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The European market for energy efficiency services in the residential sector and the effects of existing energy efficiency policies on its development

FRESH – Financing energy refurbishment for social housing

International Conference on Energy Performance Contracting (EPC) and its applications in social housing

Rome, 30 May 2012



Presentation outline

- Terminology
- Overview of the development status of the EES markets for the residential sector and their market players in 18 EU countries
- Existing energy efficiency policies affecting EES market development in the residential sector
- Existing EES market potentials in the residential sector
- Conclusions and recommendations on the formulation of policy measures

Most of the analyses presented are taken from the ChangeBest project (www.change.best.eu) and from JRC ESCOs status reports (<http://re.jrc.ec.europa.eu/energyefficiency/ESCO/index.htm>)

Terminology (1/3)

EES: agreed task or tasks designed to lead to an energy efficiency improvement (EEI) and other agreed performance criteria*

The energy efficiency service shall include energy audit as well as identification, selection and implementation of actions and verification.

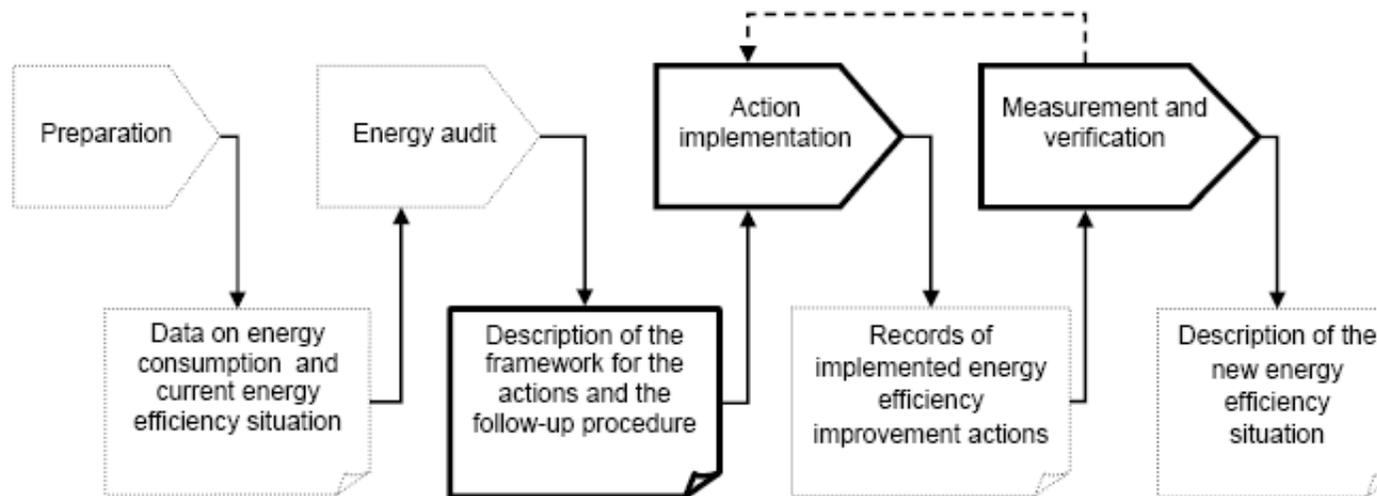


Figure 1 — Diagram illustrating a typical energy efficiency service provision process

*See the European norm on energy efficiency services EN 15900:2010



Terminology (2/3)

ESCO: Any entity that delivers EES and in doing so takes some kind of financial risk and meets some defined energy efficiency performance criteria (similar to 2006/32/EC directive definition)

Energy Efficiency Service Company (EESC): an entity whose core business consists in delivering EES.

Energy Companies: energy distributors, distribution system operators and retail energy sales companies as defined in the ESD

Energy companies, ESCOs, EESC are considered as EES providers in so far as they deliver EES

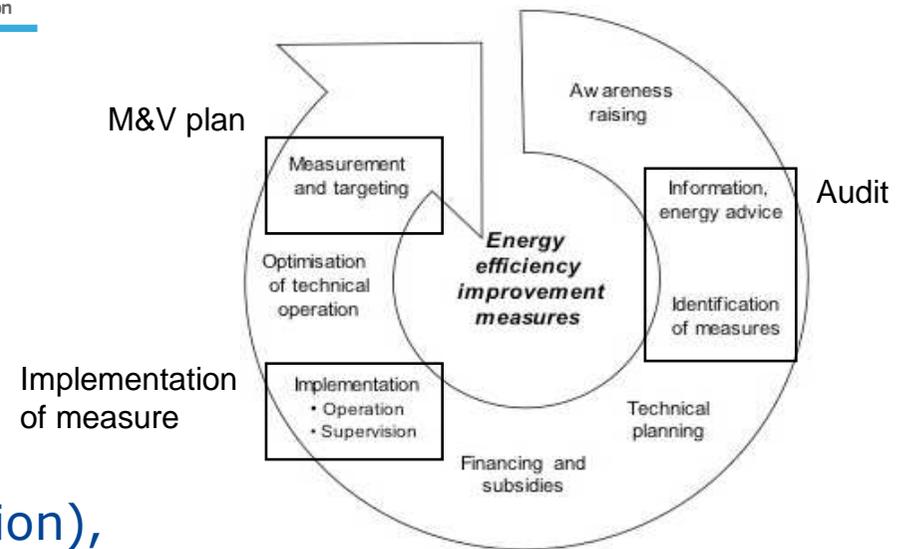
Terminology (3/3)

EES product value chain stages:

- 1) awareness raising,
- 2) information and energy advice,
- 3) identification of measures,
- 4) technical planning,
- 5) financing and subsidies,
- 6) implementation (operation, supervision),
- 7) optimisation of technical operation,
- 8) saving measurement and verification.

Partial services connected to EES:

Services that just include parts (“components”) of the EES value chain like energy audits, but are designed to directly or indirectly lead to an EEI





Cross-country analysis of the EES markets covering 18 EU countries and regions

Despite the high economic energy saving potential of the residential sector (partly having a reasonable investment payback time), the development stage of the EES market in this sector in the countries analysed is on average ranked at the lowest level with respect to the other sectors

Table 1: EES market development status in the residential sector by EES provider in the countries considered

Legenda: 1=very well developed; 2=well developed; 3=emerging; 4=not well developed; 5=not existent; empty=unknown

ES = ESCOs; EC = Energy Companies

DE		DK		BE		SE		NL		AT		FR		IT		CZ		PT		ES		LV		SK		SL		EE		BG		EL		PL	
ES ¹	EC	ES	EC	ES ²	EC	ES	EC	ES	EC	ES	EC	ES	EC	ES	EC	ES	EC	ES	EC	ES	EC	ES	EC	ES	EC	ES	EC	ES	EC	ES	EC	ES	EC		
4	2		2	5	2	4-5	4-5	3	5	4	3	3-4	1	3	3	5	5	5	5			3	5	3	3	3	3		5	4	5	5	5	3	5

¹ Not including totally public EES providers like public energy agencies or NGOs

² Focus on EPC-contracts



Main barriers to EES in the residential sector

Particularly high transaction costs for EES providers relative to the small amount of energy costs

High fragmentation of the mass market making standardised EES necessary

Landlord/tenant dilemma

Decision processes existing in multi-apartment buildings

Energy consumption in the residential sector is much more correlated to individual needs and behaviours than in other sectors

Difficulty for potential EES customers to get oriented among existing EES offers also partially due to the difficulty in understanding the ESCO model and the EES financing and contract

The lack of credibility on EES providers also partially due to the often lacking legal framework for the accreditation of EES providers

Fear to become too much dependent on the EES contractor and that the service offered would be more expensive than if the energy efficiency improvement were realised autonomously



EES provider types and their positioning in the EES value chain

The EES market for ESCOs appears in general as more developed than for energy companies in all sectors other than the residential one.

EES for households are offered especially by retail energy sale companies or energy distributors, often to increase customers' loyalty or to comply with a possible energy saving obligation

Energy consultants, auditors and engineers play an important role in countries where the EES market relies on regulations on building energy certification and/or energy audits

ESCOs rarely concentrate on information and awareness raising on EES

ESCOs activity on EES financing is often just limited to the identification of third parties available to finance EES investments

Information and awareness raising activities as well as saving measurement and verification (M&V) may be performed by energy agencies

In some countries (e.g. Austria) banks are active on information and advice on EES

Energy supply combined with EES are commonly provided by energy companies in countries where a well developed EES market exists (e.g. in DK, DE, Flanders)

M&V provision by ESCOs and energy companies is often a consequence of the stipulation of EPCs or the need to achieve some mandatory and measurable energy saving target

Main sector cross-cutting technologies and fields of application for the EES provided in the countries

Country	Cross cutting technologies							
	Building envelope	heating system (incl.)	air conditioning	Ventilation	water saving	building automation	user behaviour/training	Pumps
DE	XX	XX	XX	XX				X
DK	X	XXX	XX	XX				X
BE	X	X					X	
SE	X	XX		XX	X	XX	XX	
NL	X					X		XX
AT	XX	XX					XX	
FR	XX	XXX	X	X		X	X	XX
IT	X	XX	XX		X	X		
CZ	XX	XX						
PT		XX	X	X				
ES		X	X	X		X	X	
LV	X	XX				X		
SK	X	X						
SL	X	X				X	X	
EE	X	X	X	X				
BG	X	X					X	X
EL	X	X	X					
PL	XX	XX	X	X		XX	X	

Whereas a good level of market activity has been identified (e.g. in Germany, Denmark, Flanders, France) this activity is typically supported by energy efficiency policy measures (e.g. energy saving obligations, tax deductions, tax credit schemes or subsidies).

It is often quite unlikely that this activity could continue to exist on a pure commercial basis without any form of economic support provided through these policy measures

“XXX” = much more frequently preferred, “XX” = more frequently preferred, “X” = less frequently preferred technologies



Contracts stipulated for EES supply

EES are often provided in combination with energy supply or contracts for operation and maintenance of energy systems at the energy end-users sites.

Contract types stipulated in the EES business in several countries analysed are

- chauffage
- Build-Own-Operate-Transfer (BOOT) contracts,
- leasing

Energy performance contracts (EPCs) are still very rare. Their market share is increasing in DE, FR, SE, UK



Policy measures affecting the EES market (1/2)

Policy measures can be categorised as:

- (1) specifically targeting EES providers (e.g. measures for ESCO accreditation/certification, creation of common platforms for ESCOs, provision of specific (financial) ESCO support, removal of barriers for ESCOs)
- (2) creating or supporting general mechanisms for an EES-market (e.g. TWC schemes, EPCs, TPF)
- (3) stimulating one or more EES activities,
- (4) stimulating energy savings and thereby EES activities indirectly,
- (5) restricting the (commercial) market for EES (e.g. legislation restricting EES companies operation, measures restricting the commercial market for EES).



Policy measures affecting the EES market (2/2)

- (1) Only few countries (i.e. BG, LV, NL) have no measures specifically devoted to improve EES providers position. Financial support of EES providers is positive but in principle can restrict other commercial EES providers activities.
- (2) Policy mechanisms (including e.g. TWC, EPC, TPF schemes) are mentioned for 7-8 countries but do not lead by definition to a thriving EES market.
- (3) Policies stimulating one or more EES activities are very widespread but policy packages stimulating all EES activities are rare and highly needed.
- (4) Whether policies stimulating energy savings stimulate EES activities depends on the complexity of energy saving solutions addressed.
- (5) Legislations restricting EES companies operation: e.g. prohibition of external funding for energy equipment in “chauffage” contracts (FR), requirement for *all* multifamily buildings tenants agreement on ESCOs investments (DE, LV), low and regulated heat prices (PL), district heat costs restricted transfer to consumers (NL). Policies which may restrict EES commercial offer: e.g. free energy checks/advice by energy agencies, government supported ESCO’s, energy experts training support

Potential for EES business in the EU-27 evaluated by pay back times (PBT) of EEI actions

Saving potential for EEI actions related to space and water heating in existing residential buildings

Additional market for EES according to their accessibility (yearly market in M€ up to 2020)		
Very accessible (PBT < 3 years)	Accessible (3 years <PBT< 8 years)	Less accessible (PBT > 8 years)
194	1450	795

The largest potential with short PBT could come from wall and roof insulation (particularly in warmer climates)

Condensing boilers have on average a short PBT especially in multi-family buildings

Heat pumps have short PBT but their energy saving potential is smaller



Framework conditions influencing success: EU & Member State policy

EU Policy

- Heterogeneity makes common EU policy approach difficult
- More integrated and centrally co-ordinated approach
Implementation: too many intermediate actors typically involved (e.g. agencies, housing corporations, installers and manufacturers of energy efficient systems, etc.)
- Guarantee funds through EIB or similar measures for those countries where pre-financing/re-financing of ESCOs and EEI actions is a problem
- Common definitions of what is meant by „energy services“ and „energy efficiency services“

Member State Policy

- Removing legal barriers that hinder EES market development like, e.g., specific regulations in national tenant law, law for public tendering, tax law or energy-specific laws
- Redefining supporting energy efficiency policies which create unwanted „competition“ to the commercial provision of EES
- Actively fostering EES market development by increasing trust via information (e.g., to banks), qualification, maybe certification / accreditation, training programmes, platforms, market facilitators and networks, standardised EES contracts and M&V procedures



Conclusions

- Large potential for profitable EES
- Chances for various market actors to provide EES or partial services related to EES
- Learning from good practice examples
- EES development = Strategic product development from the identification of possible EES that provide economic, energy-efficient solutions to the customers to the development of successful business cases
- Responsibility of policy decision makers on EU and national level to provide supporting framework conditions for EES market development and a level playing field that gives equal chances to all market actors

ESCO Status Reports



- **Monitoring** of market development since 2002
- **Workshops** – initiating exchange of experience
- **Status 2010**: ESCO market far from utilizing its full potential, significant differences across Europe
- We are **collecting data** on national ESCO markets in 2011: **pls send your data**
- The reports are **available online**:
<http://re.jrc.ec.europa.eu/energyefficiency/ESCO/index.htm>

JRC Scientific and Technical Reports



Latest Development of Energy Service Companies across Europe - A European ESCO Update -

Authors: Paolo Bertoldi, Benigna Boza-Kiss, Silvia Rezessy
Institute for Environment and Sustainability



ENERGY SERVICE COMPANIES IN EUROPE



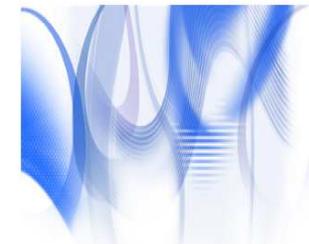
STATUS REPORT 2005



JRC Scientific and Technical Reports

Energy Service Companies Market in Europe - Status Report 2010 -

Authors: Angelica Marino and Paolo Bertoldi
European Commission, DG JRC, Institute for Energy, Renewable Energies Unit



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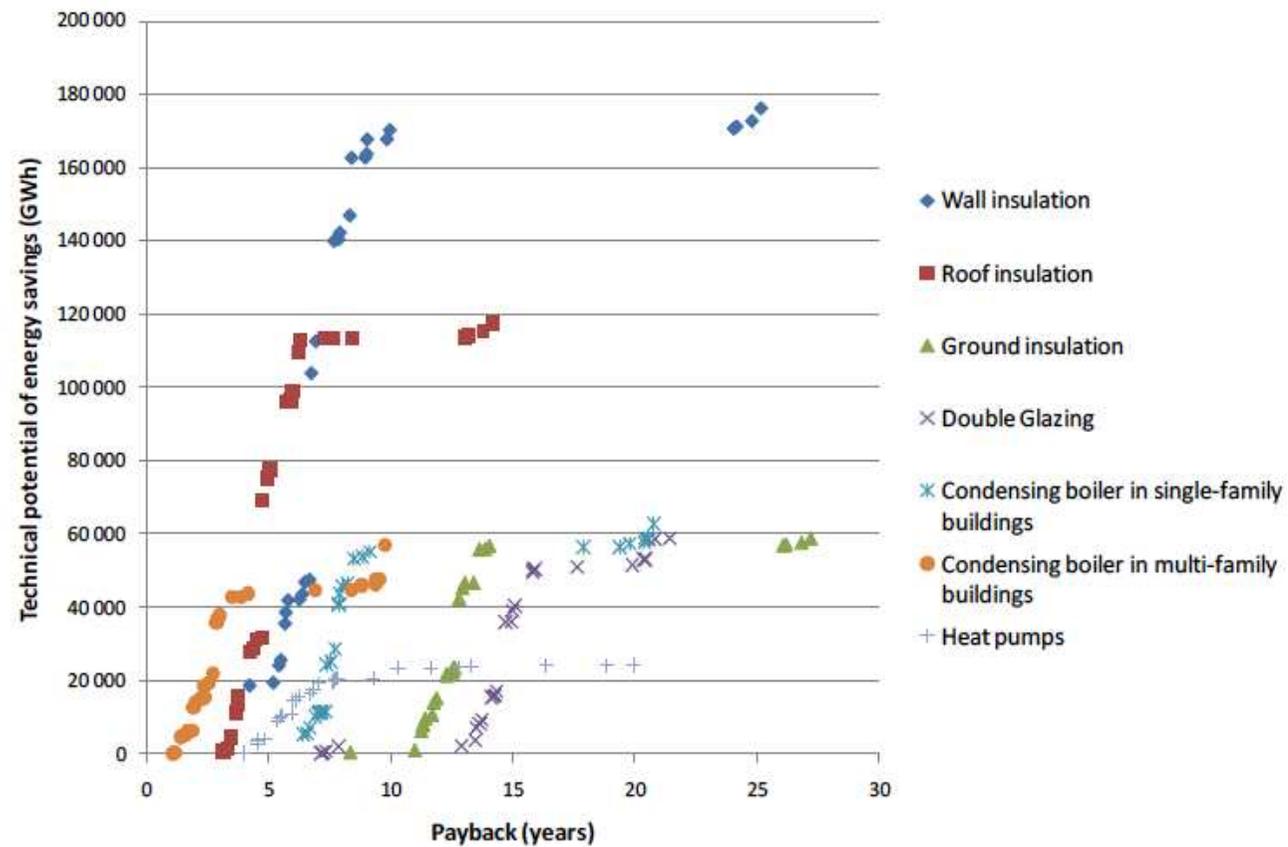


Thank you for your attention !

nicola.labanca@ec.europa.eu

<http://re.jrc.ec.europa.eu/energyefficiency/>

Figure 8 : EU-27 cumulated additional energy savings from various EE measures according to their payback time in the residential sector



Source: www.changebest.eu