

Securing the take-off of
Building Energy Certification

STABLE

Market attractiveness Energy Performance Certificate for Buildings

Analysis of the questionnaires

Overall report



Drs. M.M.H. Wobben
Drs. K.J. Hoogelander

Assisted by New Energy Works:
Drs. J.S. Schorel
Drs. M.F. Corpeleijn
Drs. A. Hezelmans
Dr. L.A. Verhoef

Disclaimer: The authors are not responsible for damage, in any possible way, as a result of the use of the data from this report. Processing of the data will occur completely on the own responsibility of the user.

Copyright: All rights reserved. Nothing of this publication may be multiplied, saved in an automatic database, or published in any form or way without the preceding permission of SenterNovem.

Executive Summary

Objective

In the EU project Stable (Securing the Take-off of Building Energy Certification: improving the market attractiveness through Building Owner Involvement) seven countries are researching which aspects influence the attractiveness of the energy certificate. This report presents the results for all the countries.

Market attractiveness

The following conclusions can be drawn. Because the response to the questionnaire was not high enough to be representative in all countries, results have to be interpreted with care.

- The respondents on average assign a high priority to improving energy efficiency (see below)
- The majority of the professional respondents have known of the EPBD for less than 2 years.
- Most professional respondents have not made preparations yet. The exception is Bulgaria, which has already implemented the EPBD and therefore most organisations have made preparations.
- In the professional market, there is a difference between the countries concerning the need for a full audit of the building. In the non-professional market the majority in all countries involved in this market research think a full audit is needed.
- There is a large spread in the estimated reasonable price for a certificate. The reasonable price correlates with the preferred intensity of the audit.
- The market attractiveness is high according to the respondents.
- The certificate is seen as valuable in policy, marketing, investments, maintenance and communications by the majority.

Effect of policies

For policy, relevant outcomes are:

- In most countries the government is the main source of information and more information is needed.
- Next to grants and subsidies, also high quality advice and benchmarks are seen as effective instruments.

Usefulness of results

The priority that respondents in the professional market assign to improving energy efficiency is, on average, high. It is probably higher than the average

for European professional organisations. Therefore, not all results are representative:

- The priority which is assigned to improving energy efficiency and how long one knows of the EPBD (strongly) influence the familiarity with aspects of the EPBD and the preparations that are made. Therefore, it is expected that the familiarity with EPBD and the preparations taken might be lower in the average market than observed with the respondents. The same goes for the observed amount of voluntary investments, which is related to the priority level one assigns to improving energy efficiency.
- For other results there is no relation with priority level one assigns to improving energy efficiency. The results presented on the other subjects are therefore representative for the whole European market.

See also annex for overview table

Contents

Executive Summary	2
Contents	4
1. Introduction	5
1.1 Background	5
1.2 Objective	5
1.3 Method	5
1.4 Status of Energy Performance Certificates	5
2. Results professional parties	7
2.1 Response	9
2.2 Characteristics of respondents	11
2.2. Familiarity with EPBD and information gathering preferences	15
2.3 Market attractiveness: Perceived values and motivation for use	19
2.4 Perception of quality and characteristics of a certificate	24
2.5 Summarising conclusions - professional organisations	29
3. Results consumers	32
3.1 Characteristics of respondents	33
3.2 Market attractiveness: Perceived value energy certificate & expected/desired behaviour	34
3.3 Perception of quality & relevant characteristics	39
3.4 Summarising conclusions - consumers	41
Annexes	43

1. Introduction

1.1 Background

“In the EU project Stable (Securing the Take-off of Building Energy Certification: improving the market attractiveness through Building Owner Involvement) 7 countries are researching which aspects influence the attractiveness of the energy certificate.

In this background these seven countries have developed a survey which was set out in seven countries. This report presents the results for all the countries.

1.2 Objective

General objective is to investigate the market attractiveness of Energy Performance certificates for buildings in the countries that participate in the STABLE project.

1.3 Method

- 1) A questionnaire has been designed and sent out to professional parties in the building sector by the STABLE project team. This was done in 2005. Response was returned by April 2006. The questionnaire is attached as an annex.
- 2) This report is produced based upon the English questions. For the data collection these were translated into the national language. Possible nuance differences in translation are not taken into account, nor are the additional comments in national language.

The questionnaire for professional organisations has been used in Finland, Sweden, The Netherlands, Greece, Bulgaria, Belgium and Austria. Country reports of the results in those countries are available (except for Belgium).

- 3) A questionnaire has been designed and sent out to consumers (both house owners and tenants). The questionnaire is attached as an annex.

This questionnaire for consumes has been used in Belgium, Sweden, The Netherlands and Austria. Separate reports of the results in those countries are available.

No analysis is performed on the differences / agreements between professionals and consumers. The amount and distribution over various countries and types of respondents does not warrant a useful comparison.

1.4 Status of Energy Performance Certificates

From 4 (Belgium, Netherlands, Finland, Austria) of the 7 countries, information was received on the status of the implementation of EPBD and certificates and Bulgaria already has implemented all of the issues. Twenty different issues need to be arranged. Belgium, Netherlands, Finland and Austria plan to be ready before half of 2008, see Table.

	Netherlands	Belgium	Finland	Austria	Bulgaria
Number of measures already implemented for (number of segments from existing residential, new residential, existing non-residential, new non-residential)					
methodology for calculation energy performance	4	4	1	2	4
set energy performance requirements	2	2	1	2	4
issue an energy certificate	0	4	1	2	4
arrange qualified and or accredited experts	2	2	1	2	4
generating advice	2	3	0	0	4
Status	Ongoing	Advanced	Starting	Ongoing	Complete
Schedule for implementing EPBD					
Planning to be ready	1 st half 2007	2008	1st half 2008	1st half 2008	done
Responsible	National government	Regional Government	National Government	Regional Government	National Government

2. Results professional parties

The results of the questionnaire with professional parties will be described and analysed according to the following structure:

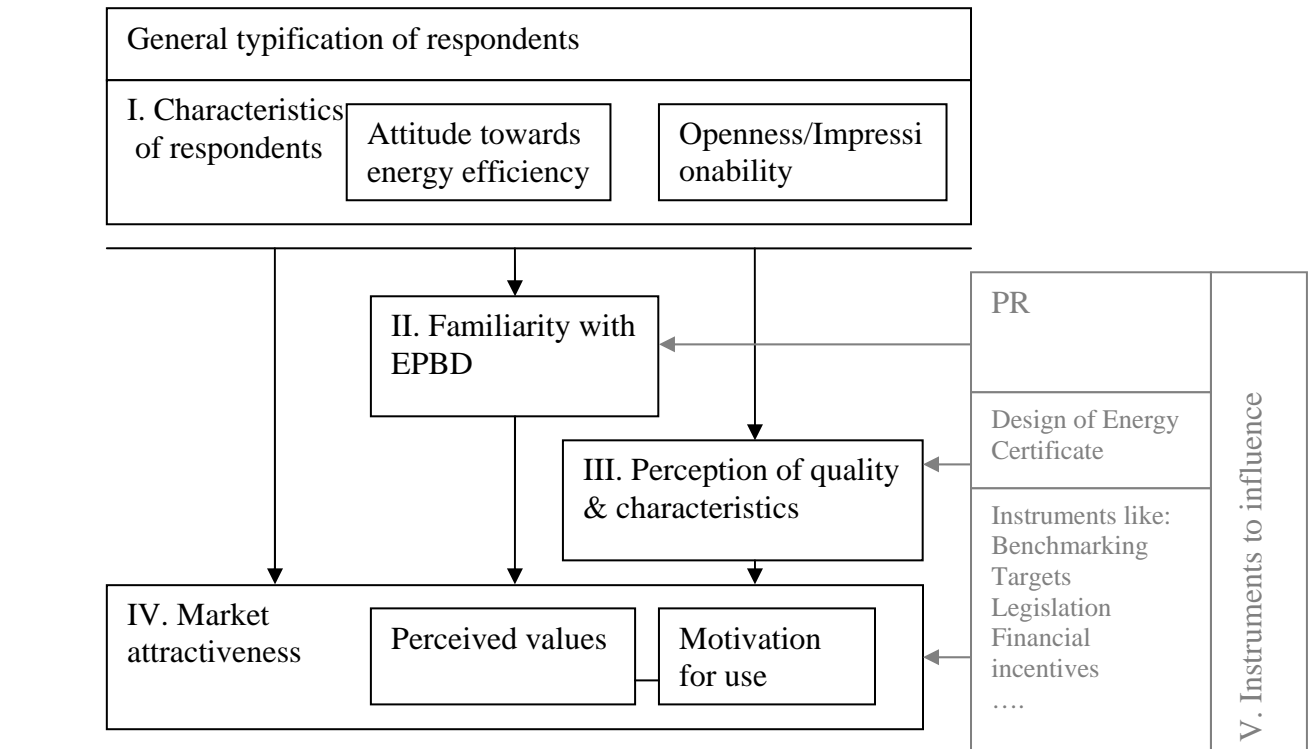


Figure 1.

First, a description of the response to the questionnaire is given. Second, we will describe the results for the different elements, see Figure 1.

- I. Characteristics of respondents
- II. Perception of quality & relevant characteristics of an energy certificate
- III. Market Attractiveness
- IV. Instruments of Influence

In each section, the results will be described per country, but when interesting we will take a cross section and relate the results to the characteristics of the respondents being:

- Type of organisation (Owner, Supplier, User)
- Level of priority one assigns to improving energy efficiency (Very high, High or Low/very low)
- Type of buildings one mainly works with (Residential or Non-residential)

This chapter will conclude with a summary of the main aspects that relate to the market attractiveness of Energy Performance certificates as observed from the data as gathered with the questionnaires amongst professional parties, in order to be used for recommendations to improve successful implementation.

**Please note that standard deviation in the graphs can be quite large, for instance, the results for Belgium are based upon only 6 returned questionnaires in the professional market.*

2.1 Response

Number of responses

In total 466 questionnaires were returned from the seven countries that participate in the STABLE project. The number of respondents differs a lot between the countries.

The useful responses from Belgium, Bulgaria and Greece were relatively low. In Belgium, this is because the specific market situation makes this questionnaire less relevant. Also the distribution of the response over the type of organisations per country is different.

General distribution over the professional parties

The organisation types which responded are distributed over three categories as follows, see also Table 1 for details:

- *Owners of buildings*: defined as the sum of condominium/housing cooperative, housing company/association and building owner/investor (68% of all returned questionnaire, 81% of defined response)
- *Supplier to owners*: defined as building management, building maintenance and property developer (15% of all returned questionnaires, 18% of defined response)
- *Users*: defined as building user / tenant organisation (2% of all returned questionnaires, 2% of defined response)

		Austria	Belgium	Bulgaria	Finland	Greece	Sweden	Netherlands	Total
Total number of returned questionnaires		93	6	61	123	24	90	69	466
Owner of building(s)	building owner or investor	6	2	21	31	5	22	4	91
	housing company/association	59	0	0	29	1	58	59	206
	condominium, cooperative etc	2	0	3	11	2	1	0	19
Supplier to owners of building(s)	property developer	2	0	1	6	0	1	0	10
	building management	19	1	2	17	1	2	0	42
	maintenance services	0	3	0	6	2	6	0	17
User of building	user/tenant organisation	0	0	0	6	1	0	0	7
Other or not answered	other	1	0	10	14	3	0	3	31
	not answered	4	0	24	3	9	0	3	43

Table 1. Distribution of response over countries and organisation

Type of buildings one mainly works with.

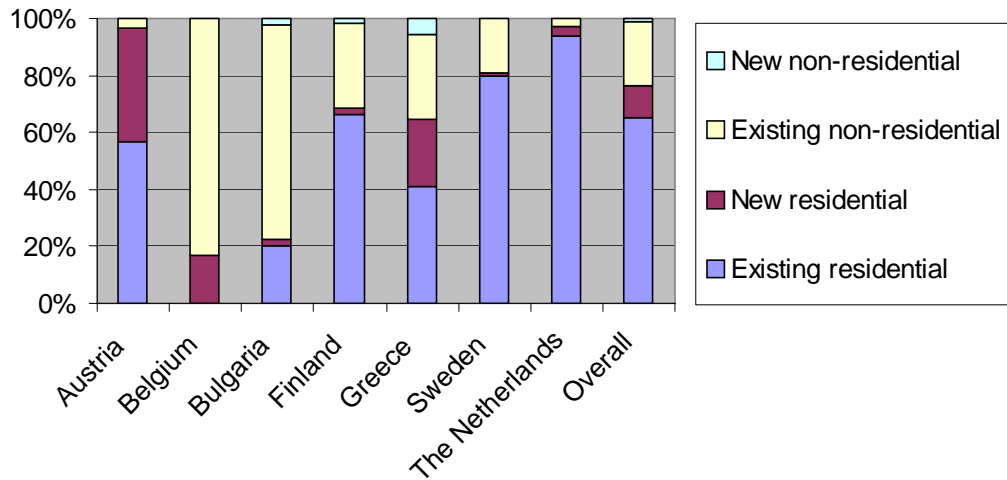


Figure 2. Type of buildings being worked with by the respondents

The majority of respondents mainly work with residential buildings (325), but a significant part mainly works with non-residential buildings (101), Figure 2. Therefore a comparison between the preferences between these two respondent groups might be useful.

The vast majority of respondents mainly work with existing buildings (88%). In the analysis of the response differences between parties that work with new or existing buildings are not specified.

Interpreting differences between countries should be done with care, keeping in mind the differences in number and type of respondents per country.

2.2 Characteristics of respondents

Attitude towards energy efficiency

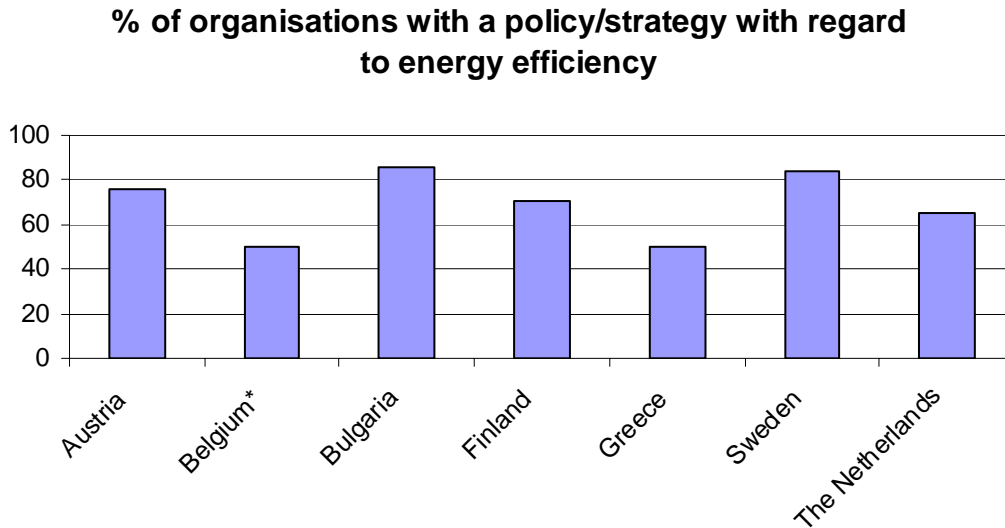


Figure 3.

In all countries at least half 50% of the organisations do have a policy/strategy with regard to energy efficiency, Figure 3. In Bulgaria and Sweden most organisations have such a policy/strategy (>80%).

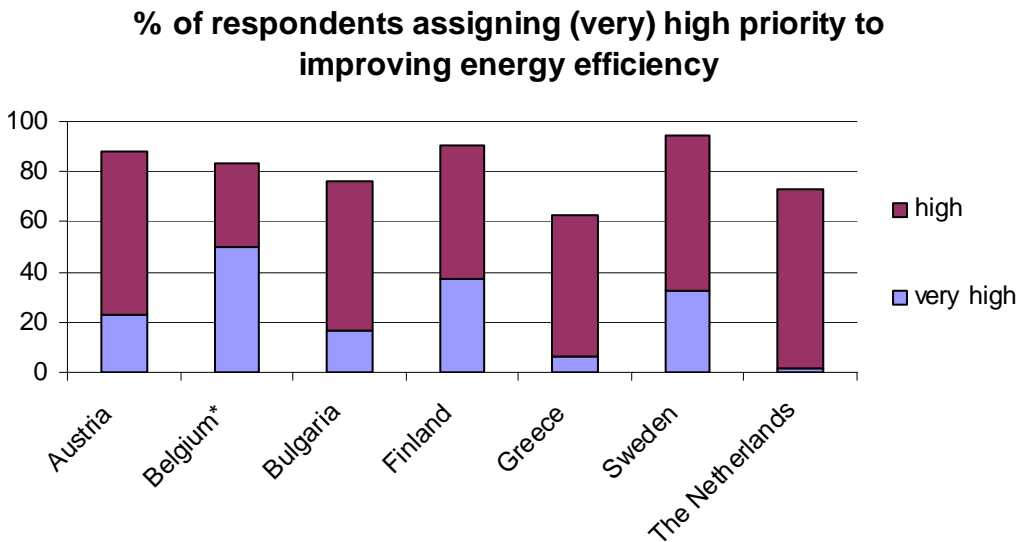


Figure 4.

In Finland and Sweden the percentage of the organisations assigning a (very) high priority to improving energy efficiency is more than the overall percentage for all respondents, Figure 4.

The respondents can be clustered into three groups according to the priority level they assign to improving energy-efficiency:

- group 1: very high priority level (25%),
- group 2: high priority level (61 %),
- group 3: low/very low priority level (14%).

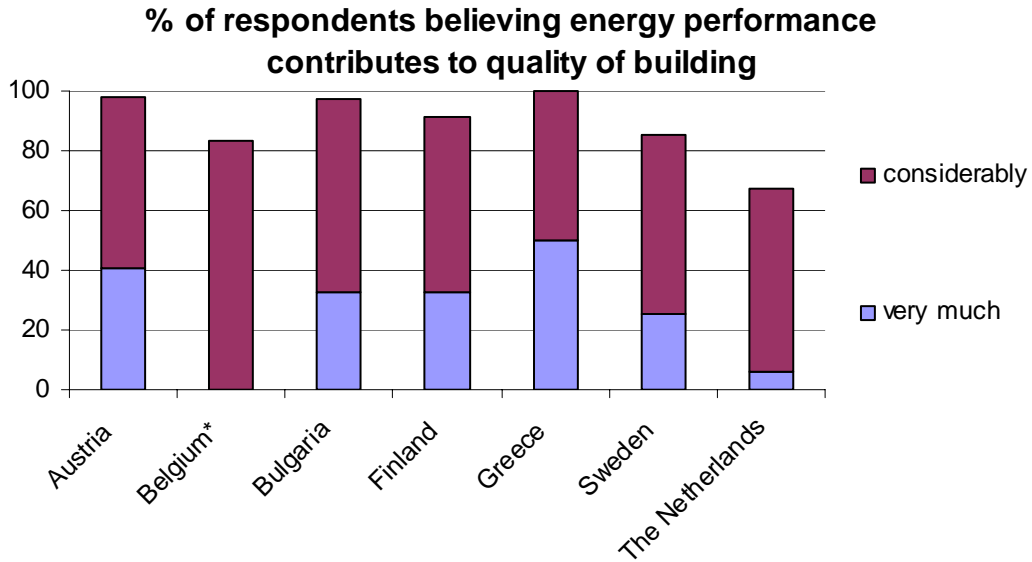


Figure 5.

In The Netherlands relatively little respondents believe energy performance contributes to the quality of a building. In Austria, Bulgaria, Finland and Greece this believe is just over average, Figure 5.

Positive attitude towards energy efficiency

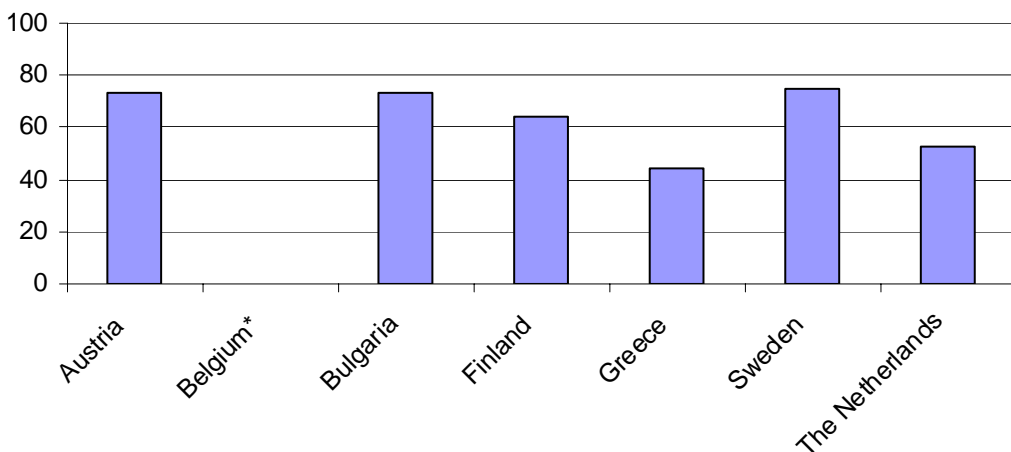


Figure 6.

What is now the general picture with regard to the attitude in countries? A clearly positive attitude towards energy efficiency can be defined as having a

positive opinion with respect to all three above mentioned subjects (Figure 3, 4, 5). In Sweden, Bulgaria and Finland a more than average number of organisations do have a positive attitude towards energy efficiency, Figure 6. In Greece and The Netherlands less organisations, but still almost half, have a positive attitude towards energy efficiency.

Openness/Impressionability

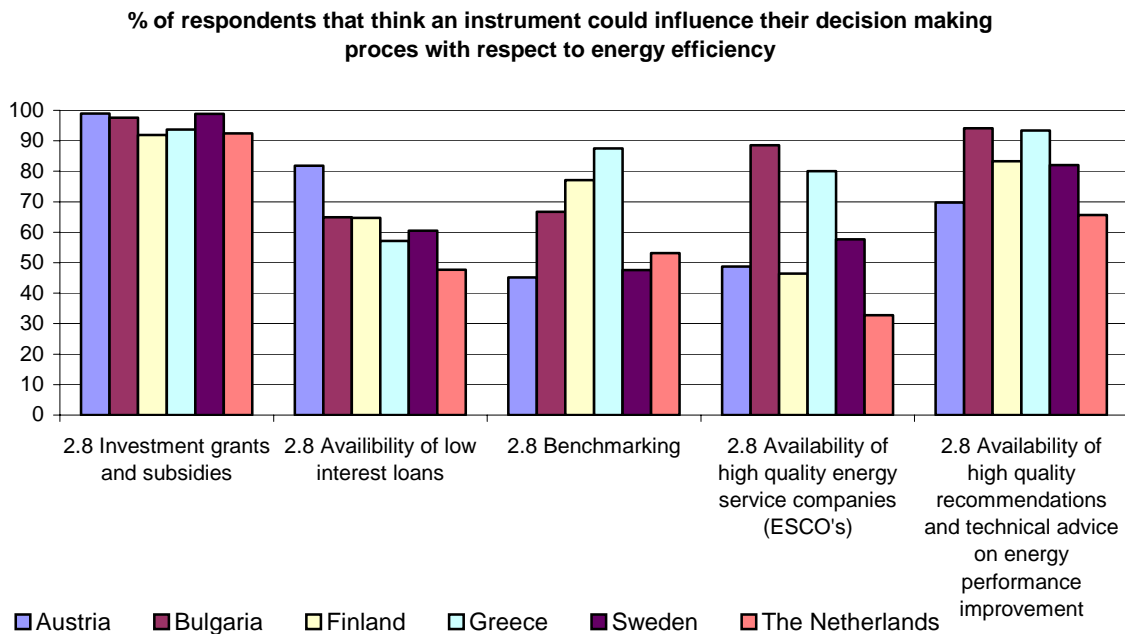


Figure 7.

Investment grants and subsidies influence decision making processes in all countries and to almost all respondents, Figure 7. The influence of benchmarking differs though. In Greece, Finland and Bulgaria this instrument could influence more organisations than in the other countries. In Bulgaria and Greece the availability of high quality ESCO's is considered more influencing than in the other countries. This could be caused by the fact that respondents from those countries work more often mainly with non residential buildings.

The influence of high quality energy services is much larger for organisations active in the non-residential market than in the residential market (70% versus 47%). The influence of the availability of low interest loans is smaller in the non-residential market compared to the residential market (53% versus 68%).

% of respondents influenced by other parties

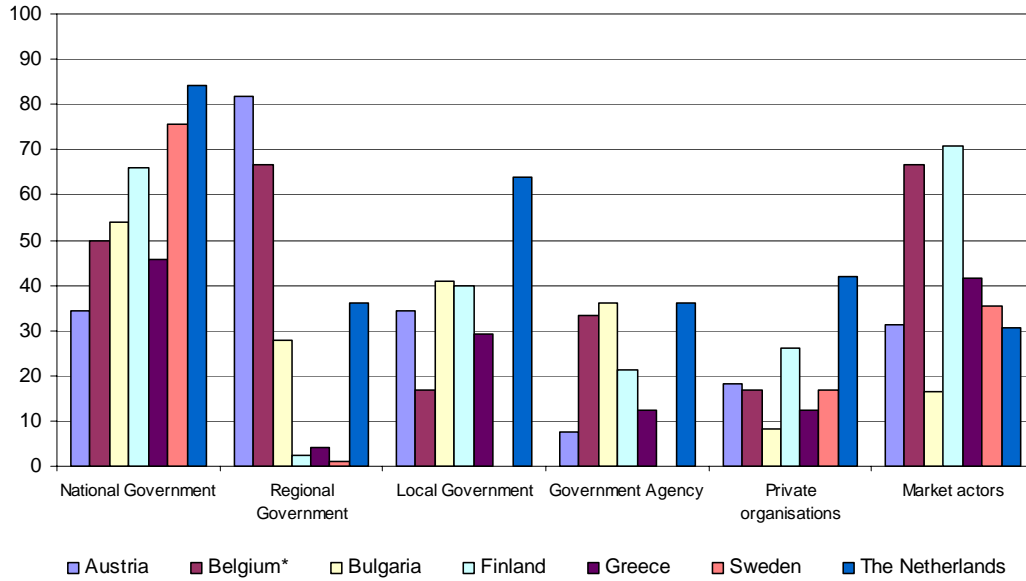


Figure 8.

When comparing the types of external parties that influence the respondents with respect to improving energy efficiency, it seems that in The Netherlands, Sweden and Finland the National Government are important influentials, Figure 8. In Austria (and Belgium) the Regional Government are very influential. Furthermore, Finnish (and Belgian) respondents are influenced a lot by market actors. Dutch respondents are influenced considerably by Local Government.

Openness/Impressionability

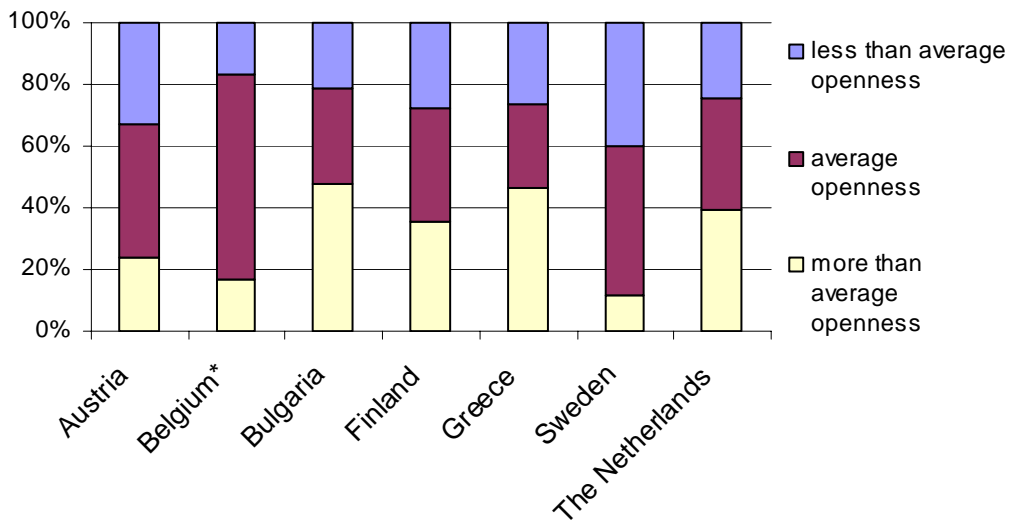


Figure 9.

The Openness / Impressionability is measured by counting the number of instruments and organisations which respondents think they are influenced by. Respondents in Sweden seem less impressionable while organisations in Bulgaria and Greece seem more impressionable.

2.2. Familiarity with EPBD and information gathering preferences

The majority of respondents know about the EPBD, but most are not familiar with the contents and requirements of all aspects, Figure 10. In general the energy certification of buildings and the inspections of boilers and air conditioning installations are best known. However, Bulgarian respondents are relatively good informed about the different aspects of the EPBD with the exception of this regular inspection of boilers and air conditioning installations.

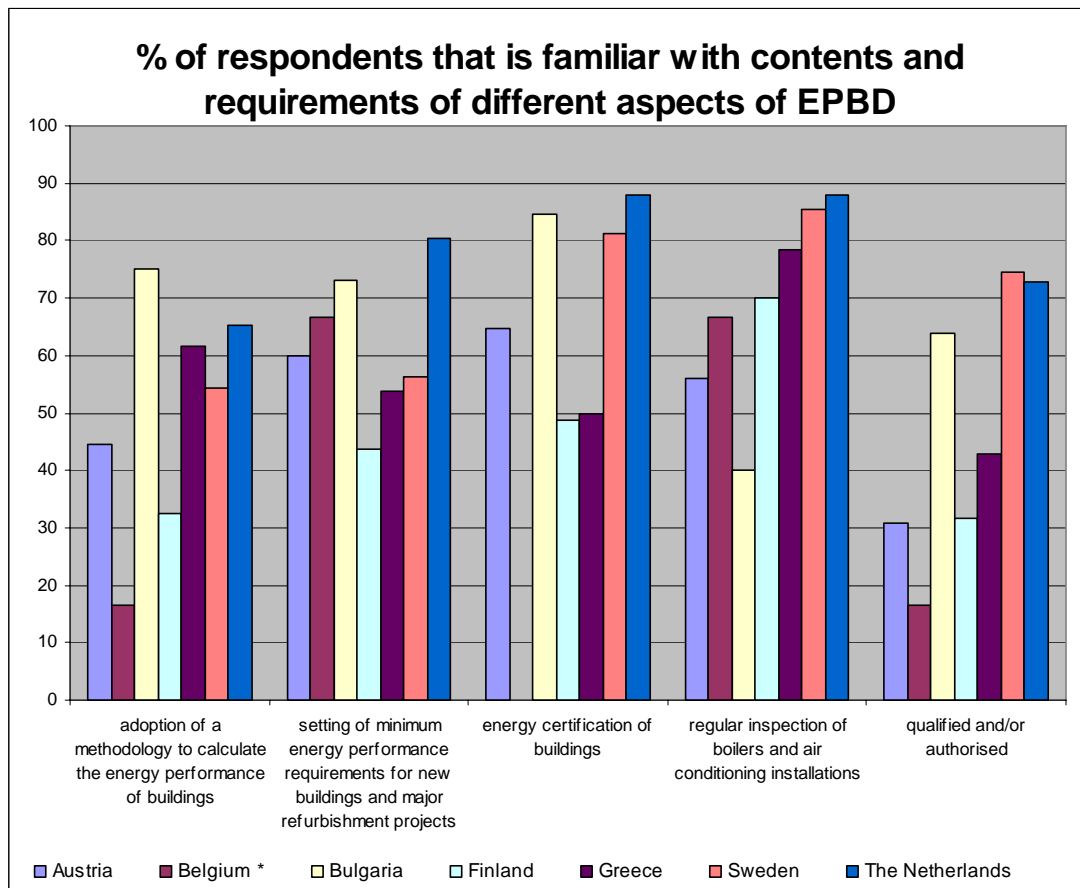


Figure 10.

In the questionnaire one was asked about his familiarity with 5 different aspects of the EPBD. It appears that Dutch and Swedish respondents are most informed about those aspects.

As the table below shows there is no correlation between the aspects of the EPBD that are already in effect and the familiarity and preparations of the EPBD.

	Austria	Netherlands	Finland
Aspects of EPBD in effect (max. 5 items x 4 sectors)	4	10	15
% of respondents familiar with at least 3 aspects of EPBD	55 %	87 %	40 %
% of respondents that have made preparations	53 %	62 %	34 %

Figure 11.

Also Owners of buildings are familiar with more aspects than Suppliers to owners.

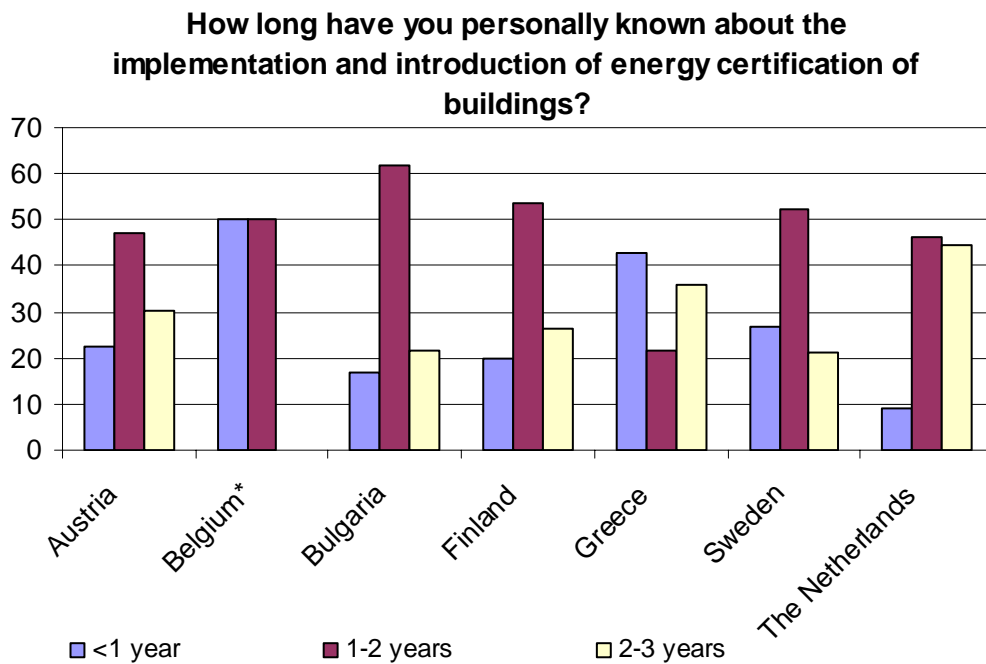


Figure 12.

In most countries the majority of respondents know of the EPBD since 1-2 years, Figure 12.

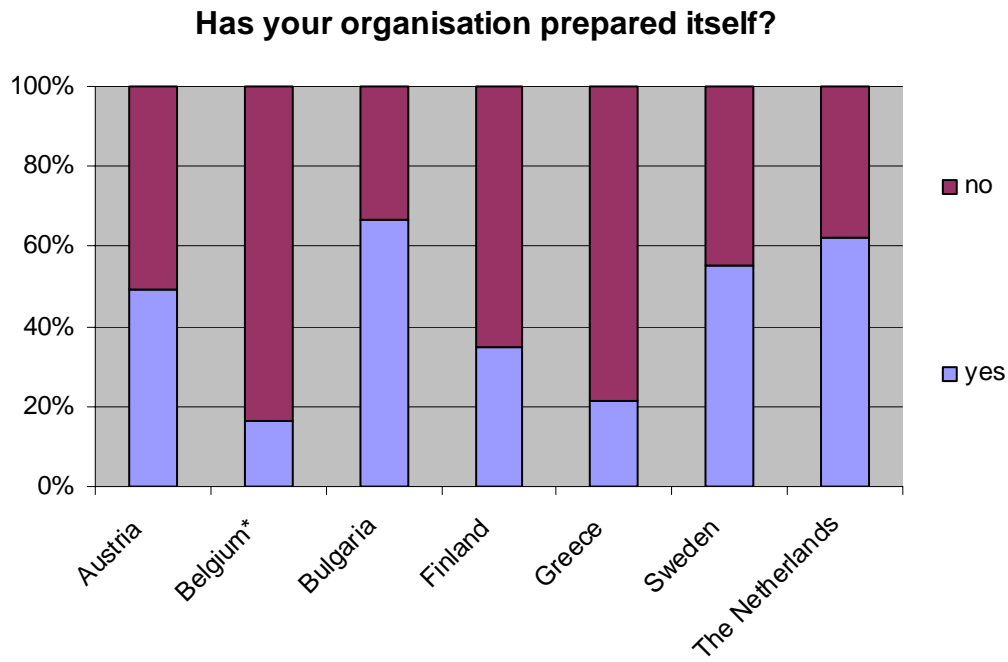


Figure 13.

In Greece and Finland (and Belgium) the lowest number of respondents state to have prepared themselves, Figure 13. In Bulgaria, The Netherlands and Bulgaria more respondents say they have prepared themselves. In Bulgaria this is probably related to the fact that the EPBD is already implemented.

Owners have taken much more preparations than Suppliers to owners (52% versus 29%). More organisations with very high priority to improving energy efficiency have taken preparations (60% versus 47% and 38% for high and low/very low priority).

Assuming that this questionnaire might be filled in by people that are more inclined to improve energy efficiency than average, this could indicate that a large share of the market that does know of the EPBD, and has not made preparations yet.

Also there is a (logical) connection between the period of time the organisation knows of the EPBD and the preparations they have made (see table 2).

	Preparations taken in any way?	
	yes	no
know of EPBD < 1 year	20 %	80%
know of EPBD 1-2 years	48 %	52%
All	47 %	53 %

Table 2. Preparations made in relation to the time that respondents know about the EPBD

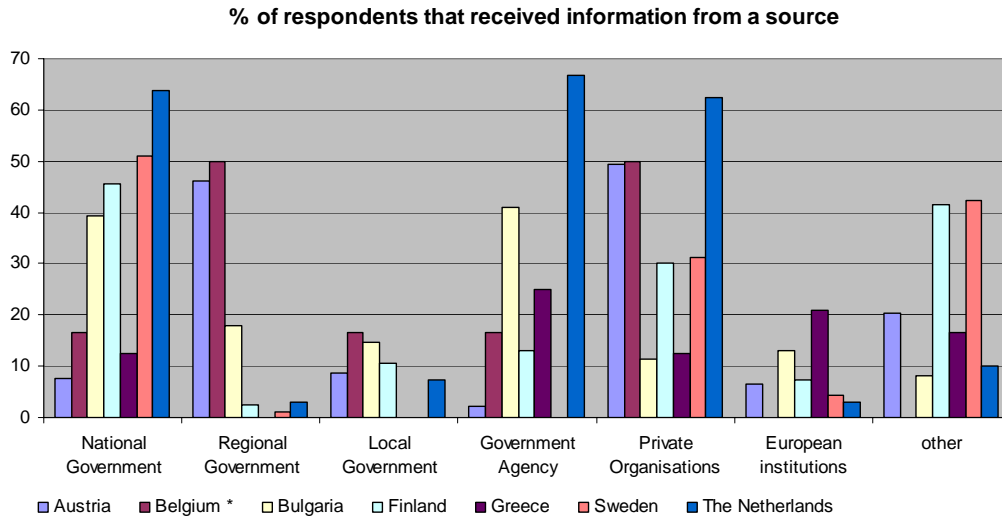


Figure 14.

Compared to the other countries, many respondents from The Netherlands say to have received information from National Government, Government Agency and Private Organisations, Figure 14. In Austria the Regional Government has provided most information, together with Private Organisations. In Finland and Sweden other (non specified) information sources played a role.

	Daily newspapers		professional journals		radio		television		internet		other channels	
	<i>received</i>	<i>desired</i>	<i>received</i>	<i>desired</i>	<i>received</i>	<i>desired</i>	<i>received</i>	<i>desired</i>	<i>received</i>	<i>desired</i>	<i>received</i>	<i>desired</i>
Austria	43%	<i>24%</i>	55%	58%	4%	3%	11%	7%	21%	52%	3%	2%
Belgium	17%	17%	17%	17%	17%	17%		33%	33%	67%		
Bulgaria	40%	20%	50%	65%	13%	15%	33%	<i>20%</i>	33%	73%	10%	10%
Finland	47%	38%	82%	78%	13%	10%	38%	33%	47%	68%	9%	15%
Greece		19%	19%	44%			6%	19%	38%	81%	6%	6%
Sweden	14%	10%	63%	<i>41%</i>	1%	7%	13%	8%	33%	29%		6%
The Netherlands	33%	<i>12%</i>	74%	<i>61%</i>	6%	8%	9%	12%	29%	52%	5%	3%

	branch organisations		partner organisations		government communication	
	<i>received</i>	<i>desired</i>	<i>received</i>	<i>desired</i>	<i>received</i>	<i>desired</i>
Austria	75%	75%	15%	22%	13%	18%
Belgium*	50%	67%	17%	17%		17%
Bulgaria	30%	30%	38%	33%	45%	43%
Finland	12%	18%	43%	<i>36%</i>	33%	53%
Greece	13%	25%	38%	44%	31%	25%
Sweden	73%	84%	22%	<i>10%</i>	41%	67%
The Netherlands	79%	73%	24%	20%	44%	67%

Table 3. Type of dissemination channels through respondents received information about energy certification of buildings and the channels through which they desire to receive information. Numbers in **bold** indicate more respondents would like to receive more information through this channel, *italic* numbers indicates respondents would like less information through this channel.

Looking at the channels through which one likes to receive information, respondents from all countries desire more information through the internet. Thus the availability and/or accessibility of information through the internet should be increased, Table 3. In Finland, Sweden en The Netherlands respondents would like to receive more information through direct government communications.

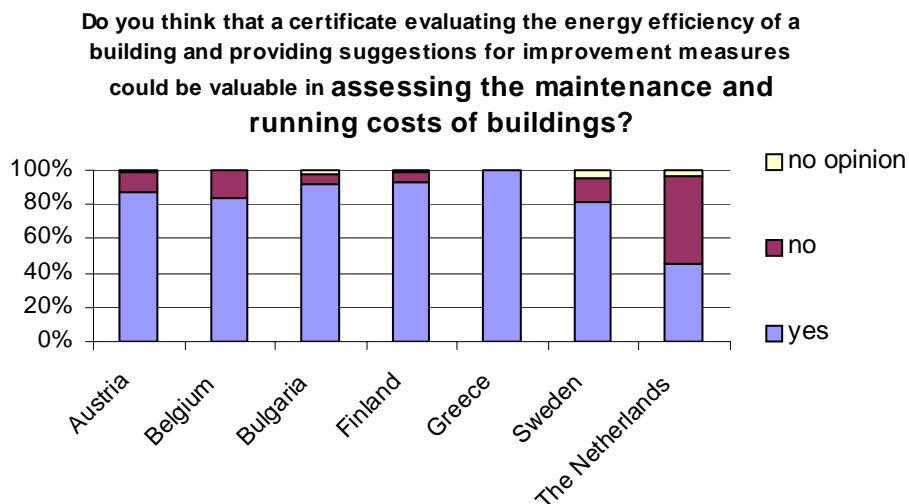
2.3 Market attractiveness: Perceived values and motivation for use

Perceived values

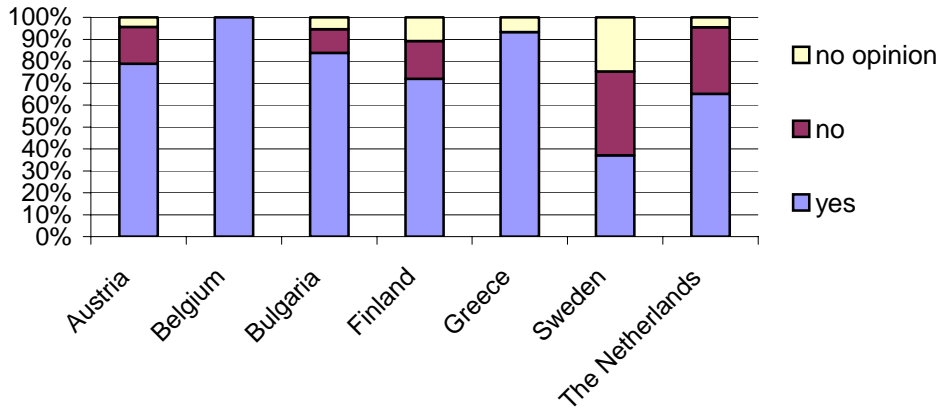
The graphs below (Figure 15-19) indicate that the EPBD-certificate is considered valuable by the majority of he respondents for (descending in value):

- assessing maintenance and running costs (overall 82%)
- planning maintenance and/or renovation (overall 80%)
- developing renovation, reconstruction and maintenance strategies (overall 74%)
- making investment / acquisition decisions (overall 73%)
- development environmental and energy management (overall 68%)
- marketing (overall 67%)
- assessing market value of a building (overall 67%)

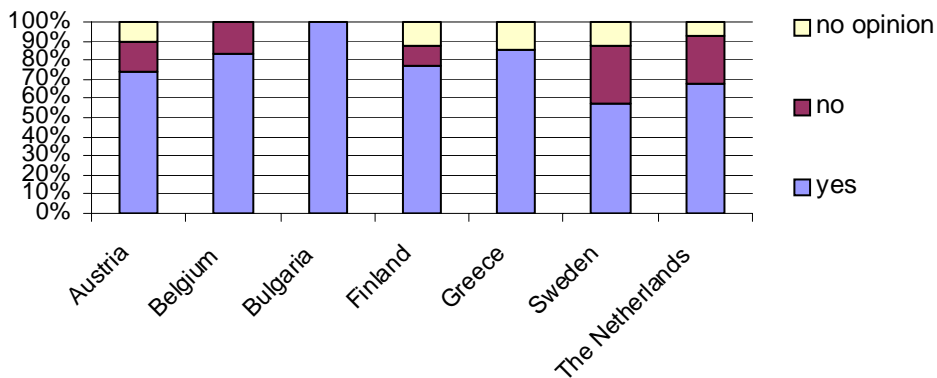
In the various countries, there are some differences between the perceived values. These can largely be explained the type and characteristics of the respondents per country.



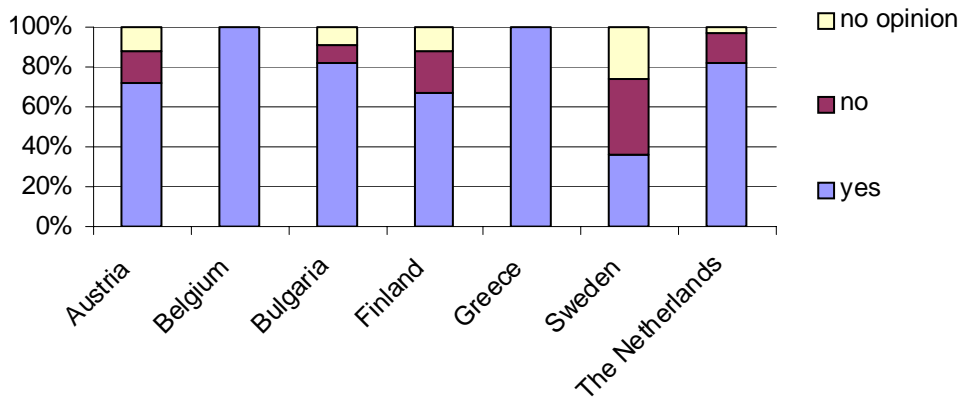
Do you think that a certificate evaluating the energy efficiency of a building and providing suggestions for improvement measures could be valuable in assessing the market value of a building?



Do you think that a certificate evaluating the energy efficiency of a building and providing suggestions for improvement measures could be valuable in developing environmental and energy management in your building stock?



Do you think that a certificate evaluating the energy efficiency of a building and providing suggestions for improvement measures could be valuable in marketing buildings for potential investors or tenants?



Do you think that a certificate evaluating the energy efficiency of a building and providing suggestions for improvement measures could be valuable in making investment/acquisition decisions on individual buildings?

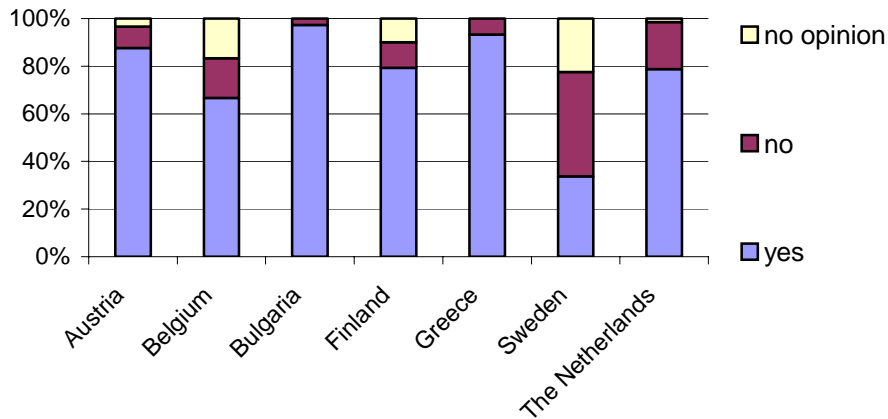


Figure 15-19. Value of energy certificates.

The respondents that assign the lowest priority to improving energy efficiency see the biggest value of the energy certificate in investment/acquisition decisions (79%) and marketing (73%). The respondents that assign higher priority to improving energy efficiency, see the biggest value in assessing maintenance and running costs (86%) and planning maintenance and renovation (83 %).

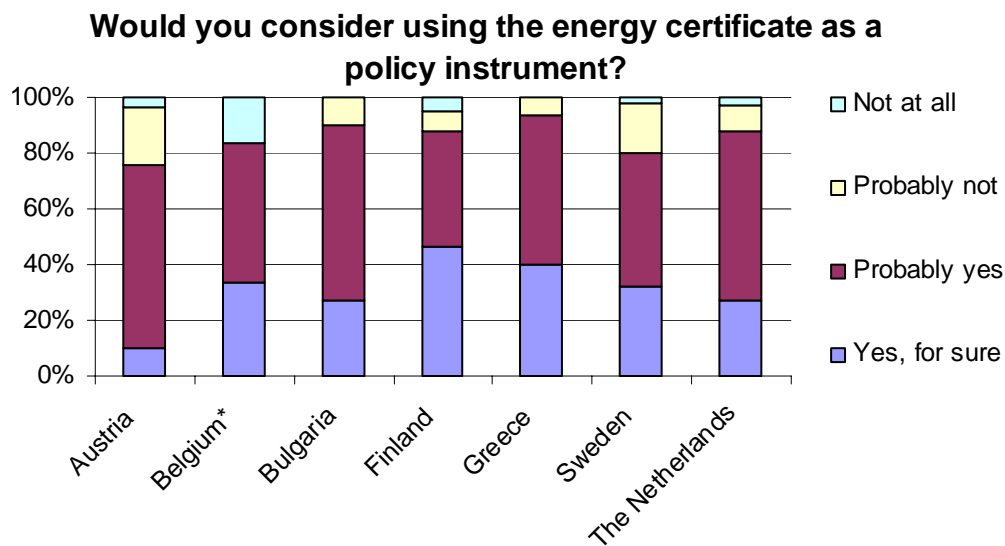


Figure 20.

As the certificate is considered valuable by the majority of respondents. Also the majority (overall 84%) consider using the certificate as a policy instrument, see table 4.

	% considering to use the certificate as a policy instrument
Owner	85%
Supplier	79%
Residential	83%
Non-Residential	87%
(Very) high priority to improving energy efficiency	85-87%
Low/very low priority to improving energy efficiency	70%

Motivation for use

Many respondents believe promoting a certain level of ranking will stimulate property owners to take measures to improve the energy quality of a building, Figure 21. Especially in Bulgaria and Greece many are of this opinion, in Sweden and The Netherlands this believe is less strong.

The respondents working with non-residential buildings almost all (84%) agree (yes or probably yes) while the respondents working with residential buildings for a large part (74%) agree. This may be correlated to the country of origin (most respondents that work with non-residential buildings come from Bulgaria and Greece, which are also the countries with a higher believe in the effect of ranking).

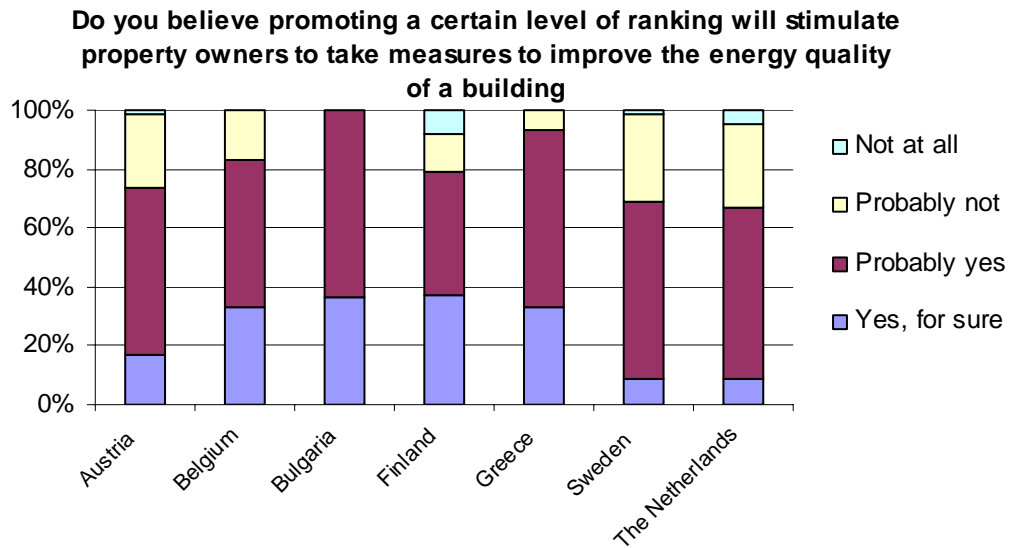


Figure 21.

Respondents that believe ranking certificates will stimulate property owners to take measures to improve the energy quality of a building, will (probably) use the certificate more often as a policy instrument than respondents that do not believe ranking will stimulate taking measures (93% versus 55%).

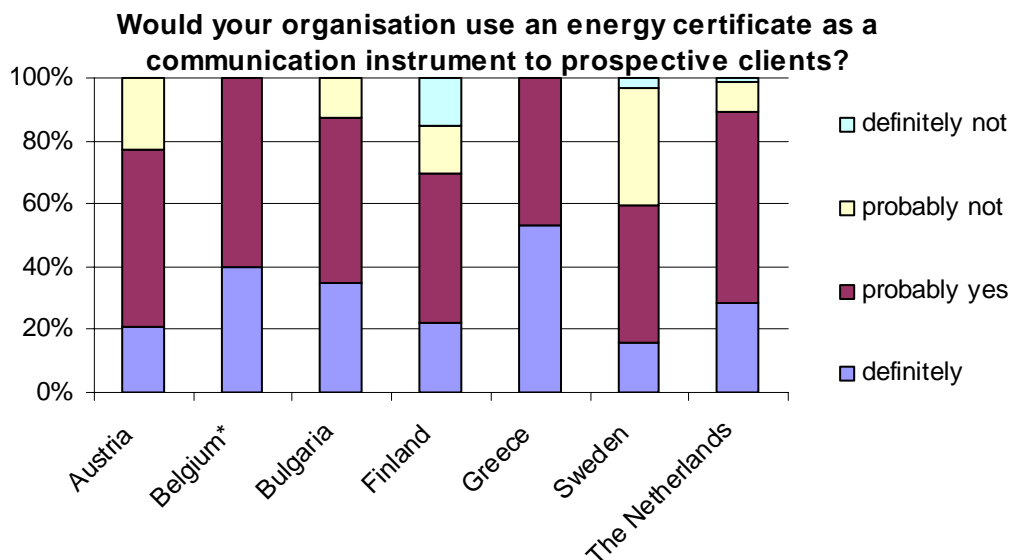


Figure 22.

Regarding the use of the energy certificate as a communication instrument to prospective clients, the respondents in Finland and Sweden score relatively low, Figure 22. Respondents that believe the certificate could be valuable in marketing buildings for potential investors or tenants, will use the certificate more as a communication instrument to prospective clients than respondents

that do not believe the certificate is valuable in marketing (86% versus 48%, and respondents that do not have an opinion on this score 65%).

Other aspects investigated are:

- No significant differences were found in motivation between the different types and characteristics of respondents, although respondents that assign a very high priority level to improving energy efficiency are more definite in their answer.
- More than half (58%) of the respondents say energy certification would increase their investments to energy efficiency if the implementation of the energy saving measures recommended in the certificate was totally voluntary. This percentage is related to the priority level one assigns to improving energy efficiency. Respondents with a low/very low priority level will voluntarily increase their investments in 43% of the cases, while respondents with a very high priority level will do so in 62% of the cases. There is no difference between different typifications of respondents.
- If implementation would be mandatory, a majority (64%) of the respondents would increase their investments in energy efficiency. There is no difference between the different priority levels or type of respondents.
- In case implementation would be supported by financial mechanisms, almost all (93%) of the respondents would increase their investments in energy efficiency. There is no difference between the different priority levels or type of respondents.

2.4 Perception of quality and characteristics of a certificate

Perceived quality

The importance of several factors in the quality of energy certification has been investigated. The results are given below:

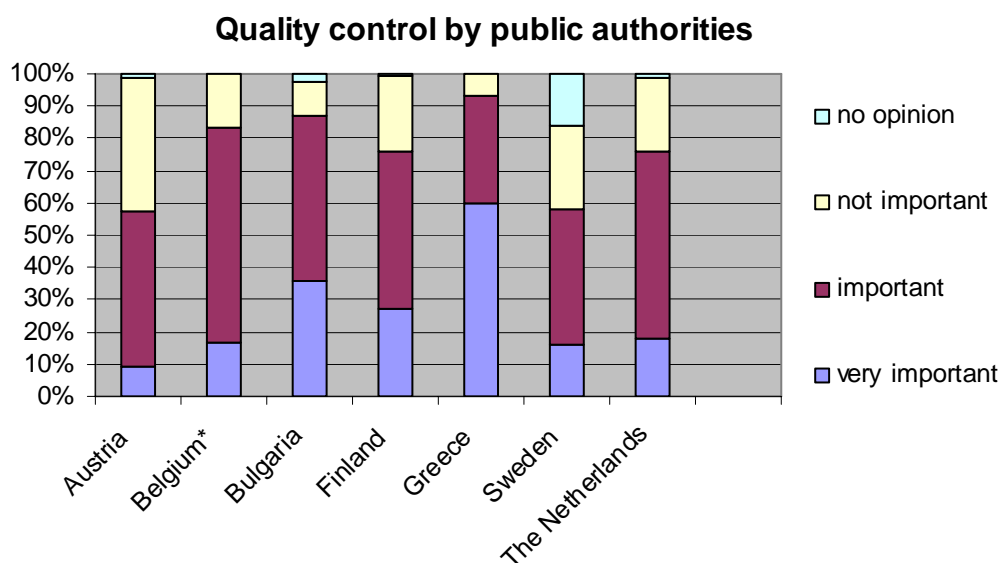


Figure 23.

In general quality control is regarded less important, Figure 23. Especially respondents from Austria and Sweden find quality control by public authorities least important,

Other aspects investigated are:

- In general the competence of consultants is regarded important to the quality of energy certification. Finnish respondents tend to find the competence of consultants less important compared to the other countries.
- The comprehensiveness of the building inspection is regarded less important than the quality of consultants. But especially respondents from Bulgaria and to a lesser extent Finland and Greece find the comprehensiveness of the building inspection/audit (very) important.
- The contents of the certificate is regarded quite important in all countries.
- A reliable and common calculation methodology is regarded (very) important in all countries, with the exception of respondents from The Netherlands who seem to find this less important than respondents from other countries.
- Except for Greece, authorisation of individual experts is regarded less important.
- Authorisation of organisations is very often regarded as not important, Figure 24.
- Technical standards set by public authorities are quite important to the quality of energy certification. Swedish respondents and to a lesser extent Finnish respondents find this less important.
- Except for Sweden, feasibility and comprehensiveness and reliability of the recommendations made on the energy certificate are important to the quality.
- The opinion on the independence of consultant differs. Many find it very important but also some respondents find it not important.
- Owners of buildings find the Competence of consultants and the Technical standards set by authorities more important than their Suppliers do.
- But the Suppliers find Quality control by public authorities and a Reliable and common calculation methodology more important.
- Respondents assigning a very high priority to improving energy efficiency, find the Comprehensiveness of audit/inspection, the Contents of the certificate and a Reliable and common calculation methodology relatively more important to the quality of energy certification.

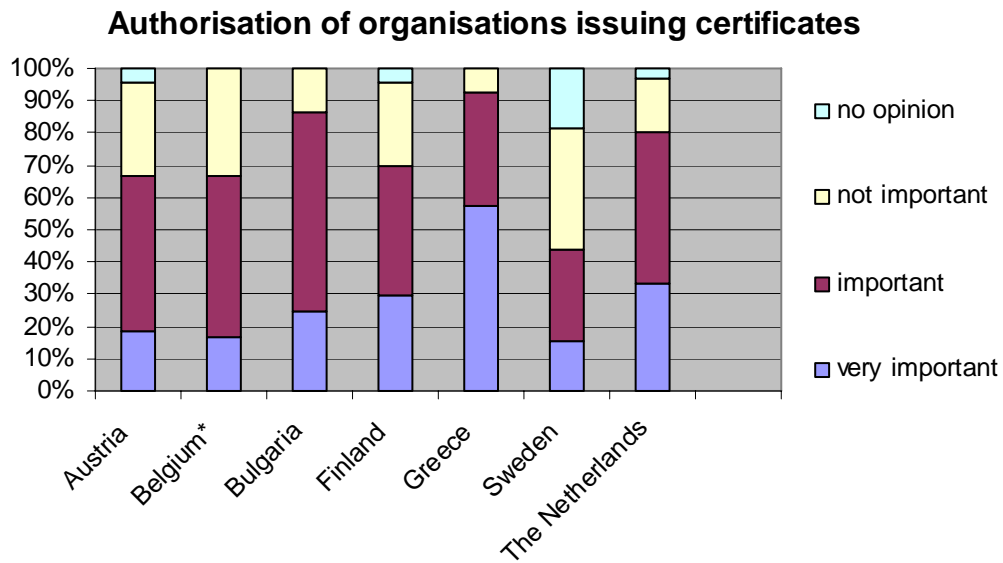


Figure 24.

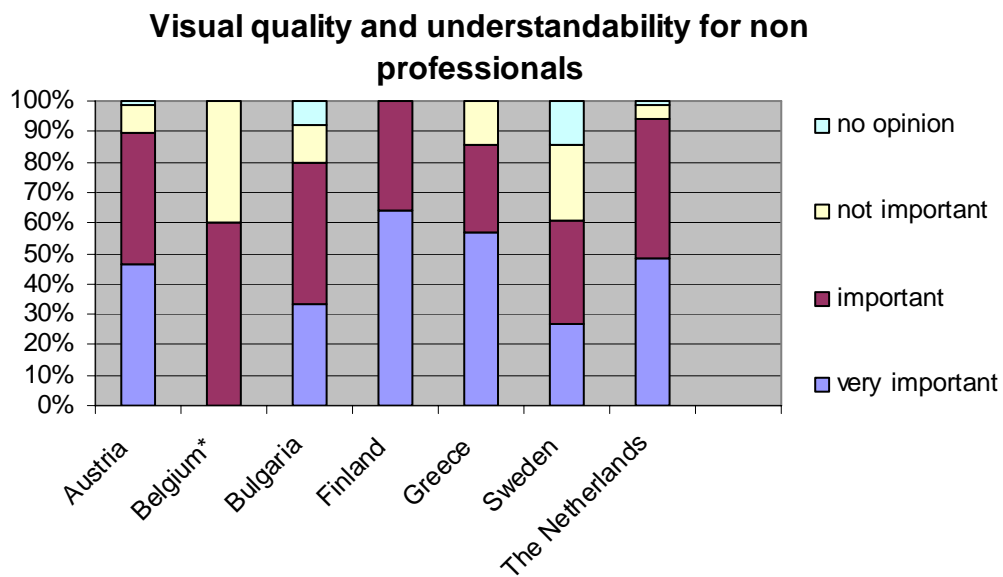


Figure 25.

The opinion on the visual quality and comprehensiveness differs over the countries, Figure 25. Overall, many find it very important.

Relevant characteristics

Energy certification should be based on...

It is not clear whether energy certification should be preferably based on a simplified walk through of the building or on a full energy audit of the building. In The Netherlands, Austria, (Belgium) and Sweden majority is of the opinion it should be based on a simplified walk through of the building. In Bulgaria, Finland and Greece majority is of the opinion that it should be based on a full energy audit of the building.

There is no significant difference in opinions between Owners and Suppliers nor between the priority levels one assigns to improving energy efficiency. Respondents that work with residential buildings though, feel more for a simplified walk through as opposed to a full energy audit (45% versus 33%) while respondent working with non-residential buildings feel slightly more for full energy audits as opposed to simplified walk throughs (50% versus 41%). Respondents working with Residential buildings are also more often of the opinion that no on-site inspection is needed (16% versus 5% for non-residential).

The estimated reasonable price correlates to the expected intensity of the audit (see table below).

	full audit	walk-through	off-site	total
residential	840	525	442	619
non residential	616	814	750	691
total	780	564	468	632

Table: expected reasonable price (euros) versus the type of audit that respondents think is suitable

Energy certification should be carried out at the level of...

Respondents that work with non-residential buildings have a preference for carrying energy certification out on the level of individual buildings (65%) instead of groups of buildings with common heating systems (33%). Respondents working with residential buildings are indifferent whether the certification should be carried out on the level of groups of buildings or individual buildings(44% versus 42%), but compared to non-residential respondents they are more into basing it on individual apartments/spaces (14% versus 2%).

Exact the same distribution of preferences goes for Suppliers versus Owners of buildings, with Suppliers having the preference for certification based on individual buildings.

The respondents that assign low/very low priority to improving energy efficiency are less often of the opinion that energy certification should be carried out at the level of groups of buildings (27% versus 40-50% for respondents with higher priority level for energy efficiency) and more often at the level of individual apartments/spaces (22% versus 12-2% for respondents with higher priority level for energy efficiency).

Quality control should include...

In Austria, (Belgium), Sweden and The Netherlands, quality control should include checking and assessing the final documentation that is produced by the energy consultant. But in Finland and Greece preferably the quality of field

work should be assessed. In Bulgaria assessing the final documentation that is produced by the energy consultant and assessing the quality of field work are felt equally important. In Sweden and The Netherlands quite some respondents (23% and 36%) say it is enough to check that consultants comply with formal authorisation requirements.

Non residential respondents are more often of the opinion that quality control should include checking the quality of field work. Although not significantly proven, respondents assigning a very high priority to improving energy efficiency seem to be more often of the opinion that quality control should include checking the quality of field work (42% versus 31 and 27% for respondents assigning high and low/very low priority), but still it is indifferent to them whether it should include checking and assessing the quality of final documentation (41%) or checking the quality of field work (42%).

In nearly all countries majority of respondents think quality control should be done on a random basis, with only a small impact on the costs. In Bulgaria they are indifferent though and in Greece they feel it should be regularly and comprehensively, even if this raises the costs.

Qualifications for energy consultants

The basic level of education of consultants carrying out energy certification should be other technical education, except for Greece and Bulgaria where they are of the opinion the consultant should have a university degree.

The consultant should have at least 3-5 years professional experience, except for in Sweden where more respondents feel the consultant should have 5-9 years experience. In Finland about the same amount of respondents are in favour of 3-5 years experience as 5-9 years experience.

Authorisation of consultants should be the responsibility of public authorities (The Netherlands, Sweden, Greece, Finland (and Belgium)) or technical institutes (Bulgaria, Austria). This should be done every 2-3 years (Bulgaria, Greece and The Netherlands)) or 5-10 years (Austria, Finland and Sweden).

In nearly all countries majority of respondents think training of consultants should be performed by technical education institutes. Only Finnish respondents feel it should be performed by public authorities.

2.5 Summarising conclusions - professional organisations

This chapter contains a summary of the main aspects that relate to the market attractiveness according to professional organisations of Energy Performance certificates in order to be used for recommendations to improve successful implementation. It is based on the responses to the questionnaires amongst professional parties from seven European countries. It is possible that respondents are not representative for the European market. *The results of this research are indicative and have to be interpreted with care.*

Some general remarks:

The interest and attitude towards energy efficiency are very positive.

The response to the questionnaires in the seven countries differed a lot in:

- type of organisations that responded (Owners of building(s), Suppliers to owners of buildings and Users) - both share in total response as share per country
- type of market the respondents work in (residential or non-residential)
- amount of response per country

Taking this into account, general comparisons between countries are difficult to make and should be interpreted with care, as it will not be a comparison between “Finland” versus “The Netherlands” but between “Finnish Owners and Suppliers of residential and non residential buildings” versus “Dutch Owners of residential buildings”. Furthermore, as the number of questionnaires per country is limited and differs a lot (from 6 to 123), extreme differences are needed to find significant differences between countries.

With respect to what is stated above and since hardly any major significant differences have been found between countries, the conclusions will focus on overall observations, ignoring the level of individual countries.

1. Instruments that influence the decision making process towards energy efficiency improvements

The most expensive types of instruments are considered the most influential by respondents:

- Instruments that most influence decision making on improving energy efficiency are Investment grants and subsidies
- Availability of high quality energy service companies and high quality recommendations is the second most influential. The influence of these instruments is especially high in Bulgaria and Greece.
- Organisations that assign a very high level of priority to improving energy efficiency are more impressionable by all the measures. This is especially the case for benchmarking (78% versus 52%)
- Organisations that assign a low or high level of priority to improving energy efficiency are less impressionable than those who assign very high level of

priority (roughly 10-20 % below), *however their decision making process is similarly influenced by Investment grants and subsidies.*

The influence of high quality energy services according to professionals is much higher in the non-residential market than in the residential market (70% versus 47%). The influence of the availability of low interest loans is lower though in the non residential market compared to the residential market (53% vs 68%)

2. Parties that influence the decision making process towards energy efficiency improvements

The National Government influence respondents the most, followed by Market actors, Regional and Local government. In general the influence of Government agencies and Private organisations is less. But of course this observation could be coloured by the administrative situation in a country and the number of respondents from that country.

3. Familiarity with EPBD

Most (80%) of the Owners of building(s) know about the implementation and introduction of energy certification for more than one year, only 20% of the Owners know about this since less than one year. As stated above, these results might very well not be representative for the European market.

If one knows about the implementation and introduction of energy certification, one is not necessarily familiar with the contents and requirements of all aspects of the EPBD. In general the number of aspects one is familiar with, differs a lot (39% are familiar with 0-2 aspects, 33% with 3-4 aspects and 28% with all 5 aspects). Owners of buildings seem to know a bit more than Suppliers of owners.

There is a clear relation between how long organisations know and what their attitude is on improving energy efficiency vs. the preparations that they have taken and the number of aspects they are familiar with.

Not proven significantly, it seems that respondents that are less familiar with the EPBD received slightly less information from National Government and Private Organisations. No differences are found in desired information channels between respondents that are more familiar with the EPBD or less familiar. Therefore no pan-European recommendations can be done on through which channels should be used to improve familiarity with EPBD.

4. Usefulness of certificate

The EPBD-certificate is considered useful by the majority of the respondents in (descending):

- assessing maintenance and running costs (overall 82%)

- planning maintenance and/or renovation (overall 80%)
- developing renovation, reconstruction and maintenance strategies (overall 74%)
- making investment / acquisition decisions (overall 73%)
- development environmental and energy management (overall 68%)
- marketing (overall 67%)
- assessing market value of a building (overall 67%)

The organisations that assign the lowest priority to improving energy efficiency see the biggest value of the energy certificate in investment/acquisition decisions (79%) and marketing (73%). The respondents that assign higher priority to improving energy efficiency, see the biggest value in assessing maintenance and running costs (86%) and planning maintenance and renovation (83 %).

5. Potential effect of benchmarking on increasing investments

Respondents that will voluntarily increase their investment in improving energy efficiency are more influenced by benchmarking instruments than respondents that will not voluntarily increase their investments (64% versus 51%).

Respondents that will increase their investments if implementation is partly mandatory or not, are equally influenced by benchmarking instruments. Respondents that will increase their investments when supporting financial mechanisms are established, are more influenced by benchmarking instruments than respondents that will not increase their investments when financial mechanisms are established (60% versus 40%).

Respondents that are influenced by benchmarking instruments are more inclined to increase investments voluntary (62% versus 49%) or when financial support is established (95% versus 89%), compared to respondents that are not influenced by benchmarking.

It is concluded that convincing professional organisations of the usefulness of benchmarking and making them more open to this instrument might increase voluntary investments and investments supported by financial mechanisms.

3. Results consumers

The results of the questionnaire with consumers will be described and analysed according to the following structure, see Figure 26.

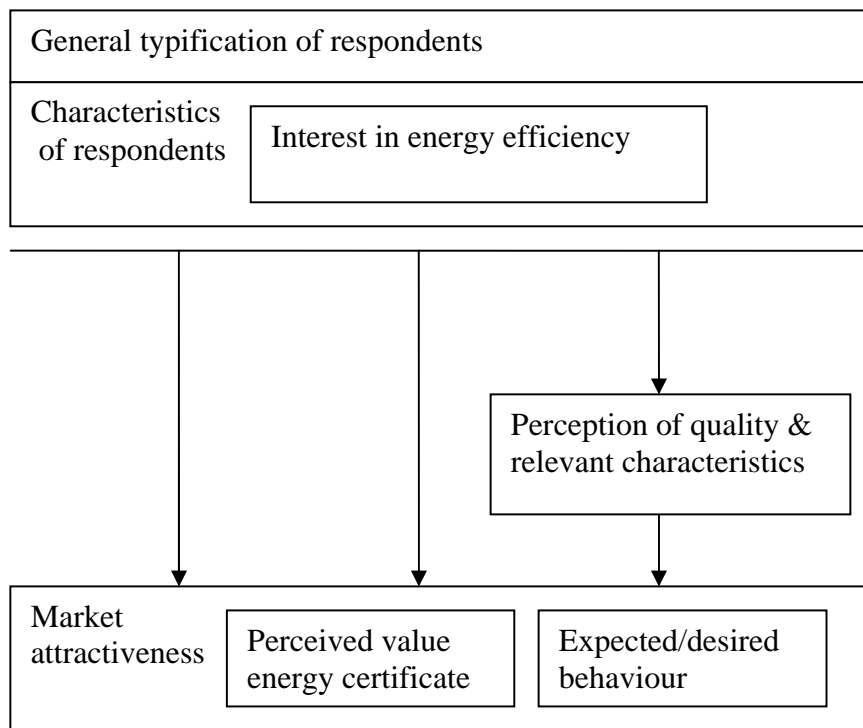


Figure 26.

First we will describe the responses for the different blocks. Where necessary/possible related to the different types of the respondents:

- characteristics regarding interest in energy efficiency
- perceived values of energy certificates and the expected/desired behaviour
- perception of quality & relevant characteristics of an energy certificate

Second, some relations between the blocks will be explored and analysed.

This chapter will conclude with a summary of the main aspects that correlate to the market attractiveness of Energy Performance certificates as observed from the data as gathered with the questionnaires, in order to be used for recommendations to improve successful implementation.

In total 979 questionnaires were returned from 4 countries that participate in the STABLE project. The number and types of respondents to this questionnaire varies a lot between the countries, see table below:

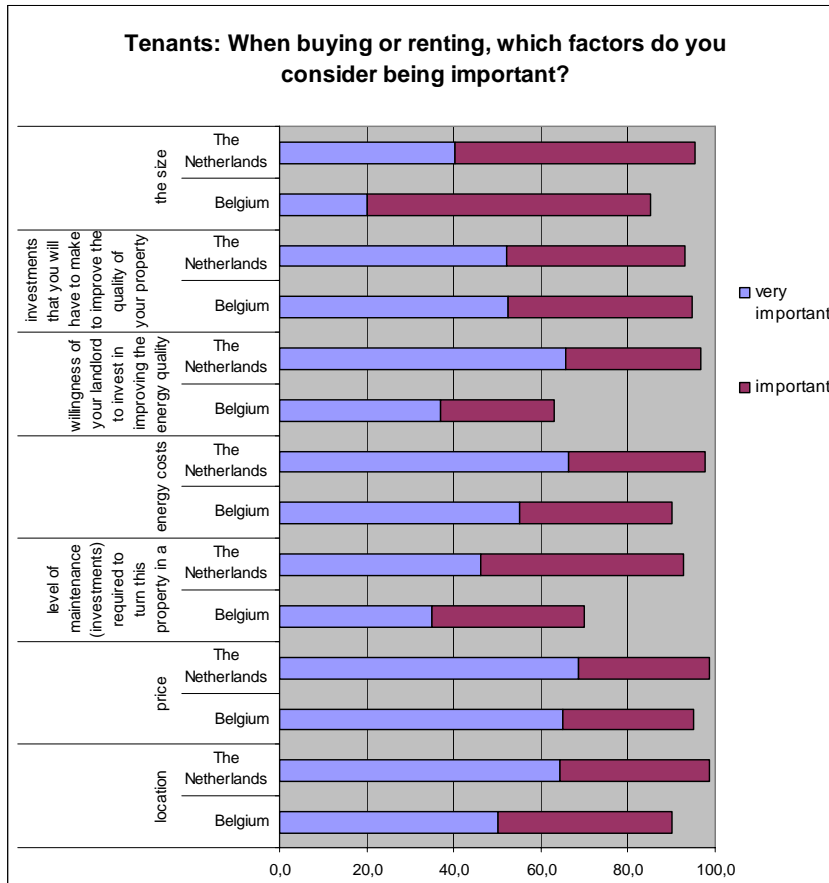
	private homeowners	tenants	landlord	other professional parties	Total
Austria	1	1	1	5	8
Belgium	282	20	38	51	391
Sweden	19	3	4	2	28
The Netherlands	92	455	3	2	552

Total	394	479	46	60	979
-------	-----	-----	----	----	-----

Table: overview of respons

As this part of the analysis deals with consumer parties, only the response of private home owners and tenants will be analysed. The amount of response makes it possible to look into results of private home owners and tenants in Belgium and The Netherlands and private home owners in Sweden.

3.1 Characteristics of respondents



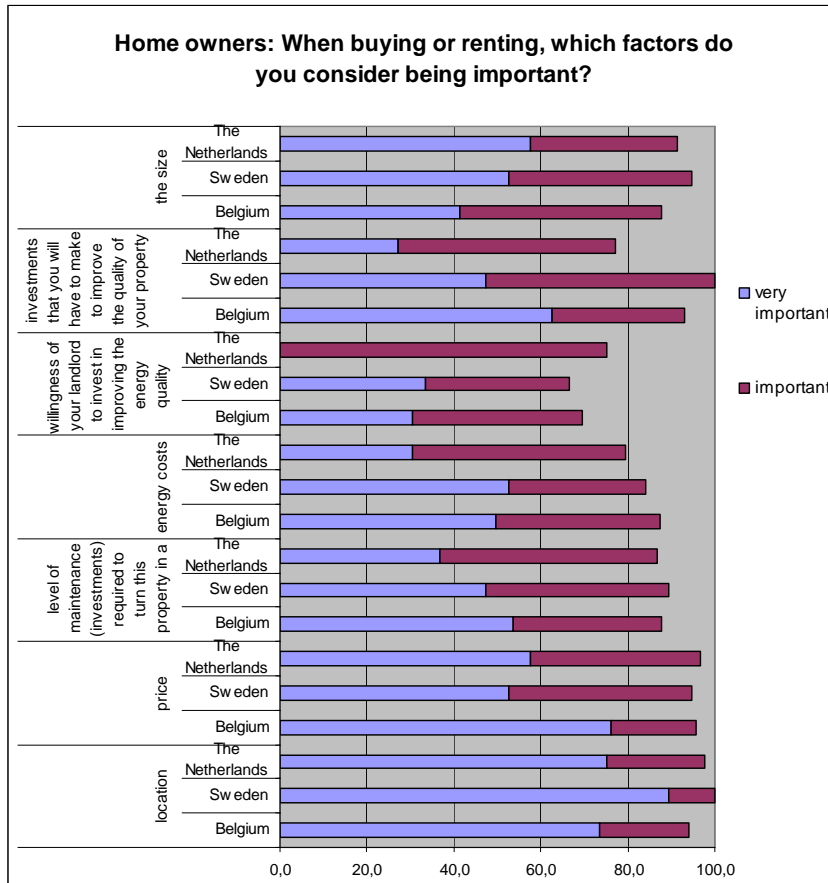


Figure 27 and 28: factors considered (very) important when buying or renting a property.

All factors investigated are important for tenants and home owners when renting or buying a house / apartment, with some exceptions, Figure 27 and 28. Belgian tenants assign a smaller importance to the maintenance level required to make the home comfortable and the willingness of the landlord to invest. Home owners especially consider location very important.

3.2 Market attractiveness: Perceived value energy certificate & expected/desired behaviour

Perceived values

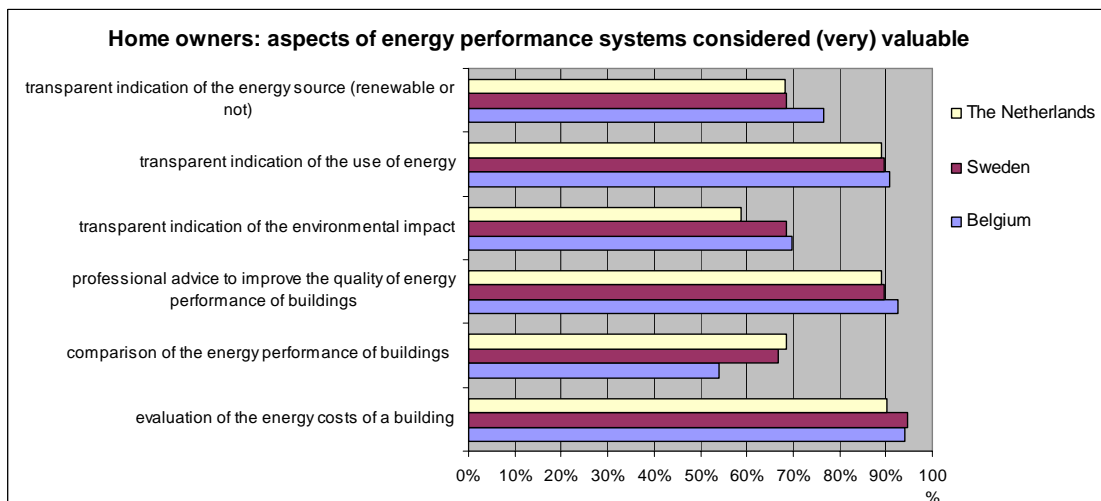
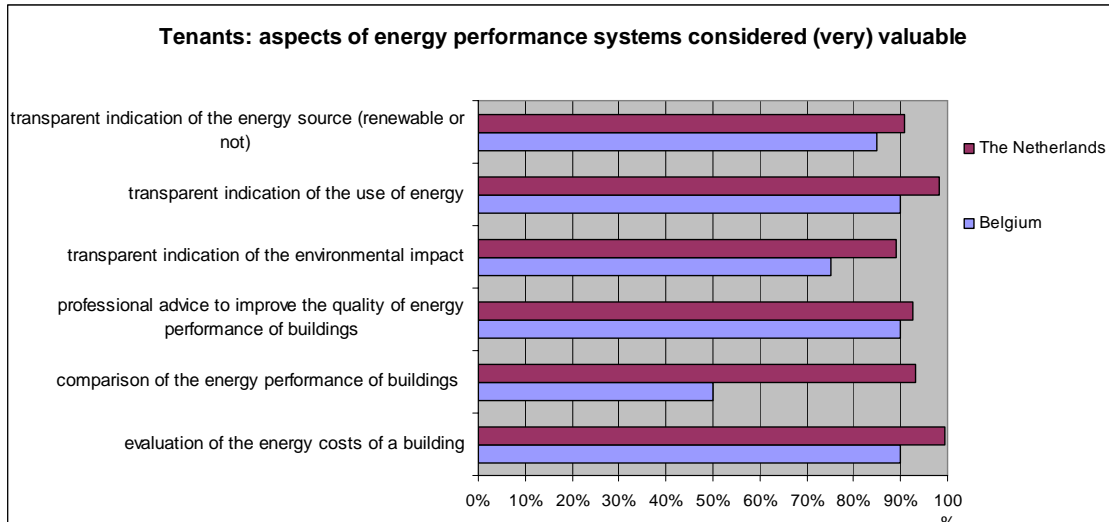


Figure 29 and 30: (very) valuable aspects of energy performance systems

In general tenants regard more value than owners to the factors investigated, Figure 29 and 30. Tenants consider the evaluation of energy costs and a transparent indication of energy the most valuable aspects. Belgium tenants assign smaller value to the comparison of energy performance between buildings.

Owners especially consider the evaluation of energy costs, a transparent indication of energy use and professional advice to improve the quality of energy performance of buildings (very) valuable aspects of an energy certificate.

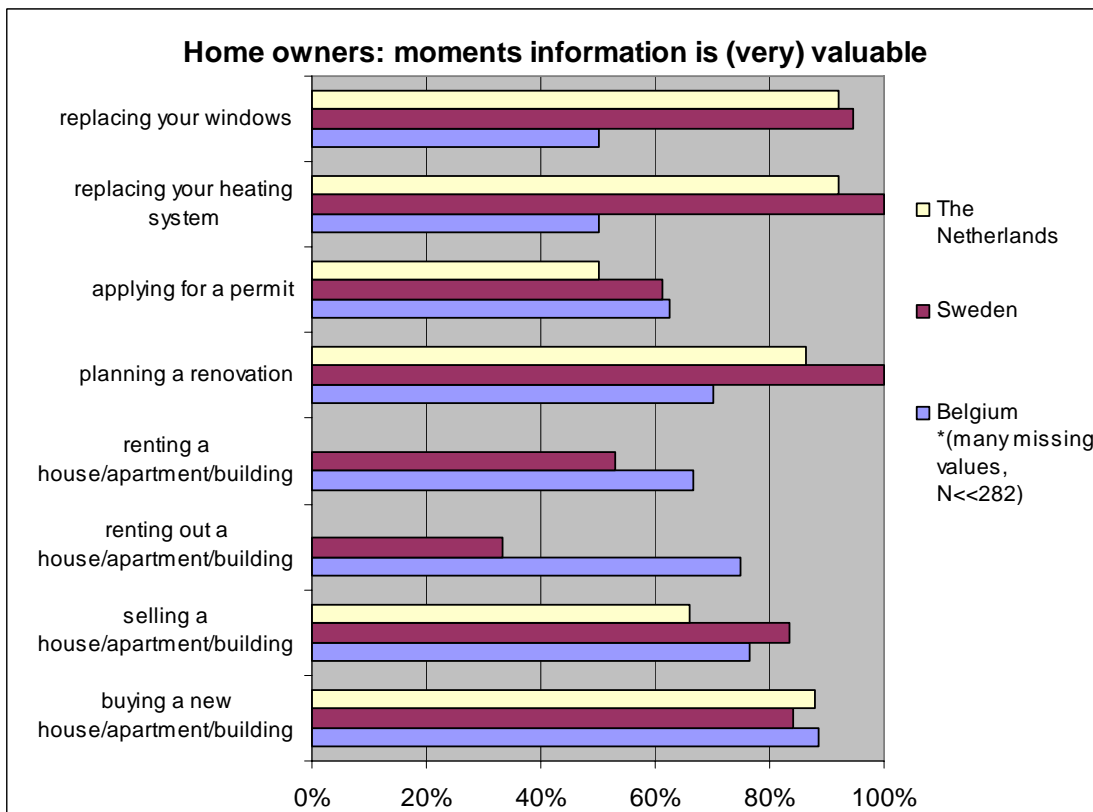
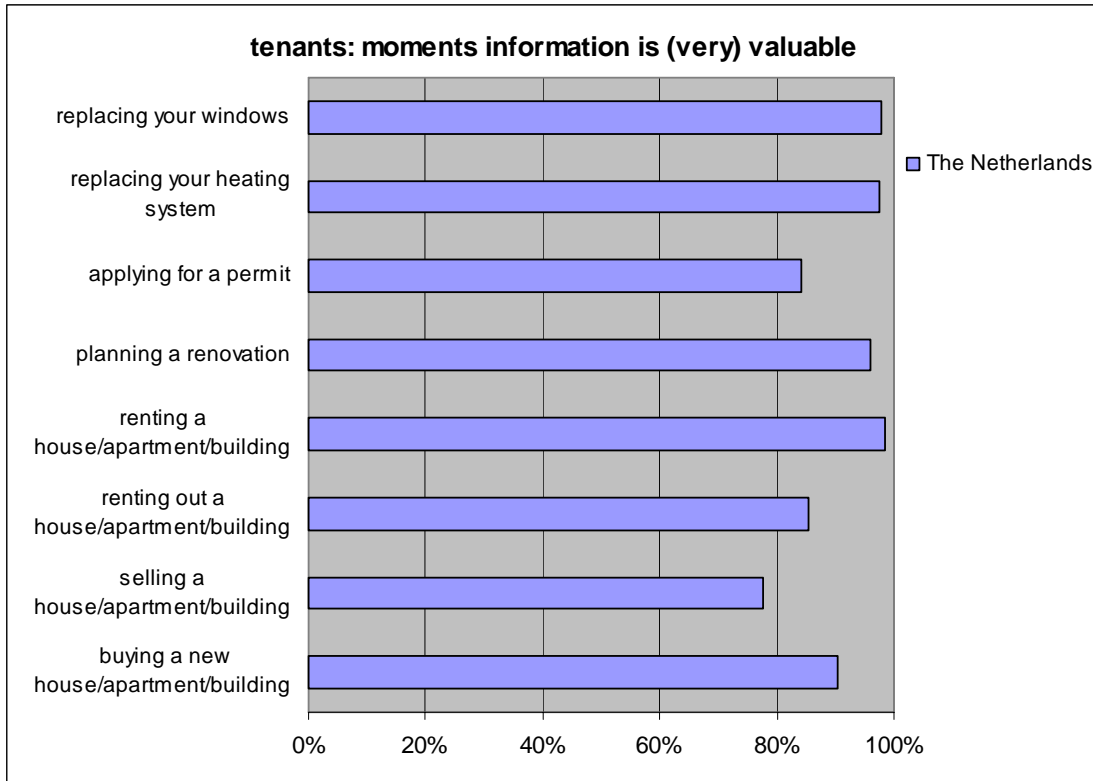


Figure 31 and 32: Moments information is (very) valuable (Belgian tenants have not answered this question, and only few (between 8 and 26) Belgian home owners have answered)

In general the information on the energy certificate is considered valuable on three moments, Figure 31 and 32:

- when working on/improving the property (renovation, replacement windows/heating system)
- when buying a house
- when renting a house

Expected/desired behaviour

Asked for the influence of the energy performance certificate and instruments, it appears that the majority of respondents:

- sees positive effect of such a certificate on willingness to pay, pricing and investments (Figure 33 and 34, 70- 80% yes or probably yes)
- will pay more attention to energy quality in negotiations with landlords, Dutch tenants more than Belgian tenants (Figure 36)

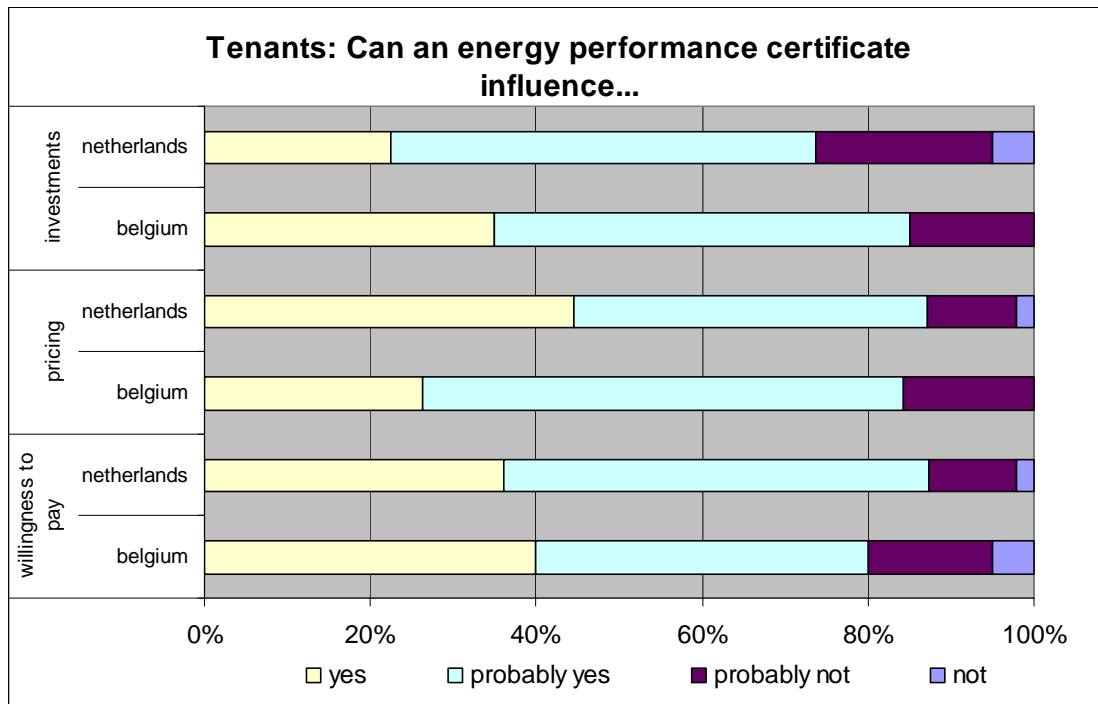


Figure 33

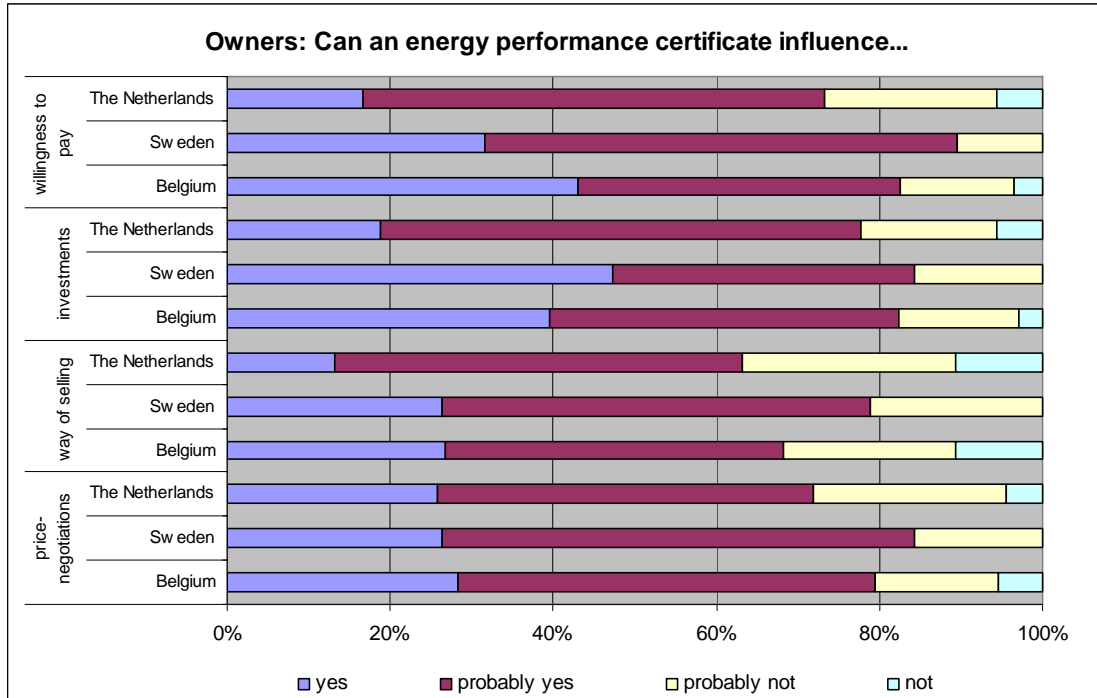


Figure 34

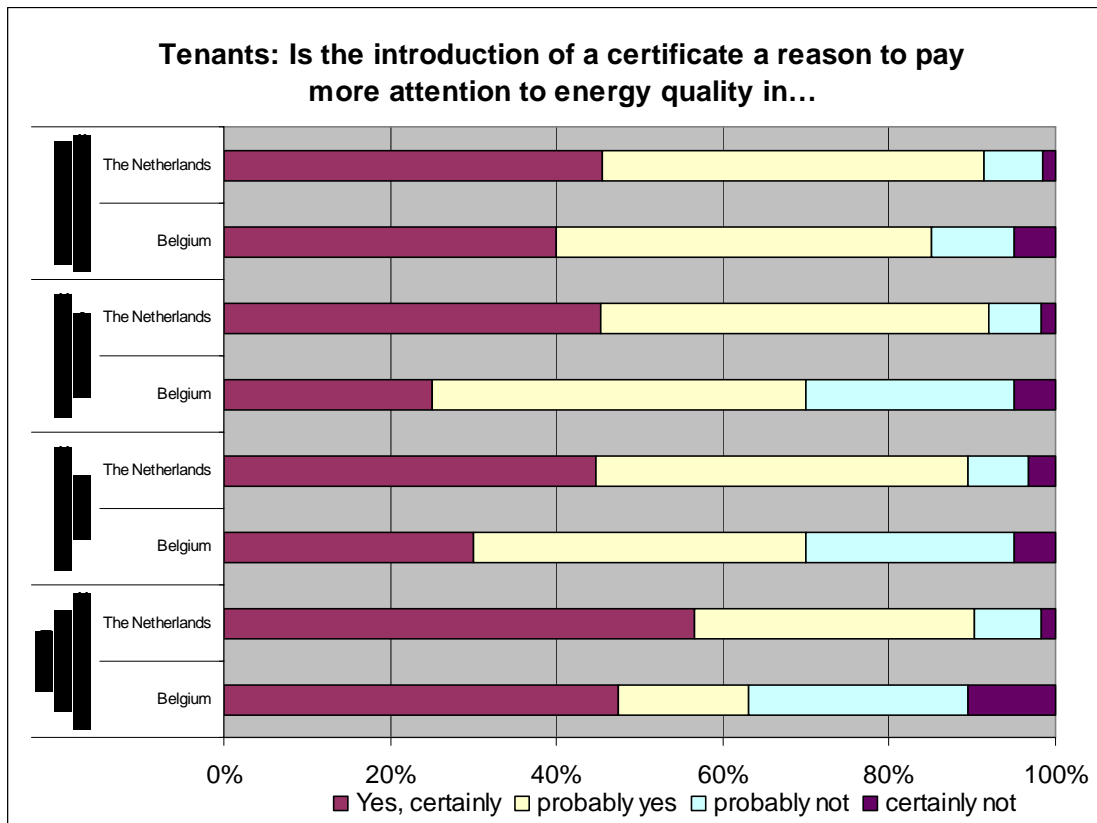


Figure 36

3.3 Perception of quality & relevant characteristics

House-owners ascribe great importance to a balance in quality of especially indoor air quality and living comfort (Figure 39)

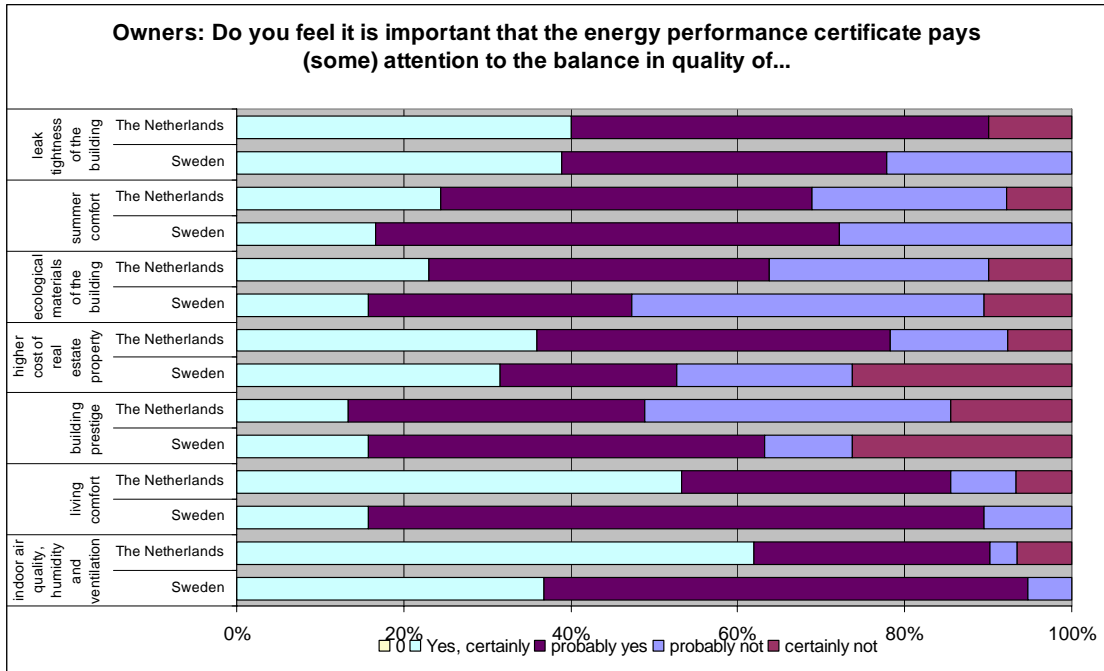


Figure 39 (no response from Belgian owners)

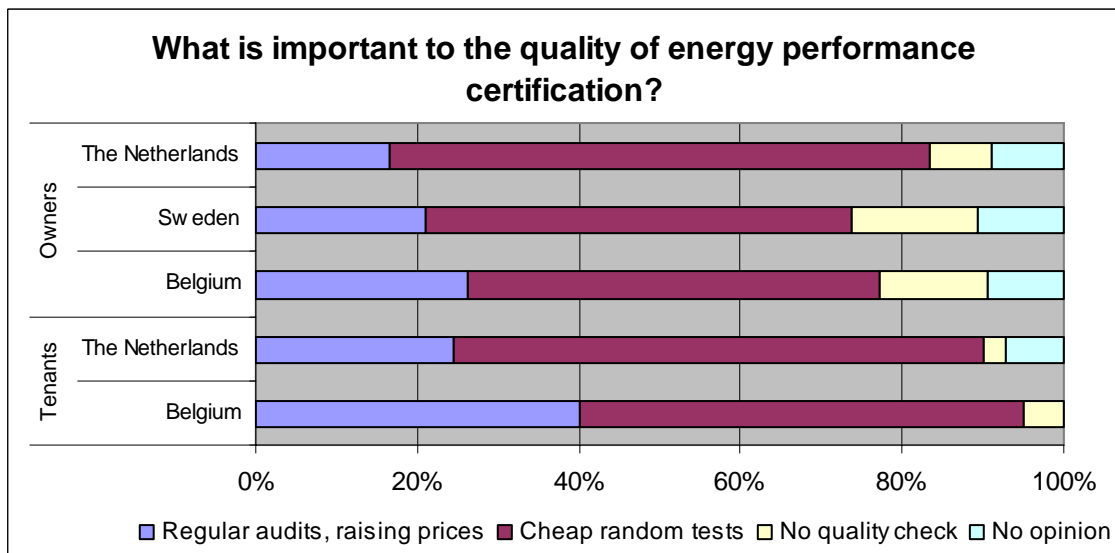


Figure 40

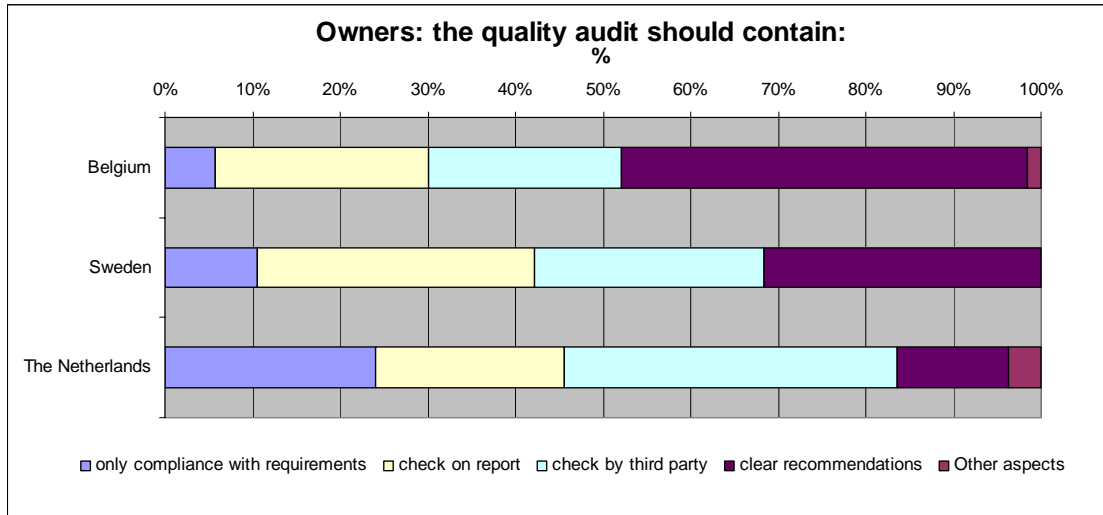


Figure 41

The factors seen as important in the quality of energy performance certification (see Figure 40) are different for tenants and owners: Owners ascribe a larger importance to cheap random tests or no quality check at all, whereas tenants appreciate regular audits more.

Figure 43 shows that most house-owners think an on site inspection is needed, preferably a full energy audit.

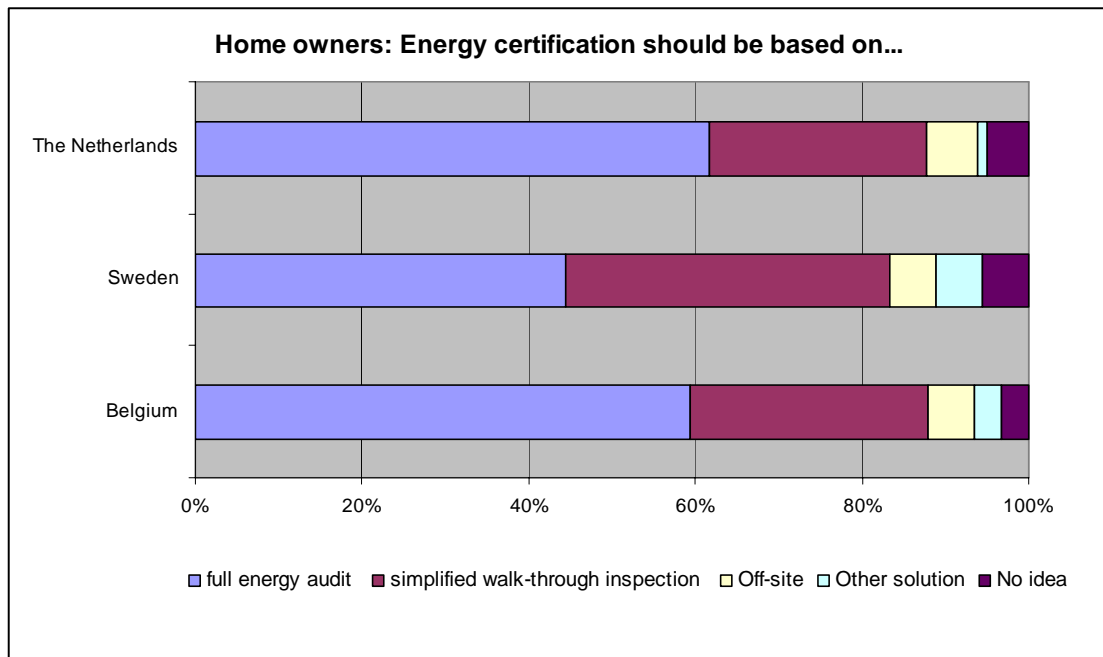


Figure 43

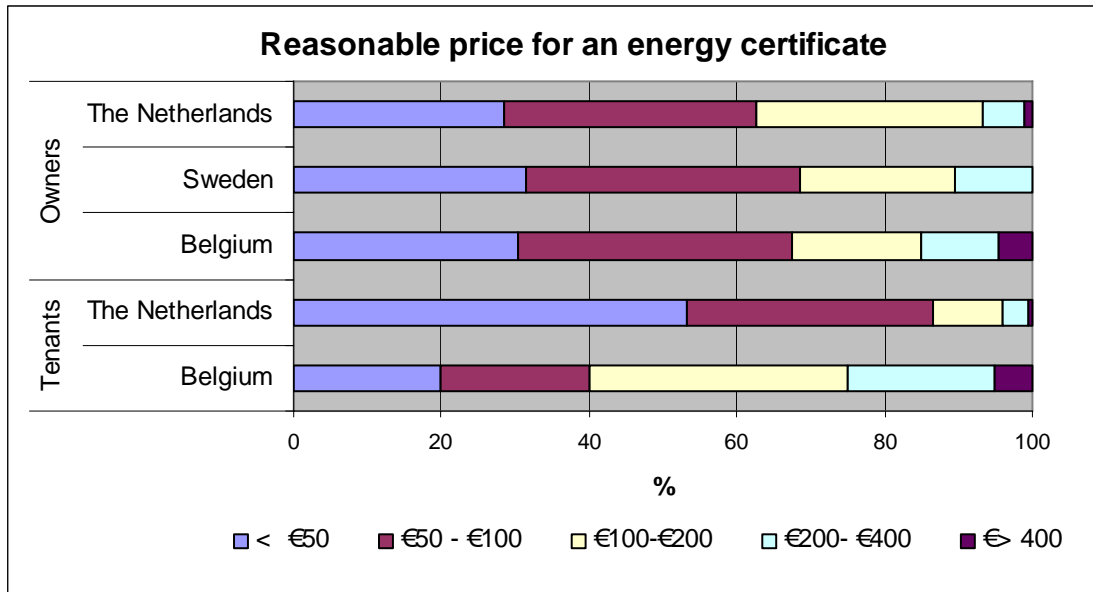


Figure 45

The distribution of acceptable price levels is given in Figure 45. Although there are differences between the countries, the median value is quite similar. A reasonable price for the energy performance certificate is 130 to 150 euro. The reasonable price corresponds with the intensity of the inventarisation (tenants that want a full inspection think 170 euro is reasonable while tenants that want an off-site-inspection think 75 euro is reasonable).

3.4 Summarising conclusions - consumers

A summary of the main aspects that correlate to the market attractiveness of Energy Performance certificates as observed from the data as gathered with the questionnaires in the consumer market is as follows. These can be used for recommendations to improve successful implementation.

For the Netherlands, Sweden and Belgium results can be presented. Where necessary/possible related to the different types of the respondents:

- characteristics regarding interest in energy efficiency
- perceived values of energy certificates and the expected/desired behaviour
- perception of quality & relevant characteristics of an energy certificate

Renting and buying decisions

All factors investigated are important for tenants and home owners when renting or buying a house / apartment, with some exceptions. Belgian tenants assign a smaller importance to the maintenance level required to make the home comfortable and the willingness of the landlord to invest. The response to the latter by home owners seems irrelevant and is discarded.

Perceived values

In general tenants regard more value than owners to the factors investigated, Figure 29 and 30. Tenants consider the evaluation of energy costs and a transparent indication of energy the most valuable aspects. Belgium tenants assign smaller value to the comparison of energy performance between buildings.

Owners especially consider the evaluation of energy costs, a transparent indication of energy use and professional advice to improve the quality of energy performance of buildings (very) valuable aspects of an energy certificate.

The information on the energy certificate is considered valuable on three moments:

- when working on/improving the property (renovation, replacement windows/heating system)
- when buying a house
- when renting a house

Expected/desired behaviour

Asked for the influence of the energy performance certificate and instruments, it appears that the majority of respondents:

- see positive effect of such a certificate on willingness to pay, pricing and investments (Figure 33 and 34, 70- 80% yes or probably yes)
- will pay more attention to energy quality in negotiations with landlords, Dutch tenants more than Belgian tenants (Figure 36)

House-owners ascribe great importance to a balance in quality of especially indoor air quality and living comfort (Figure 39).

Quality

The factors seen as important in the quality of energy performance certification (see Figure 40) are different for tenants and owners: Owners ascribe a larger importance to cheap random tests or no quality check at all, whereas tenants appreciate regular audits more.

Most house-owners think an on site inspection is needed, preferably a full energy audit.

Acceptable price levels

The distribution of acceptable price levels is given in Figure 45. Although there are differences between the countries, The median value is quite similar. A reasonable price for the energy performance certificate is 130-150 Euro, according to consumers. This is lower than the estimated price by professional parties.

Annexes

- Overview table
- Questionnaires
- Available variables
- Extra graphs

Annex: Overview table

(This table supports findings in executive conclusion)

Country	B G	GR	N L	FI	SE	B E	AT
part in Europe	se	se	w	n	n	w	center
EPBD regulation in effect	+	-	-	-	-	-	-
0. Response							
1. response in professional market higher then 100	-	-	-	+	-	-	-
1.1 response professional enough for differentiation							
1.1a owner/supplier/user	+	-	+	+	-	-	+
1.1b residential / non-residential market	+	-	+	+	-	-	+
1.1c existing / new building	-	-	+	-	-	-	+
2. response in non-professional market higher then 100	n	n	+	n	-	+	-
2.1 response enough for differentiation owner / tenant	-	-	+	-	-	+	-
A. Typification of respondents							
3. priority to improving energy efficiency (professional market) > 70 % high & very high	+	-	+	+	+	n	+
4. interest in energy efficiency and importance of energy costs when renting/buying (consumers)> 70 % high & very high	n	n	+	n	+	+	n
B. Familiarity with EPBD							
More than 50 % know EPBD less then 2 years	+	+	+	+	+	n	+
clear correlation between time of knowledge and preparations	-	+	+	+	+	n	+
C. Perception of quality and characteristics							
majority thinks no full inspection is needed (walkthrough or off-site)	-	-	+	+	+	n	+
majority of private owners think total review is needed	n	n	+	n	-	+	n
price 100-150 is most answered by professional parties	m o r e	m o r e	l e s s	m o r e	m o r e	n	m o r e
random check is enough for majority of prof. respondents	int e n s i v e	int e n s i v e	+	+	+	n	+
tenants think higher price is reasonable then owners	n	n	-	n	n	+	n
= yes, - is no, n = no data							
D. Market attractiveness prof. parties							
perceived value of certficate in investments > 75 %	+	+	+	+	-	n	+
perceived value in marketing > 75 %	+	+	+	-	-	n	-
perceived value in maintenance and renovation > 75 %	+	+	-	+	-	n	+
(probably) used as policy instrument > 75 %	+	+	+	+	+	n	+
(probably) used as communications instrument > 75 %	+	+	+	-	-	n	+

Table A: Summary of conclusions for market attractiveness test of energy performance certificate in BG (Bulgaria), Greece (GR), Netherlands (NL), Finland (FI), Sweden (SE), Belgium (BE), Austria (AT). Legend: + = yes , - = no, n = not available

Country	B U	GR	N L	FI	SW	B E	AT
part in Europe	SE	SE	W	N	N	W	Ce nte r
EPBD regulation in effect	+	-	-	-	-	-	-
Media best used are for owners the internet, for tenants papers/tv	n	n	+	n	+	+	n
Policy 3. Influence of instruments							
Grants and subsidies are the best working policy	+	+	+	+	+	n	+
High quality advice is 2nd important	+	+	+	+	+	+	+
Making implementation of recommendations partly mandatory will work on approximately 25 % extra	+	+	+	+	+	n	+

Table B: Conclusions on policy on Energy Performance Certificates for BG (Bulgaria), Greece (GR), Netherlands (NL), Finland (FI), Sweden (SE), Belgium (BE), Austria (AT). + = yes , - = no, n = not available