differences will be dealt with in the detailed analysis in chapter 3.

In the ChangeBest project the following types of activities are distinguished:

1. awareness raising
2. information and advice
3. identification of measures
4. technical planning
5. financing and subsidies
6. operation, supervision
7. optimization of technical operation
8. measurement and verification of savings.

The order of presentation shows an increasing involvement in realising energy savings at the end-user's site. This order is called the "**EES value chain**".

1.2.2 Situation without EES market

Many countries have realised substantial energy savings in the past, (see [Odyssee, 2008]). Often this has been accomplished without the presence of an EES market as promoted by the ESD. Figure 1 gives an (incomplete) overview of EES activities that are provided by the different actors mentioned earlier.

Awareness raising, e.g. information campaigns on the climate problem, is often done by agencies that are directly financed by government. These agencies or dedicated information centres also provide **information and advice** on saving

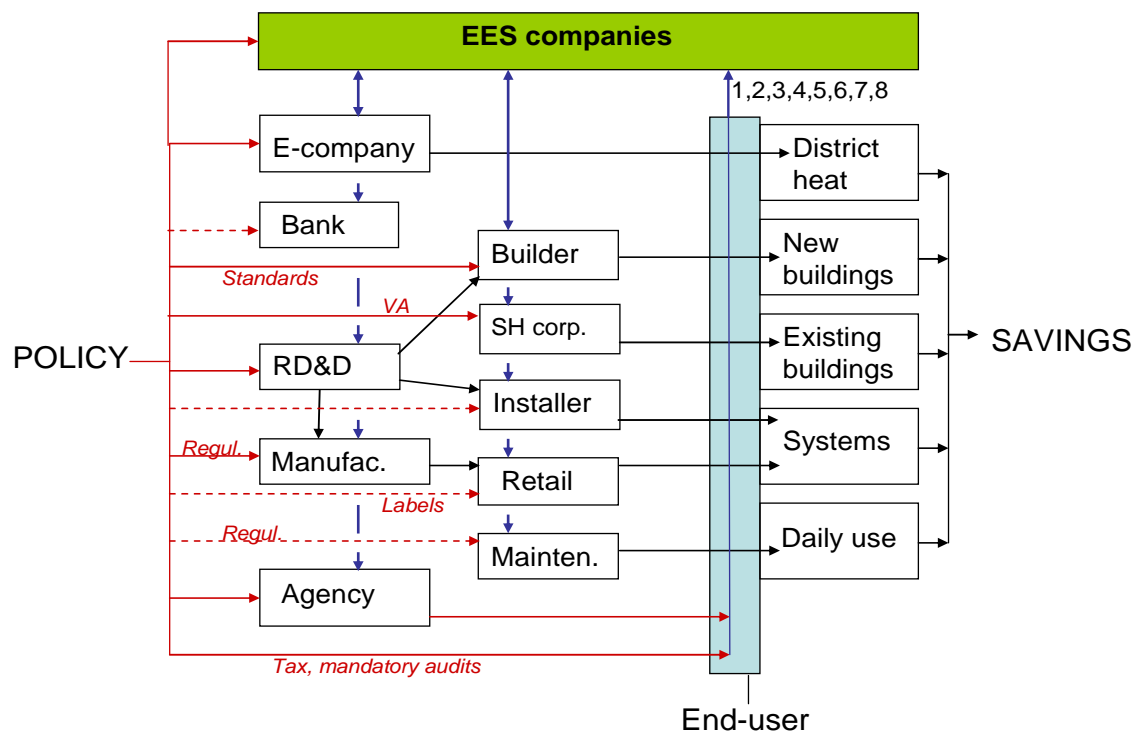
³ The standard also requires that EES encompasses audits, implementation of measures and monitoring & verification

measures to be taken. The **identification of measures** can be done by the installer or by independent auditing experts. The **technical planning** can be done by the installer or the builder (for large energy users in collaboration with their own technical staff). For **financing** banks play a role or end-users themselves deal with this issue. Schemes for **subsidies** or fiscal facilities are often managed by agencies or other government bodies. The daily **operation** of energy supply systems is normally done by the energy users themselves. **Optimization of the technical operation**, if done, takes place in combination with maintenance (for large users by own technical staff). Finally, **measurement and verification** of savings, as part of e.g. voluntary agreements, will be done by the partners in the agreement: energy user and agency.

1.2.3 Situation with fully developed EES market

In figure 2 the same structure from policy measures to savings is shown, but now with EESC realising the savings together with end-users and intermediate actors.

Figure 2: Scheme on policy, actors and end-use savings, with EES Companies



It can be observed that end-users only have to deal with the EES Company to realise the savings. All types of EES activities are taken care of by the EESC, even some activities of agencies (e.g. awareness raising by info-campaigns). The EESC collaborates with builders, banks, installers, manufacturers, shops, etc.

It has been assumed that all existing policy for end-users or intermediate actors remains in place. Policy specifically aimed at EESC is added (e.g. special funding for EESC). Policy directly focusing on end-users can also have effect on EESC via the bar representing the end-user.

In reality, a mix of both archetypical systems, shown in figure 1 and 2, will be present. The EES market may only regard part of all EES activities or only some end-use sectors, or the EESC may collaborate with some intermediate actors only.

When comparing the situation with and without EES market the following general observations can be made:

- EESC do not act in isolation but have to find a position in a field where many actors already provide EES to end-users
- policy can directly stimulate the (activities of) EESC, but these companies still make use of the same other policy measures that are also valid for other actors or end-users
- if policy measures press or stimulate end-users to save energy this can create a demand on EESC, but at the same time it creates a demand for EES from other intermediate actors.
- If policy measures press or stimulate intermediate actors to save energy at the end-user site this can be positive for EESC (e.g. mandatory maintenance that creates a new market for external assistance). However, it can also be negative by removing a market for EES (e.g. a standard on new dwellings will be implemented by builders without the assistance of EESC). Finally, it can be neutral if intermediate actors and EESC have the same advantage (e.g. in case of a simple subsidy scheme).

Based on this analysis a structure is defined to analyse the influence of policy measures on the EES market.

1.3 Influence of policy measure on provided EES

1.3.1 EES and means to save energy

In section 1.1 different means to realise energy savings have been described, such as information on saving options and financial support to make them attractive. In section 1.2 the various EES activities have been described, without and with EESC. It proves that EES activities are connected to most of the means needed to realise savings:

- make options available > planning (of demonstration projects)
- raise awareness > info campaign on awareness
- show saving possibilities > information and advice (centre), identification and planning
- lift organisational restrictions > planning with different parties (broker function)
- lift financial problems > organise TPF with bank (broker function)
- enforce implementation > planning (for optimal solutions to performance standard)
- proper daily use > operation and optimization.

However, means such as making saving measures more attractive (by financial support or taxes) have no direct relationship with EES activities. Some means, such as enforcing saving measures, can even limit the room for EES (e.g. the need for advice and identification of options).

1.3.2 Policy for an EES market and companies

Policy measures can enhance energy savings by:

- (a) stimulating EES activities that are connected to means for realising savings
- (b) directly stimulating means to save energy.

An example of **stimulating EES activities** is the erection of information centres that give information and advice to end-users about saving options. This information is needed as a step in the implementation of saving measures. An example of **directly stimulating means** to save energy is a subsidy scheme that makes saving measures profitable. Making saving measures attractive does not need EES activities. However, it can indirectly lead to a need for EES activities such as planning and financing.

EES activities can be provided by different intermediate actors (see Figure 1), but also by dedicated EESC (see Figure 2). The Energy Service Directive favors the development of an EES market, because it is believed that this leads to more savings. Therefore, it is not only important whether policy measures stimulate EES activities in general, but whether they stimulate an EES market where sets of EES activities are available to end-users from EESC.

A first point to be taken is that policies on EES must regard both the **companies** providing EES and the energy efficiency **services** they provide.

Further, policy measures can focus on EESC directly (**supply oriented**), or stimulate activities from EESC through policy influence on the end-users (**demand oriented**).

Thirdly, policy can stimulate **separate EES activities**, thereby stimulating the development of an EES market. But this will not always strengthen the position of EESC, as the case without EES market shows. The same is true for policy measures focusing on savings instead of EES, such as taxes and financial support to end-users.

Finally, it must be remarked that sometimes policy measures stimulate savings in a way that actually **restricts the EES market** (e.g. mandatory saving measures that make advice on saving measures needless).

1.4 Analysis structure for policy mix and EES

In the analysis the following categorization of policy measures is made:

- specifically targeting EESC
- creating or supporting general mechanisms for an EES-market
- stimulating directly one or more EES activities
- stimulating energy savings and thereby EES activities indirectly
- restricting the (commercial) market for EES.

A policy is considered to **specifically target EESC** or their activities when they are clearly mentioned as the target group in the sources used, or when the policy measures facilitate the provision of EES by these companies. This policy measure can stimulate the supply of EES, the demand for EES, or both.

Stimulation at the **supply side** by a policy specifically targeting EESC could regard the promotion of their services, in particular through a comprehensive package of

regulations and/or supporting policies (definition of EES and accreditation of EES suppliers, financing, contracting models) to facilitate the supply of EES, foundation of exchange platforms or (communication or cooperative) networks for EESC. A special fund for EESC providing easier access to capital, and ideally providing legal guarantees for EES projects, is also an example of direct stimulation at the supply side. Sometimes, the scarcity of experienced personnel restricts EES companies in their expansion; therefore training of energy advisers could stimulate the erection of EESC.

Stimulation at the **demand side** by a policy specifically targeting EESC directly improves the market position of EES companies in comparison with other actors. Therefore, policies which can stimulate the demand for EES in general are not regarded here as they do not necessarily improve EESC market position. The most obvious way of stimulating demand for EES from EESC is regulation to offer various types of EES to energy consumers. Currently this is only valid for information or audits. Another way could be a higher subsidy if saving measures are realised by an EESC. Finally, current stimulation that differs for public and private entities can offer an opportunity for deployment of EESC. E.g. stimulation of savings by a tax-deduction on profits excludes non-profit organisations. This can be circumvented by letting EESC do the investment and sharing the deduction advantage with the non-profit organisation.

Policy measures supporting **general mechanisms for an EES market** regard White Certificate System (WCS), Energy Performance Contracting (EPC) and Third Party Financing (TPF). The mechanisms create ample opportunities for EESC, or stimulate strongly their most important activities. However, they typically do not stimulate EESC as much as policies specifically targeting EESC. On the other hand, these policy measures are much more important for the EES market than the next category of policy measures that stimulate specific EES, such as audits. Policy measures on the mechanisms generally work via the demand side, as they enable a different way of realising energy savings providing opportunities for EESC (e.g. WCS).

Direct stimulation of (specific) EES activities regards policy measures that focus on specific EES activities, thereby contributing (possibly) to the realisation of energy savings. These EES can also be provided by other actors than EESC. Again a distinction can be made between stimulating the supply or demand. When stimulating **supply** the focus of the policy measure is on the EES activities supplied (e.g. reliable information on saving options). When policy measures stimulate **demand** for EES their focus is on the needs of energy users. Examples are a subsidy on audits or even a mandatory audit for SME that can only be executed by a (certified) EES provider. Regulation on energy users, e.g. standards or demands in the environmental permit, may create a demand for EES if they ask for an optimal package of saving measures. Special financial schemes for EES projects, like subsidies or revolving funds providing soft loans, do represent direct stimulation. Other examples are demonstration projects involving the deployment of EES. In all cases it is not clear who will offer the EES and will realise the saving measures. Therefore the policy measures are not categorized under “targeting EESC”.

For **indirect stimulation of EES**, as a result of promoting energy savings, a distinction can be made again between supply and demand. For indirect stimulation of **supply** of EES activities there are few examples to be mentioned. A possible example regards voluntary agreements with a dedicated role for EES suppliers (for example information, communication and research on improving the supply of EES, in Slovakia). Indirect stimulation of **demand** for EES can regard many examples for many policy measure types. Most policy measures that stimulate savings at the energy consumer’s place can also be beneficial for the EES supplier. Examples are

subsidy schemes, special tariffs for renewable or energy efficient techniques (feed-in tariffs), energy taxes or fiscal facilities.

Besides stimulation, policy measures can also **restrict the (commercial) EES market** because they hinder the activities of EESC or the provision of EES by other actors. Examples of a direct negative effect are tendering rules that exclude EESC from investing in public buildings. Indirect discouragement comes from obligatory saving measures but that depends on the formulation. For instance, a strict performance standard can only be met with an optimal set of measures, which provides opportunities for a role for EESC. But with minimum efficiency standards for systems a choice between more or less efficient systems is less needed, thus limiting the room for EES such as audits or information to end-users. Policy measures that stimulate actions by end-users but (indirectly) exclude EESC put them behind as well. Further on, public energy agencies that provide (free) audits to end-users could restrict EESC in delivering a full set of EES (audits followed by implementation, operation and monitoring) to end-users. Finally, price regulations based on (avoided) costs could leave no room for a profit margin and thereby restrict commercial offering of EES.

2 Inventory of policy measures affecting EES

2.1 Set-up of inventory

For the analysis of policy measures affecting EES the following sources of information have been used:

- national reports on EES market analysis
- the MURE-database on policy measures
- the National Energy Efficiency Action Plans (NEEAPs) due to the ESD
- the JRC inventories on ESCO's
- the Energy Service directive.

The **national market analysis** has been executed as part of the ChangeBest project. The reports contain a section on policy and EES, but cover only 17 out of the 27 EU countries. Moreover, they do not always analyse the policy mix in detail due to space and time restrictions. Therefore, the results of the national market analysis have been supplemented with results from the **MURE database** on (existing) policy measures, the National Energy Efficiency Action Plans (**NEEAPs**) on (planned) policy measures and the **inventories of JRC**. The inventories focus on ESCO's as providers of EES but sometimes contain information on policies affecting them. The ESD itself is used as a source of policy measures regarding EES at the European level.

All sources together give an overview of EES policies present at EU level and in 23⁴ EU countries: Austria, Belgium, Bulgaria, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden and United Kingdom. In total a number of about 800 policy measures have been identified.

The policy measures found have been put into a database (see Annex A). They are categorized as to source, country and policy measure type. Where appropriate the focus of policy measures is also described: target sector, technology and EES activity. If possible a distinction has been made between existing and planned policy measures.

The policy measures have also been characterised, following the framework described in section 1.3, as:

- promoting or restricting the (commercial market) for EES
- directly or indirectly stimulating EES activities
- stimulating demand or supply of EES.

With regard to the completeness of the database it should be taken into account that the sources are comprehensive, but might not be exhaustive. Furthermore, the measure descriptions sometime give rise to uncertainty on matters like implementation status and exact design of measures. Finally, since the available sources often do not provide an assessment as to their influence on the EES market, this limits the possibilities to evaluate or compare policy measures as to their importance for the EES market.

⁴ Due to time restrictions no analysis has been made for Cyprus, Malta, Lithuania and Luxembourg

The results of the analysis of the database are presented in chapter 3.

2.2 Policy measures in the sources

2.2.1 Policy measures in national market analysis reports

National market analysis reports [CB, 2010] have been drawn up for the countries of the project partners only (see section on project consortium). In the national reports the relation between policy and the EES market is dealt with in section 2.3 (existing incentives and barriers for EES), but specifically in section 2.4 (policy mix and development of EES).

These sections have been analysed as to policy measures thought to affect the EES supply or demand. The results are covered in Annex A, under the heading “report”.

About 130 policy measures stimulating (or restricting) the demand and supply of EES have been identified in the national reports. The average amount of policy measures mentioned is eight, with a range from 1 (Portugal) to 20 (Czech Republic). It is not clear which criteria countries have used when selecting the policy measures. Probably some countries provided all policy measures having any effect (including general and indirect through the demand side) on the EES market, while others only selected policy measures with a dedicated effect (specific and direct) on EESC.

2.2.2 Policy measures in the MURE database

The MURE database [MURE] provides an overview of the most important energy efficiency policy measures for EU-27, Croatia and Norway. Per policy measure the following is specified:

- Sector: households, industry, transport, tertiary and cross-sector
- Status: completed, ongoing or planned
- Period: year of introduction and (for completed policy measures) end year
- Type: legislative/normative (e.g. standards for new dwellings), legislative/informative (e.g. obligatory labels for appliances), financial (e.g. subsidies), fiscal (e.g. tax deductions), information/education, co-operative (e.g. voluntary agreements) and taxes (on energy or CO₂ emissions)
- Semi quantitative impact: low, medium or high impact, based on quantitative evaluations or expert estimates
- Other properties: targeted energy users, actors involved, etc.

For each policy measure a detailed description is available which contains, if available, a quantitative impact in terms of energy savings and/or CO₂ emission reduction. Policy measures from 1990 to the current year are available. Important policy measures introduced before 1990 and planned policy measures are also present.

The MURE database contains about 1700 policy measures. In order to limit the amount of work the following selections have been made. From literature it shows that hardly any EES is offered in the sector Transport; therefore this sector is omitted. Completed policy measures generally are of the same type as ongoing policy measures, and therefore do not need special attention. The planned policy measures in MURE are not as completely covered as in the NEEAPs. Therefore only the ongoing policy measures from MURE are analysed. Finally, for countries already

covered in the national reports a less extensive inventory was made than for countries not covered.

The results are shown in Annex A, under the heading “MURE”.

About 320 policy measures have been found that could influence the provision of EES. However, as the policy measures have been selected as to their contribution to total energy savings, they often focus on energy savings and not on EES that only supports the realization of savings. The MURE policy measures cover many of the items in the national reports, but not the ones that specifically focus on EESC of EES.

2.2.3 Policy measures in the NEEAPS

In the NEEAP's the countries should specify the policy measures on energy savings for the period 2008-2016. Depending on the country more or less policy measures have been found having an effect on EES and/or on energy savings. Due to the vast amount of literature to be reviewed, only the measures that specifically focus on EES are incorporated. Many of the policy measures mentioned represent planned policies for the future, which could not be realised in some cases. Relevant existing policy measures that are also described in MURE have also been incorporated as the descriptions reinforce the understanding of the effects.

The results for about 280 policy measures are covered in Annex A under the heading “NEEAP”.

2.2.4 Policy measures in the inventories

This regards the EU wide inventory made by the Joint Research Centres (JRC) of the EC. A first version dated from 2004 [Bertoldi, 2005]. Here the update version for 2007 [Bertoldi, 2007] has been used. These inventories focus primarily on developments for ESCO's in all EU countries. But in various places in the text reference is made to policy measures, but in an anecdotal way. It is not always clear how the policy measure influences ESCO's or the EES provided.

In Annex A the results for 90 policy measures are covered under “survey”.

3 Analysis of findings

3.1 Findings per country

Here the findings for the different sources have been combined and are presented country by country. The following categorization of policy measures has been used:

- **Targeting EES Companies:** with a specific focus on stimulating EESC
- **EES mechanisms:** create a market for EESC (e.g. WCS, TPF and EPC)
- **Direct stimulation of EES activities:** one or more separate EES activities
- **Restricting the EES market:** negative influence on the commercial market for EES.

Separately is specified which policy measures focus on the **supply side**, i.e. stimulate EES (companies) by improving the quality of offered EES. Supply side policy measures are chosen from the four categories above, the remaining policy measures being demand oriented.

All other policy measures found, not being part of the categorization above, **stimulate energy efficiency measures**. Thereby they can stimulate **indirectly** and in a **general** way EES, or EESC, through the demand side.

Below the findings per country are given⁵.

Austria (AT)

Targeting EES-companies:

Certification and accreditation of EESC

Setting up standard contracts and legal foundations

Eco-label denoting the quality of ESCO services and compliance with standards

Thermoprofit quality label for proposals of ESCO's

Licensing of experts for inspections.

EES mechanisms:

Contracting offensive project/Federal contracting 500 buildings/Klima'aktiv programme federal buildings contracting (EPC)

EPC for state buildings and private service buildings

Direct stimulation of EES:

- public saving programmes (e5 on buildings of municipalities), often involving EES
- further promoting of contracting models for public buildings

⁵ The definitions used in national sources can diverge from that adopted in this report

- audits obligatory in few regions for public buildings
- designing of an energy contracting programme
- stringent energy use by optimization of daily use in public buildings
- energy check on all Austrian households by the year 2010 (UM-14-01)
- energy check for production industries (free offer?)
- advice and subsidy for energy optimisation in industry related to structure fund
- mandatory energy efficiency criteria for public procurement of lighting.
- energy consultation as prerequisite for subsidy (pHH-04-05/05-02)
- mandatory contract specifications for invitation to tender new public buildings
- support for specialist consultation on guidance for contracting customer.

Restricting the EES market

Offering of EES by government at competing terms, such as the Klima:aktiv programme (optimise industrial energy use), the Energy check for industries (free offer?) and advice/subsidy for energy optimisation in industry (connected to structure fund).

Supervision and certification of activities of local authorities could compete with the same activities done by ESCO's.

Before mentioned policy focusing on the supply side

Licensing of experts, accreditation of EES providers, thermoprofit quality and Ecolabel and designing of energy contracting program.

Belgium (BE)

Targeting EES-companies

Foundation of consultation/information exchange platform (Belesco) mainly facilitating the supply of EES

Government supported Fedesco acts as coordinator of EES-services in federal public buildings for which ESCO's can submit offers.

EES mechanisms

Energy investments in newly built and existing schools using TPF (EES companies)

Obligations for energy companies to save energy for consumers (WCS)

Reduction electricity use of regional and municipal public lighting (EPC)

Direct stimulation of EES:

Mandatory control and inspection of boilers

Energy efficiency in public procurement

Energy efficiency requirements in environmental permits and licenses

Restricting the EES market

The government supported Fedesco, acting as an ESCO, can be seen as a distortion of the commercial EES market. However, Fedesco outsources the main part of its EES-activities

Facilitators paid by government also compete with the commercial EES providers.

Before mentioned policy focusing on the supply side

Foundation of Belesco platform and government supported Fedesco.

Bulgaria (BG)

Targeting EES-companies

Bulgarian Energy Efficiency Fund (BEEF), guarantee portfolio for ESCO projects.

EES mechanism

WCS (to be introduced),

Individual energy saving targets for energy traders and retail energy companies

Regulation facilitating the financing of EPC for public buildings

Direct stimulation of EES

Mandatory audits for large buildings and most industrial enterprises

Energy efficiency and renewable energy credit line (BEERECL) for industry

Regulation '21 on energy audits: terms and procedures and control

Mandatory action plan for municipalities to stimulate local demand for EES

Energy traders allowed to offer extended energy services (focus on efficiency?)

Restricting the EES market

EBRD, WB, and EIB not open to EES providers, only to end-users and ESCO portfolio

The commercial EES market could be restricted by the support to (non-EES) organisations delivering training (skills) and education (knowledge).

Before mentioned policy focusing on the supply side

Regulation '21 and BEEF.

Czech Republic (CZ)

Targeting EES companies

Support for the preparation of projects for the provision of energy services

Cities working with ESCO's that bundle buildings into project pools (procurement)

EES mechanism

Operational programme enterprise and innovation 2007-2013 will include soft loans and subsidies to support EPC projects of SME in industry (proposed).

Subsidies for EPC projects are available from 'program Efekt 2009'.

Direct stimulation of EES

Duty to offer energy services and info to end-users (by energy supply companies)

Obligatory energy audits for large consumers

National Programme for energy effective management (EPC recognized).

Restricting the EES market

Czech Energy Agency provides limited support for ESCO's

Limits set on the debt of public sector

Public procurement law (hinders participation of ESCO's).

Before mentioned policy focusing on the supply side

Support for the preparation of projects for the provision of energy services.

Denmark (DK)

Targeting EES companies

EES activities of grid energy companies have been put into separate shareholder companies, doing all kind of EES activities and collaborating with ESCO's. Some of them have also started to do the activity as ESCO.

EES mechanism

Yearly energy efficiency targets are set for the grid companies (increased considerably by 2010) as a kind of mandatory agreement to realise saving measures and energy management at end-users (WCS like).

Direct stimulation of EES

Energy companies promote sale of energy services to all kind of customers, especially successfull at industry/commerce with the largest potential for energy saving.

A government energy saving trust for energy saving (until now limited to households and public organisations but being converted to address all kind of customers and energy types) performed pilot projects and promotion campaigns on energy services.

Obligation on energy producers/distributors to document obtained savings.

Restricting the EES market

Shifting framework conditions are serious barrier for e.g. ESCO contracts

Public bidding process for separate areas complicates offering bundled EES

Lack of standard for monitoring and verification

Before mentioned policy focusing on the supply side

EES activities of grid companies put into separate shareholder companies and government saving trust.

Estonia (EE)

Targeting EES companies

Developing the provision of energy services, including standard contracts, legal foundations, testing and further promotion (communication)

Developing proposal for removing legal restrictions for activities of ESCO's

EES mechanism

Joint Implementation and CDM projects

Obligations as to energy savings for energy companies (planned, WCS?)

Direct stimulation of EES

Grants for energy efficient renovation of residential buildings (multi-family dwellings), accompanied by a loan guarantee for residents (provision of a loan security until the end of the loan period)

Renovation plan for the housing sector is in place

Grants for energy audits

Developing models and requirements for audits on public facilities

Identified training needs for specialists together with associations

Restricting the EES market

Proposal for removing legal restrictions for activities of ESCO's (shows barriers)

Governmental support (low interest rate loans) for households only

Development of standard design renovation models for apartments (can diminish the need for ESCO assistance).

Before mentioned policy focusing on the supply side

Developing standard contracts, legal foundations and testing for energy services, developing models and requirements for audits, identified training needs for specialists and proposal for removing legal restrictions for activities of ESCOs.

Finland (FI)

Targeting EES-companies

Energy Efficiency Agreement of Energy (efficiency?) Services 2008-2016

Mandatory use of ESCO's in new voluntary agreements (2008-2016')

A regulation to promote the ESCO concept by providing standard contracts and forming a registry of ESCO projects

In industry extra subsidy is granted for investments if an ESCO is involved.

EES mechanism

Not present.

Direct stimulation of EES

Major subsidized audit programs in almost all sectors

The national energy agency Motiva promoting audits

Distribution companies providing info and advice to their customers (through a VA).

PROMISE-label of real estate and construction sector, which can stimulate demand for further actions/EES

Orders for energy management in buildings

Restricting the EES market

New rules for financial reporting (IAS/IFRS) work out negative for EES companies, because investments in equipment by the ESCO should still be accounted for in the client's own balance sheet.

The commercial market for EES is restricted by the large array of EES offered by the agency Motiva. Besides, Motiva trains end-users (active occupants) in energy management skills and maintenance (municipal buildings), limiting the scope for ESCO's.

The PROMISE-label makes audits of buildings less necessary.

Before mentioned policy focusing on the supply side

Standard contracts, registry and some EES of and distribution companies or Motiva (raining active occupants in energy management skills and maintenance municipal buildings).

Miscellaneous

Finally it must be remarked that some EES are provided without influence of policy, namely labels for buildings developed by real estate and construction companies (PROMISE-label).

France (FR)

Targeting EES-companies

A so-called Reference system on energy efficiency services, which should facilitate the functioning of ESCO's and other providers of EES.

Order on PPP that lifts the barrier for private company to do public investments

EES mechanism

White certificate system (WCS) that stimulates EES provision

Direct stimulation of EES

The inclusion of environmental clauses in the public procurement code,

Studies to be conducted prior to refurbishment of buildings on supply options,

Active demand-side management policy by local authorities,

PPP to overcome legal problems with public EES contracts

Crediting System for Energy Management (FOGIME), guarantee fund for loans.

Restricting the EES market

In the "chaufage contract (EPC)" funding of energy efficiency equipment is not allowed

Public accounting rules must be revised to enable operation/investment combinations (partly solution by PPP).

Before mentioned policy focusing on the supply side

Reference system on energy efficiency services and order on PPP.

Germany (GE)

Targeting EES-companies

Voluntary initiatives by ESCO associations enabling standardisation of energy saving contracts for different EES techniques and procedures and documents such as model contracts

EES mechanism

Deployment of TPF for energy efficiency in federal government buildings (NEEAP)

Deployment of EPC in public buildings in some federal states, municipalities and pilot projects (including energy saving partnership for pooled buildings in Berlin).

Direct stimulation of EES

Various info activities German Energy Agency

Indirect stimulation of EES

Financial support programmes for energy audits

Stimulus programmes: training of managers, architects and operators

Fees Order for architects: provision of incentives for EE based on fees.

Restricting the EES market

Public sector tender specifications are very often of low quality

The Tenant Law currently does not allow that the building owner passes the contracting fee to the tenant without permission by all tenants (under discussion).

Unequal treatment of EES provider and user regarding investment into power-producing equipment (user has to pay contribution if not produced by himself/herself).

Competition for ESCO's arises from own energy managers of municipalities and experts from energy agencies carrying out energy efficiency activities like initial audits.

Before mentioned policy focusing on the supply side

ESCO associations, Energy saving partnership, standard procedures/model contracts and Stimulus programmes.

Greece (GR)**Targeting EES-companies**

Proposed comprehensive policy package for ESCO's (in industry): institutional framework structure, qualification and accreditation, address metering issues and financial incentives.

Legal barriers for ESCO's are lifted by laws on TPF (initiated) and PPP (existing).

Mandatory use of gas and LPG including info on financing by way of EPC and ESCO's.

EES mechanism

Energy savings in existing local authority buildings, possibly using TPF, EPC and PPP

Promotion of CHP, possibly using TPF and EPC

Direct stimulation of EES

VA on energy savings by local governments (ECONomize" program) in buildings

Mandatory installation of central thermal solar systems in new buildings as of 2016

Obligatory replacement with energy efficiency lighting systems in public buildings

Compulsory procurement procedures with respect to public buildings

Obligatory EMS (energy management systems) in industry

Restricting the EES market

Absence of a positive legal and institutional environment for ESCO operation

Monopoly of the Public Power Corporation (obstacles to ESCO development)

Before mentioned policy focusing on the supply side

Comprehensive policy package for ESCO's, mandatory use of gas including info and legal barriers for ESCO's lifted.

Hungary (HU)

Targeting EES-companies

The NEEAP contains future policy to promote ESCO-type investment projects: definition of ESCO companies and providing financial support for their operations.

The KEOP 5.2 program gives non-refundable assistance for ESCO-projects in state offices and municipalities with TPF.

EES mechanism

The 'Environment and Energy Operative Programme' provides subsidies for projects, including TPF for industry.

Direct stimulation of EES

Energy efficiency requirements in public procurement (planned)

Development of the operation of an energy efficiency consultant network

The Energy Efficiency Co-Financing Program provides financial incentives for energy efficiency projects in the financial sector, accompanied by the provision of guarantees.

The UNDP/GEF project aims at energy efficiency projects in the public sector

Mandatory application of EMS (energy management system) large energy consumers

Mandatory energy consumption report and plan for large consumers.

Restricting the EES market

Municipal borrowing is restricted (limiting ESCO investments as well)

Law requires the consensus of all apartment owners in EE project.

Before mentioned policy focusing on the supply side:

KEOP 5.2 program for ESCO-projects, EE co-financing program, Environment and Energy Operative Programme, consultant network and policy on ESCO-type projects.

Ireland (IR)

Targeting EES-companies

Development of an Energy Services Sector by model contracts and guidelines (and possibly financial support)

Renewable Energy Installer Academy (training of installers) and SEB Network (market for energy efficiency products and services for houses).

EES mechanism

Not present.

Direct stimulation of EES

Mandatory building regulations equiring strong energy performance requirements
 Restructuring and financial support to foster CHP projects
 SEI assessment and advice for SME
 Public Sector Programme, support for plan, implementation and M&V (SEI)
 Large Industry Energy Network, exchange of best practice (SEI)
 Supplier ESB Customer Supply active in DSM (incl. efficiency advice)
 Mandatory installation of RES in buildings (need for advice from ESCO)

Restricting the EES market

SEI activities, such as the Public Sector Programme, Large industry network, Power of One (awareness), exchange of best practice, assessment and advice for SME, etc.

Before mentioned policy focusing on the supply side

Model contracts and guidelines, training of installers and SEB Network.

Italy (IT)

Targeting EES-companies

Promotion of centralized heating/cooling/lighting energy services by ESCO's
 Incentives for EES companies running a public lighting service
 Registry and accreditation of ESCO's by AEEG to be eligible for White Certificates
 Dissemination on EES and standards by platform AGESI

EES mechanism

White certificate system (WCS) stimulating directly the demand for EES
 Revolving fund to finance projects carried out by ESCOs through TPF⁶

Direct stimulation of EES

Decree no. 115 of May 2008 for ESD implementation (stimulating ESCO projects)
 Incentives for energy efficiency tenders in the public sector

Restricting the EES market

PICO Light project, revolving fund for public ESCO financing (competition with commercial ESCO's)
 Public sector regulations not suitable for EPC (tenders price based, not performance)

Before mentioned policy focusing on the supply side

Activities of AEEG and AGESI.

Latvia (LV)

Targeting EES-companies

Not present (ESCO's not mentioned)

⁶ Established by the Legislative Decree n. 115 of May 2008 but not yet been activated.

EES mechanism

Not mentioned (ETS not EES mechanism)

Direct stimulation of EES

Procedures for training and certifying independent experts

Energy auditing and technical supervision as prerequisite for subsidy

Subsidy for energy efficient renovation of residential buildings (multi-family dwellings)

Subsidy for energy efficient renovation of industrial buildings

Subsidy for energy efficient renovation of public buildings (Schools and universities)

Restricting the EES market

Public budgeting rules (discourage savings, thus less market for ESCO's)

Limits set on the debt of public sector

Public procurement law (hinders participation of ESCO's).

Energy agencies carrying out energy efficiency activities like initial audits

Before mentioned policy focusing on the supply side

Training of experts.

Netherlands (NL)**Targeting EES-companies**

Not present

EES mechanism

Not present (the voluntary agreements schemes regard many EES but provide no opportunities for EES companies).

Direct stimulation of EES

Long term agreements SME, horticulture, etc with planning, EMS and monitoring

Energy efficiency requirements in environmental permits

Subsidies on energy audits

Information and advice by Agentschap-NL, Milieucentraal, etc.

Energy Centre for SMEs

Climate neutral government buildings from 2012-2020

Restricting the EES market

The law on heat production and use limits the transfer of heat cost to the consumer, thereby limiting profit sharing with ESCO in district heating projects.

Policy measures that limit the commercial market for EES are the extensive governmental saving programs in collaboration with existing actors. Based on gentlemen's agreements, this combined approach leaves little room for new actors (ESCO's).

A more concrete example of lacking room for EES companies is the RGD (Governmental Buildings Service) that is responsible for the management/operation all state owned buildings but does not make room for EES companies when realising savings in their buildings.

Before mentioned policy focusing on the supply side

Not present

Poland (PL)**Targeting EES-companies**

Action plan to promote energy services by ESCO's, with information, accreditation of EES, financial incentives and lifting of barriers

GEF grant with repayment guarantee for ESCO projects

EES mechanism

WCS is proposed, which will directly stimulate EES. A green certificate scheme (GCS) and red certificate scheme (RCS) for cogeneration are already in place.

Direct stimulation of EES

National targeted info campaign, lighting, equipment, display of labels

Increasing energy saving products in tertiary (training, VA, testing, codes)

Obliged savings in the public sector, incl. energy as criterion in investment decisions, training, best practice and reporting.

Financing for preparing complex documentation needed for energy saving measures

Restricting the EES market

EMS in industry incorporate audits and the qualification of personnel and the right to advisory services, thereby competing with commercially offered EES.

Public sector obligatory tendering process poses catch 21 situation for ESCO's.

Low heat prices due to price regulation by URE (Energy Regulatory Office)

Funds do not accept financial insurance for investment given by ESCO

Budget public institutions lowered after realised savings (no room for ESCO fee)

Before mentioned policy focusing on the supply side

Action plan for EES, GEF grant and financing for preparing complex documentation

Portugal (PT)**Targeting EES-companies**

Policy is expected with incentives (financial?) for the ESCO market and facilitating measures, such as "insurance" against losses and standard contracts

QREN (Incentive Program for Innovation) tender for initiatives for creation of ESCOs

EES mechanism

Not present.

Direct stimulation of EES

Energy Efficiency Programme in Buildings, including certification/labels, info and monitoring.

SGCIE (management system for energy intensive industrial consumers) requires energy-intensive companies to perform audits, make energy plan to reach defined target.

Mandatory installation of solar heating systems (which could stimulate EES)

Introduction of energy efficiency criteria into the acquisition of equipment (Public procurement 2009-2010)

High feed-in tariffs for co-generation (favourable for ESCO-CHP)

Restricting the EES market

The legal framework in Portugal is not supportive for ESCO's in particular (unfavourable procurement rules in the public sector).

Lack of credibility because there is no accreditation of EES providers

Before mentioned policy focusing on the supply side

Incentives, facilitating measures and tender for the ESCO market

Romania (RO)

Targeting EES-companies

Promote ESCO's and stimulate the supply of EES by creating standard contracts, researching EES barriers and developing a legislative framework.

FREE-WB fund with commercial financial support, in 2007 first contract with ESCO

EES mechanism

Study on WCS (no decisions known).

Direct stimulation of EES

Mandatory inspection of boilers and airconditioning systems (EPBD)

Mandatory audits in industry for companies above a certain size

LTA's on energy management to renew equipment and installations in industry

Financial support for audits

Restricting the EES market

Municipalities are not allowed to off-balance EE-investments (major obstacle for ESCO's).

Before mentioned policy focusing on the supply side

Promote ESCO's and stimulate the supply of EES.

Slovakia (SK)

Targeting EES-companies

Specific policy, stimulating demand for EES in public lighting, and stimulating EES supply by performing research on ESCO barriers.

Setting up a measurement standard (economy heat producing & delivery systems):

EES mechanism

Energy efficiency fund (EEF), paid by energy companies (2010), including info and subsidies for audits, monitoring, demonstration and development of energy services (TPF, with elements of WCS), planned for 2010.

Direct stimulation of EES

Energy auditor training by SIEA (industry)

Funds for providing energy services in public lighting (services by private companies)

Centre for public lighting (CEVO, advice/audits on EE measures)

Public agency providing consultancy on efficient lighting

Regular maintenance and modernisation of heat facilities in industry (legislation?)

E2 training programme for state officials responsible for EE measures

Restricting the EES market

Municipal investments require tendering and comparison of 3 offers (negative for offering EES by ESCO's).

Regional energy centres: consultancy services provided by subsidized energy agencies and associations (thereby competing with commercial EES).

Centre for public lighting (advice/audits on EE measures) competing with commercial providers of EES.

Before mentioned policy focusing on the supply side

Study on ESCO barriers, measurement standard, Energy auditor training and E2 training programme.

Slovenia (SN)

Targeting EES-companies

Preparation of standard contracts and procedures, specialist support to EES clients primarily in the public sector, and providing qualifications of EES

Contractual reduction in the energy costs in public sector: removing legal barriers

Contractual reduction: scheme of qualified and certified energy audit providers / training of energy service providers.

EES mechanism

Voluntary agreement (since 2000) which should stimulate TPF and contracting of EES.

Energy use management programme (DSM) of suppliers for (electricity) savings at smaller end-users (possibly savings obligation paid by network charge, kind of WCS).

Contractual reduction in the energy costs (EPC) for SME and public sector (PPP)

Direct stimulation of EES

Regulation that targets the public and private (particularly SME companies) sector

Energy consumption management programmes for final customers (DSM).

Co-financing of audits for companies (SME), public sector and buildings

Compulsory division and calculation of heating costs asks for EES (metering)

Support for sustainable new dwellings/buildings (passive buildings)

Free energy advice network (ENSVET), giving advice to residents

Restricting the EES market

EPC has still not been fully addressed in legislation

Unanimous agreement of all floor owners in a multi-dwelling building (hinders ESCO)

Before mentioned policy focusing on the supply side

Standard contracts and procedures, qualifications of EES, removing legal barriers, training of Energy service providers..

Spain (ES)

Targeting EES-companies

Activation plan of energy savings and efficiency 2008-2011 aims to create an endorsement system and definition of energy service companies.

New model of contracts for the private public projects for the AGE (supports both the ESCOs and the clients).

ESCO association (AMI) promotes EPC and TPF. Creation in 2010 of a new association named National Association of Energy Services Companies.

EES mechanism

PPS which facilitates contracting with EES companies (EPC)

Preferential Credit Line providing financial incentives for energy efficiency strategic projects carried out in the industrial sector (TPF)

Direct stimulation of EES

Energy-efficiency criteria in awarding contracts with public sector (procurement)

Energy training courses for local and regional municipalities

Restricting the EES market

Regulations not supportive of EPC, e.g.amortization (restricts ESCO activity)

The government has established an institute that functions as an EES company

Standard M&V protocol missing (causing risks for EPC with ESCO)

Before mentioned policy focusing on the supply side

Governmental ESCO, definition of ESCO, model contract, training courses, association of ESCO's and M&V protocol.

Sweden (SW)

Targeting EES-companies

Public procurement law which enables project bundling which facilitates EPC in the public sector (also EES)

The EPEC project has established guidelines for procurement and model contracts

Forum for energy services - a national project that fosters interaction between providers and clients of EES

EES mechanism

Currently 5 to 10 percent of the public building stock is contracted by EPC (most attractive sector for ESCO's)

Direct stimulation of EES

NEEAP: promote energy services by disseminating information, raising levels of expertise and procurement support (no policy measures specified).

Energy declarations of buildings - mandatory energy audits by accredited EES companies

Programme for energy auditing at SMEs provides subsidised energy audits

Energy auditing in the agricultural sector to provide decision support for further EEI incentives

Restricting the EES market

Public procurement law requires tenderers to demonstrate experience (hinders new actors to enter the EES market)

Before mentioned policy focusing on the supply side

Public procurement law, EPEC project and forum for EES.

United Kingdom (UK)**Targeting EES-companies**

Some local authorities have started to create ESCO's

Joint venture ESCO setup by GLA (greater London authority) and EES company

Regional Development Agencies (RDA) stimulating ESCO's.

EES mechanism

Savings obligation for energy suppliers (kind of WCS): first EEC (Energy Efficiency Commitment, now CERT (CO2 Emission Reduction Target)

Renewable energy and energy efficiency partnership (REEEP), involves international cooperation to improve energy efficiency financing (TPF)

PPP: Salix revolving fund for public sector for projects of private company (ESCO?)

Direct stimulation of EES

Integrated Pollution Prevention and Control (IPPC), an environmental permit that incorporates energy efficiency requirements for energy intensive industries

The Carbon Trust: interest-free loans scheme for SME.

Restricting the EES market

No general model contracts (restricting delivery of EES)

Public ESCO's restrict the room for commercial provision of EES.

Regional Development Agencies (RDAs) give advice to business (competing with commercial EES providers)

Before mentioned policy focusing on the supply side

Public and joint-venture ESCO's

3.2 Findings for EU policy on EES

3.2.1 Early EU policy on EES

Already in 1988 the EC formulated recommendations on ESCO's and TPF. In 1993 the directive 93/76/EC on TPF in public sector was published. Standard contracts for ESCO's in buildings and industry were proposed in 1996. However, these policy papers will not be dealt with further as they are incorporated in the ESD of 2006.

3.2.2 Energy Service Directive and EES

The ESD is at the heart of EU policy on stimulating EES, as is clear from article 1: The purpose of this Directive is to enhance the cost-effective improvement of energy end-use efficiency in the Member States by:

- (a) providing the necessary indicative targets as well as **mechanisms**, incentives and institutional, **financial** and **legal frameworks** to remove existing **market barriers** and imperfections that impede the efficient end use of energy;
- (b) creating the conditions for the development and promotion of a **market for energy services** and for the delivery of other EEI measures to final consumers.

Introduction (7): The aim of this Directive is not only to continue to promote the supply side of energy services, but also to create stronger incentives for the demand side.

In the following the relevant articles on EES are presented and grouped according to the categories defined earlier.

Targeting EES companies

Article 6.3: Member States shall ensure that there are sufficient incentives, equal competition and level playing fields for market actors other than energy distributors, distribution system operators and retail energy sales companies, such as ESCOs, installers, energy advisors and energy consultants, to independently offer and implement the energy services, energy audits and energy efficiency improvement measures.

Member States should endeavour to avoid any distortion of competition in this area, in order to guarantee a level playing field between all energy service providers.

Article 8: With a view to achieving a high level of technical competence, objectivity and reliability, Member States shall ensure, where they deem it necessary, the availability of appropriate qualification, accreditation and/or certification schemes for providers of energy services, energy audits and energy efficiency improvement measures.

Article 9: Member States shall make model contracts for those financial instruments available to existing and potential purchasers of energy services and other energy efficiency improvement measures in the public and private sectors.

EES mechanism

Article 10: Member States may impose public service obligations (PSO) relating to energy efficiency on undertakings operating in the electricity and gas sectors respectively.

Introduction (21): Member States should have the option of making it compulsory for energy companies to provide such services and to participate in such measures.

Article 6.2: Member States shall formulate requirements to be complied with by energy companies, directly and/or indirectly through other providers, to ensure that market oriented schemes, such as white certificates (WCS), are set up.

Introduction (22): The use of third-party financing (TPF) arrangements is an innovative practice that should be stimulated. In these, the beneficiary avoids investment costs by using part of the financial value of energy savings that result from the third party's investment to repay the third party's investment and interest costs.

Direct stimulation of EES

Article 6.2: Member States shall formulate requirements to be complied with by energy companies, directly and/or indirectly through other providers, to:

- ensure the offer to their final customers, and the promotion, of competitively priced energy services
- competitively-priced energy audits conducted in an independent manner and/or energy efficiency improvement measures
- contribute to the funds and funding mechanisms
- ensure that voluntary agreements are set up.

Article 7: MS shall ensure that greater efforts are made to promote energy end-use efficiency. They shall establish appropriate conditions and incentives for market operators to provide more information and advice to final customers on end-use efficiency.

Introduction (7): Furthermore, the public sector should endeavour to use energy efficiency criteria in tendering procedures for public procurement.

Article 11: Member States may establish a fund or funds to subsidise the delivery of energy efficiency improvement programmes and other energy efficiency improvement measures and to promote the development of a market for EEI measures. Such measures shall include the promotion of energy auditing, financial instruments for energy savings and, where appropriate, improved metering and informative billing. The funds shall also target end-use sectors with higher transaction costs and higher risks.

Article 11: The funds shall be open to all providers of EEI measures, such as ESCOs, independent energy advisors, energy companies and installers. MS may decide to open the funds to all final customers. Tendering or equivalent methods which ensure complete transparency shall be carried out in full compliance with applicable public procurement regulations. MS shall ensure that such funds complement, and do not compete with, commercially-financed energy efficiency improvement measures.

Article 12: Member States shall ensure the availability of efficient, high-quality energy audit schemes which are designed to identify potential energy efficiency improvement measures and which are carried out in an independent manner, to all final consumers, including smaller domestic, commercial and small and medium-

sized industrial customers. Certification for the EPBD shall be regarded as equivalent to audits.

Introduction (29): In order to enable final consumers to make better informed decisions as regards their individual energy consumption, they should be provided with a reasonable amount of information thereon and with other relevant information, such as information on available energy efficiency improvement measures.

Restricting the EES market

Article 6.1: Member States shall ensure that energy distributors, distribution system operators and/or retail energy sales companies refrain from any activities that might impede the demand for and delivery of energy services and other energy efficiency improvement measures, or hinder the development of markets for energy services and other energy efficiency improvement measures.

3.2.3 Other EU policy related to EES

The European emission trading scheme (**ETS**) sets caps for CO₂-emissions of large consumers of fossil fuels, thereby possibly stimulating energy savings, which in turn can lead to a demand for EES. The Energy performance of buildings directive (**EPBD**) incorporates the setting of energy performance standards for new buildings and dwellings, mandatory certificates on the energetic quality of buildings and mandatory inspection of HVAC. These will often lead to a demand for EES, such as audits, planning of saving measures and optimization of daily energy use.

3.3 Overview of results for EU countries

3.3.1 Targeted policies on EES companies

The results regard measures to improve the position of EES companies. A distinction can be made between:

- accreditation/certification of ESCO's or offered EES
- platforms for ESCO's with common interest
- specific support for ESCO's (e.g. financial)
- legal arrangements, often regarding the removal of barriers for ESCO's.

In **Table 3-1** the scores on these issues are summarized.

Table 3-1 Overview of policy on improving the position of EES companies

Country	Stimulating EES companies by:				Remarks
	Accreditation	Platform	Support	Legal	
Austria	Yes			Yes	
Belgium		Yes			Public ESCO
Bulgaria					

Country	Stimulating EES companies by:				Remarks
	Accreditation	Platform	Support	Legal	
Czech republic			Yes		
Denmark				Yes	Separate entity in energy company
Estonia				Yes	
Finland			Yes	Yes	
France				Yes	
Germany		Yes		Yes	
Greece	Yes		Yes		
Hungary			Yes	Yes	
Ireland		Yes		Yes	
Italy	Yes	Yes	Yes	Yes	
Latvia					
Netherlands					
Poland	Yes		Yes	Yes	
Portugal			Yes	Yes?	?: to be implemented
Romania			Yes	Yes	
Slovakia			Yes	Yes	
Slovenia	Yes			Yes	
Spain	Yes	Yes		Yes	
Sweden		Yes		Yes	
UK			Yes		

The first observation is that only few countries have no policy measures whatsoever specifically devoted to improving the position of EES companies (Bulgaria, Latvia and the Netherlands). However, the same is true for countries dealing with three or more issues (Italy, Poland and Spain). Overall not all means to improve the position of EES companies are stimulated by policy. However, this does not by definition mean that the quality lacks, or legal barriers exist. At the same time it cannot be stated in general that the quality exists, and legal barriers are removed, in countries where policy measures dealing with most of the issues mentioned are in place.

Legal arrangements are mentioned the most, while accreditation and platforms are both mentioned in a quarter of the countries.

Support is given in various ways, sometimes by extra subsidies for ESCO projects (Finland), a few times as preferred partner (Czech Republic), or even as mandatory partner (Finland) in saving projects. Support also incorporates governments actively participating in ESCO activities (Belgium, Spain and UK).

Financing of investments by ESCO's is generally part of policy on TPF, which not by definition regards ESCO's only.

3.3.2 Policies creating general mechanisms for EES

In table **Table 3-2** it is specified whether countries deploy mechanisms that create opportunities for ESCO's: White Certificate Systems (WCS), Energy performance Contracting (EPC), Third Party Financing (TPF) or comparable schemes. It must be remarked that the Emission trading System (ETS) and Voluntary Agreements are regarded as stimulating energy savings in general, and not as mechanisms that directly stimulate ESCO's.

The overview shows that WCS is mentioned the most (11 countries). However, this regards also planned and proposed mechanisms and other schemes that incorporate saving obligations (e.g. DSM in Slovenia and EEC/CERT in the UK). Policy measures stimulating EPC and TPF are mentioned for 7-8 countries.

Next to these mechanisms other forms of saving obligations are mentioned (see descriptions per country). These regard individual saving targets (Bulgaria, Portugal), JI/CDM (Estonia), Red Certificate System (RCS) for cogeneration (Poland), a fund (EEF in Slovakia) and voluntary agreements which incorporate TPF (Slovenia). All these other schemes offer opportunities for ESCO's as well.

Table 3-2 Overview of policy on market based mechanisms for EES

Country	Specific policies creating market			Remarks
	WCS	EPC	TPF	
Austria		Yes		
Belgium	Yes	Yes	Yes	EPC and TPF public projects
Bulgaria	Yes?	Yes		WCS planned, individual targets
Czech republic		Yes		EPC planned
Denmark				Savings targets for energy companies
Estonia	Yes?			WCS planned, also JI/CDM
Finland				
France	Yes			
Germany			Yes	Public buildings
Greece		Yes	Yes	
Hungary			Yes	industry
Ireland				
Italy	Yes		Yes	
Latvia				
Netherlands				
Poland	Yes?			WCS proposed, also RCS for chp
Portugal				Individual targets (SGCIE)
Romania	Yes?			WCS proposed

Country	Specific policies creating market			Remarks
	WCS	EPC	TPF	
Slovakia			Yes?	?: planned EEF
Slovenia	Yes?		Yes	DSM > WCS, VA > TPF
Spain		Yes	Yes	
Sweden		Yes		
UK	Yes		Yes	WCS > EEC/CERT

3.3.3 Policies directly promoting EES

Next to policies targeted at EES companies or creating mechanisms for EES there are ample policy measures that stimulate one or more EES activities, such as raising awareness, providing information, advice on saving measures, technical planning and monitoring of results. **Table 3-3** shows a number of often mentioned EES activities and the countries that deploy them due to policy measures.

Table 3-3 Overview of policy on various EES activities

EES activities and stimulation	Countries with policies
Plan for savings (mandatory)	BG, DK, HU, PT
Energy Management System	DK, FI, GR, HU
Training	AT, BG, EE, GE, LV, SK, ES, UK
Monitoring	DK, GE, PT
Financing (special for EESC)	BG, CZ, EE, FR, HU, PT
Audits (mandatory)	AT, BG, CZ, FR, PT, RO, SW
Audits (support or for free)	AT, BE, DK, EE, FI, IR, LV, NL, PL, RO, SK, SN,
Tenders/procurement incorporating efficiency	AT, BE, DK, FR, GR, HU, IT, PT, ES
Permits with efficiency demands	BE, LV, NL, UK
Optimization daily use	AT
Inspection (mandatory)	AT, BE, BU, RO
Quality of advice	AT, BG, EE, HU
DSM	DK, FR, IR, SN
Renewables (mandatory)	GR, IR, PT
Best practice sharing	IR
Mobility management	AT

The results show that many EES activities are stimulated by policy measures. However, each EES activity is stimulated only by policy for a limited fraction of all countries.

3.3.4 Indirect demand for EES via policy measures on energy savings

Policy measures that stimulate saving measures can indirectly lead to a demand for EES. E.g. a tax deduction can convince owners of dwellings to insulate the walls, for which they need information on the savings, the costs and a company that can do the job. However, this depends on the type of policy measures and the application.

Due to the large number of policy measures stimulating energy savings no analysis has been made measure by measure. In the following a general analysis is made based on the policy measure types and the most important applications.

All countries deploy policy measures to stimulate savings, of the following types:

- energy performance standards for new dwellings/buildings
- minimum efficiency standards for appliances or cars
- labeling of buildings, appliances or cars
- subsidies, favourable loans or tax-deductions
- voluntary agreements
- taxes on energy or on CO₂ emissions
- emission trading scheme.

Performance standards for buildings ask for optimal packages of saving measures and thus can lead to a demand for EES. However, once they have become part of common building practices, they are more likely to restrict the demand for EES. **Standards for appliances and cars** force manufacturers to put only efficient devices on the market, thereby restricting the room for offering EES on the optimal choice of devices. **Labelling of buildings** can increase the awareness of energy users and thus stimulate the demand for EES from EESC. This is not the case for **labelling of appliances or cars** as buyers generally do not make use of EES (advice by specialists).

Financial support will make investments into energy savings more profitable, thus potentially creating a demand for EES. However, as highlighted earlier, this will not always/directly be at the advantage of EESC. **Support for simple energy efficient technologies** (e.g. efficient refrigerators, CFLs, etc.) do not require the intervention of experts and therefore not stimulate the demand for EES other than information. However, **support for complex renovation solutions** will indeed increase the market for EESC. The same is true for **support for CHP**.

Voluntary agreements raise awareness and, because it often regards complex solutions, stimulate the demand for EES. This is especially true if the VA contains arrangements for incorporation of EESC.

Taxes increase the profitability of energy saving measures; the effect on demand for EES depends on applications where there is a need for assistance of EESC.

Emission trading combines the awareness raising if VA and the better profitability of taxes. The effect on the EES market is restricted because emission trading often regards large energy consumers which do not rely on external assistance of EESC.

3.3.5 Policies restricting the EES market

A distinction can be made between legislation that restricts EES companies in their operation and policy measures that restrict the commercial market for EES.

Restrictive legislation

Legislation restricting the operation of ESCO's regard:

- lack of standard contract (UK)
- limits set on the debt of the public sector (CZ, HU)
- public procurement rules that hinder ESCO's (CZ, SW)
- public bidding for separate projects hindering bundled EES offer (DK)
- lack of standards for monitoring & verification (DK, EE)
- rules for financial reporting (FI, FR, LV, RO)
- external funding of energy equipment not allowed in "chaufage contract" (FR)
- energy budget schools lower after realised savings, no room for ESCO fee (PL)
- public sector tender specifications of low quality (GE)
- all tenants must agree to investment multi-family building by ESCO (GE, HU, SN)
- tenders price based, not performance based (IT)
- restricted transfer of district heat cost to the consumer (NL)
- low regulated heat prices leave no room for ESCO investments (PL)
- "catch 21" situation for ESCO's in tendering (PL)
- tendering and comparison of minimal 3 offers (SK)
- EPC not been fully addressed in legislation (SN)
- amortization restricts ESCO activity (EE)

Most of the legislative problems are not restricted to energy savings but on transactions and agreements in general. In a number of cases policy measures have been formulated to lift the legislative barriers (see **Table 3-1**).

Restricting commercial market

Public supply of EES can compete with commercial EES offers. Therefore policy measures stimulating public EES can actually restrict the commercial EES market. However, they do not restrict EES supply as such.

Policy measures restricting a commercial EES market regard:

- free energy checks/advice by energy agencies (AT, FI, GE, IR, PL, SK, UK)
- government supported/erected ESCO's (BE, IT, EE, UK)
- support for training of energy experts (BG, PL)

- attractive subsidies only for energy users (EE)
- monopoly of the Public Power Corporation (GR)

Whether the public offering of EES restricts the commercial EES market also depends on the targeted end-users (households are generally not a commercial EES market), the type of EES activity (awareness raising is generally a public EES activity) and the terms for public EES offering.

3.3.6 Policies influencing the supply of EES

In the analysis a distinction has been made between policy measures that influence the EES market via the supply side and policy measures influencing the market through increased demand for EES from end-users.

Most policy measures targeted at EES companies are supply oriented; they stimulate the EES market by strengthening the position of ESCO's. Some policy measures that stimulate directly the various EES activities are also supply oriented, e.g. policy measures that increase the quality of separate EES.

Overall by far more policy measures influence the EES market via the demand side. However, influence via the supply side could be more focused and therefore be more effective than the indirect influence through the demand for EES.

3.3.7 EU policies and EES market

A distinction should be made between EU policy transposed into national policy measures and EU policy affecting actors at the European level.

Transposed EU policy regard national policy measures in connection to various directive (ESD, EPBD, CHP, Labeling and ETS). These transposed policy measures encompass mandatory labelling of appliances, mandatory inspection of heating systems, airconditioning and ventilation (hvac) and building codes, mandatory energy efficiency criteria for public procurement and obligations to provide advice and perform audits at the end-user site. The effect of transposed EU policy has already been dealt with in the preceding sections. Therefore the effect on the EES market will not be analysed further.

EU policy affecting European actors regards for instance limits on average CO₂ emissions of cars that force car manufacturers to produce more energy efficient cars. Minimum efficiency standards due to the Eco-design directive force appliance manufacturers to provide more efficient electric appliances. From the description of EU policy in section 3.2 it emerges that this EU policy focusing on the supply of energy using systems has hardly a relation with the provision of EES to end-users. It must be remarked that additional efforts of countries to get the most efficient systems on their market, e.g. by labels or financial incentives, is part of the analysis of national policy measures.

3.3.8 Policies on EES, per sector and energy use

The policy measures in the database related to EES mainly regard:

- investments in energy efficient systems
- buildings and energy using systems in production
- households, (public) service sectors and industry.

The proper utilization of efficient systems (daily energy use) is hardly covered by policy measures on EES, except information campaigns to change behaviour. With regard to EES connected to appliances and cars the labelling system played a large role. However, this is less the case when manufacturers must comply with minimum efficiency standards (appliances) or maximum CO₂ emissions (cars). With regard to sectors few policy measures stimulate provision of EES in transport, except some policy measures on eco-driving and mobility management. The national reports on the EES market show that EES companies concentrate on the public sector. The provision of EES to the commercial part of services and the industry, if done at all, remains much more the activity of other actors, like energy agencies.

4 Conclusions and recommendations

Conclusions

Quality of sources of policy measures on EES

The amount of policy measures mentioned in the national market reports ranges considerably and policy related to EES is not always covered fully. The policy measures in the MURE database often focus on energy savings and not on EES that only supports the realization of savings. Most policy measures on EES are found in the NEEAP's, but the quality of policy description in the NEEAP's differ largely. Finally, in the ESCO survey policy was not the main object of analysis and therefore the findings are anecdotal in nature.

Position of the new EES providers

Based on the framework described in chapter 1 it can be concluded that the EES market develops in a field where EES are already provided to end-users by many intermediate actors, such as energy agencies, energy companies, social housing corporations and branch organisations. In principle EESC, collaborating with other actors, can take over almost all EES provided by existing actors. Policy specifically focusing on the (activities of) EESC could strengthen their competitive position in the field of EES. Policy measures stimulating the demand for EES create opportunities for an EES market but can be beneficial for by other actors as well. Moreover, policy focused on providing EES by other (non-commercial) actors (e.g. energy agencies) can actually restrict the commercial market for EES.

Policies targeted at EESC

These policies aim to improve the position of EESC by accreditation/certification, platforms of ESCO's, specific support and legal arrangements to remove barriers. Only few countries have no policy measures whatsoever devoted to improving the position of EESC. However, few countries cover more than two of the issues with policy measures.

Support is given in various ways, sometimes by extra subsidies but often in the form of EESC being the preferred partner, or even governments actively participating in EESC activities (public-private partnerships). This can be positive, but if it restricts other commercial EESC, it can be debated whether this actually stimulates a commercial EES market.

Policies on mechanisms for an EES market

Mechanisms like WCS (white certificate schemes), EPC (energy performance contracting), TPF (third party financing) or comparable schemes can create ample opportunities for EESC. WCS is present in a few countries but there are also proposed schemes and similar schemes that incorporate saving obligations. Policy measures stimulating EPC and TPF are mentioned for 7-8 countries. Other mechanisms regard JI/CDM and funds or voluntary agreements which incorporate TPF.

Although the mechanisms create opportunities they do not lead by definition to a thriving EES market, e.g. because of legal barriers or no level playing field for EESC.

Policies directly promoting various EES activities:

There are ample policy measures that stimulate one or more EES activities, such as raising awareness, providing information, advice on saving measures, technical planning and monitoring of results. Many types of EES activities are stimulated by policy measures. However, each EES activity is only stimulated with policy by a limited fraction of all countries. There is a need for a complete set of policy measures ('policy package') that stimulates all EES activities that are needed in order to realise energy savings.

Indirect demand for EES via policy measures on energy savings:

Many policy measures that stimulate saving measures indirectly lead to a demand for EES. All countries deploy policy measures to stimulate savings of the following types: energy performance standards for new dwellings/buildings, minimum efficiency standards for appliances or cars, labeling of buildings, appliances or cars, subsidies or favourable loans or tax-deductions, voluntary agreements, taxes on energy or on CO₂ emissions and emission trading scheme. Whether these policy measures stimulate the demand for EES depends on the complexity of solutions. Stimulation of simple solutions, such as efficient refrigerators, does not lead to more demand for various EES activities. Stimulation of complex solutions, such as renovation of buildings or installation of CHP, do provide opportunities for EESC. Further on, some stimulating policy only creates a temporarily market for EES, such as for very efficient new dwellings that will become common building practice in time.

Policies restricting the EES market

Legislation that restricts EESC in their operation regards issues such as lack of standard contracts, public procurement rules, lack of standards for monitoring & verification, rules for financial management, public sector tendering and decision making (e.g. all tenants must agree to investment in multi-family building by ESCO).

Most of the legislative problems are not related to energy savings but regard arrangements between parties in general. In a number of countries policy measures have been formulated to lift the legislative barriers, as demanded in the ESD. However, the observed problems show that in many countries this demand has not yet been met.

Policy measures stimulating public supply of EES which competes with commercial offers can actually restrict the commercial EES market. Examples are free energy checks/advice by energy agencies, government supported/erected ESCO's, support for training of energy experts and attractive subsidies only for energy users. Whether the public offering of EES restrict the commercial EES market also depends on the targeted end-users (households are generally not a commercial EES market), the type of EES activity (awareness raising is generally a public EES activity) and the terms for public EES offering.

EU policies and EES market

EU policy (ESD, EPBD, CHP, Labelling and ETS) transposed into national policy measures can be dealt with in the analysis of national policy measures. EU policy affecting European actors (for instance minimum efficiency standards set in the Eco-design directive of the European Commission, to be met by appliance manufacturers) hardly influences the EES market. Although EU policy, as highlighted in the ESD, has

a large indirect effect on the EES market, the direct effect of EU policy measures is very limited.

Policies influencing the supply of EES

In the analysis a distinction has been made between policy measures that influence the EES market via the supply side or via the demand for EES. Most policy measures directly targeting EESC or EES activities are supply oriented, e.g. policy measures that increase the quality of offered EES. Overall, far more policy measures influence the EES market via the demand side. However, influence via the supply side could be more focused and therefore more effective than indirect influence through the demand side.

Policy and other barriers for EES

Next to legal barriers several other barriers exist. In industry for example, resistance against EES from external parties seems to be present, since companies are afraid to give up control over their core processes. This barrier may be difficult to remove with policy measures.

Also, the extent EES is perceived as necessary by potential clients is crucial for the EES market. EESC could provide the technical knowledge that is lacking, but the client is not interested in energy savings. The knowledge could already be available but the client is not willing to incorporate EESC. It should be acknowledged that policy stimulation of the market for EES can only do so much as the societal attitude towards energy savings in general allows.

Recommendations

Adapt national legislation relevant to EES

Despite the demands in the ESD there still remains national legislation that is a major barrier for EESC, e.g. government procedures on financing projects, public procurement rules and regulation that leaves no room for fees for EESC. These legislative barriers should be removed by dedicated policy measures.

Arrange accreditation and certification

This regards a defined quality of EES, in order that clients have trust in the provider of EES. Although some countries have taken action, in general more could be done to ensure the quality of offered EES.

Create level playing field for public and commercial supply of EES

Public offering of EES, such as free audits by energy agencies, could compete with commercial activities of EESC, thus hampering the development of a commercial EES market. Policy measures stimulating the offering of EES should create at least a level playing field for public and commercial EES providers. E.g. instead of free audits from an agency, it is better to have a subsidy for audits that is both valid for an agency or an ESCO.

Assure funding of investments with guarantees

An important barrier relates to financing investments in the EES market. This could partly be tackled with financial support, such as subsidies, tax exemptions and special tariffs. However, still a considerable part of the investment must be financed, and banks should be pressed by policy to lend the money. In case of soft loans banks could collaborate with government to finance at lower interest rates, for example by setting up revolving funds as some countries have. There also exists a need to reduce risks of investment decisions by provision of guarantees: for the EESC in case the client gets broke and for the client in case the EESC stops functioning. In case of third party financing by banks this should give rise to a combination of funding and guarantees.

Create an EES market by mechanisms and obligations

Obviously, policies that are best fitted to stimulate the EES market are the market based mechanisms: WCS or obligations for energy companies, EPC or mandatory efficiency criteria in public procurement and TPF. Probably a combination of such policy with the obligatory participation of EESC is powerful to develop an EES market. A good practice example is Italy, but also Finland, where agreements with industry and with the public sector incorporate the obligation to deploy ESCO's.

Apply policy packages for EES

Both demand for EES and supply of EES should be stimulated simultaneously. Therefore a combination of policy measures or policy package is needed. Such packages could include measures focusing on accreditation or qualification, improvement of contracting procedures and financial incentives including guarantees for clients and for EESC. Policy packages with measures for the removal of legal barriers in combination with the provision of attractive financing schemes for EES seem strong. These could remedy the lack of measures directly supporting EESC.

Focus EES policy on sector or technique

EES policy should also be tuned to the different EES characteristics addressed hereby, such as targeted energy use and techniques applied. It seems from the other work package reports that the most interesting target groups are the built environment (new building projects or large renovation, in all sectors), bundles of SMEs (mainly the tertiary sector) and industry (particularly specific techniques), when looking at energy savings potential. Therefore, EES policy focusing specifically on these sectors could release a probably large potential. A need also exists for standardized saving measurement and verification. Standard measurement tools or procedures could be developed, for example nationally or EU wide, to provide more certainty for potential clients to invest in EES.

Also some countries have policies focusing on specific techniques with significant energy saving potential: compressed air in industry (Germany) and (public) lighting (Italy, Slovakia).

Enable EES policy at local level

A successful EES market is not always dependent on national policy measures. Often local initiatives were at the basis of the EES market start up. Involvement of national or local public actors, in various ways, has been very important for an increasing demand for EES. However, this success conceals that offering EES to commercial actors lags behind or even stagnates. Commercial EES is (much) more

difficult and there are fewer policy possibilities than for public EES. A good practice example of EES policy is a mandatory energy efficiency agreement for municipalities, such as in Bulgaria.

Apply EU policy on EES where appropriate

Although most EU policy on stimulating the EES market works through transposition at the national level there are some ways of stimulating EES that can best be taken at the EU level, e.g. standards that define the quality of EES or EES suppliers.

Also, best practice examples of EES provision could be implemented EU wide, taking account of national circumstances, such as already present structures on stimulating energy savings.

Use EES policy to fill the savings policy gap

In general policy measures are strongest on stimulating investments in new energy efficient systems or changes in energy using systems, and not on optimal daily energy use. Apart from mandatory inspection of boilers only taxes on energy and information campaigns try to influence daily energy use. EES activities, such as operation and optimisation deliberately focus on daily use. Moreover, with EPC much attention is devoted to monitoring. Therefore policy should focus on these EES activities that realise energy savings where policy is less effective.

Another savings policy gap regards energy savings at SME (small and medium enterprises) in the service sector and industry, where policy measures stimulate the provision of various EES to SME in a general way. However, these EES do not seem to meet the demands of SME or EES are not provided as a one-stop-shop package. If policy arranges the offering of EES packages to SME, this would fill the gap left by lacking savings policy for SME.

Finally the split-incentive problem for renters and owners of dwellings and buildings is difficult to overcome with existing policy measures. EESC could act as a broker when meeting the interests of all parties, while realising the saving measures.

Adapt policy for an EES market on existing savings performance of countries

Some countries may have less need for an EES market as they have already a stimulating structure with policy, institutions and networks that delivers substantial energy savings. Creating an EES market is not a goal in itself but a means to have more savings. Therefore, any stimulation of the EES market should take into account current structures that (successfully) realise energy savings.

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Annexes

Annex A: Database of policy measures on EES

The database is available on the site of the ChangeBest project.

The database contains the following characteristics:

Source: MURE, NEEAP, National report (WP2.1, if available) and ESCO-survey

Country: 24 EU countries and the EU

Description of policy measures

Policy measure type (see report): if known

Influence on EES, type 1: promoting or restricting

Status of policy measure: expected or existing

Influence on EES, type 2: direct or indirect

Influence on EES, type 3: demand or supply

Sector and targeted energy use: if known

EES activity type (see report): if known

Technique (see report): if known.

Annex B: How policy measures affect energy savings

Policy measures intend to stimulate energy savings, by way of helping end-users to implement saving measures, or by creating a market for energy efficiency services (EES). The policy measures can be categorised in a number of types and subtypes (see first column in **Table B-1**).

Table B-1: Conditions for the implementation of saving measures and how policy measure contribute

Policy measure types	Conditions for implementation of saving measures				Daily use
	Available measure	Known to appliers	Restrictions lifted	Incentive to implem	
Regulation					
- implementation	x	x	x	x	
- information		x			
- inspection					x
- advice		x			
Financial					
- subsidy advice		x			
- subsidy measure		x		x	
- cheap loans				x	
- fund/guarantee				x	
Fiscal/tariffs				x	
Info-education general					x
Co-ordination (VA)		x	x	x	x
Taxes				x	x
Market instruments		x	x	x	
Procurement	x		x		
Policy on EES	x	x	x	x	x

Savings can be realised by implementing more efficient systems or by proper daily use (shutting down lights, turning down thermostat, turning off unused appliance, etc). According to [Boonekamp, 2007] a successful implementation of systems demands that four conditions have to be met:

- the saving option must be available,
- it must be known to the applier,
- restrictions should be lifted
- enough incentive to decide on the implementation.

The table shows how, in general, the policy measure types help to meet one or more of these conditions for implementation. Besides, for influencing daily use only a few policy measure types are available.

The policy measures in the table focusing on implementation can directly focus on the saving measure itself, e.g. a subsidy for a high efficiency boiler, but also in an indirect way, e.g. by training of advisors or setting up an organisation that plans, coordinates and monitors a savings programme. These “indirect” policy measures can also regard EES companies, e.g. a regulated position for ESCO’s (see chapter 2).

The conditions coincide with often mentioned barriers for providing EES [Bertoldi, 2005]. Technical risks resemble the condition “availability” of market ready saving options. Lack of awareness of saving possibilities is equal to the condition “saving options known”. Legal restrictions are part of the condition “restrictions”. Motivation is another way of describing the condition “incentive to act”.

However, other barriers mentioned are typical for EES, such as lack of knowledge on EES, no knowledge on EES at banks, high transaction costs for small size EES projects, lack of trust in EES and EES clients getting broke.

Policy specifically aiming at the supply of EES has been added to the set of policy measures types (see bottom of table). This policy could help to meet all conditions for the implementation of saving measures and proper daily use. However, this is dependent on the broadness of the focus of EES, as shown in the next section.

Value chain activities

EES can regard different activities, i.e. an audit to identify saving opportunities or the daily operation and optimisation of an energy using system. In **Table B-2** the different EES activities are presented as parts of the value chain (see [CB report Lablanca]). The EES activities will focus at one or more of the conditions (see section 1.1) for implementation of efficient energy systems and some will focus on daily energy use.

Table B-2: EES activities and effect on implementation of saving measures

Value chain EES	Conditions for implementation of saving measures				Daily use
	Available measure	Known to appliers	Restrictions lifted	Incentive to implem	
1) awareness raising,				x	
2) information and energy advice,		x			
3) identification of measures, (audits)	x	x			
4) technical planning,			x		
5) financing and subsidies,			x	x	
6) operation, supervision					x
7) optimisation of technical operation,					x
8) saving measurement and verification					x

From a comparison with **Table B-1** it can be concluded that EES activities earlier in the value chain often overlap with policy measures as to their focus. Both focus on meeting the conditions “Known to appliers”, “Restrictions lifted” and “Incentive to implement”.

This is much less the case for provided EES further in the value chain that focus entirely on daily use. There are some options in the policy mix but these are limited in scope (inspection of boilers), limited in durable effect (info-campaigns) or are not strong enough (taxes that really hurt). In general these policy measures do not match the effectiveness of EES activities on operation, optimization and verification. Therefore EES activities further in the value chain can fill the gap that policy on savings show as to daily use.