European Commission

JRC SCIENTIFIC AND POLICY REPORTS

Evaluation of Motivation and Barriers in the European GreenBuilding, GreenLight and Motor Challenge Programmes

Paolo Bertoldi

Marion Elle

2012

Report EUR 25621 EN

Joint Research Centre

European Commission
Joint Research Centre
Institute for Energy and Transport

Contact information:

Paolo Bertoldi
Address : Joint Research Centre, Via Enrico Fermi 2749, TP 450, 21027 Ispra (VA), Italy
E-mail: paolo.bertoldi@ec.europa.eu
Tel.: +39 0332 78 9299
Fax: +39 0332 78 9992

http://iet.jrc.ec.europa.eu/
http://re.jrc.ec.europa.eu/energyefficiency/

This publication is a Scientific and Policy Report by the Joint Research Centre of the European Commission.

JRC 69637

EUR 25621 EN

ISBN 978-92-79-27730-6 (pdf)
ISBN 978-92-79-27731-3 (print)

ISSN 1831-9424 (online)
ISSN 1018-5593 (print)

doi: 10.2788/68909

Luxembourg: Publications Office of the European Union, 2012

Printed in Italy

Evaluation of Motivation and Barriers in the European GreenBuilding, GreenLight and Motor Challenge Programmes

Paolo Bertoldi

Marion Elle

2012

Table of contents

1. List of Figures and Tables

Figures

Tables

2. Executive Summary

With the GreenBuilding, GreenLight and Motor Challenge Programmes the European Commission operates voluntarily commitment schemes with the aim to increase energy efficiency in non-residential buildings, non-residential lighting and motors used in industrial processes. By the end of 2011 the total of more than **1,000 Partners** were registered. With their measures and implemented projects these Partners manage to save at least **XXX GWh of electricity annually**[1].

Every year the achievements of the respective Programmes are analysed in detail and published within Evaluation Reports. These Reports primarily focus on quantitative and technological analysis. In order to establish motivations and barriers, attitudes towards benefits and achievements, qualitative analysis based on questionnaires are also carried out regularly. Within the year 2011, an online survey was carried out for the GreenBuilding and GreenLight Programmes and presented within this Report. If possible the findings were compared to those findings established in the previous Surveys. Although the respective questionnaires in the various schemes are not harmonised, an effort was made to establish similarities and common tendencies amongst the key findings. In addition, the findings of the last qualitative Survey carried out amongst Motor Challenge Partners in 2009 were also included.

The Survey 2011 carried out within the GreenBuilding Programme resulted in a response rate of 45 % with a significant higher proportion of Partners representing new buildings compared to Partners representing refurbishments than in the previous survey. Environmental considerations and energy cost reductions are equally important reasons to implement the energy efficiency projects. This is a change compared to previous findings, were environmental considerations ranked higher. There were no considerable barriers in persuading the company board and the most crucial point in the decision process was the overall financial aspect. Even though cost savings are seen to be the main benefit, other aspect such as higher property value, environmental benefits and a better working environment are almost regarded as important. The financing of the projects was based to a majority on future cash flows and/or reduced energy costs. A fifth of respondents indicated that the costs for the more energy efficient building were higher than 10 % of the total cost. This is an increase of higher building costs compared to the previous survey. However, for 60 % the additional costs of energy efficiency did not exceed the 10 % of the total building costs. For almost 70 % the verified savings of the GreenBuilding measure were more or less than calculated. For around 23 % the savings even exceeded the expectations. Partners are further committed to continue their efforts. Around 57 % would implement energy efficiency measures in the same and 90 % would implement further energy efficiency measures in other buildings. For 63 % the GreenBuilding Certificate was a help in the marketing activity. Satisfaction rates are high, with 56 % being fully and 38 % partially satisfied with the Programme. When reading the comments it becomes clear, that Partners would welcome more communication and promotion of the Programme.

The Survey 2011 within the GreenLight Programme had a response rate of 35 % of Partners coming from 12 different EU countries and Switzerland. The main motivation with receiving a 56 % of very high relevance was seen in saving energy and reducing costs. This importance of the financial and economical aspects is also found here. More than a third of responses estimated of the overall costs and benefits to have been a barrier or problem in the planning of the project. Partners can be said to be determined to take action even before registering for GreenLight, since three quarters indicated that they would have implemented similar or the same activities without participating in the Programme. Roughly 40 % would be willing to participate also in other comparable schemes such as GreenBuilding. Overall the satisfaction rates are high, with 35 % being very satisfied and 62.5 % being satisfied with the achievements reached within GreenLight. Comments made indicated that Partners primarily see room for improvement in communicative aspects, such as more promotion, more action and support at national level and strengthening awareness of the Programme.

Based on the evaluation carried out already in 2009, the Motor Challenge Programme received a highly positive judgement by Partners itself. The response rate of the Survey was 24 %. 41 % of the responses saw the Motor Challenge Programme as instrumental in convincing the company to implement energy efficiency measures. More than 70 % of the companies questioned had energy reduction goals and policies in place,

[1] These figures need to be verified.

more than 50 % an energy management team or department. The Programme was seen as underlining and supporting the companies strive towards more energy efficiency and 92 % want to continue investing into energy efficient motors. The key drivers for implementing measure was seen in economic savings and a majority were satisfied with the results achieved under the Programme.

It is not possible to straightforward compare the different results and findings of the Survey conducted within the different Programmes, because the set-up of the questionnaires was not harmonized. Nevertheless, certain key topics such as the motivation to participate or implement measures, the barriers and benefits, the commitment and satisfaction rates can be compared in tendencies or majority findings.

Comparing the results that demonstrate the motivation for participation or implementation of the activities, it is very clear that the most important motivations in all three programmes are economic considerations.

In conclusion, in all Surveys a tendency can be seen that for the majority persuading senior management was not a barrier and that generally there were no major obstacles in implementing the project. The highest amount of difficulties was reported in the GreenLight Programme.

Comparing and assessing results concerning the benefits reached, it might be viable to summarized that overall the financial aspect such as cost savings represents the most treasured benefit within all the Programmes.

In general, the commitment in all Programmes is very high to continue in the same kind of activity – within GreenBuilding and Motor Challenge Programme Partners gave a positive response of more than 90 %. As concerns a different kind or broadening the commitment to another area, Partners are more hesitant, with only 45 % of the GreenLight Partners expressing a wish to commit themselves towards a further voluntary scheme like the GreenBuilding.

Also a question towards the satisfaction was posed in all Survey, even though again the wording and choice of answers were different and make a direct comparison difficult. As a tendency one could summarize that the promotion, achievements and participation reached within the Programmes resulted in satisfaction rates higher than 90 %.

3. Introduction

The European Commission is running three voluntarily commitment schemes for various target within the European Union and beyond concerning the increase of energy efficiency. Common feature of all the three programmes is that they are managed by the Joint Research Centre of the European Commission, that they are voluntary programmes open to any European organisation and consist of registered Partners that commit towards certain measures indicated in action plans. Furthermore these commitment schemes work with Endorsers, which are larger networks, organisations or companies that work specifically to promote the Programmes. They are both responsible for expanding the Programme as well as providing specific assistance to Partners. Furthermore each scheme has established National Contact Points to ensure activation and support is reaching interested applicants at national and local level. Relevant features of the schemes are annual Awards for the most outstanding achievements as well as the publication of Case Studies, Catalogues and Evaluations.

The first scheme was started in the year 2000 and is called the **European GreenLight Programme**. The focus is to promote energy efficient lighting in non-residential premises and buildings, such as indoor and outdoor illumination and lamps. Partner thus can be public authorities and municipalities as well as companies operating in sectors such as retail, offices, production sites, educational buildings, sports halls, car parks, hospitals. At present GreenLight has 686 registered Partners. In total, all GreenLight Partners reached the savings of more than **312 GWh**[2] of electricity annually through energy efficient lighting.

The second voluntary scheme is the **Motor Challenge Programme**, which was started in 2003. It addresses industrial companies, which are aided in improving the energy efficiency of their electrical motors. Moving drivers, fans, compressors and pumps these motors are essential for assuring the continuous creation of a multitude of products and services. Motor driven systems account for 30 % of electricity use in the European Union and for 60 % of industrial electricity use constituting therefore a major and relevant area for energy efficiency improvements. At present the Motor Challenge Programme has some **110** registered Partners and thus represent the scheme with the smallest participation. However, the saving results are impressive. By the end of 2010, Partners saved some **202 GWh** annually in by increasing the energy efficiency of their motors and drives.

In 2004, a further large scheme was started to address energy efficiency in buildings within the **GreenBuilding Programme**. This programme aims at improving the energy efficiency and expanding the integration of renewable energies in non-residential buildings in Europe on a voluntary basis. The programme addresses owners of non-residential buildings to realise cost-effective measures which enhance the energy efficiency of their buildings in one or more technical disciplines. Partner might register within various project and buildings. At present, GreenBuilding consists of 312 registered Partners representing 549 buildings. By the end of 2010, GreenBuilding Partners saved 333 GWh of energy per year. Assuming that those registered for 2010 and 2011 saved on the average as much, GreenBuilding commitments and measures represents more than **XXX (around 400?) GWh**[3] of energy saved per year.

[2] The Evaluation 2010 established that the then registered 653 GreenLight Partners saved the amount of 297 GWh annually by the end of 2010. If we assume that the additional 33 Partner registered in 2011 saved the all year average per Partner of 0.454 GWh per year this amount to an additional of 15 GWh savings for 2011. A thorough analysis of the savings will be carried out in spring 2012.

[3] 3 The last evaluation done for GreenBuilding verified a saving of 304 GWh per year for all buildings of registered Partners up to 2009. Here an average saving of XX MWh was established for all types of buildings. Since then 120 new buildings have been registered been registered probably amount to an additional saving of XX GWh.

4. Methods

This report is based on the information provided by the Partners that have applied to the voluntary GreenBuilding, GreenLight and Motor Challenge Programme. Key source of information is a questionnaire based survey.

For the Motor Challenge Programme this Survey was carried out in 2009 with regular questionnaires submitted either electronically (files, email) or in paper copy (fax, letter). The original set-up of the questionnaire can be found in the annex.

For the GreenBuilding and the GreenLight Programmes a new Survey was conducted in November 2011 based on an online, web-based questionnaire tool. Partners receive an Email with a web link hosting the questionnaire through a full payed professional version of polling software. The response rates were quite encouraging, so that this kind of online polling is recommended also in future. The questionnaires can be found in the annex.

The analysis was carried out using a regular spread sheet calculating programme focusing on a qualitative analysis of the responses given. If possible, comments and remarks made were analysed qualitatively. Below each figure the general sample of the Survey is given as well as the amount of responses given for this particular question as well as those that did not fill-in this question indicated as “skipped”. Sometimes, the non-responses can also be found in the figure as “skipped” or “n/a”, which means “data not available”.

The following response rates can be assumed:

GreenBuilding	approximately 45 % of Partners not surveyed before
GreenLight	approximately 30 % of Partners not surveyed before
Motor Challenge	approximately 24 % of the Partners in 2009

5. Motivation and Barriers in the European GreenBuilding Programme

5.1 Previous Surveys

In the years 2008 and 2009, the Joint Research Centre carried out two sets of surveys among the GreenBuilding Partners. The main aim of the surveys was to obtain information on the Partners' motivations and experience with the GreenBuilding Programme so far and with their energy efficiency projects. The surveyed sample represented some 30 % of the total number of the then registered Partners. Within the GreenBuilding Programme a clear distinction is always made between Partners and their projects, i.e. buildings. Therefore a Partner could be representing a successful implementation of multiple projects. The questionnaire was distributed among all Partners in two phases. First set of questionnaires was distributed in winter 2008, while the first interim report of the GreenBuilding programme was prepared. The second phase of the survey was carried out in winter 2009/2010, to cover the whole four year period of the GreenBuilding Programme then in place. At the time of the first Survey, some 167 Partners were registered within the Programme.

5.2 Key Results Survey 2011

For the Survey 2011 the questionnaire which was used as in the previous Survey was only very slightly modified to allow a comparison (the questionnaire can be found in the Annex). In November 2011 the JRC addressed primarily the Partners registered from early 2010 onwards. At that time, the GreenBuilding Programme accounted 307 registered Partners, making it a total of some 140 Partners which were not included in the previous Survey. Partners were invited via email and the Survey conducted via an online questionnaire. In total 63 Partners responded and filled-in the questionnaire. It can be assumed that only Partners not previously included in the Survey responded, resulting thus in a response rate of 45 % of the total sample (63 of 140).

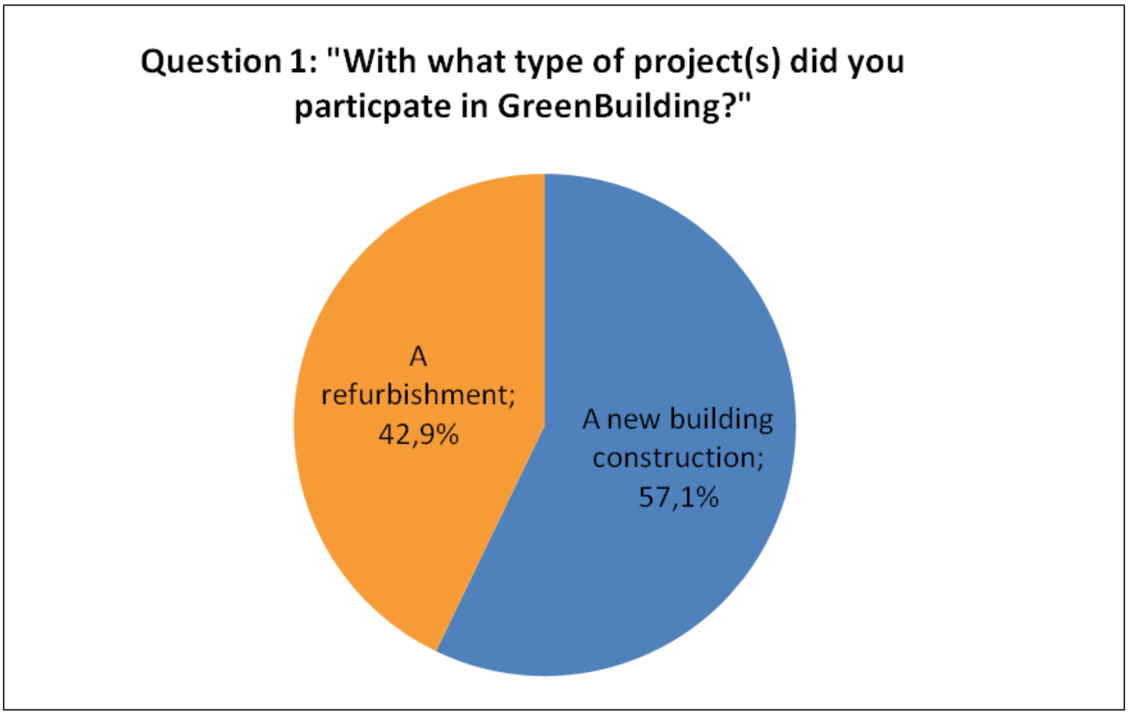
5.2.1 Specification of Sample

The largest proportions of GreenBuilding Partners come from Germany, Sweden and Austria. This is also represented in the sample that answered the questionnaire. However, the highest number of respondents came from Sweden and not from Germany, where the largest amount of registered partners comes from.

Table 1: GreenBuilding Survey 2011 |Responses by Country

Country	**N° of questionnaires**
Austria	8
Cyprus	1
Denmark	2
Germany	16
Greece	1
Sweden	25
Spain	6
Poland	2
United Kingdom	2
total	**63**

Figure 01: GreenBuilding Survey 2011 |Categories of Responding Projects



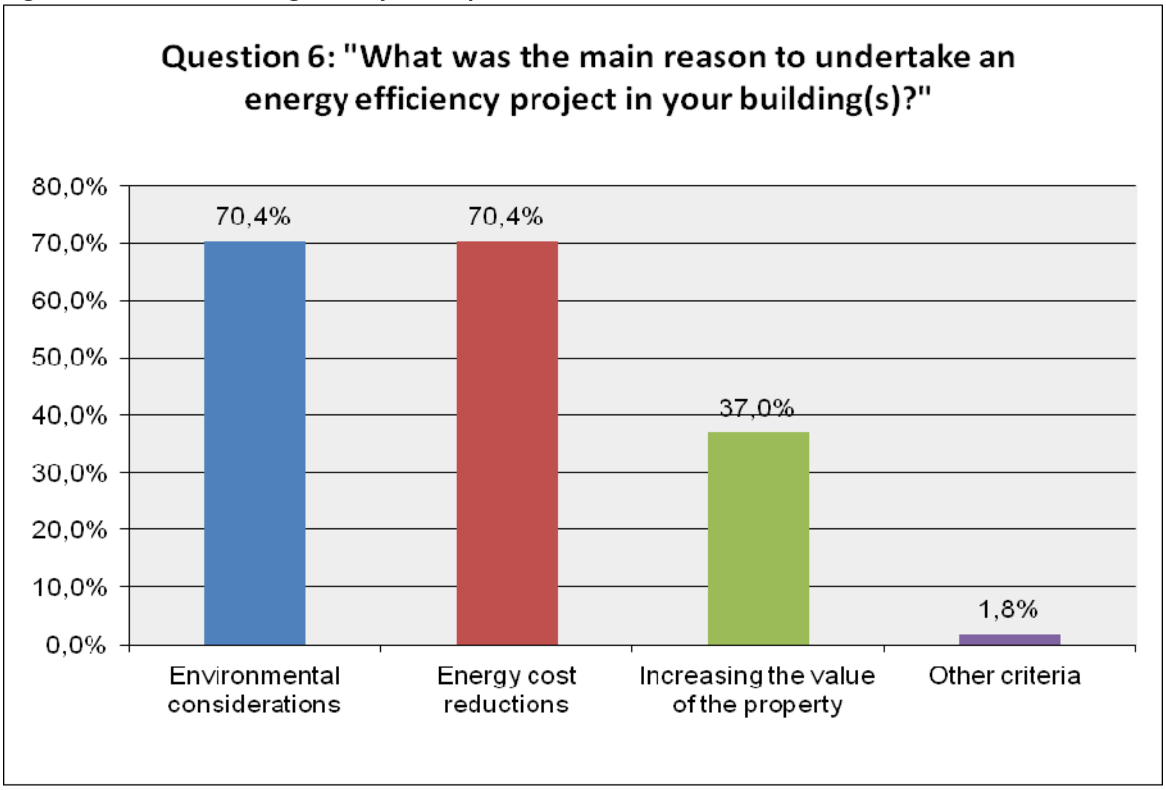
Sample 63 | answered = 63, skipped = 0

Within the sample of Partners that answered the questionnaire the larger quantity come from new constructions and refurbished projects only represent some 42.9 %. According to the evaluation of the GreenBuilding conducted in 2009 the division between new and refurbished projects is just the other way around. From 286 projects registered only 123 were new building (43 %) and 163 refurbishments (57 %). It thus has to be stated that in the sample of the questionnaire new constructions are overrepresented.

5.2.2 Motivation

As in the previous Survey, Partners were asked to express their motivations to implement energy efficiency measures. They were given a multiple choice question and could select one or more answers. It seems interesting that in this case there are two equally important motivations mentioned. Environmental considerations and energy cost reductions are both mentioned by 70.4 % of the Partners to be the main reason to undertake the project. This is a clear change from the last Survey, where more than 80 % of Partners chose environmental considerations as a clear key motivation and the energy cost reduction was only mentioned by 68 % to have been important. Also the motivation of increasing the value of the property achieved more importance in the current Survey than in the previous one, where only 25 % indicated this motivation. A possible explanation could be that the current sample of the Survey 2011 has a larger proportion of new constructions and that especially for newly constructed buildings the future energy cost reduction and increase of the value of property are of high importance and key criteria for enabling the financing of these projects.

Figure 02: GreenBuilding Survey 2011 |Motivation

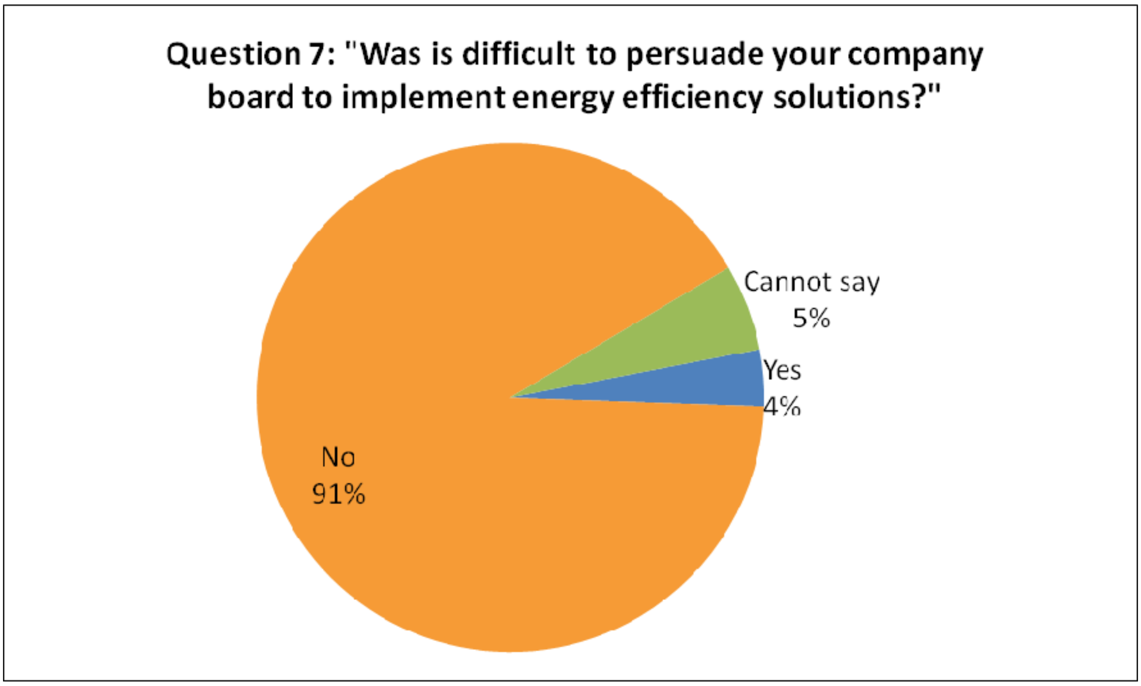


Sample 63 | answered = 54, skipped = 9

5.2.3 Barriers

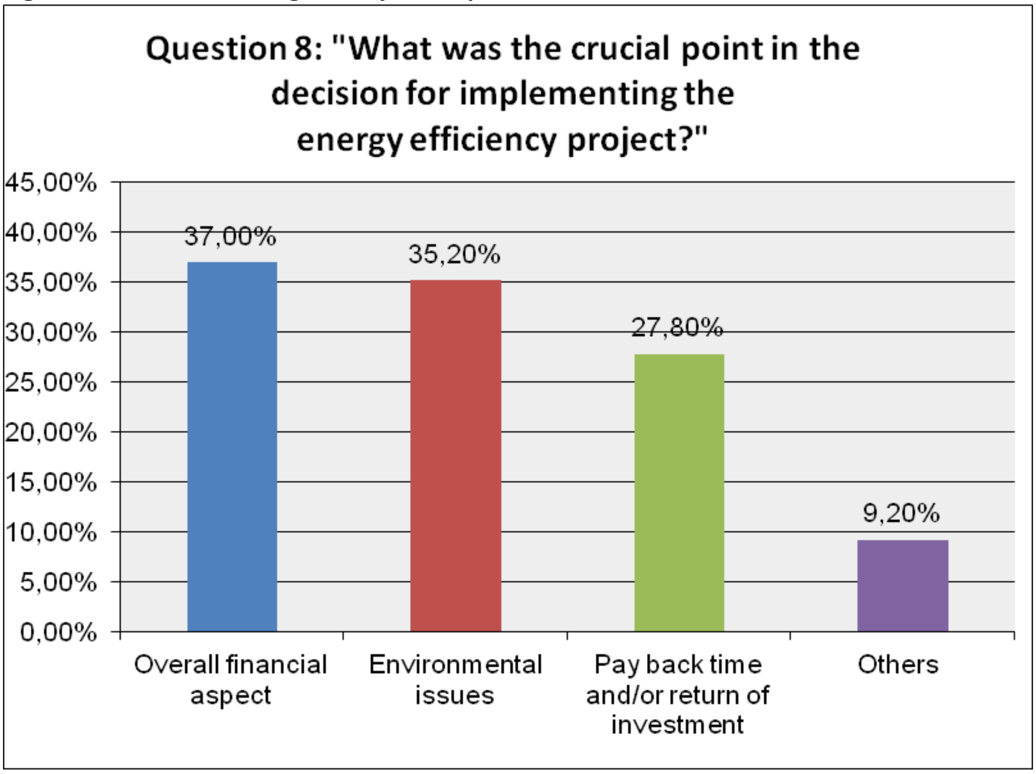
Partners were also asked to indicate any difficulties and barriers when implementing the GreenBuilding project. As regards the persuasion of the company board to implement energy efficient solutions, the overwhelming majority with 91 % indicated that they did not encounter any difficulties. This percentage even increased compared to 84 % within the sample negating this question in the Survey 2008/2009.

Figure 03: GreenBuilding Survey 2011 |Barriers



Sample 63 | answered = 54, skipped = 9

Figure 04: GreenBuilding Survey 2011 |Crucial Decision Points

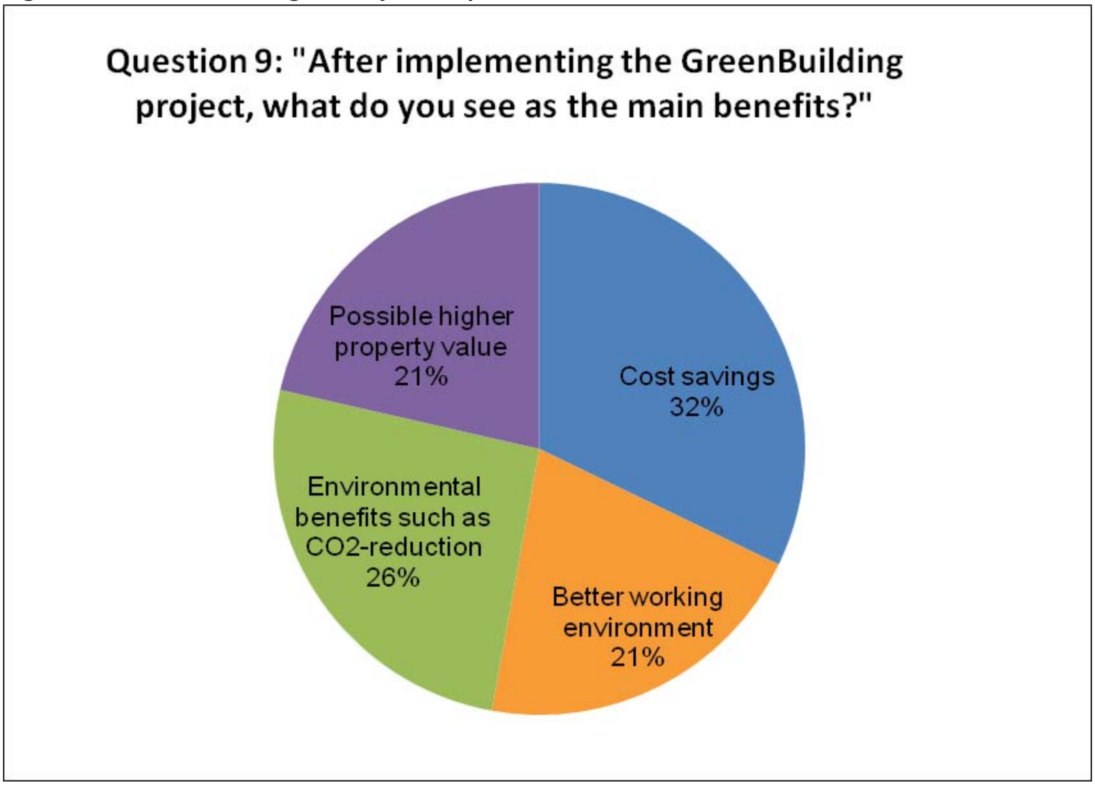


Sample 63 | answered = 54, skipped = 9

Disregarding whether the persuasion process was difficult or not, respondents were asked to state the crucial point for implementing the project. The overall financial aspect was named by 37 %. In the previous Survey almost half of the Partners 49 %) indicated stated economic aspects as being the key determinant.

5.2.4 Benefits

Figure 05: GreenBuilding Survey 2011 |Main Benefits



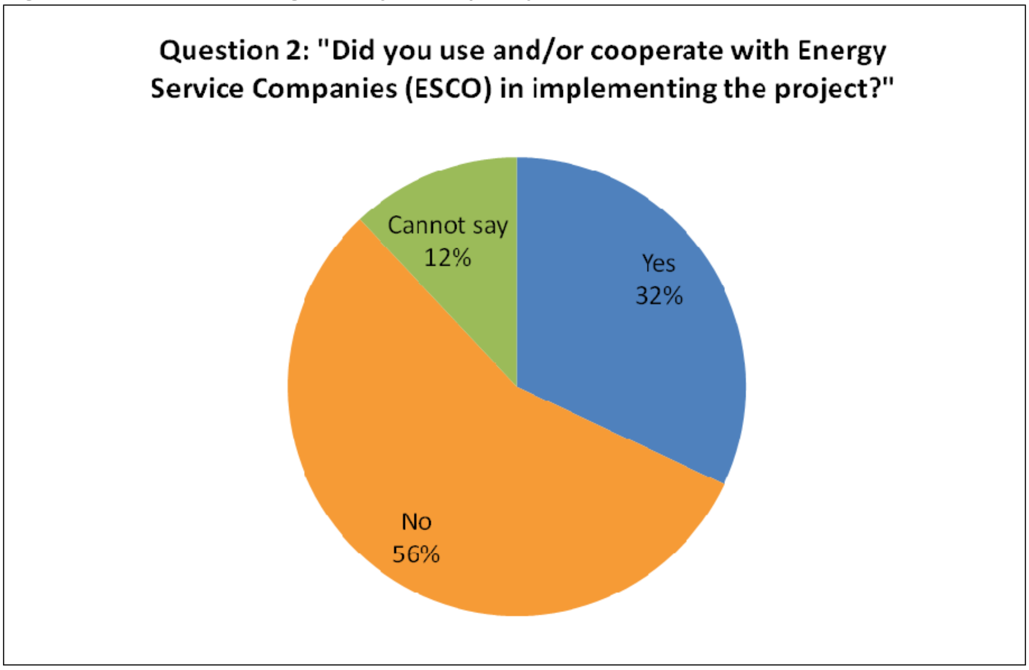
Sample 63 | answered = 52, skipped = 11

When asked about the main benefits it is interesting that the given benefits receive almost a similar share of approval only between 32 and 21 % of approval. The cost savings receive the largest approval by 32 % as being the main benefit. In the previous Survey 2008/2009 the environmental benefit receives an approval of 76 % (even though in a relative small sample of 30 respondents) and that of cost savings an approval of 66 %.

5.2.5 Financing

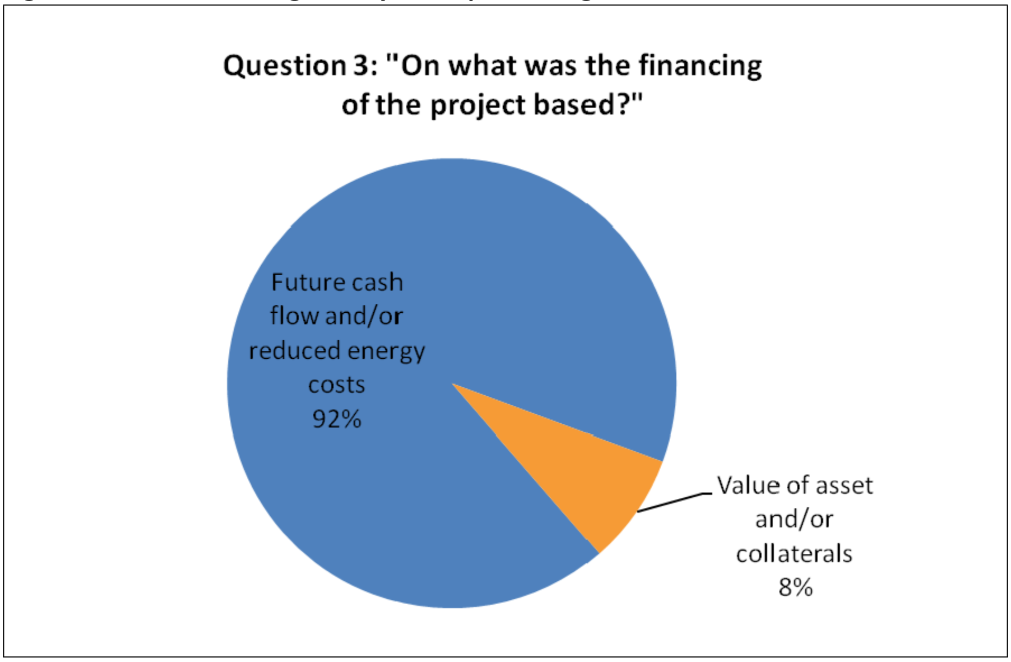
If the organizations (if not large companies or with large share of energy costs) do not have an internal energy expert or energy management unit, for the energy efficiency improvements they may use the services offered by a specialized Energy Service Company (ESCO). For those 27 respondents that were registered with a refurbishment 32 % employed such an ESCO, which is approximately the same amount that was established in the previous Survey. The financing of the registered refurbishments was to a large majority based on future cash flow and/or reduced energy costs (92 %). It seems that clear indication on how refurbishments have been financed within the GreenBuilding Programme and that this percentage is cleared than in the previous Survey, where only 47 % indicated this financing.

Figure 06: GreenBuilding Survey 2011 |Cooperation with ESCOs



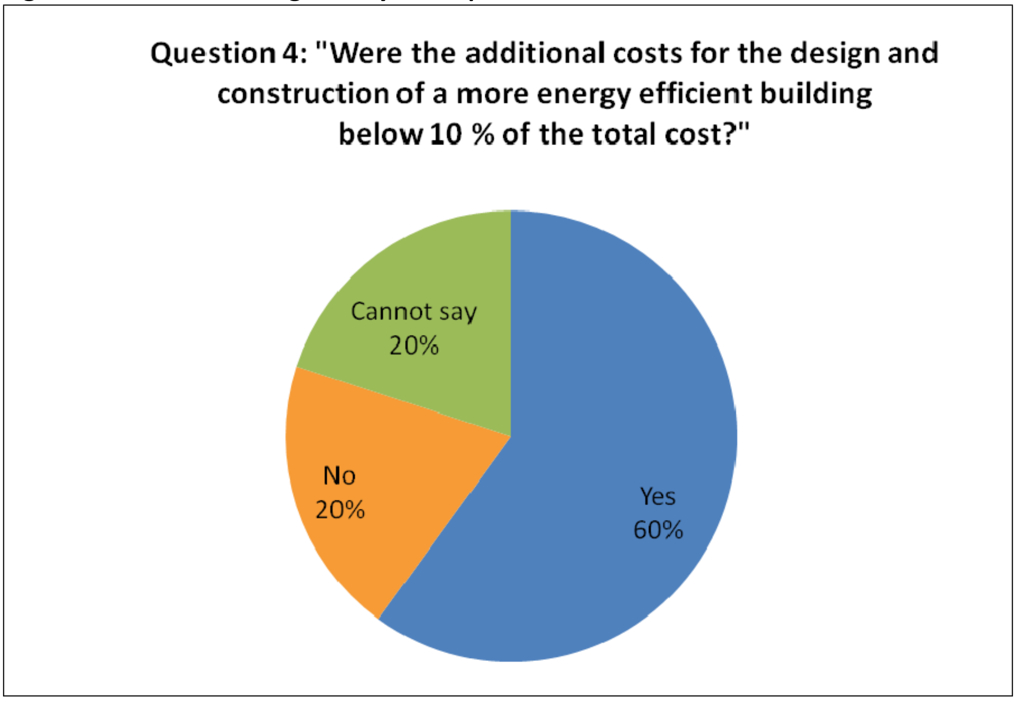
Sample 27 only refurbishments | answered = 25, skipped = 2

Figure 07: GreenBuilding Survey 2011 |Financing



Sample 27 only refurbishments | answered = 25, skipped = 2

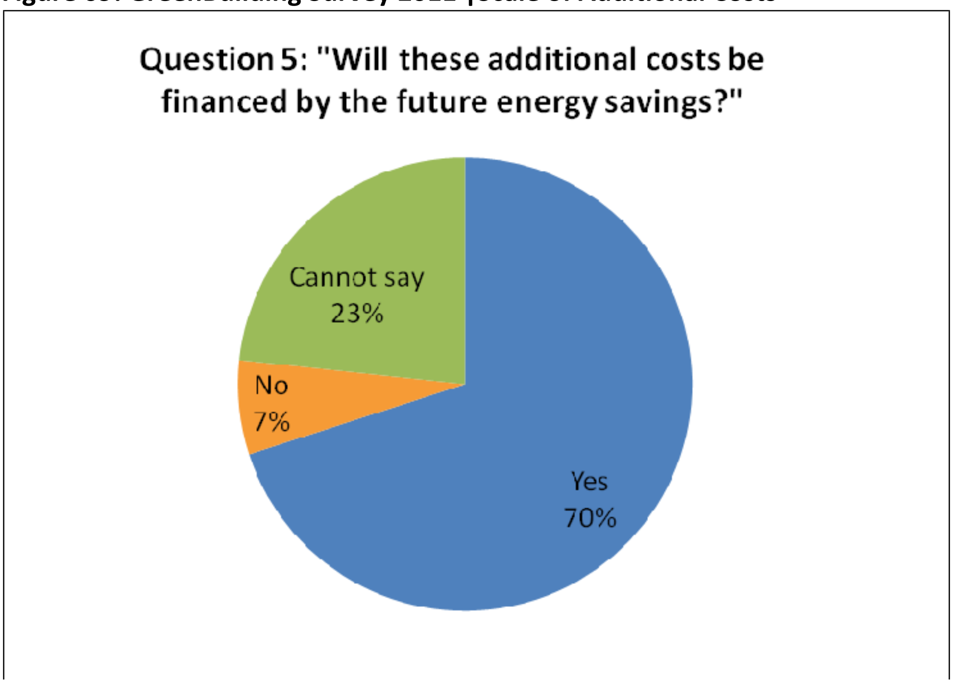
Figure 08: GreenBuilding Survey 2011 |Scale of Additional Costs



Sample 36 only new buildings | answered = 29, skipped = 7

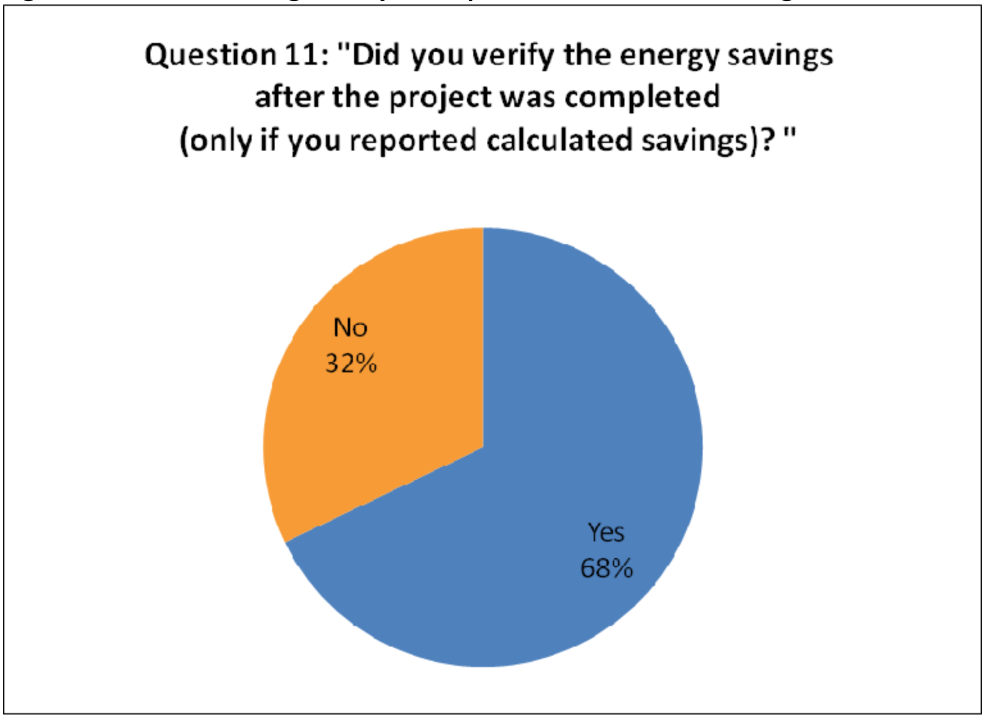
For new buildings, costs compared to conventional ("non-efficient") buildings were assessed by the respondents. 20 % of them said that the costs of the new energy efficient building were higher than 10 % compared to conventional building. This is an increase of 10 % compared to those responding with "No" in the previous Survey. 60 % of respondents stated that they have not faced increased costs for the projects (or that the additional costs have not exceeded 10 %). Here we see a 10 % decrease compared to the previous Survey where 70 % indicated that the energy efficient measures did not increase the cost by more than a tenth. The important message is that for more than half of the sample additional costs for efficiency (more than 25 % more efficiency than building standards) do not exceed 10 % of the costs of conventional buildings. Keeping the population of the sample in mind – which is a larger proportion of new constructions – it can be stated that energy efficiency does not necessarily mean high additional costs. And if they do, these additional costs can be to a large proportion financed through future savings (see figure below).

Figure 09: GreenBuilding Survey 2011 |Scale of Additional Costs



Sample 36 only new buildings | answered = 29, skipped = 7

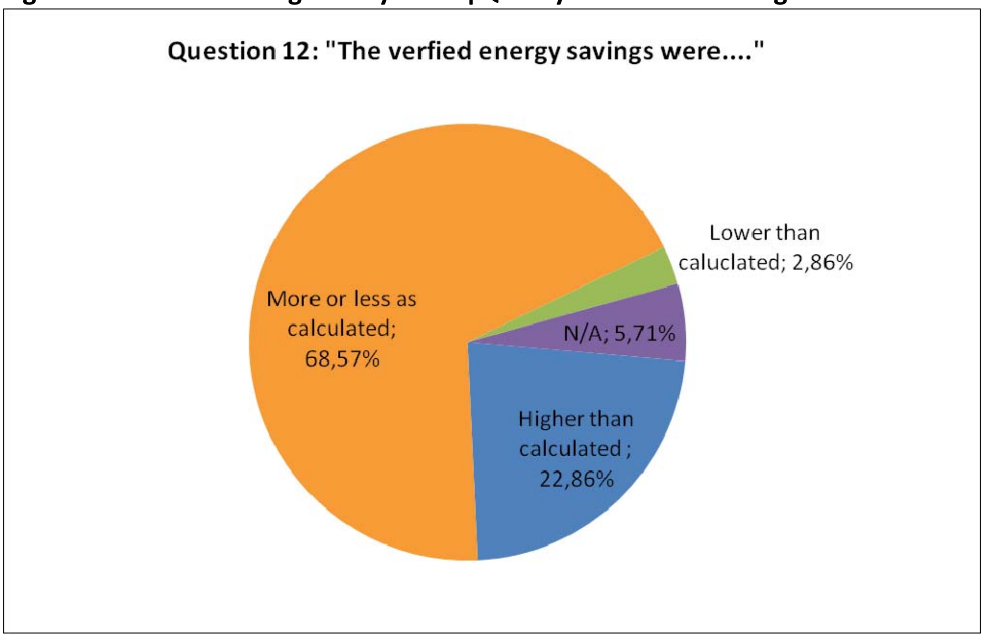
Figure 10: GreenBuilding Survey 2011 |Verified Calculated Savings



Sample 63 | answered = 52, skipped = 11

Related to monitoring, verification of savings makes an important part of the whole energy efficiency improvement (in other words, it is important to verify, whether the estimated savings have been achieved in reality). Most of the respondents (68 %) have verified the savings after implementation of the measures (Figure X). A figure almost the same was established within the last Survey.

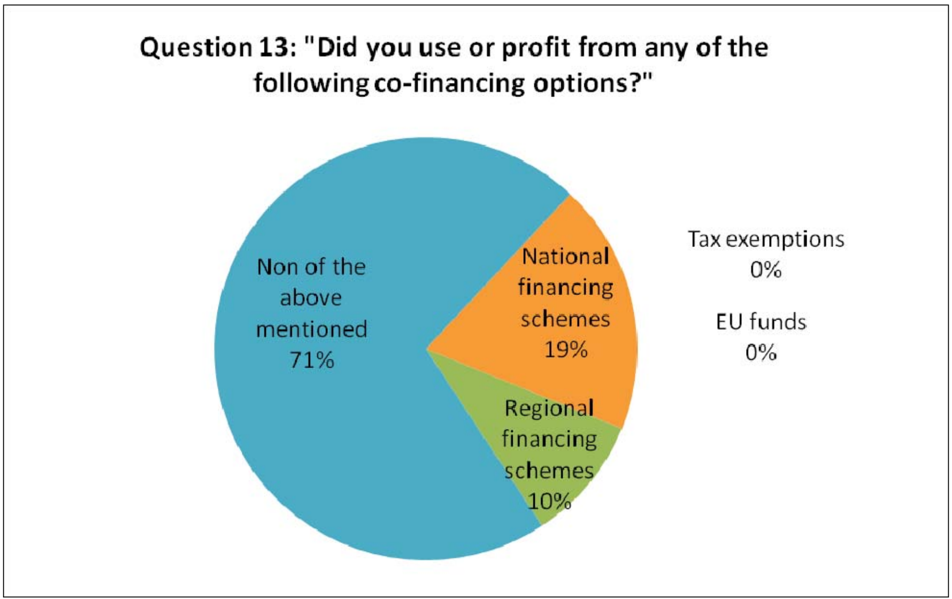
Figure 11: GreenBuilding Survey 2011 |Quality of Verified Savings



Sample 35, those answering Q 11 with "Yes" | answered = 35, skipped = 0

For 22.86 % of those the resulting savings higher than calculated. Only roughly 3 % of respondents have declared that they did not achieve the estimated savings. Some 68.57 % declared that the verified savings were more or less as calculated.

Figure 12: GreenBuilding Survey 2011 |Co-financing



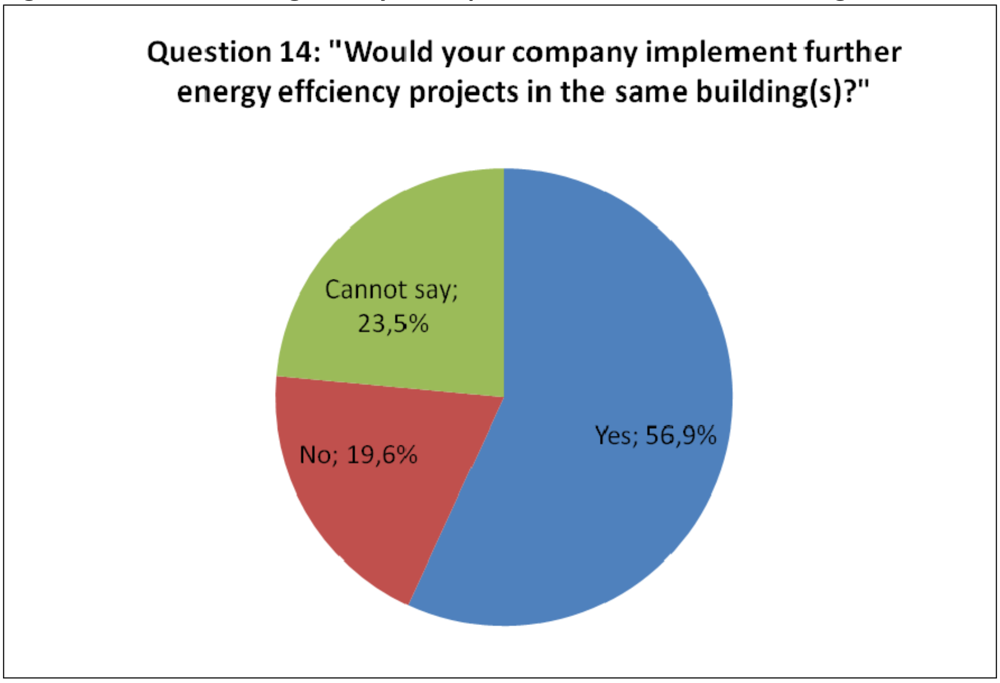
Sample 63 | answered = 51, skipped = 12

29 % of projects have been co-financed through subsidy programmes, either regional or national. This is a 10 % increase compared to the previous Survey, where only 20 % of the projects were subsidies. If it is considered that the subsidy programmes as an instrument to help otherwise non-viable efficiency improvements, the large proportion of 71 % of non-subsidies projects is an encouraging sign.

5.2.6 Commitment

The commitment to intensify the energy efficiency in the same buildings is quite high. Only 19.6% of the samples do not consider further energy efficient projects. This is a slight increase compared to the previous Survey, where 53 % of those responding would consider further energy efficient measure in the **same** building.

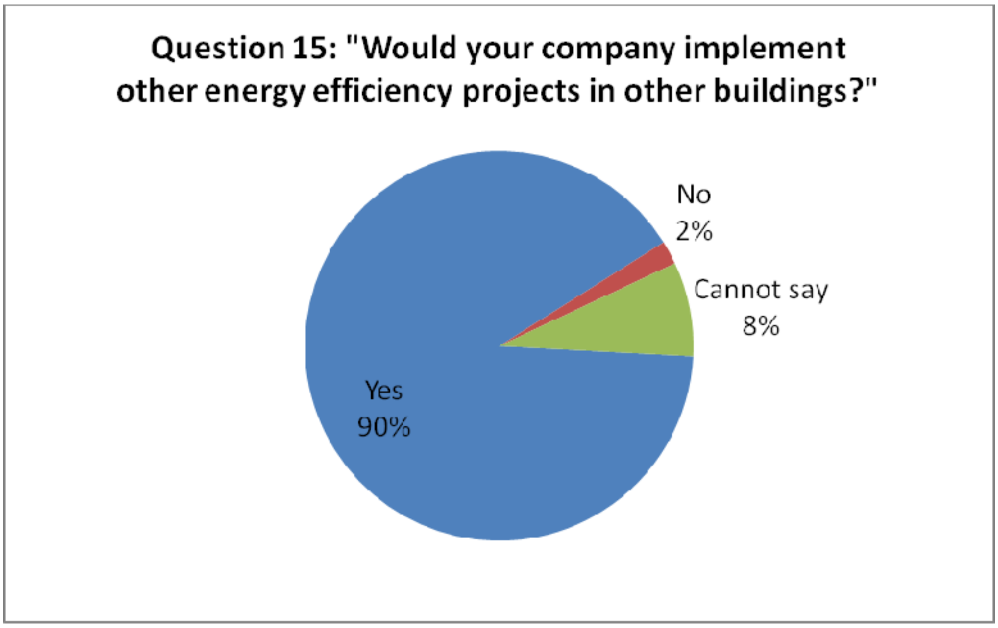
Figure 13: GreenBuilding Survey 2011 |Commitment in Same Building



Sample 63 | answered = 51, skipped = 12

The commitment engage in other and further energy efficiency project in **other** buildings is very high with 90 %. This is more or less the same percentage that responded positively to this answer in the previous Survey. It can be assumed that those negating the question might not be in the possession of additional buildings or that their facilities are not suitable for energy efficient measures.

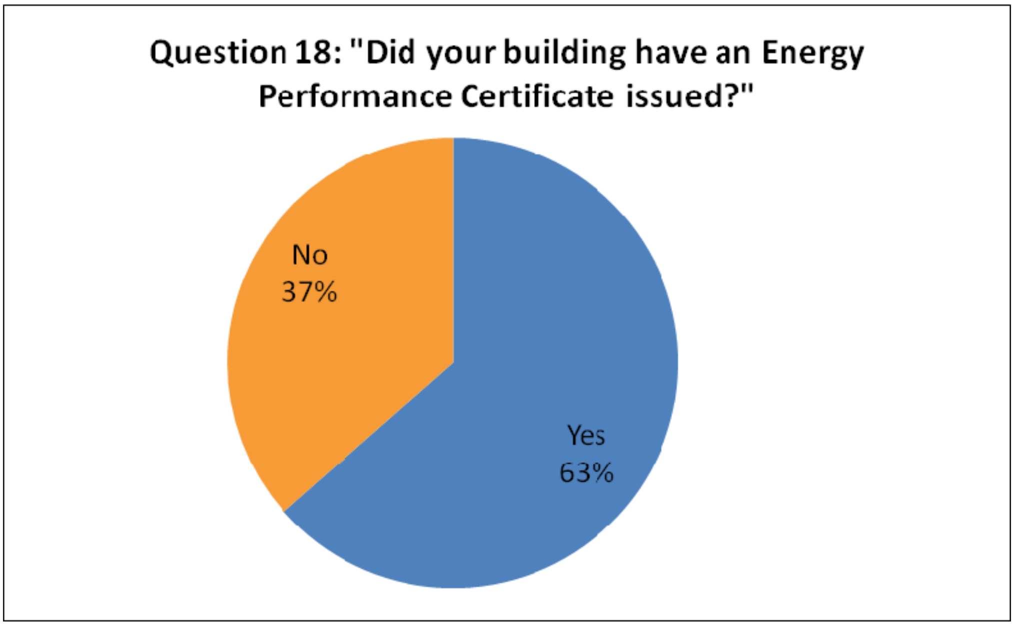
Figure 14: GreenBuilding Survey 2011 |Commitment in Other Buildings



Sample 63 | answered = 51, skipped = 12

According to the current EU Directive on Energy Performance of Buildings (EPBD) also the question of the Energy Performance Certificate is relevant. More than half of the respondents (63 %) have the Energy Performance Certificate issued in the Partner Buildings. This is a 20 % increase compared to the previous Survey, where only 43 % of Partners had the Energy Performance Certificate.

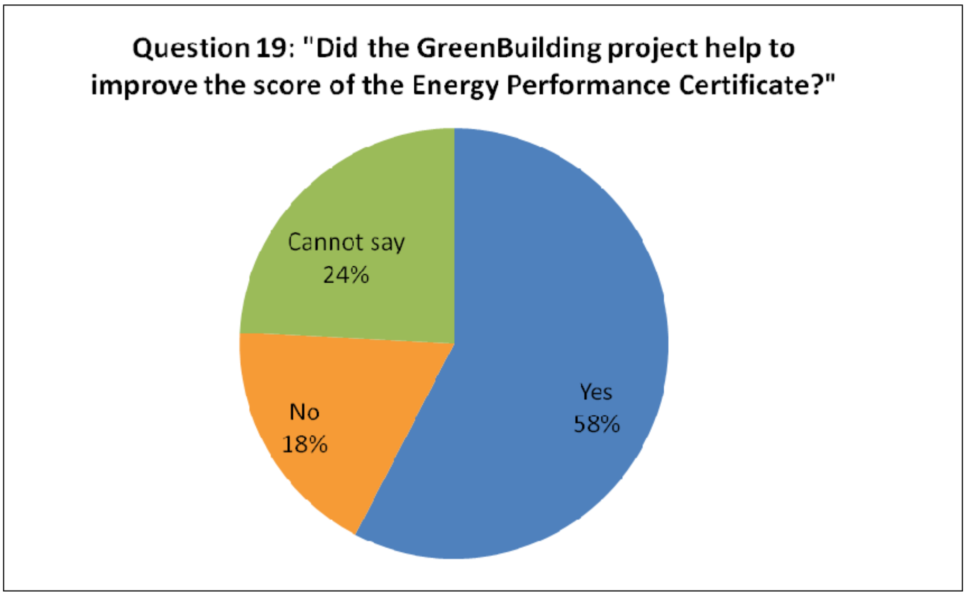
Figure 15: GreenBuilding Survey 2011 |Energy Performance Certificate



Sample 63 | answered = 51, skipped = 12

The commitment within GreenBuilding had a positive influence on the issue of the Energy Performance Certificate for more than half of the Partners (58 %). In the previous Survey this question was not answered satisfactory.

Figure 16: GreenBuilding Survey 2011 |Influence of GB on Energy Performance Certificate

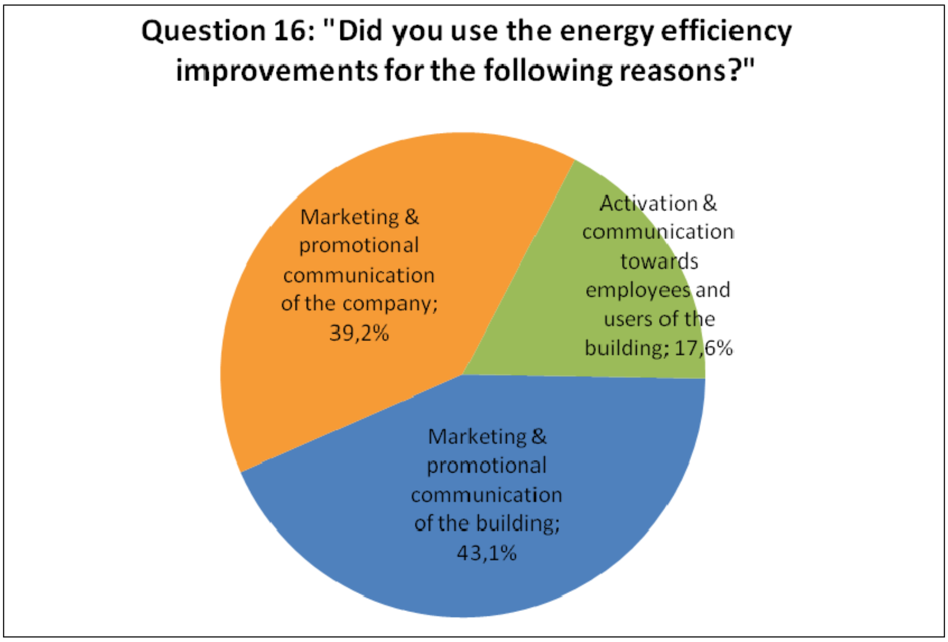


Sample 63 | answered = 33, skipped = 30

5.2.7 Marketing

The energy efficient measures implemented are always also suitable for communication and marketing measures, of which the GreenBuilding Partners made use of. Mostly, promotional and marketing communication was used directly for the building (43.1 %), but also in general for the company or organization (39.2 %). Only 17.2 % used the measures to activate and communicate towards employees or users of the buildings.

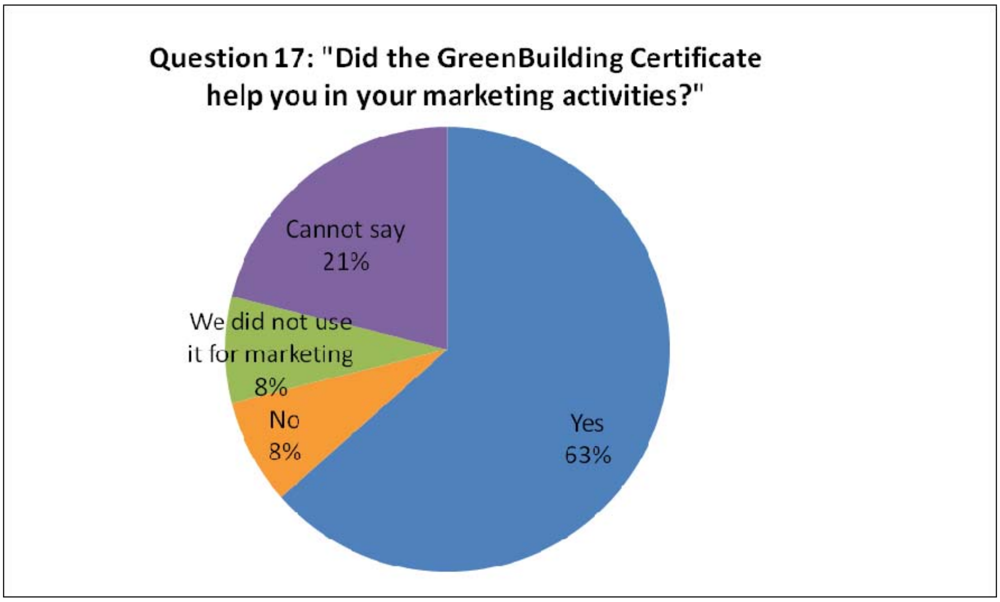
Figure 17: GreenBuilding Survey 2011 |Use in Marketing



Sample 63 | answered = 51, skipped = 12

In addition the GreenBuilding Certificate has been used by the majority of 63 % also for marketing activities. In the previous Survey this percentage was higher with 76 % of indicating the use of the certificate in marketing. However, within the current Survey a comparatively large proportion is not able to say whether the certificate was specifically used or marketing or not (21 %).

Figure 18: GreenBuilding Survey 2011 |Use of GB Certificate in Marketing

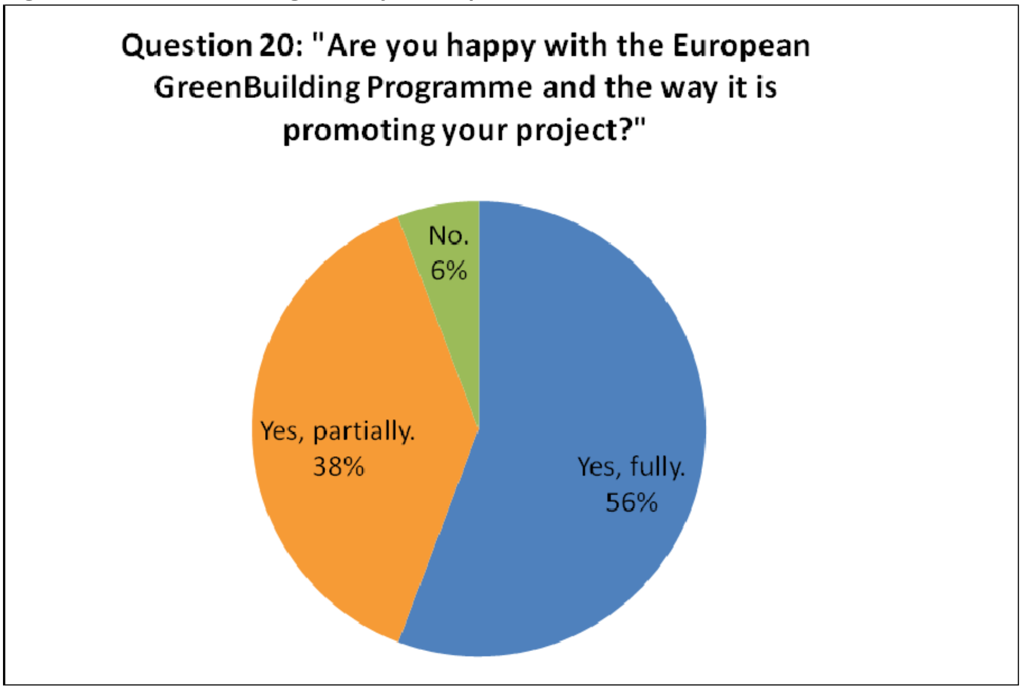


Sample 63 | answered = 51, skipped = 12

5.2.8 Satisfaction

The largest part of the Partners expressed full satisfaction with the GreenBuilding Programme. However, a not so small amount was only partially satisfied (43 %). When reading the comments made, it becomes clear that respondents would welcome more communication and promotion of the Programme.

Figure 19: GreenBuilding Survey 2011 |Satisfaction with GB



Sample 63 | answered = 51, skipped = 12

6. Motivation and Barriers in the European GreenLight Programme

6.1 Previous Surveys

The Joint Research Centre conducted a survey in November 2008 and June 2009 amongst the GreenLight Partners using a questionnaire with main goal to determine motivation, barriers, the benefits and successes for and of the GreenLight Programme. In total 560 Partners registered at the time were addressed. At the end 104 responses ware available for evaluation. On the basis of the responses given, the Survey 2008/2009 summarised the following conclusions. GreenLight Programme participating Partners were generally

- Highly motivated with respect to energy/cost savings
- Very committed to improving lighting efficiency
- Perceiving estimation of costs and benefits a bigger barrier in comparison to understanding technical implications or persuasion of senior management
- Satisfied with the project outcomes
- Evaluating the whole GreenLight Programme positively.

The sample of Partners of the Survey 2008/2009 represented approximately a fifth of the Partners, representing a good distribution of the entire GreenLight population.

6.2 Key Results Survey 2011

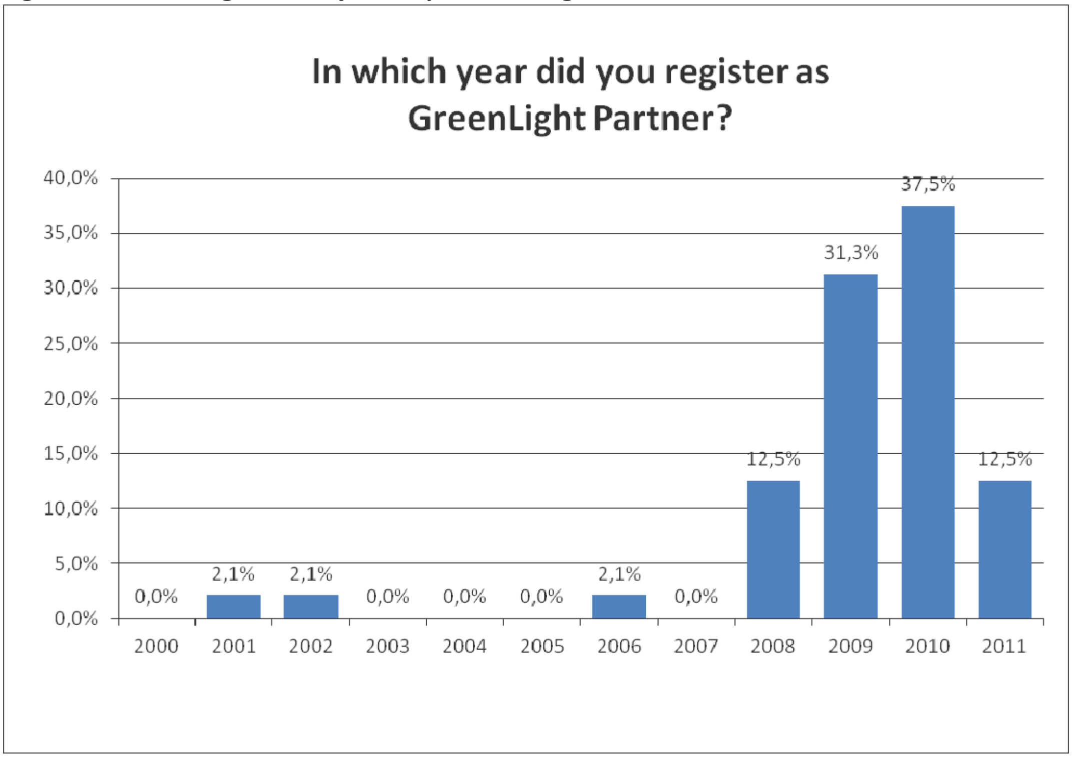
In November 2011 the JRC conducted a second Survey addressing primarily the Partners registered from June 2009 onwards. At that time, the GreenLight Programme accounted for more than 686 registered Partners, making it a total of some 126 Partners which were not included in the previous Survey. This time, the Partners were invited via email and the Survey conducted via an online questionnaire. In total 48 Partners responded and filled-in the questionnaire. However, only 39 of these fall into the period after the first Survey. It was not established, whether those 9 additional Partners that responded which registered before 2009 were already included in first Survey or not. However, it can be assumed that 30 % of those Partners registered after the first Survey responded.

6.2.1 Specification of Sample

The Report evaluating the technical interventions of the GreenLight partners for 2010, established that the Partners registered within 2010 came from only 9 different European countries, whereas the first Survey 2008/2009 covering a much larger period noted Partners from 25 countries. The Partners whose questionnaires were evaluated for the Survey 2011 came from the following countries.

Table 2: GreenLight Survey 2011 |Responses by Country	
Country	**N° of questionnaires**
Austria	1
Belgium	6
Estonia	1
France	5
Italy	2
Germany	15
Latvia	1
Netherlands	6
Portugal	2
Romania	1
Slovenia	2
Spain	4
Switzerland	1
Non specified	2
total	**48**

Figure 20: GreenLight Survey 2011 |Year of Registration

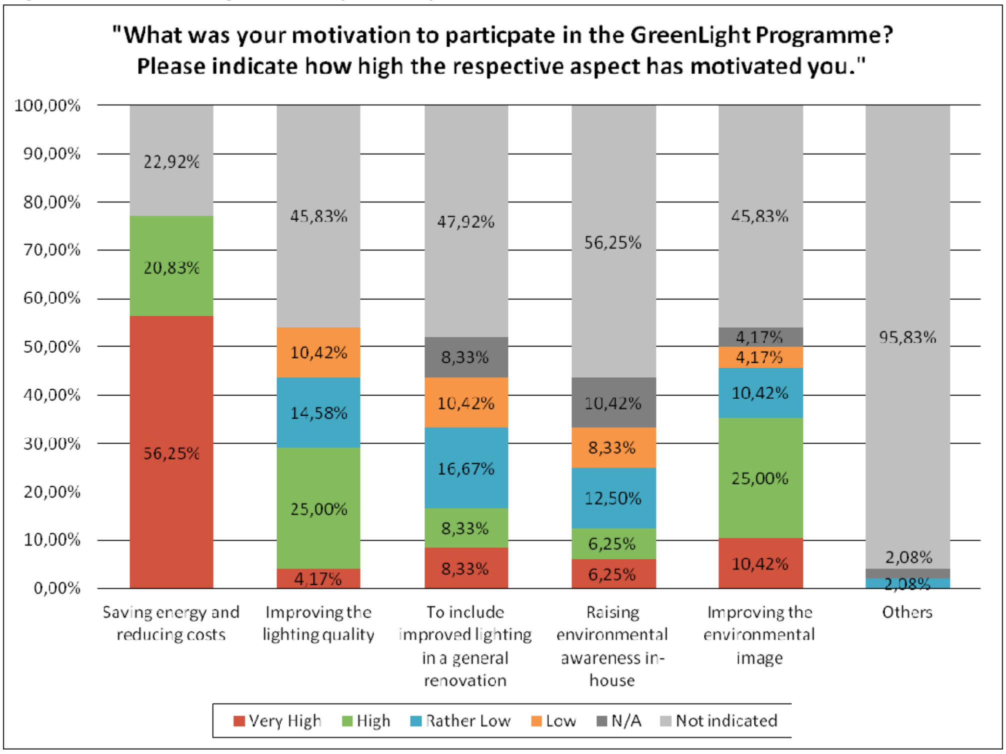


Sample 48 | answered = 48, skipped = 0

6.2.2 Motivation

As regards the motivation for participating in the GreenLight Programme the key motivation remains saving energy and reducing costs, which is judged to be of very high and high relevance. The second most valued motivation is the improving of the environmental image. Both motivations were ranked in a similarly in the first Survey 2008/2009. However, the overall indication of motivations was not a high. Only 37 of 48, a maximum of 77 % indicated a motivation, whereas in the previous Survey 2008/2009 87.5 % indicated this motivation.

Figure 21: GreenLight Survey 2011 |Motivation and Relevance in Percent

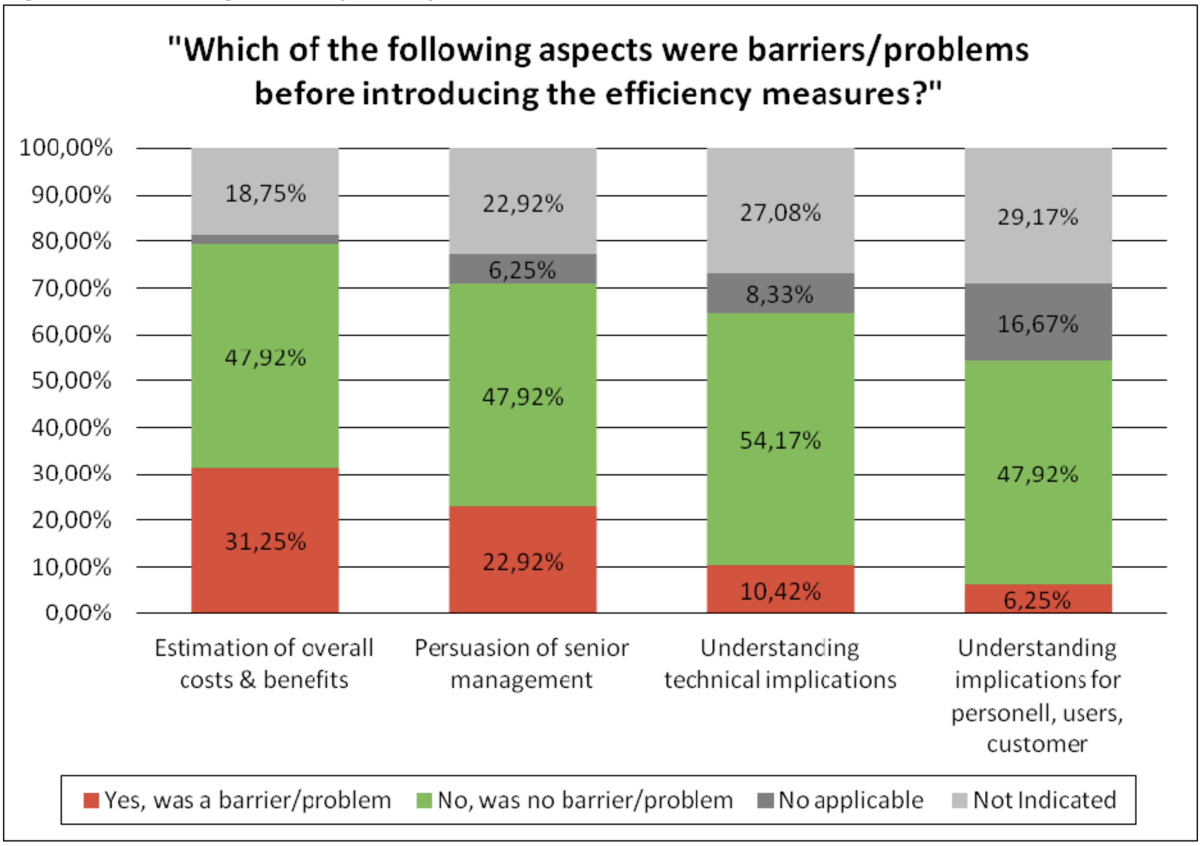


Sample 48 | answered = 44, skipped = 4

6.2.3 Barriers

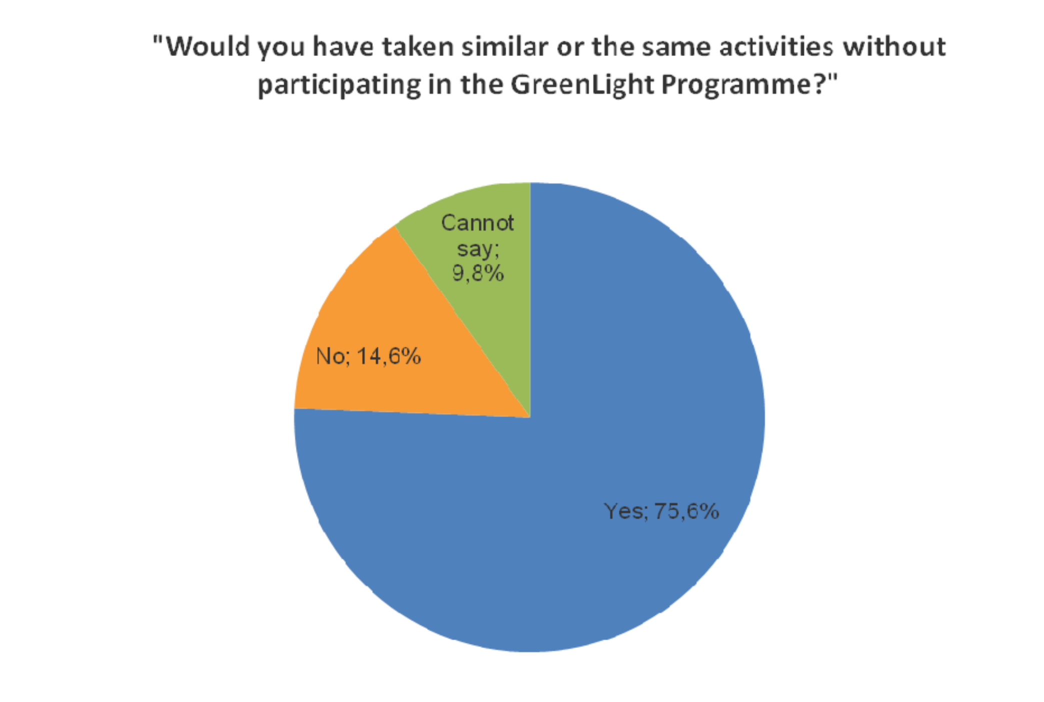
For roughly two thirds there were no barriers at all when introducing the energy efficiency measures foreseen within the GreenLight Programme. The aspect, which was seen to be the greatest barrier or problem were the estimation of the overall costs and benefits. Here 31.25 % of the respondents (the left third) indicated this to have been a problem. Persuasion of senior management was only seen to be an obstacle by roughly 23 %. The understanding of technical implications was seen to be problematic by not more than 11 %. The least problematic aspect was the understanding of implications for personnel, users and customers. In the previous Survey the estimation of costs and benefits were stated by 44.2 % to be a barrier or problem. Thus is can be seen as a positive development over the time, that these aspects are now to be less considered to be obstacles. Also the understanding of technical implications was stated to be a bigger barrier in the previous survey, where almost double – 22.1 % – saw this to be a problem. This might speak of a positive development of the technologies involved since 2009. As regarding the persuasion of senior management there is no big difference in how the GreenLight Partners viewed this to be a problem between 2009 and 2011.

Figure 22: GreenLight Survey 2011 |Barriers



Sample 48 | answered = 41, skipped = 7

Figure 23: GreenLight Survey 2011 |Satisfaction with Results



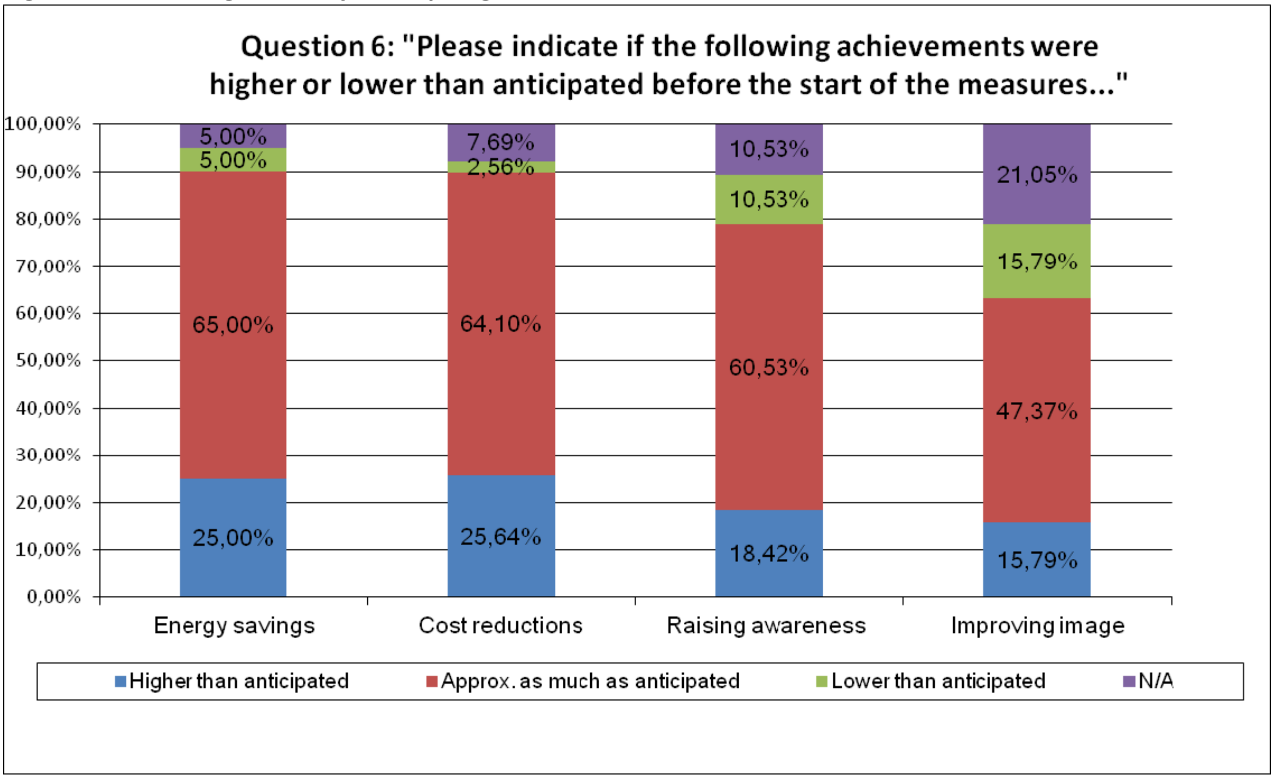
Sample 48 | answered = 41, skipped = 7

In general, GreenLight Partners asked seem to have been very convinced in implementing energy efficiency. More than tree quarter confirmed that they would have implemented similar of same activities without participating in this voluntary scheme. This underlines that the Programme itself seems to work as an "add-on" and not an impulse to start activities. The figures found here within the previous Survey are almost as clear. In the year 2009, 72.3 % would have been committed to the goals independent of the GreenLight Programme and only 13.9 % would not have implemented their measures without the influence of the GreenLight Programme.

6.2.4 Benefits

Energy savings, cost reductions, in-house awareness and environmental image are the basic benefits achieved. For the overwhelming majority of more than 90 % the achievements in energy savings and cost reductions were higher or as much as anticipated. The benefits and achievements in the area of raising awareness and improving the image were only higher or as much as anticipated for the responses between 79 % (awareness) and 63 % (image) of responses. So here the Partners were less satisfied with the effect reached. Compared to the previous Survey, the percentage of achievements reached that were higher than expected is much lower and the percentage of claiming that achievements were reach approximately as foreseen is much higher. This might be explained by the fact that the exact planning processes and methods have been improved and that the envisioned savings and cost reductions.

Figure 24: GreenLight Survey 2011 |Judgement of Achievements

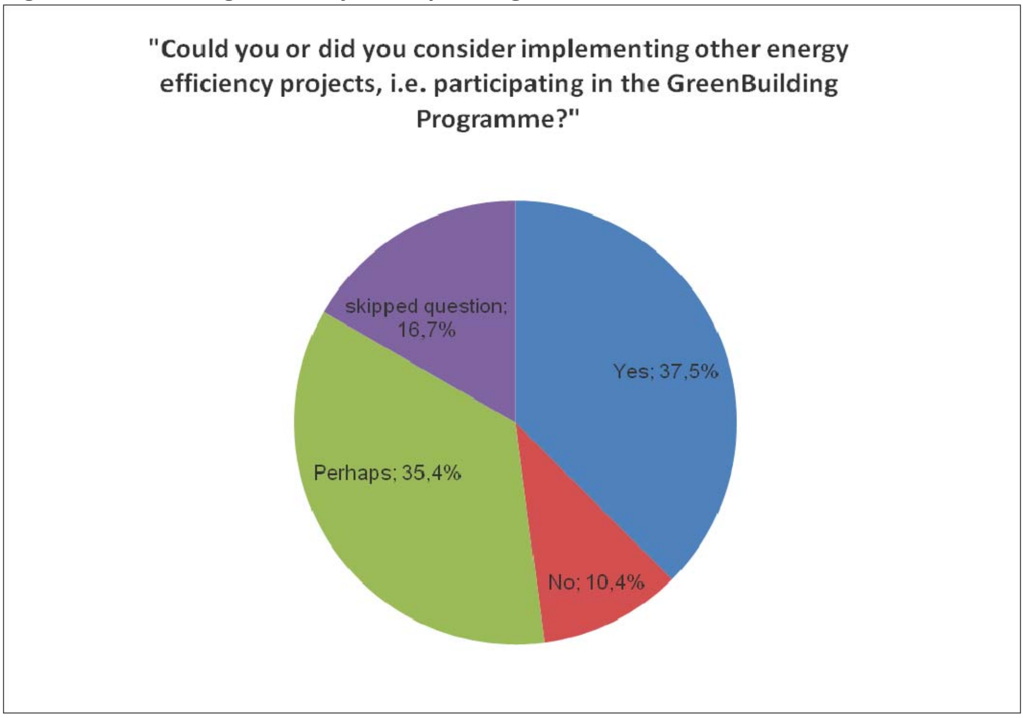


Sample 48 | answered = 40, skipped = 8

6.2.5 Commitment

A specific question was included in the questionnaire to see if Partners would be willing to increase commitment and participate in further similar schemes. In the previous Survey 2008/2009 roughly a third, 32.7 %, considered this option, whereas in the sample taken in 2011 more Partners said to be willing to increase their commitment. The amount of Partners hesitant was also less high than in the previous Survey, where 45.2 % answered this question with “perhaps”. Only the amount of Partner negating a further involvement was much higher in 2011 with 10.4% with only a percentage of 2.9 % answering the question with a “No” in 2008/2009. Those Partners not answering the questions was comparably similar in 2008/2009 with 19.2 % skipping the question.

Figure 25: GreenLight Survey 2011 |Willingness to Increase Commitment

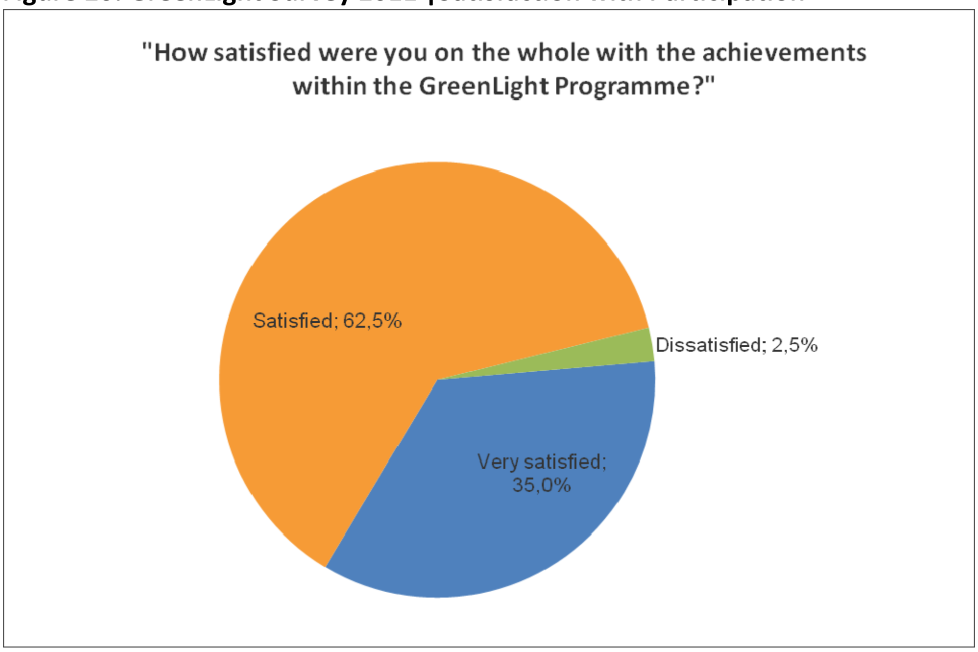


Sample 48 | answered = 40, skipped = 8

6.2.6 Satisfaction

In total the large majority of Partners were very satisfied or satisfied with the participation and the achievements of the GreenLight Programme. Compared to the previous Survey 2008/2009 the level of satisfaction even increased. The percentage of very satisfied Partners was more or less the same – 34.5 % in 2008/2009 and 35 % in 2011, but the percentage of satisfied Partners increased from 51.1 to 62.5 %. Partners were also asked to name any suggestions for improvements. 13 Partners, which represents 27 % of the total, gave the following responses which could be categorized according suggestions referring to technical and communicative aspects. The larger amount of comments and suggestions were made referring to communicative aspects, a finding that is consistent with that already made in the Survey 2008/2009. However, the amount of Partners that made a comment on how to improve the Programme was much higher in 2008/2009.

Figure 26: GreenLight Survey 2011 |Satisfaction with Participation



Sample 48 | answered = 40, skipped = 8

Table 3: GreenLight Survey 2011 |Suggestions for Improvements
Question: "What should be done to improve the Programme?"
Technological Aspects
Answer 1: The Programme should include new technical solutions
Answer 2: Partners should aim also to consider renewable and effective production of electricity for lighting, e.g. renewable energy sources
Answer 3: Continue to implement next / upcoming technologies
Communicative Aspects
Answer 5: Strengthen the awareness of the programme in public perception
Answer 6: Doing more public relations - because it´s a really good idea and you are doing a good job!
Answer 7: Diffusion in various countries could be improved and the participation could be made more attractive/easy.
Answer 8: Increase the communication around GreenLight Programme
Answer 9: Increasing the sharing of the best practices with all of the organizations involved.
Answer 10: Expand activities in the public relations/marketing/media with examples from real life, real cases and particular countries to improve the awareness and to make examples what they could do for environment and their wallet.
Answer 11: More marketing and visibility
Answer 12: It would be nice if the communication was improved including translations in more European languages.
Answer 13: Continue improving energy saving and promote program more effectively

7. Motivation and Barriers in the European Motor Challenge Programme

7.1 Survey 2009

In the second half of 2009 all Motor Challenge Programme (MCP) Partners were requested to respond to a set of questions. Main goal of this survey was to elicit Partners' attitudes and experiences with the MCP. By use of a questionnaire Partners were asked to answer a short set of questions mainly focussing on the success and value of the scheme. The empirical basis contains about a fifth of the then participating Partners and was held to be sufficient for conclusions on the subject of this inquiry. Numerical methods have been used to analyse the responses, qualitative methods were only used to assess the comments made. No further descriptive statistical methods, e.g. correlation or cluster analysis, were applied, because the authors believe that an elaborate quantitative analysis would not provide a deeper insight. The survey was conducted between July and December 2009 and addressed all Partners registered by that time. It was based on the use of a questionnaire addressing qualitative information on the impact and success of the participation in the MCP. There was not Survey carried out within 2010 and 2011.

7.2 Key Results

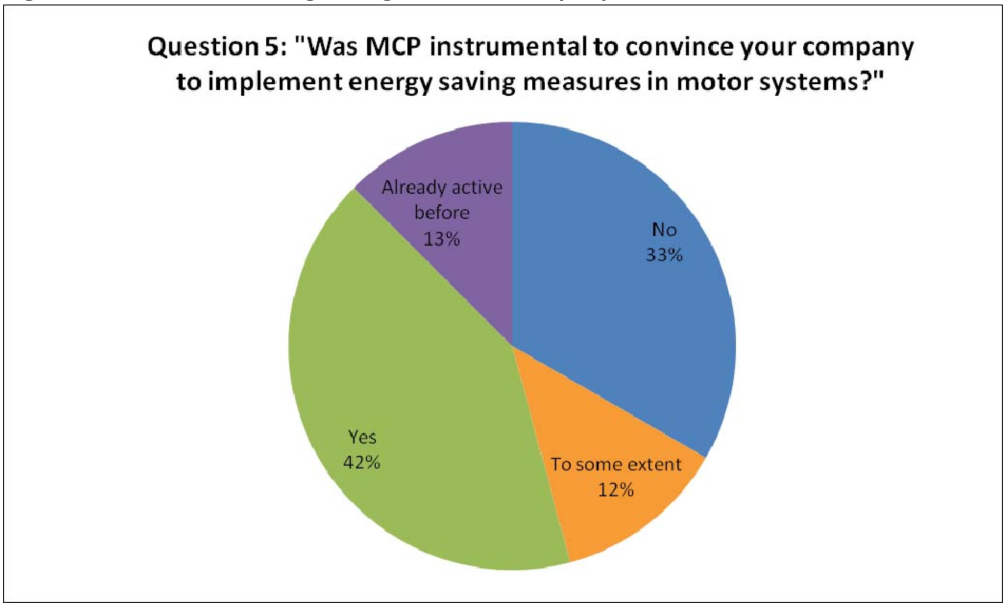
7.2.1 Specification of Sample

By the end of 2009, the MCP comprised a total of 93 companies, which were invited to participate in the Survey. The Partners come from a surprising wide range of industrial sectors with the focus on production and processing. Only a handful came from service related sectors. The largest groups of MCP partners came from food production (13 %), metal and steel (12 %) and water supply (9 %). Micro and small sized companies were in the minority, whereas the largest proportion was either medium or large size companies. The Survey was conducted between July and December 2009 and addressed all Partners registered by that time. It was based on the use of a questionnaire addressing qualitative information on the impact and success of the participation in the MCP. In total 24 MCP Partners responded, which represent a return quote of almost 25 %. In total, MCP Partners came from 16 countries, whereas the responses only covered Austria, Germany, France, Greece, Italy, Poland and Portugal. This means that with the exemption of Denmark, the countries with the most partners are represented in the survey. Even though the respondents only make up 25 % of the total of Partners, their estimate savings accounted for 35.56 %.

7.2.2 Motivation

Even though those Partners questioned joined the Motor Challenge Programme willingly and did not find many problems in convincing top management of the benefits – neither in the scheme nor in actually implementing measures, the commitment through MCP itself was only partially instrumental in to implement energy saving measures. This might seem as a contradiction, but comments from the questionnaires suggest, that especially companies with energy saving policies in place were seeing MCP as a prolongation of their activities, not a starting point. Nevertheless, 41 % saw MCP as an impulse to start looking into energy efficient motor systems.

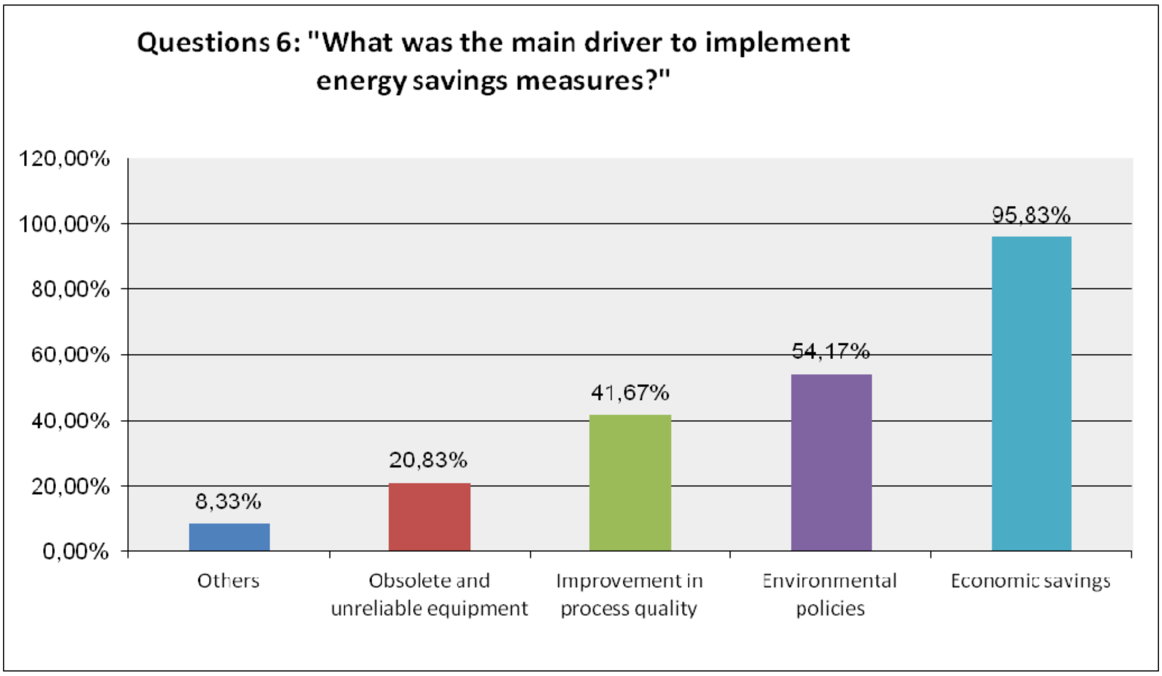
Figure 27: Motor Challenge Programme 2009 |Impulse of MCP



Sample 24 | answered = 24, skipped = 0

The key drivers for implementing energy efficiency measures in the area of the Motor Challenge Programme, such as electrical distribution, refrigeration and cooling, compressed air systems, drives, pumping and fan systems was economical savings. A second strong pillar is, however, not founded on economical arguments – it's the environmental policies that are the second largest driver for energy efficiency measures in this sector.

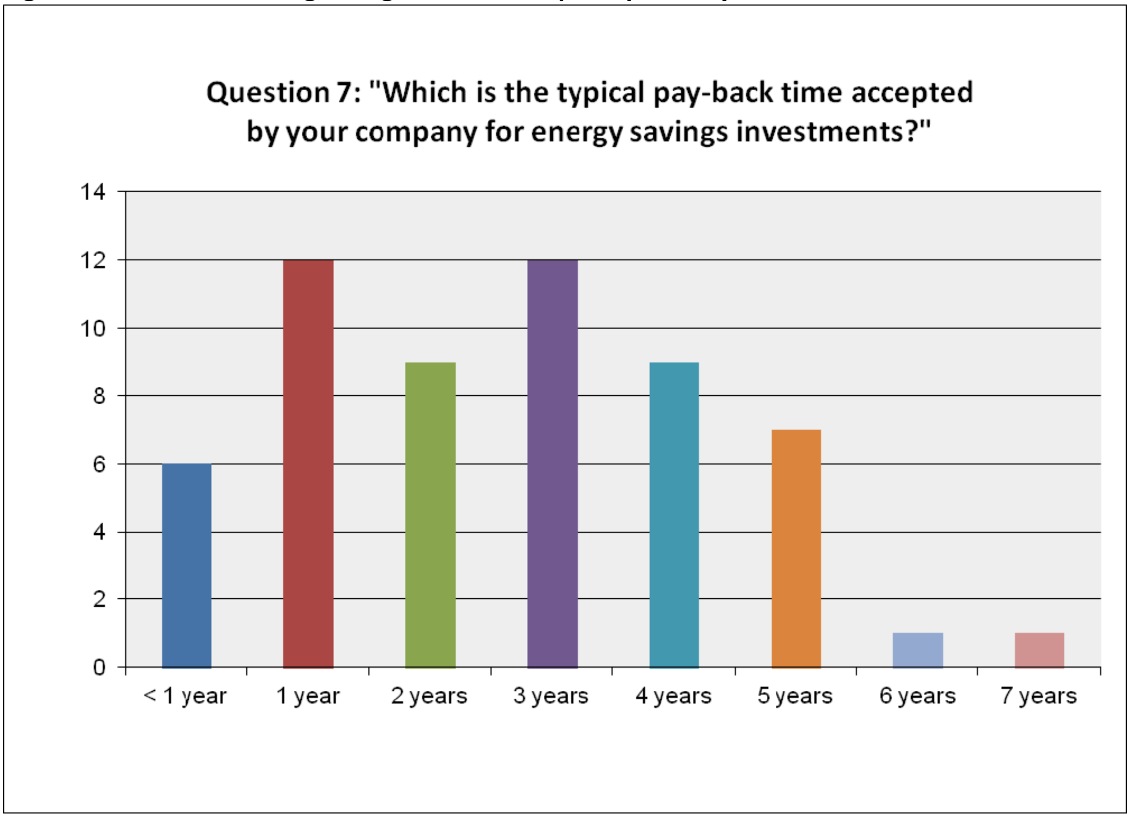
Figure 28: Motor Challenge Programme 2009 |Main Driver



Sample 24 | answered = 24, skipped = 0

Essential for the investments in industries is generally the pay-back time. In the majority of cases, investments in high efficiency motor systems have a comparable short pay-back time, in average between 2 to 3 years. It was therefore interesting to find out, if MCP Partners would tend to accept only this short pay-back time or if they stated to also accept a pay-back time longer than 3 years. The answers were ranging from a period of 2 to 7 years from the longest to 0 to 1 year at the shortest. It can be seen that, generally speaking, a time longer than 5 years seems hardly acceptable, whereas approximately half prefer a period below 3 years, whilst the other half also accept a pay-back time between 3 and 5 years.

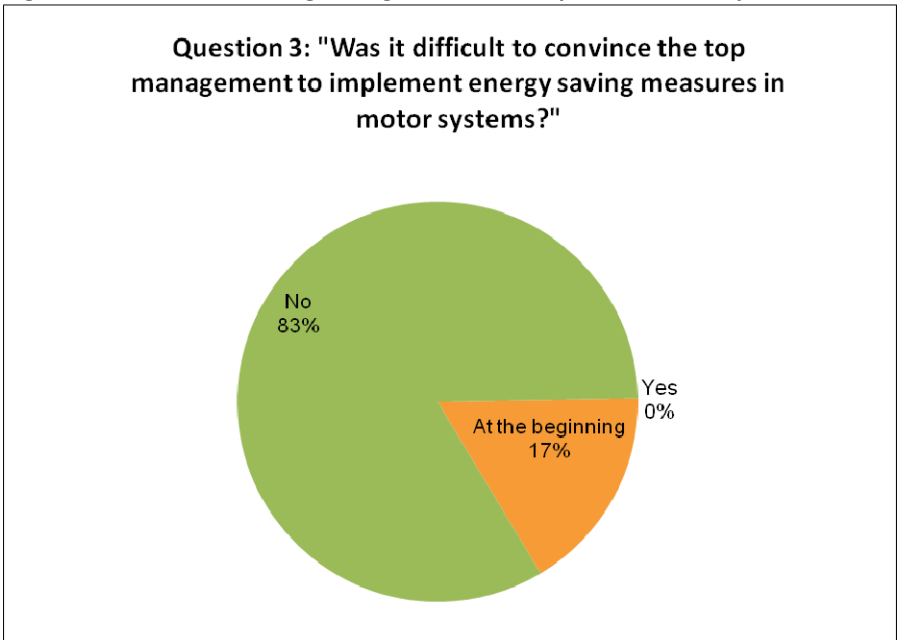
Figure 29: Motor Challenge Programme 2009 |Accepted Pay-back Period



Sample 24 | answered = 24, skipped = 0

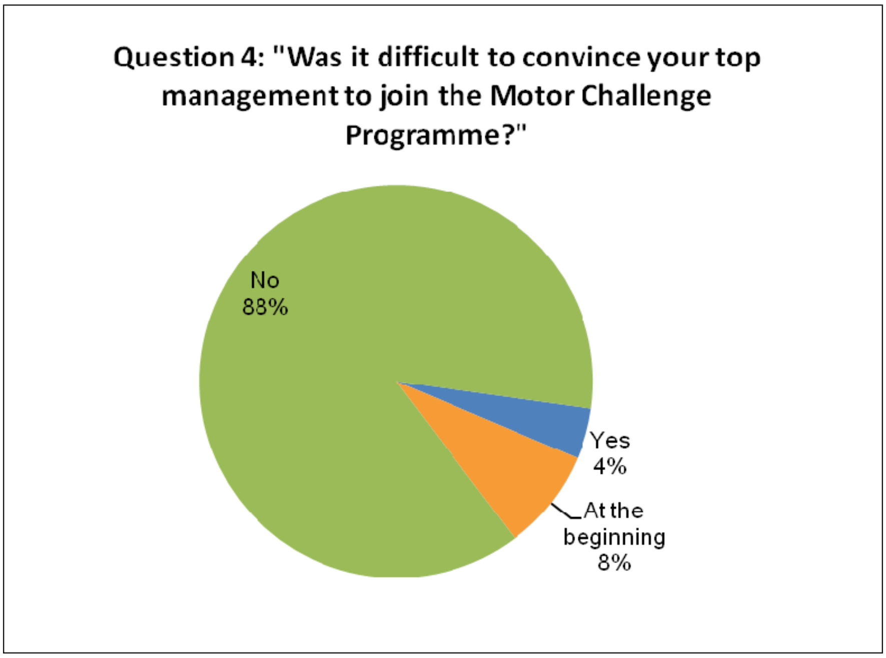
7.2.3 Barriers

Figure 30: Motor Challenge Programme 2009 |Barriers to Implement



Sample 24 | answered = 24, skipped = 0

Figure 31: Motor Challenge Programme 2009 |Barriers to Join MCP



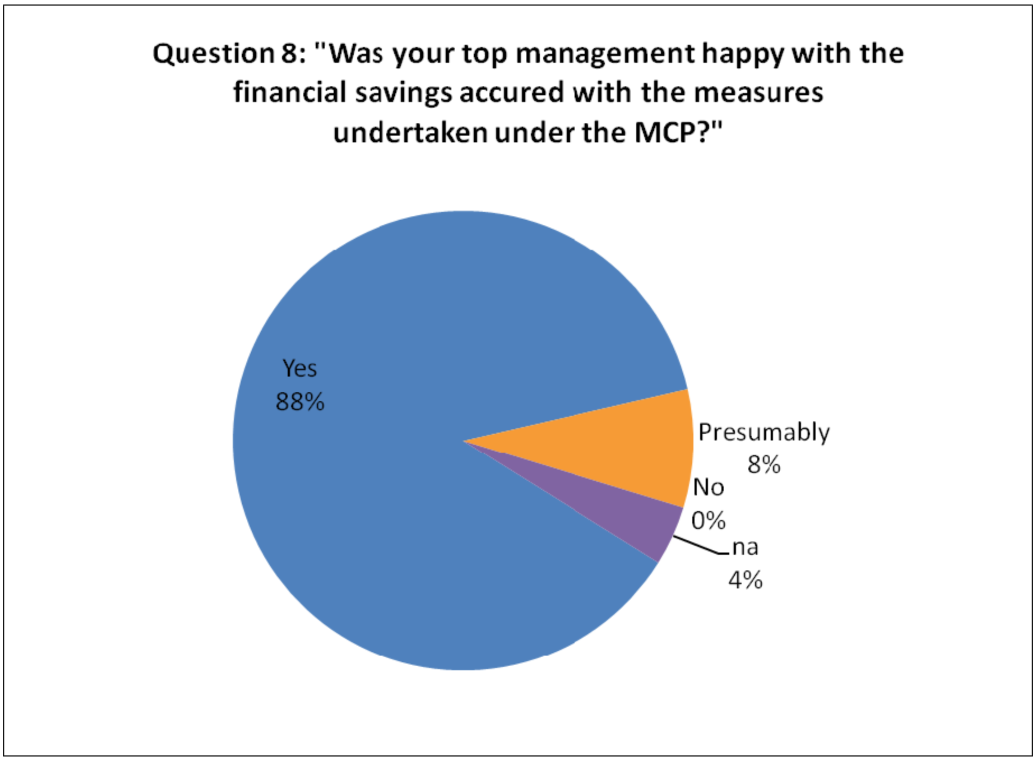
Sample 24 | answered = 24, skipped = 0

When it comes to how the framework and conditions within the companies to implement fully energy efficiency and saving measures, the picture presented by the MCP Partners questioned shows that not all automatically have relevant policies, departments, trainings or other supporting structures in place. 70.83 % have energy efficiency goals, but the infrastructure to support these goals is not yet fully implemented, i.e. energy departments or training of stall.

7.2.4 Benefits

The vast majority of responses state that top management of the MCP Partners were happy with the financial savings resulting from MCP measures undertaken.

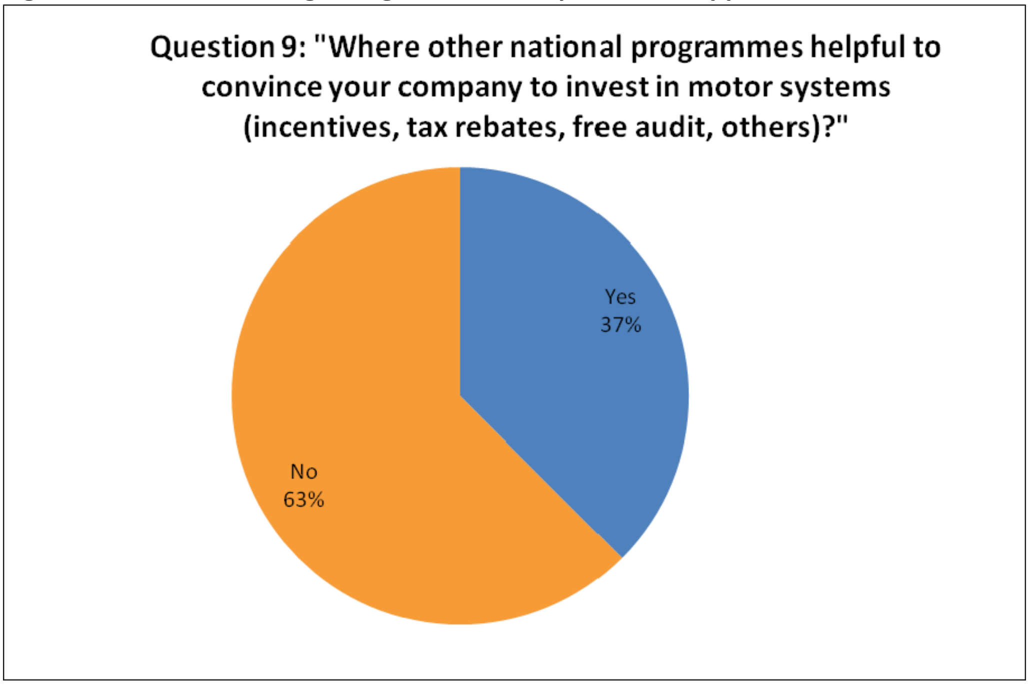
Figure 32: Motor Challenge Programme 2009 |Satisfaction with Savings



Sample 24 | answered = 24, skipped = 0

Only 38 % of the responses claim that additional national support schemes were in place and helpful to support energy efficiency measures in motors systems. Those schemes mentioned included free audits, incentives for trainings, tax rebates, subsidies and certification schemes.

Figure 33: Motor Challenge Programme 2009 |National Support Schemes

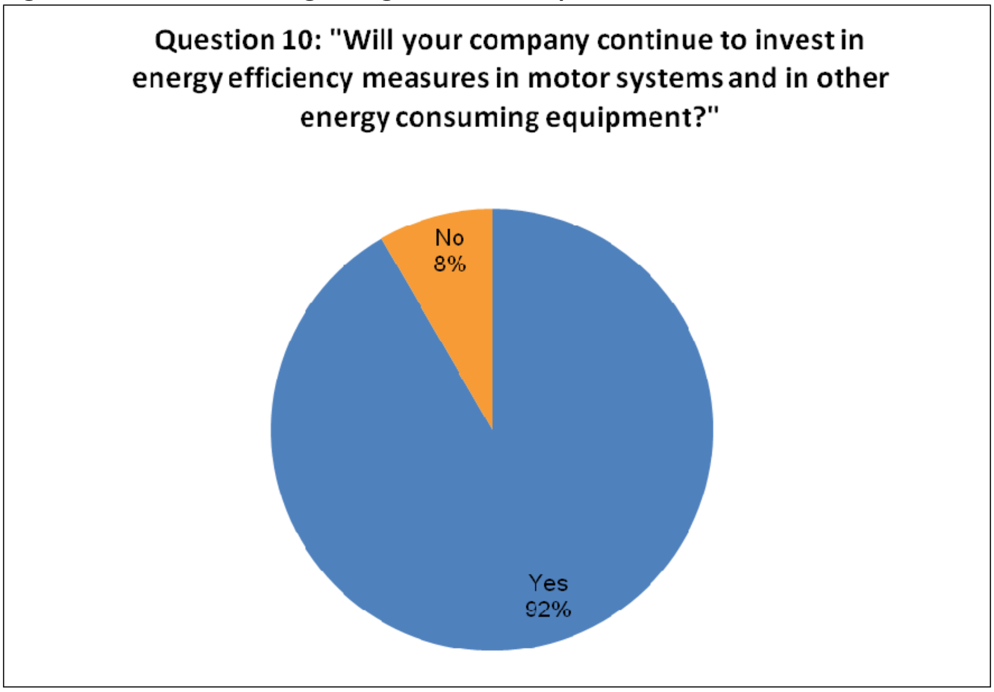


Sample 24 | answered = 24, skipped = 0

A large majority of those Partners participating in the poll underline that they will continue to invest into energy efficiency measures. The reasons why 8 % will not continue to invest, remains unclear, but presumably it is one ground that they assume to have done enough and do not see further potential for measures.

7.2.5 Commitment

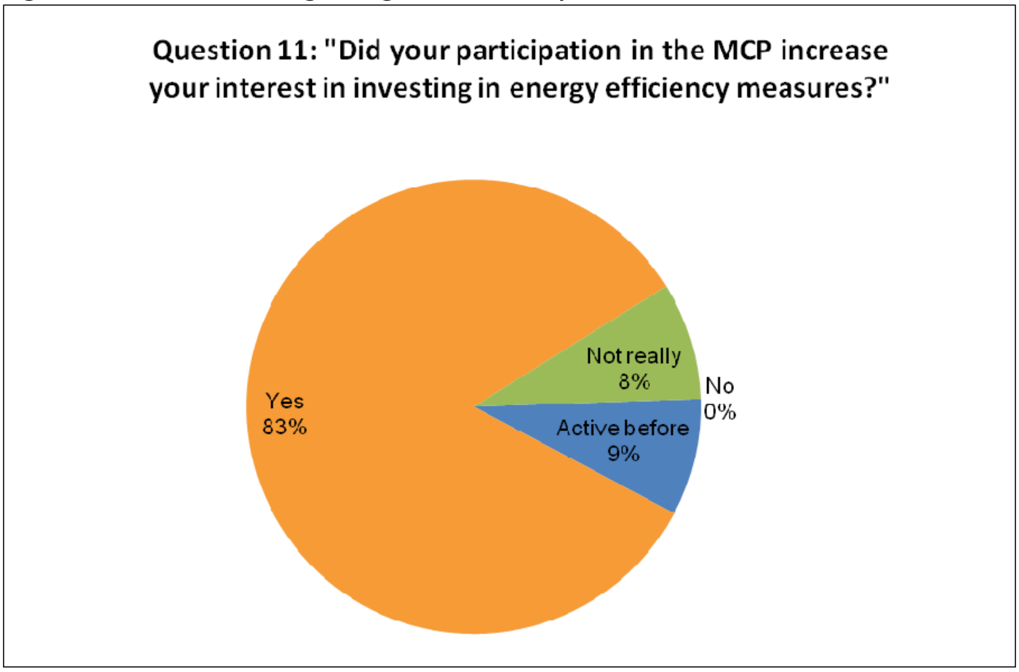
Figure 34: Motor Challenge Programme 2009 |Commitment to continue Efforts



Sample 24 | answered = 24, skipped = 0

Also, a majority of those questioned state that the participation in MCP increased their interest in energy efficiency measures in general. This can be seen as a positive result of the programme.

Figure 35: Motor Challenge Programme 2009 |Commitment to Further Investments

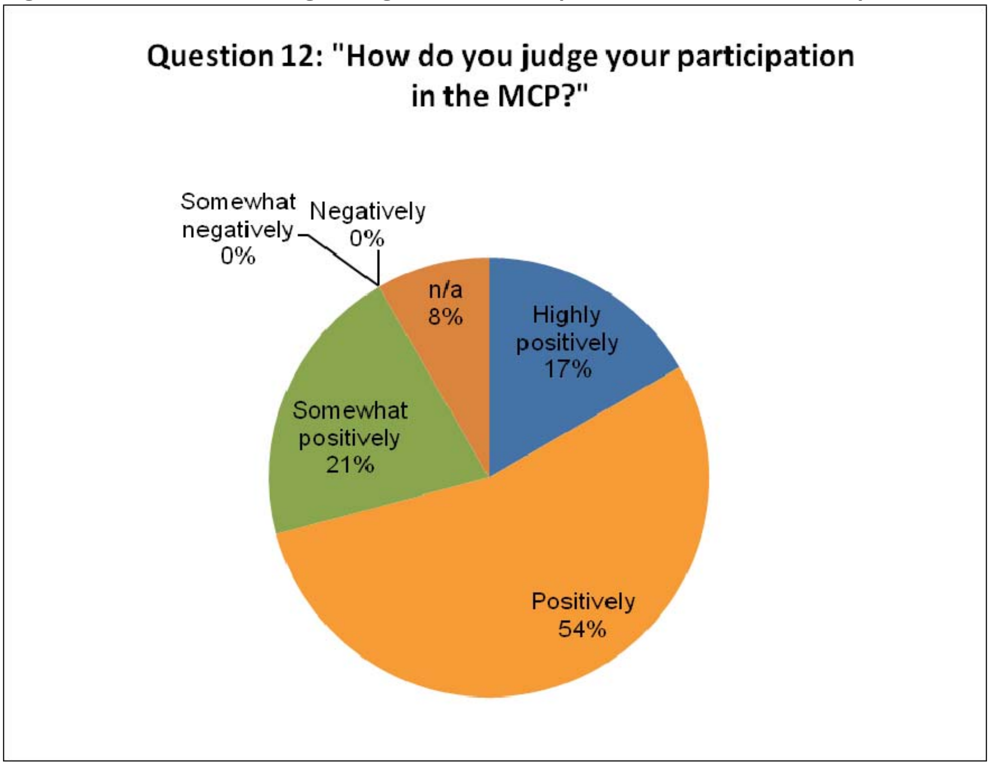


Sample 24 | answered = 24, skipped = 0

7.2.6 Satisfaction

The satisfaction with the participation in the MCP is very high. Nobody from those responding to the questionnaire judged the participation in the MCP negatively and almost a fifth (17 %) judged it highly positively. The majority of those answering the questionnaire were energy managers or other operational staff. They were also asked to judge the satisfaction of the top management with the Motor Challenge Programme. In this case, the overall satisfaction was judged to be also largely positive (63 %), even though with slightly less highly positive judgements (4 %) than from those being the direct contacts of the MCP. Almost the same percentage of top management seems to have judged the involvement somewhat positively (25 %). There were no negative judgements here as well.

Figure 36: Motor Challenge Programme 2009 |Satisfaction with Participation



Sample 24 | answered = 21, skipped = 3

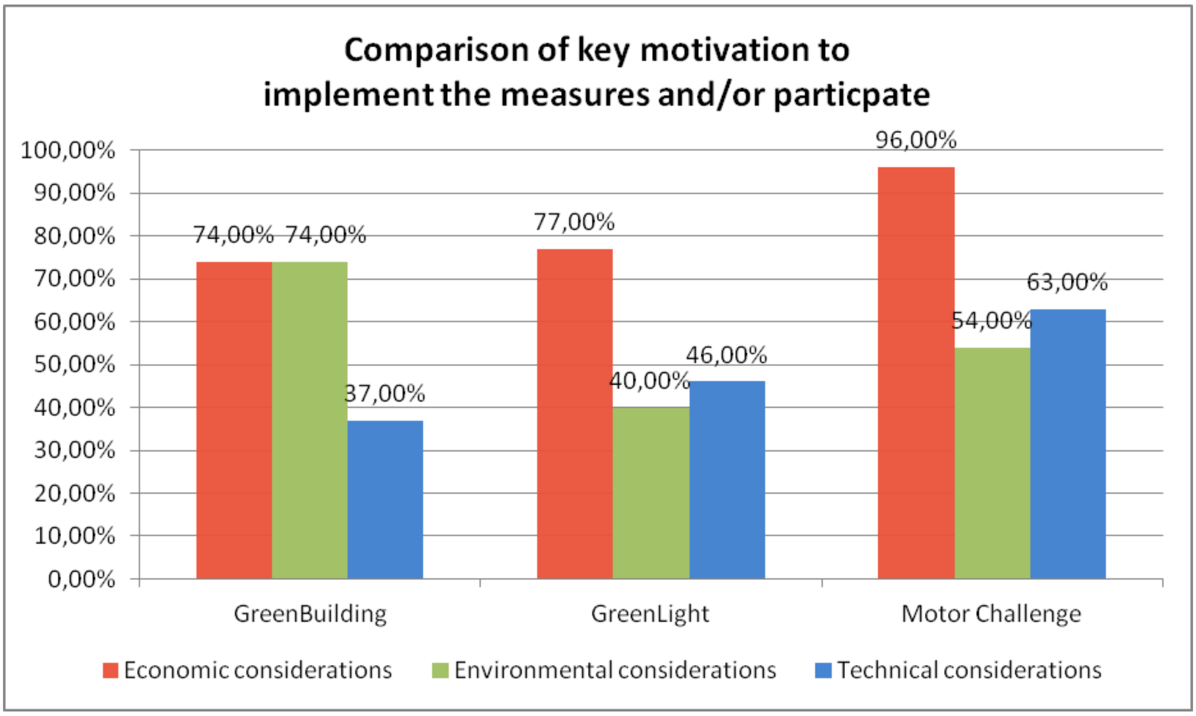
8. Comparison amongst GreenBuilding, GreenLight and Motor Challenge Programmes

It is not possible to straightforward compare the different results and findings of the Survey conducted within the different Programmes, because the set-up of the questionnaires was not harmonized. In addition specific items were asked that would have been irrelevant within the setting of another voluntary scheme especially when technological aspects were concerned. However, certain key topics such as the motivation to participate or implement measures, the barriers and benefits, the commitment and satisfaction rates can be compared – if it not directly in figures, then in tendencies or majority findings.

8.1. Motivation

Comparing the questions in the various questionnaires regarding motivation is not easy, since the topic of the questions is not identical. Within the questionnaire for GreenBuilding and Motor Challenge, Partner were asked to indicate what their key driver or motivation was to implement the measures, whereas in the GreenLight questionnaire Partner were asked to indicate their key motivation to participate in the Programme. It can however be assumed, that the motivations to do both – implement measure and participate – are close enough. Also the questionnaire of GreenLight gave the option to scale the motivation in “very high”, “high”, “rather low” and “low”. To compare these aspects the percentage of “very high” and “high” were counted as support. Nevertheless, it is very clear that the most important motivation in all three programmes is economic considerations. However, within GreenBuilding this motivation ranges as high as environmental considerations, and within Motor Challenge, the economic considerations receive a support of almost 96 %. This can be explained with the Motor Challenge sample being predominantly industrial companies especially influenced by economical thinking and necessities. This can also be the reason that especially technological considerations are also of comparable high value here.

Figure 37: Comparison GB, GL and MCP |Motivation

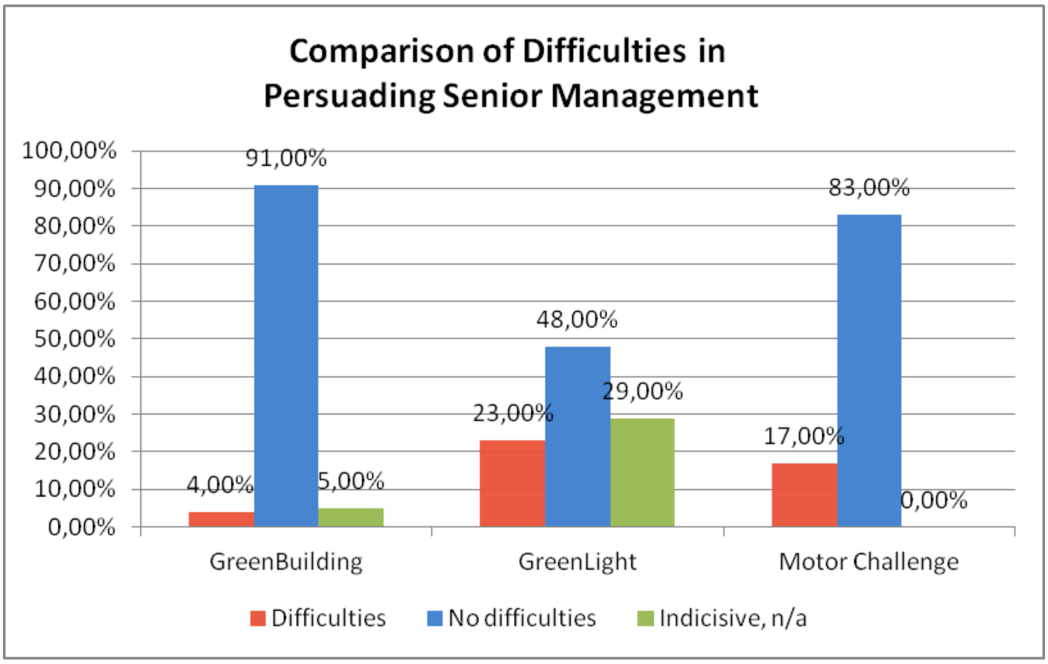


Comparison of Survey GB 2011 (Q 6), Survey GL 2001 (Q 2), Survey MCP 2009 (Q 6)

8.2. Barriers

Within all surveys, one question was specifically posed to address possible difficulties with senior management or the company board to persuade implementing the planned measures. Even though the response options vary (e.g. the Motor Challenge questionnaire gave the option to answer “at the beginning”, which is here counted as having difficulties). In conclusion, in all surveys a tendency can be seen that for the majority persuading senior management was not a barrier. The highest amount of difficulties was reported in the GreenLight Programme. A possible explanation can be that this programme contains the highest percentage of public authorities and municipalities, which might have more complex decision structures than other Partners.

Figure 38: Comparison GB, GL and MCP |Difficulties Persuading Management



Comparison of Survey GB 2011 (Q 7), Survey GL 2001 (Q 3), Survey MCP 2009 (Q 3)

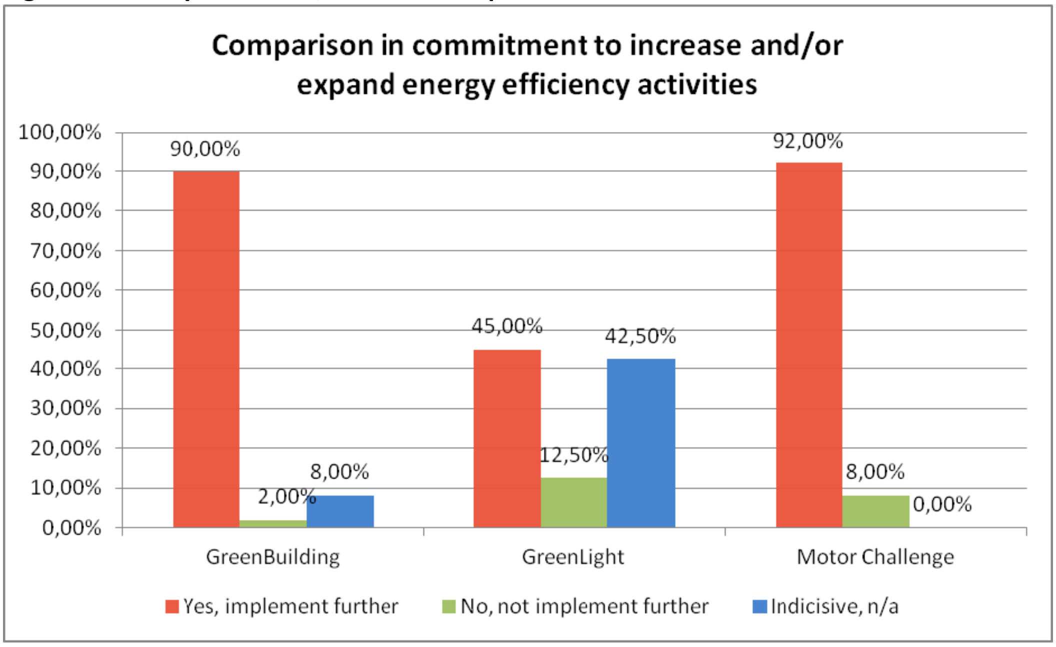
8.3. Benefits

Within the Survey of GreenBuilding a direct question was inserted to analyse benefits, where as the Survey for GreenLight and Motor Challenge Programme were more concerned with the overall satisfaction of beneficial effects reached. It is thus very difficult to compare results here. Within the GreenBuilding Survey 2011 no benefit received a clear majority, but cost savings, better working environment, environmental benefits as well as possible higher property value received acknowledgement to a comparable percentage ranging between 32 and 21 % approval. However, the highest benefit was cost savings with 32 % (Q 9). Within the GreenLight Survey 2011 responses concerning possible beneficial effects showed that energy savings and cost reductions were higher than anticipated for 25 % or more or less as high than anticipated for 65 % (Q 6). Therefore these could be seen as the main benefits in this setting. As concerns the Motor Challenge Programme 88 % of management were reported to be happy with the financial savings achieved (Q 8). With these results it might be viable to summarized that overall the financial aspect such as cost savings represents the most treasured benefit within all the Programmes.

8.4. Commitment

In all Survey questions were included to analyse the specific commitment to continue with energy efficiency measures. Again, the questions as such are difficult to compare. Within the GreenBuilding Partners were asked whether they would engage in further energy efficiency activities in the same or other buildings, whereas within the GreenLight Survey 2011 the questions was posed as to whether Partners would be willing to engage in the GreenBuilding Programme. Within the Motor Challenge Programme Survey Partners were asked if they would continue to invest into energy efficient motor systems. So the questions were directed towards investing into the same kind of activity in different settings (GB), investing or engaging in the same kind of activity in a whole different technology field (GL) or continuing the same kind of commitment (MCP). In general, the commitment is very high to continue in the same kind of activity – within GreenBuilding and Motor Challenge Programme Partners gave a positive response of more than 90 %. As concerns a different kind of technology, Partners are more hesitant, with only 45 % of the GreenLight Partners expressing a wish to commit themselves towards a further voluntary scheme like the GreenBuilding.

Figure 39: Comparison GB, GL and MCP |Commitment



Comparison of Survey GB 2011 (Q 15), Survey GL 2001 (Q 10), Survey MCP 2009 (Q 10)

8.5. Satisfaction

Also a question towards the satisfaction was posed in all Survey, even though again the wording and choice of answers were different and make a direct comparison difficult. Within the GreenBuilding Survey 2011 the Partners were asked whether they were happy with the Programme and the way it was promoting the project. More than half (56 %) were fully happy and a further 38 % partially happy thus resulting in an overall positive satisfaction rate. GreenLight Partners in contrast were asked if they were satisfied with the achievements reached. Here 35 % were very satisfied and 62.5 % satisfied thus resulting in similar high level of satisfaction but with a different emphasis. Only Motor Challenge Partners were directly asked to judge their participation in the Programme, which 17 % saw highly positively, 54 % positively and 21 % somewhat positively. As a tendency one could summarize that the promotion, achievements and participation reached within the Programmes resulted in satisfaction rates higher than 90 %.

9. Conclusions

It is not possible to straightforward compare the different results and findings of the Surveys conducted within the different Programmes, because the set-up of the questionnaires was not harmonized. Nevertheless, certain key topics such as the motivation to participate or implement measures, the barriers and benefits, the commitment and satisfaction rates can be compared in tendencies or majority findings.

In general it can be said that specifically commitment towards energy efficiency and its implementation and the satisfaction rate with the voluntary schemes is satisfactory high amongst the GreenBuilding, GreenLight and Motor Challenge Programme Partners. Comparing the results that demonstrate the motivation for participation or implementation of the activities, it is very clear that the most important motivations in all three programmes are economic considerations.

In conclusion, in all surveys a tendency can be seen that for the majority persuading senior management was not a barrier and that generally there were no major obstacles in implementing the project. The highest amount of difficulties was reported in the GreenLight Programme. Comparing and assessing results concerning the benefits reached, it might be viable to summarized that overall the financial aspect such as cost savings represents the most treasured benefit within all the Programmes. In general, the commitment in all Programmes is very high to continue in the same kind of activity – within GreenBuilding and Motor Challenge Programme Partners gave a positive response of more than 90 %. As concerns a different kind or broadening the commitment to another area, Partners are more hesitant, with only 45 % of the GreenLight Partners expressing a wish to commit themselves towards a further voluntary scheme like the GreenBuilding. Also a question towards the satisfaction was posed in all Surveys, even though again the wording and choice of answers were different and make a direct comparison difficult. As a tendency one could summarize that the promotion, achievements and participation reached within the Programmes resulted in satisfaction rates higher than 90 %.

This is the main positive message when analysing the Surveys conducted within 2011 and previously: Partners are dedicated towards implementing measures to increase energy efficiency, they are in general content with the outcomes, have to a majority not met great barriers, they acknowledge the benefits and are satisfied with their involvement in the Programmes. The only points were Partners were not as highly satisfied were the communicative impact and promotional support they expected of the Programmes. But also the impact on customer, public and personnel relations is generally regarded to not have fulfilled all potential.

In summary one could say that Partners are much more satisfied with the technical aspects, outcomes and impacts of the schemes than with the communicative aspects, outcomes and impacts, disregarding if they fall into their own or the responsibilities of within the responsibility of the management of the Programmes.

10. Appendices

The European GreenBuilding Progamme Survey 2011

The European GreenBuilding Programme has been running since the year 2005 with success. At present more than 300 Partners particpate in this voluntary scheme with more than 430 registered buildings.

Since you are a Partner not previously included in a survey, we would appreciate very much evaluating your experiences and results based on this short questionnaire.

Feel free to contact the coordinator Paolo Bertoldi if you have any questions on this survey or the GreenBuilding Programme.

Thank you very much for your participation.

Specification

*** 1. With what type of projects(s) did you particpate in GreenBuilding?**

- ◯ A new building construction
- ◯ A refurbishment

Refurbishment

*** 2. Did you use and/or cooperate with Energy Service Companies (ESCO) in implementing the project?**

- ◯ Yes
- ◯ No
- ◯ Cannot say

*** 3. On what was the financing of the project based?**

- ◯ Future cash flow and/or reduced energy costs
- ◯ Value of asset and/or collaterals

Other (please specify)

New Construction

*** 4. Were the additional costs for the design and construction of a more energy efficient building below 10 % of the total cost?**

- ◯ Yes
- ◯ No
- ◯ Cannot say

***5. Will these additional costs be financed by the future energy savings?**

- ◯ Yes
- ◯ No
- ◯ Cannot say

General Motivation

***6. What was the main reason to undertake an energy efficiency project in your building(s)?**

- ☐ Environmental considerations
- ☐ Energy cost reductions
- ☐ Increasing the value of the property

Other criteria (please specify)

Barriers or Problems Encountered

***7. Was is difficult to persuade your company board to implement energy efficiency solutions?**

- ◯ Yes
- ◯ No
- ◯ Cannot say

***8. What was the crucial point in the decision for implementing the energy efficiency project?**

- ◯ Overall financial aspect
- ◯ Pay back time and/or return of investment
- ◯ Environmental issues

Other (please specify)

Achievements

***9. After implementing the GreenBuilding project, what do you see as the main benefits? Multiple answers possible.**

- [ ] Cost savings
- [ ] Better working environment
- [ ] Environmental benefits such as CO2-reduction
- [ ] Possible higher property value

Other (please specify)

***10. Did you use any of the below mentioned specific method and/or criteria for the decision making?**

- [ ] Pay back period
- [ ] Life cycle analysis
- [ ] Total cost of ownership
- [ ] Target for energy reduction
- [ ] Target for CO2 emission reduction

Other (please specify)

***11. Did you verify the energy savings after the project was completed (only if you reported calculated savings)?**

- ◯ Yes
- ◯ No

Achievements

12. If so, how did the verfied compare to the calulated energy savings?

	Higher than calculated	More or less as calculated	Lower than caluclated	N/A
The verfied energy savings were	◯	◯	◯	◯

Financing

***13. Did you use or profit from any of the following co-financing options?**

- [ ] EU funds
- [ ] National financing schemes
- [ ] Regional financing schemes
- [ ] Tax exemptions
- [ ] Non of the above mentioned

Other (please specify)

Effects

***14. Would your company implement further energy effciency projects in the same building(s)?**

- ( ) Yes
- ( ) No
- ( ) Cannot say

***15. Would your company implement other energy efficiency projects in other buildings?**

- ( ) Yes
- ( ) No
- ( ) Cannot say

***16. Did you use the energy efficiency improvements for the following reasons?**

- ( ) Marketing/promotional communication of the building
- ( ) Marketing/promotional communication of the company
- ( ) Activation / communciation towards the employees and/or users of the building

Other (please specify)

***17. Did the GreenBuilding Certificate help you in your marketing activities?**

- ( ) Yes
- ( ) No
- ( ) We did not use it for marketing
- ( ) Cannot say

***18. Did your building have an Energy Performance Certificate issued?**

- ◯ Yes
- ◯ No

19. Did the GreenBuilding project help to improve the score of the Energy Performance Certificate?

- ◯ Yes
- ◯ No
- ◯ Cannot say

Satisfaction with Results

***20. Are you happy with the European GreenBuilding Programme and the way it is promoting your project?**

- ◯ Yes, fully.
- ◯ Yes, partially.
- ◯ No.

21. Do you have any other comments or suggestions you would like to add?

The European GreenLight Programme Survey 2011

The European GreenLight Programme has been running since the year 2000 with success. At present more than 670 Partners particpate in this voluntary scheme.

Since you are a Partner registered after the last survey, we would appreciate very much evaluating your experiences and results based on this short questionnaire.

Feel free to contact the coordinator Paolo Bertoldi if you have any questions on this survey or the GreenLight Programme.

Thank you very much for your participation.

Specification

***1. In which year did you register as GreenLight Partner?**

- ◯ 2000
- ◯ 2001
- ◯ 2002
- ◯ 2003
- ◯ 2004
- ◯ 2005
- ◯ 2006
- ◯ 2007
- ◯ 2008
- ◯ 2009
- ◯ 2010
- ◯ 2011

General Motivation

***2. What was your motivation to particpate in the GreenLight Programme? Please indicate how high the respective aspect has motivated you.**

	Very High	High	Rather Low	Low	N/A
Saving energy and reducing costs	◯	◯	◯	◯	◯
Improving lighting quality	◯	◯	◯	◯	◯
To include improved lighting in a general renovation	◯	◯	◯	◯	◯
Raising environmental awarness in-house	◯	◯	◯	◯	◯
Improving the environmental image	◯	◯	◯	◯	◯
Others	◯	◯	◯	◯	◯

Other (please specify)

Barriers or Problems Encountered

***3. Which of the following aspects were barriers/problems before introducing the efficiency measures?**

	Yes, was a barrier/problem	No, was no barrier/problem	Not applicable
Estimation of overall costs and benefits	◯	◯	◯
Persuasion of senior management	◯	◯	◯
Understanding implications for personnel, users, customer (e.g. training or operation)	◯	◯	◯
Understanding technical implications (e.g. maintenance)	◯	◯	◯

Other (please specify)

***4. Would you have taken similar or the same activities without participating in the GreenLight Programme?**

◯ Yes

◯ No

◯ Cannot say

5. Please explain why....

Satisfaction with Results

***6. Please indicate if the following achievements were higher or lower than expected or anticipated before the start of the GreenLight measures.**

	Higher than anticipated	Approx. as much as anticipated	Lower than anticipated	N/A
Energy savings	◯	◯	◯	◯
Cost reductions	◯	◯	◯	◯
Raising environmental awareness in your organisation	◯	◯	◯	◯
Improvement of environmental image for customers, visitors or public	◯	◯	◯	◯

Other (please specify)

***7. Are you satified with the results after introducing energy effciency measures?**

	Yes, was satisfactory	No, was not satisfactory	Cannot say
Implementation cots	◯	◯	◯
Technical improvement	◯	◯	◯
Acceptance from personnel, users, customers	◯	◯	◯

Other (please specify)

***8. How satisfied were you on the whole with the achievements within the GreenLight Programme?**

◯ Very satisfied

◯ Satisfied

◯ Dissatisfied

Other (please specify)

9. What should be done to improve the Programme?

***10. Could you or did you consider implementing other energy efficiency projects, i.e. participating in the GreenBuilding Programme?**

◯ Yes

◯ No

◯ Perhaps

11. Do you have any further comments or remarks?

Thank you very much for sharing your opinion and experiences!

European Motor Challenge Questionnaire

1. How were you made aware of the Motor Challenge Programme?

2. What was your role in the company?
(circle all that apply): Energy Manager, Project Manager, Maintenance Engineer, Business Owner, Department or Division Manager, VP or Senior Manager, Other.

3. Was difficult to convince the top management to implement energy saving measure in motor systems?

4. Was difficult to convince your top management to join the Motor Challenge Programme?

5. Was the Motor Challenge Programme instrumental to convince your company to implement energy saving measures in motor systems?

6. What was the main driver to implement energy savings measures: economic savings, environmental policies, obsolete and unreliable equipment, improvement in process quality, other?

7. Which is the typical pay-back time accepted by your company for energy savings investments?

8. Was your top management happy with the financial savings accrued with the energy saving measures undertaken under the Motor Challenge Programme?

9. Where other national programme helpful to convince your company to invest in motor system (incentives, tax rebates, free audits, other) ?

10. Will your company continue to invest in energy efficiency measures in motors systems and in other energy consuming equipment?

11. Did you participation in the Motor Challenge Programme increase your interest in investing in energy efficiency measures?

12. How do you judge your participation in the Motor Challenge Programme?
Positively, Somewhat Positively, Somewhat Negatively, Negatively

13. How did top management judge the Motor Challenge Programme?
Positively, Somewhat Positively, Somewhat Negatively, Negatively

14. Does your company have any of the following:

- an energy management team/department
- energy use and conservation policies
- energy reduction goals
- appointed energy managers,
- committees to evaluate energy projects
- energy efficiency training
- corporate awards for energy efficiency

re-use of energy cost savings for department/branch improvements, etc.

Please provided any comments/suggestions on how we can improve the Motor Challenge Programme:

Thank you for your reply, it will be kept confidential.

If you have any further questions do not hesitate to contact me.

Yours sincerely

Paolo Bertoldi

European Motor Challenge Programme Manager

Joint Research Centre, I-21020 Ispra (VA), Italia TP 450
Telephone: direct line (+39-0332) 78-9299, switchboard 78-9111. Fax: 78-9992.
Internet: paolo.bertoldi@ec.europa.eu,
WWW: http://re.jrc.ec.europa.eu/energyefficiency/index.htm

European Commission
EUR 25621 EN – Joint Research Centre – Institute for Energy and Transport

Title: Evaluation of Motivation and Barriers in the European GreenBuilding, GreenLight and Motor Challenge Programmes

Authors: Paolo Bertoldi and Marion Elle

Luxembourg: Publications Office of the European Union

2012 – 51 pp. – 21.0 x 29.7 cm

EUR – Scientific and Technical Research series – ISSN 1018-5593 (print), ISSN 1831-9424 (online)

ISBN 978-92-79-27730-6(pdf)
ISBN 978-92-79-27731-3 (print)

doi: 10.2788/68909

Abstract: Most of the energy efficient investments are profitable. However a number of barriers prevent these investments to be undertaken. Three European voluntary programmes have been launched to help companies to carry out energy efficiency investments, the GreenLight Programme, the GreenBuilding Programme and the Motor Challenge Programme. The report analyses the results of a survey among the participants to better understand their motivations and attitudes towards energy efficient investments.

LB-NA-25621-EN-N

As the Commission's in-house science service, the Joint Research Centre's mission is to provide EU policies with independent, evidence-based scientific and technical support throughout the whole policy cycle.

Working in close cooperation with policy Directorates-General, the JRC addresses key societal challenges while stimulating innovation through developing new standards, methods and tools, and sharing and transferring its know-how to the Member States and international community.

Key policy areas include: environment and climate change; energy and transport; agriculture and food security; health and consumer protection; information society and digital agenda; safety and security including nuclear; all supported through a cross-cutting and multi-disciplinary approach.

Publications Office

ISBN 978-92-79-27730-6