



JRC SCIENTIFIC AND POLICY REPORTS

The European GreenLight Programme

2011

Evaluation

Paolo Bertoldi

Marion Elle

2013

Report EUR 25811 EN

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://www.jrc.ec.europa.eu>

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

Legal Notice

Neither the European Commission nor any person acting on behalf of the Commission is responsible for the use which might be made of this publication.

Europe Direct is a service to help you find answers to your questions about the European Union

Freephone number (*): 00 800 6 7 8 9 10 11

(*) Certain mobile telephone operators do not allow access to 00 800 numbers or these calls may be billed.

A great deal of additional information on the European Union is available on the Internet.

It can be accessed through the Europa server <http://europa.eu/>.

JRC 78606

EUR 25811 EN

ISBN 978-92-79-28596-7 (pdf)

ISBN 978-92-79-28597-4 (print)

ISSN 1831-9424 (online)

ISSN 1018-5593 (print)

doi: 10.2790/80701

Luxembourg: Publications Office of the European Union, 2013

© European Union, 2013

Reproduction is authorised provided the source is acknowledged.

Printed in Italy

The European GreenLight Programme

2011

Evaluation

Paolo Bertoldi

Marion Elle

2012



GreeeLight is a voluntary programme where private and public organisations commit towards the European Commission to upgrading their existing lighting and to designing new installations, using energy efficient lighting systems when the energy savings justify the investment and lightning quality is maintained or improved.

Table of contents

<u>1. List of Figures and Tables</u>	<u>3</u>
<u>2. Executive Summary.....</u>	<u>4</u>
<u>3. Introduction</u>	<u>5</u>
<u>4. Methods</u>	<u>6</u>
<u>6. Results</u>	<u>7</u>
6.1 Evolution of the GreenLight Programme in 2011	7
6.2 Composition of Partners.....	8
6.3. Quality of Reporting.....	11
6.4 Energy Savings	12
6.5 Cost Savings and Investments	16
6.6 Technological Interventions	17
<u>8. Conclusions</u>	<u>19</u>
<u>9. Recommendations</u>	<u>20</u>
<u>9. Appendices</u>	<u>21</u>
I. List of Partners which joined the GreenLight Programme in 2011.	21
II. Winners of the Green Light Awards.....	22

1. List of Figures and Tables

Figures

Figure 6.1	GreenLight 2000 to 2011: Development of New Registrations
Figure 6.2	GreenLight 2011: Categories of Projects in Percentage
Figure 6.3	GreenLight 2000 to 2011: Savings by Category in Percentage According to Reports
Figure 6.4	GreenLight 2011: Total Energy Savings by Category
Figure 6.5	GreenLight 2011: Effective Energy Savings reached in % Groups
Figure 6.6	GreenLight 2000 to 2011: Average saving in kWh/a per Partner and Year

Tables

Table 6.1	GreenLight 2000 to 2011: Number of Partners Joining
Table 6.2	GreenLight 2011: Number of Projects by Country
Table 6.3	GreenLight 2011: Number of Indoor/Outdoor Projects by Country
Table 6.4	GreenLight 2011: Number of Projects by Category
Table 6.5	GreenLight 2000 to 2011: Savings by Category in Percentage According to Reports
Table 6.6	GreenLight 2011: Type of Data submitted by the Partners
Table 6.7	GreenLight 2000 to 2011: Comparison Energy Saving Totals and Average per Partner
Table 6.8	GreenLight 2011: Total and Average Savings by Category
Table 6.9	GreenLight 2011: Effective Energy Savings in % Groups by Projects
Table 6.10	GreenLight 2011: Effective Energy Savings in % Groups by the Category
Table 6.11	GreenLight 2000 to 2011: Total Savings in kWh/a and Number of Partners per Year
Table 6.12	GreenLight 2011: Total and Average Cost Savings by Category
Table 6.13	GreenLight 2011: Lamp Changes
Table 6.14	GreenLight 2011: Lamp Changes in Correlation to Percentage Energy Saved

2. Executive Summary

The GreenLight Programme is a voluntary activation programme launched by the European Commission in 2000 to increase non-residential lighting energy efficiency. By the end of 2011, over 678 Partners from across the European Union, plus Norway and Switzerland, participated in GreenLight. This report assesses the achievements of the scheme in the year 2011. For 2011, 32 new Partners could be welcome into the programme.

The scope of the current analysis is to provide an insight into how the programme developed during the assessed period, both in terms of type and scope of new registrations, energy, cost savings and technologies involved. The comparison is based on the previous evaluation reports – the 2000-2008 Report, which represents an assessment of the programme over the period of eight years, and the 2009 Report and the 2010 Report, which contributed an update. Regular spreadsheet analysis was used for the evaluation. 10 Partners within 2011 registered more than one project, therefore the main basis for the analysis are the 77 projects, which were listed by the 32 Partners. Partners with multiple projects listed 3 to 10 projects.

As has been already mentioned in the previous evaluation, a limitation on this analysis derives from the fact that often inadequate data is available. Out of the 77 projects that joined 2011 GreenLight Programme 4 did not send any report or the data send can be considered insufficient. In addition, there were inconsistencies and gaps in the data reported resulting in important technical or financial details missing. A complete overview of the data provided by the Partners can be found in Table 6.6.

In 2006 a special emphasis was started to enlarge the GreenLight programme to the new Member States of the European Union. As a result the network of Partners further expanded. However, in the year 2011, no new Partners from the New Member States were registered. Partners within 2011 came from only 9 countries of the European Union and Croatia. The country with the most Partners and most registered project is Italy by far, representing 50 projects out of 77.

The 2000-2008 Report showed a total annual saving of all Partners of 241 GWh/a for the reported period of eight years. In 2009, an additional saving amounted to about 16 GWh/year and Partners joined until the end of 2010 saved an amount of very respectable 40.7 GWh/a. In 2011, the reported annual savings amount to 10.6 GWh/a.

Only 6,5 % of the projects in 2011 were outdoor projects. More than 80 % of the indoor projects were implemented in the category “Retail and Supermarkets”. More than half of the total of savings was achieved in indoor projects in the category of “Retail and Supermarkets”. In total, all 685 GreenLight Partners reach the savings of more than 307 GWh of electricity saved annually through efficient lighting by the end of 2011.

Savings were achieved primarily through gradually upgrading technologies. The majority of projects exchanged fluorescent with more efficient fluorescent light bulbs. The technology of light-emitting diodes (LED) much less important than in the previous project, with only 19 % implementing changes to LED. In the year 2011 the development in terms of savings are not exceptional, which the majority of projects not reaching a saving above 30 %. Also the number of registered partners is not as positive as previously.

3. Introduction

In the year 2000, the European Commission launched the European GreenLight Programme to convince end-users to adopt energy efficient lighting technologies and systems, as well as to foster a gradual market conversion. GreenLight is promoting energy efficient lighting in non-residential premises and it is based on a voluntary participation. This Programme is managed by the Joint Research Centre of the European Commission.

Any European organisation - public or private, can join the programme as a GreenLight Partner or as a GreenLight Endorser. In the case in which energy savings can justify the relative investments, and that the lighting quality can be maintained or improved, Partner organisations commit themselves to upgrade their lighting systems in their existing facilities, and/or to install the best available energy efficient technologies in their new buildings, or outdoors. Endorser organisations are promoting the GreenLight Programme to potential new Partners which might be, either in their country of origin, or in any other country in the EU. Their role is to expand the network of Partners as well as to provide assistance to Partners in their application process. Most importantly, it is to promote the proper implementation of energy saving measures.

Joining the programme allows Partners to benefit from a wide public recognition for their efforts to improve the energy efficiency of their lighting systems in their organisation.

The principles for participating in the GreenLight Programme are detailed in the respective guidelines for Partners and Endorsers. Partners have to report to the Joint Research Centre on their savings whenever they implement saving measures. Endorsers have to submit a Promotion Plan as part of their application, detailing the specific actions that they intend to take to promote the programme to potential Partners. Endorsers are expected to submit a Promotion Plan each year.

Besides the Joint Research Centre, National Contact Points have been created in most of the member states, covering a transitional role in the Green Light Programme: they constitute the bridge between the Joint Research Centre and interested local organisations. The National Contact Points provide information and guide potential Partners and Endorsers through the application process. The active National Contact Points submit applications to the Joint Research Centre on a regular basis.

Up until now, the achievements and particularities of the technologies adapted within the GreenLight Programme have been evaluated in two reports – the 2000-2008 Evaluation Report as well as the 2009 Evaluation Report. In addition, motivations of the Partners have been assessed within a Survey Report based on questionnaires, which has been published for the years 2008 to 2010. Case Studies and Catalogues representing all GreenLight Partners are available on a regular annual basis.

The current Report is primarily focused on:

- The split of Partners by sector of activity
- The Partner's savings achieved (energy saved, costs saved, etc)
- The correlation between the investments and the savings
- The type of technologies applied.

4. Methods

This report is based on the information and documentation provided by the Partners that have applied to the GreenLight Programme and have reported on the results achieved through their own GreenLight project.

The period assessed is the calendar year 2011 and included all information reported by Partners newly registered within this period.

The assessment was carried out through the collection of information submitted by the Partners and its subsequent analysis through spreadsheets, tables and graphs. Energy savings are calculated in the database by subtracting the consumption in kWh/a after the project from the consumption before the project. Costs savings in Euro are calculated in the database comparing the running cost (Euro/Year) before and after the programme implementation. Attention is given to the relation between the investments and the savings achieved, this representing the key driver in convincing new Partners, and to that matter any organisation outside of the GreenLight Programme to invest into energy saving projects. The spreadsheet also includes other data, if available, such as the project's investment payback time, the area interested by the intervention (size in square meters and whether indoors or outdoors) and the type of lamps and luminaries installed. The analysis is also split into different categories. These categories are based on the business sector of the Partners and also on the type of project implemented.

Based on the analysis of the previous years, the following categories were identified:

- A: Airports
- C: City and Public Buildings
- CP: Car Parks
- E: Educational Buildings
- HP: Hospitals and Medical Centres
- HR: Hotel and Restaurants
- LT: Logistic and Transportation
- O: Others
- OS: Street Lighting
- P: Production Sites
- PT: Public Transportation
- R: Retail and Supermarkets
- S: Services and Offices
- SP: Sport Halls
- T: Telecommunications
- U: Unclear

Within the year 2011, there were however only Project within five categories: City and Public Buildings, Production Sites, Retail and Supermarkets, Service and Offices and Street Lighting. All 5 projects in the category "Street Lighting" logically were implemented outdoors and all other 72 implemented indoors. 10 Partners applied multiple projects, which is to say that they reported on implementations at three to ten various sites (different in geographical location and in different buildings complexes). Thus the elaboration of the technical data and its analysis focused more on the reported 77 projects rather than on the number of 26 Partners.

6. Results

6.1 Evolution of the GreenLight Programme in 2011

By the end of 2011, 32 new Partners joined GreenLight bringing the total number of Partners to 685. The new entries for 2011 constitute the smallest number of new partners since the initial year of 2000 and are a continuation of the trend of decreasing new entries since the peak of registrations in 2007. The programme of GL has been running for more than a decade and a certain saturation of interested partners has to be seen as a natural life-cycle common for voluntary awareness campaign activities. This trend could be overcome with additional promotional activities and additional budgets to reach new target groups. Figure 6.1 and table 6.1 show the number of new partners that joined the GreenLight Programme each year from 2000 to 2011 as well as the number of already existing Partners.

Figure 6.1 GreenLight 2000 to 2011: Development of New Registrations

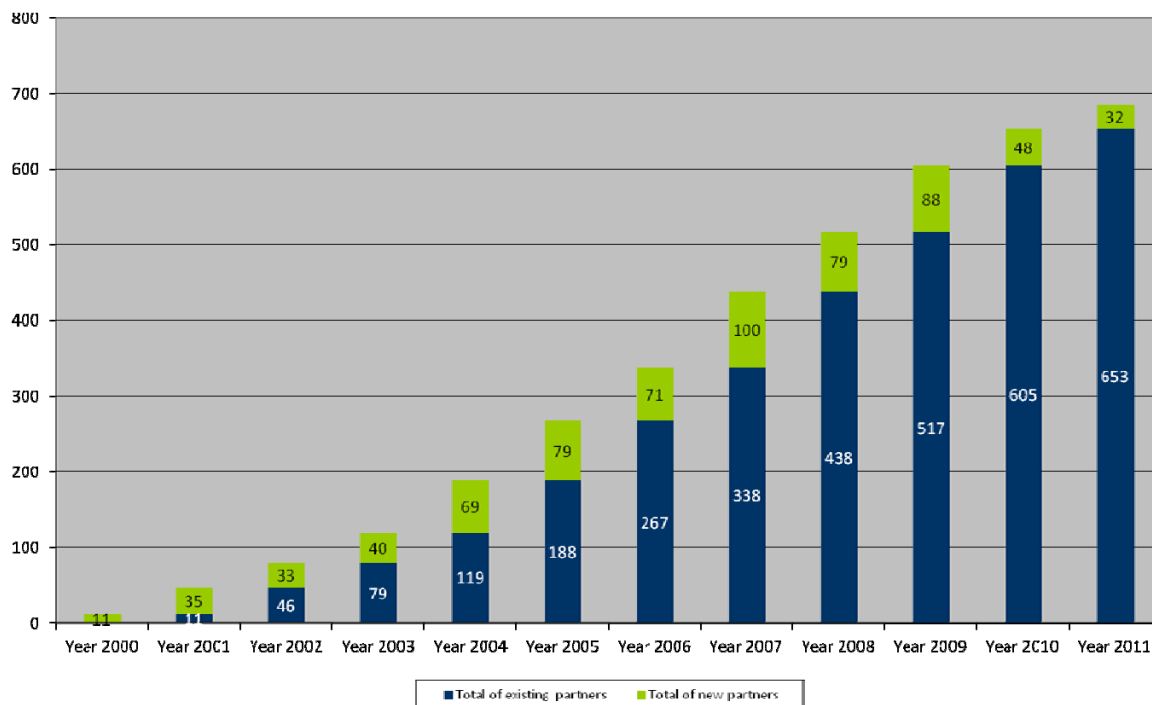


Table 6.1 GreenLight 2000 to 2011: Number of Partners Joining		
Year	Existing	New
2000	0	11
2001	11	35
2002	46	33
2003	79	40
2004	119	69
2005	188	79
2006	267	71
2007	338	100
2008	438	79
2009	517	88
2010	605	48
2011	653	32
total	685	

6.2 Composition of Partners

The size of the Partners varies to a large degree. Some companies are large international groups with thousands of indoor and outdoor square meters. Others represent large cities whilst others are small towns with only a few kilometres of illuminated roads and/or a few public buildings. Others projects are in sport halls, offices, libraries or public building covering less than 1000 square meters.

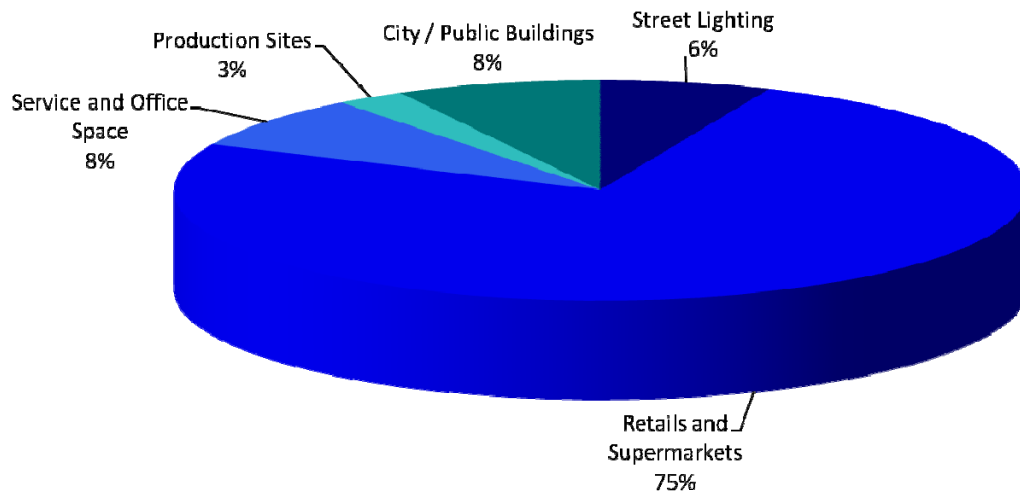
There were only five categories covered in 2011: City and Public Buildings, Production Sites, Retail and Supermarkets, Service and Offices and Street Lighting.

The 32 Partners from 2011 came from 9 countries of the European Union as well as Croatia and submitted a total of 77 projects. 10 Partners submitted multiple projects and implemented thus upgrading and improvements of lightings in more than one setting, such as building complex, business fraction or area. There were no projects submitted for the so called New Member States.

Table 6.2 GreenLight 2011: Number of Projects by Country	
Country	N° of projects
Italy	50
Romania	7
Belgium	5
France	4
Germany	3
Netherlands	3
Spain	3
Croatia	1
United Kingdom	1
total	77

Table 6.3 GreenLight 2011: Number of Indoor/Outdoor Projects by Country			
Country	Indoor	Outdoor	total
Belgium	5		5
Croatia		1	1
France	4		4
Germany	2	1	3
Italy	50		50
Netherlands		3	3
Romania	7		7
Spain	3		3
UK	1		1
total	72	5	77

Figure 6.2 shows the share of the different categories of the GreenLight Programme projects implemented in 2011.

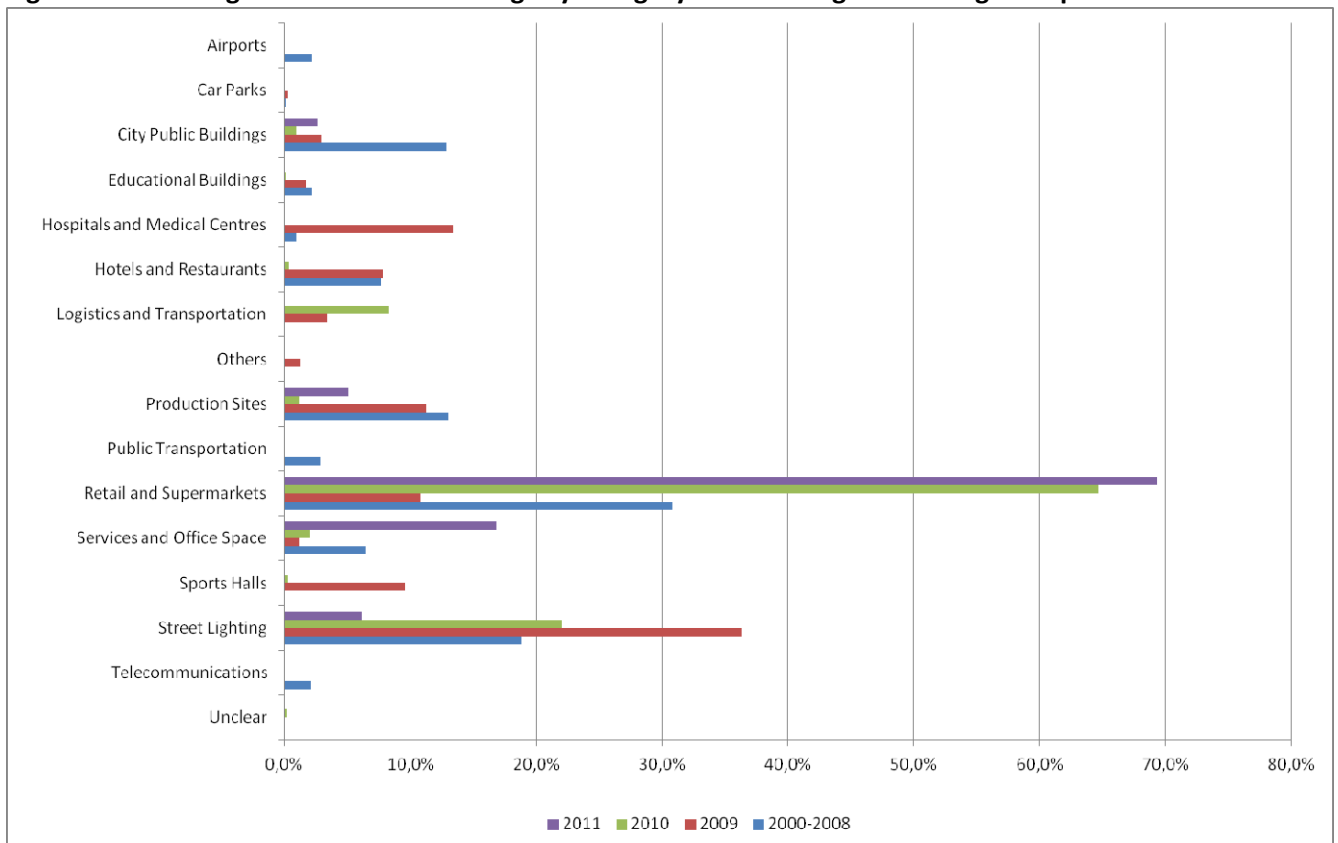
Figure 6.2 GreenLight 2011: Categories of Projects in Percentage

In 2011 the largest fraction of projects by far came from the category “Retail and Supermarkets”. This is a considerable change from last year, where the largest fraction was projects in the category “Street Lighting”. Neither the largest category of 2009 – which was “Sports Halls” – nor the classical indoor public activity field “Public Buildings”, which was the largest category in the assessment of the scheme 2000-2008 according to number had much weight in 2011.

Table 6.4 GreenLight 2011: Number of Projects by Category	
Category	N° of projects
Retail and Supermarkets	58
City / Public Buildings	6
Service and Office Space	6
Street Lighting	5
Production Site	2
Educational Buildings	0
Hotels and Restaurants	0
Public Sports Halls	0
Traffic Lights	0
Hospitals and Medical Care	0
Car Parks	0
Logistics and Transportation	0
total	77

Table 6.5 GreenLight 2000 to 2011: Savings by Category in Percentage of Total According to Reports				
* category with highest percentage within Report				
Category	2000-2008	2009	2010	2011
Airports	2,2%	-	-	-
Car Parks	0,1%	0,3%	-	-
City Public Buildings	12,9%	2,9%	0,92%	2,64%
Educational Buildings	2,2%	1,7%	0,10%	-
Hospitals and Medical Centres	0,9%	13,4%	-	-
Hotels and Restaurants	7,7%	7,8%	0,34%	-
Logistics and Transportation	-	3,4%	8,33%	-
Others	-	1,3%	-	-
Production Sites	13,0%	11,3%	1,11%	5,06%
Public Transportation	2,8%	-	0,00%	-
Retail and Supermarkets	30,80%	10,8%	64,70%	69,36%
Services and Office Space	6,4%	1,2%	2,01%	16,81%
Sports Halls	-	9,6%	0,27%	-
Street Lighting	18,9%	36,40%	22,05%	6,13%
Telecommunications	2,1%	-	-	-
Unclear	-	-	0,18%	-
total	100 %	100 %	100 %	100 %

Figure 6.3 GreenLight 2000 to 2011: Savings by Category in Percentage According to Reports



6.3. Quality of Reporting

The total number of projects registered in 2011 amounted to 77, whilst the total number of Partners joining was 32. Ten Partners listed multiple projects. In general, the quality of reporting is not satisfactory. Only very little information was provided as to the technologies used or the type of ballast and luminaires adopted. The results have also been submitted in many different ways, both through the application form supplied by the GreenLight Programme as well as in the form of a free submission of information on the projects. Again, the non-homogeneous submission of data has been an obstacle for the proper comparison and evaluation of both the technical and economical information. Common and mandatory reporting should be encouraged and enforced. In Table 6.6 all percentage data reported per project can be seen.

Table 6.6 GreenLight 2011: Type of Data submitted by the Partners		
Numbers of partners in the research		32
Numbers of projects in the research		77
Type of data	No of projects, who submitted this data	In percent of total
Country	77	100,00%
Typology	77	100,00%
Indoor/Outdoor	77	100,00%
Effective Energy Savings kWh/a	75	97,40%
Effective Energy Savings in %	75	97,40%
Consumption before kWh/a	74	96,10%
Consumption after kWh/a	74	96,10%
Lamp changes	73	94,81%
Report	73	94,81%
Lamps after 1	71	92,21%
Lamps before 1	69	89,61%
Savings in running costs €/a	65	84,42%
Project Name	63	81,82%
Running cost in €/a before	60	77,92%
Running cost in €/a after	60	77,92%
Ballast before	56	72,73%
Ballast after	56	72,73%
Reflector before	52	67,53%
Reflector after	52	67,53%
Lamps before 2	29	37,66%
Lamps after 2	28	36,36%
Ballast type changes	27	35,06%
Lamps before 3	22	28,57%
Lamps after 3	21	27,27%
Luminaire changes	19	24,68%
Type of building	15	19,48%
Description	14	18,18%
Upgraded surface in m2	14	18,18%
Lighting control upgrades	11	14,29%
Payback in years	10	12,99%
Investment costs €	9	11,69%
Regulation	8	10,39%
Technology Adopted	3	3,90%

6.4 Energy Savings

In total, the 2011 GreenLight Partners achieved to save a 10.591.957,36 kWh/a or approximately 10,6 GWh per year.

Table 6.7 GreenLight 2000 to 2011: Comparison Energy Saving Totals and Average per Partner			
Year	Total number of partners	Total savings in kWh/a	Average saving in kWh/a per partner
2000	11	8.839.674,00	803.606,73
2001	35	46.312.204,00	1.323.205,83
2002	33	31.506.482,00	954.741,88
2003	40	50.364.496,03	1.259.112,40
2004	69	13.484.372,00	195.425,68
2005	79	3.142.521,59	39.778,75
2006	71	29.461.975,90	414.957,41
2007	100	36.892.976,91	368.929,77
2008	79	21.027.109,42	266.165,94
2009	88	15.323.958,82	174.135,90
2010	48	40.705.956,15	848.040,75
2011	32	10.591.957,36	330.998,67
total	685	307.653.684,18	449.129,47

The highest amount of energy with 69,36 % was saved in the single category of “Retail and Supermarkets”, which however also constitute more than three quarters of the projects listed (58 of 77).

Figure 6.4 GreenLight 2011: Total Energy Savings by Category

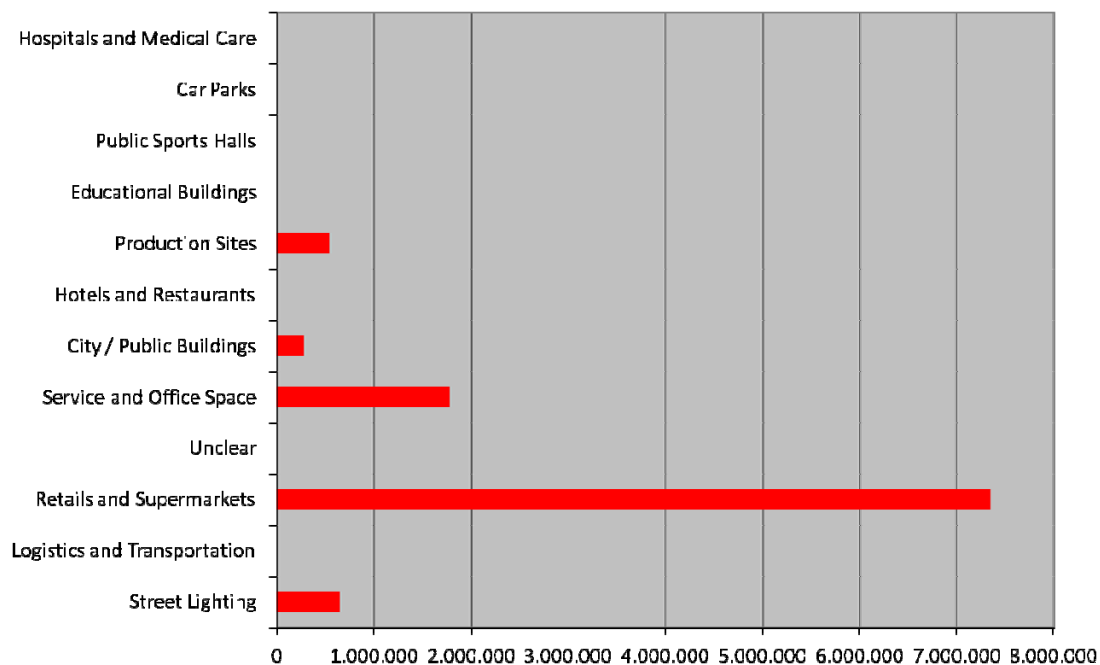


Table 6.8 GreenLight 2011: Total and Average Savings by Category			
Category	Number of projects	Total savings in kWh/a	Average savings per project in kWh/a
Retails and Supermarkets	58	7.346.345,16	141.275,87
Service and Office Space	6	1.780.895,50	356.179,10
Street Lighting	5	649.714,38	216.571,46
Production Sites	2	535.674,00	267.837,00
City / Public Buildings	6	279.328,32	93.109,44
Logistics and Transportation	0	0,00	0,00
Unclear	0	0,00	0,00
Hotels and Restaurants	0	0,00	0,00
Educational Buildings	0	0,00	0,00
Public Sports Halls	0	0,00	0,00
Car Parks	0	0,00	0,00
Hospitals and Medical Care	0	0,00	0,00
total	77	10.591.957,36	162.953,19

Note: the average has only been calculated for those partners, who stated savings, i.e. for the category "Retails and Supermarket", 6 projects did not indicate a total of savings; therefore the average here was calculated for 52 projects.

As regards the percentage of effective energy savings reached, the data showed great variation. However, it has to be noted that the majority of effective energy savings reached are below 30 % and thus represent a clear smaller achievement than in the previous report of 2010. This can be explained by the comparative moderate enhancements made within the technology, upgrading predominately fluorescent to fluorescent lamps and the small percentage of changes made to install LED, for example.

Figure 6.5 GreenLight 2011: Effective Energy Savings reached in % Groups

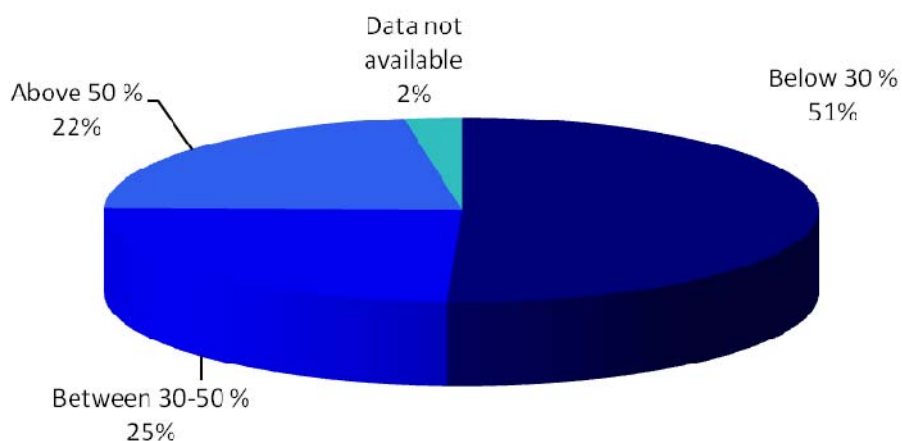


Table 6.9 GreenLight 2011: Effective Energy Savings in % Groups by Projects	
Percentage range	No of projects
< 15 %	18
15-20 %	16
20-25 %	5
30-35 %	5
35-40 %	6
40-45 %	6
45-50 %	2
50-55 %	3
55-60%	1
60-65 %	3
65-70 %	3
70-75 %	4
80-85 %	1
90-95 %	2
n/a	2
total	77

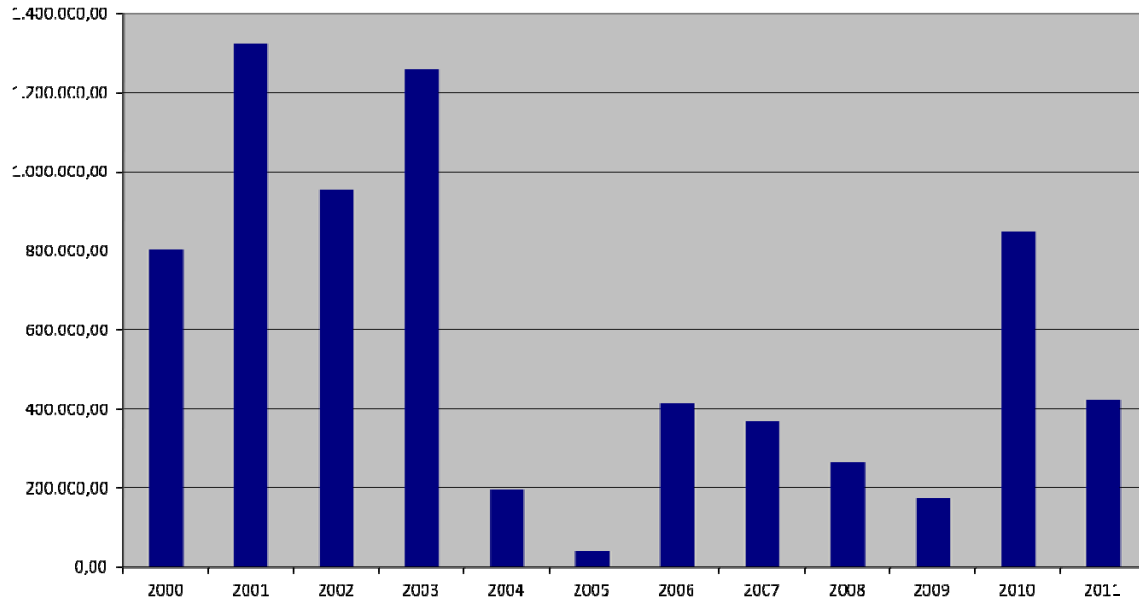
The highest savings with 94,67% was reached in the category “Services and Office Space”, whereas the smallest percentage in savings with 1,95% was reached in the category of “Retail and Supermarkets”. Table 6.9 shows the groupings of the projects according to the percentage range of energy savings achieved. When divided into the different categories the category of “Service and Office Space” with a total of 6 projects, that have stated their percentage of savings, can be considered to be the category with the highest achieved savings (see Table 6.10). However, the results are highly influenced by the majority of projects in the category of “Retail and Supermarket”, which have the highest percentage of project not saving more than 20 %.

Table 6.10 GreenLight 2011: Effective Energy Savings in % Groups by the Category						
Percentage range	Categories					
	C	OS	P	R	S	total
< 15 %				18		18
15-20 %				16		16
20-25 %				5		5
30-35 %		1	1	3		5
35-40 %	3		1	2		6
40-45 %		1		4	1	6
45-50 %	1			1		2
50-55 %				2	1	3
55-60%	1					1
60-65 %	1	1			1	3
65-70 %				2	1	3
70-75 %				4		4
80-85 %		1				1
90-95 %					2	2
n/a		1		1		2
total	6	5	2	58	6	77

- C: City and Public Buildings
- OS: Street Lighting
- P: Production Sites
- R: Retail and Supermarkets
- S: Services and Offices
- n/a: Data not available

The average percentage of savings reached in 2011 is 32,91%. It constitutes a decrease of the average related to the year before, where the average was 46,69 % of energy savings reached. Also the average for the reporting year 2009 was higher with 38,9 %. The average saved by project is not identical with the average saved per partner, because a partner could list multiple projects.

Figure 6.6 GreenLight 2000 to 2011: Average saving in kWh/a per Partner and Year



Year	Savings in kWh/a	N° of Partners	Average saving in kWh/a per Partner
2000	8.839.674,00	9	803.606,73
2001	46.312.204,00	26	1.323.205,83
2002	31.506.482,00	26	954.741,88
2003	50.364.496,03	30	1.259.112,40
2004	13.484.372,00	51	195.425,68
2005	3.142.521,59	20	39.778,75
2006	29.461.975,90	42	414.957,41
2007	36.892.976,91	75	368.929,77
2008	21.027.109,42	70	266.165,94
2009	15.993.341,22	53	174.135,90
2010	40.705.956,15	48	848.040,75
2011	10.591.957,36	32	330.998,66
total	307.653.684,18	685	449.129,47

6.5 Cost Savings and Investments

The data shows that that within the category “Service and Office Space” the largest amount regarding energy was saved on average, whereas the category “Street Lighting” brought the largest average savings regarding the costs. This is consistent also with the findings of the previous Reports.

Table 6.12 GreenLight 2010: Total and Average Cost Savings by Category			
Category	N° of projects	Total savings in running cost in €/a	Average savings per partner in running cost in €/a
Street Lighting	5	196.734,40 €	65.578,13 €
Logistics and Transportation	0	0,00 €	0,00 €
Retails and Supermarkets	58	1.302.235,21 €	25.042,98 €
Unclear	0	0,00 €	0,00 €
Service and Office Space	6	178.148,00 €	35.629,60 €
City / Public Buildings	6	19.590,12 €	6.530,04 €
Hotels and Restaurants	0	0,00 €	0,00 €
Production Sites	2	7.263,07 €	3.631,54 €
Educational Buildings	0	0,00 €	0,00 €
Public Sports Halls	0	0,00 €	0,00 €
Car Parks	0	0,00 €	0,00 €
Hospitals and Medical Care	0	0,00 €	0,00 €
total	77	1.703.970,80 €	26.214,94 €

Data on the payback period was only available for 3 % or 10 of the projects. The average of these values given, is a payback period of 2,53 years. However it is very difficult to further elaborate on this figure due to the limited number of figures given. The smallest payback period given is 1,2 year and the highest was indicated with 4,5 years.

Also regarding the initial investments costs, the data given is not satisfactory. Only 9 projects indicated their initial investments varying from 8.500 to 1.700.000 €. Because of the small numbers available a statement on the correlation between investments made and achieved savings is not feasible.

Also based on this scarce data, it is also more than difficult to establish clear statements about the ratio of made investment to the savings achieved in kWh/a.

6.6 Technological Interventions

As regards the technological aspects of the projects, the data received was not very detailed, even if the percentage of project given information on lamp changes was much higher than in the report before. Within the given templates, Partners have the option to report three substitutions, but often reported only a single change.

Within the last report, the highest lamp change implemented was from fluorescent to LED. Within this report, the vast majority of changes were from T8 (26 mm fluorescent) to T5 (16 mm fluorescent). This change was done by 45 of 77 projects or some 58 %. Only 15 projects, or 19 %, changed to LED compared almost half of the projects that reported a change to LED in the report of 2010.

Table 6.13 GreenLight 2011: Lamp Changes					
Lamps before 1	Lamps after 1				
	T5	T8	LED	n/a	total
16mm fluorescent (T5)	8				8
26mm fluorescent (T8)	45	1	2		48
Halogen			1		1
Metal halide			3		3
Standard high pressure mercury	1				1
Standard high pressure sodium			5		5
Unspecified fluorescent			3		3
n/a	1		1	6	8
total	55	1	15	6	77

T5: 16mm fluorescent (T5)
 T8: 26mm fluorescent (T8)
 LED: Light-emitting diode
 n/a: Data not available

The lighting technologies applied are a continuation of the trend outlined in the 2000-2008 Report and well as in the follow-up 2009 Report, which means that a transition from less efficient incandescent lamps (which was only mentioned in one single project in 2010 and not at all within 2011) magnetically ballasted fluorescent lamps and/or mercury vapour lamps, to more efficient electronic fluorescent lamps and compact fluorescent lamps as well as very high efficient LED can be seen. However, with the vast majority of projects that are supermarkets within the current report, the changes have been more gradual from fluorescent to fluorescent lamps with a higher efficiency.

For the changes in ballast and luminaries, the data submitted is not as good. In total, only 72 % reported on changes within the ballast. The highest percentages of changes within the ballast reported are changes from conventional magnetic ballast to electronic non dimmable ballast, which have been reported by 51 projects or 66 %. Concerning the luminaries the majority reported a change from a regular painted reflector to an aluminised reflector. 45 of the 77 projects resulting in 58 % implemented this change. Changes in the regulation were only reported for 5 projects, but the basis for a further analysis is unsatisfactory.

Also a correlation between technology chosen after the intervention (Lamp after 1) and the effective energy savings reached in percent shows, that not surprisingly the changes from fluorescent to fluorescent lamp in general does not yield savings of more than 30 % and changes to LED in general result in higher savings.

Table 6.14 GreenLight 2011: Lamp Changes in Correlation to Percentage Energy Saved					
Effective Energy Savings in % groupings	T5	T8	LED	n/a	total
< 15 %	17		1		18
15-20 %	15		1		16
20-25 %	3		2		5
30-35 %	4			1	5
35-40 %	5	1			6
40-45 %	5			1	6
45-50 %	1		1		2
50-55 %	1		1	1	3
55-60%	1				1
60-65 %	1		2		3
65-70 %			3		3
70-75 %	2		2		4
80-85 %				1	1
90-95 %			2		2
n/a				2	2
total	55	1	15	6	77

T8: 26mm fluorescent (T8)

T5: 16mm fluorescent (T5)

LED: Light-emitting diode

n/a: Data not available

8. Conclusions

The overall development of the GreenLight Programme in 2011 did not continue the increase in amount and percentage of energy saved compared to the report in 2010. The reason for this can be found in the composition of partners that listed within the year 2011, which is dominated by supermarkets that implemented gradual energy efficiency improvements and not radical new technologies, such as LED. The average of energy saved is 32,91% compared to the average of 46,69% reached within the previous year.

Also not very positive development is to be seen in the downturn in newly registered Partners. However, awareness saturation with the prime target group has to be expected within a programme now running for more than a decade.

The public recognition and positive image as well as the respectable results achieved in overall savings underline that the GreenLight Programme is worth to be continued, albeit perhaps with increased efforts.

9. Recommendations

Seeing a disappointing development in Partner registrations and also the not as positive result in the overall energy saving achievement, a new strategic redirection of the scheme could be useful. In general, the GreenLight Programme constitutes a very positive voluntary commitment that activates and engages many various actors across Europe. An modernization and strategic redirection of the scheme is closely related to potential available financial and manpower resources. An update of guidelines, assisting materials and enhancement of the website including electronic registration functions might be able to make application and registration easier. This could also include a modernised electronic reporting possibilities and functions via the website such as a proper log-in accessible databank, which would allow the JRC to better evaluate and access the success and results. This again would contribute to the diffusion and promotion of the scheme.

9. Appendices

I. List of Partners which joined the GreenLight Programme in 2011.

1. Auchan
2. bft Petrol station Vornmoor GmbH
3. City of Zagreb
4. Colgate Palmolive Industries
5. COOP Consumatori Nordest S.C.
6. COOP Estense S.C.
7. COOP Liguria S.C.
8. COOP Lombardia
9. Dapesco SA
10. Decathlon Berceni Romania
11. Decathlon Brasov
12. Decathlon Italia
13. Decathlon Policolor Bukarest
14. Decathlon Valencia
15. Derioko Udala
16. ER21 Ingegnerie
17. Gemeente Best
18. Gemeente Heerenveen, Groningen and Assen
19. Gemeente Roosendaal
20. Ipercoop Sicilia S.p.A.
21. Kaneka Belgium
22. Main Taunus Kreis
23. City of Lille
24. Mairie de SAINT PERAY
25. Migration Solutions
26. NOVACOOP S.C.
27. Stadt Langen
28. Telenet Group Holding
29. UNICOOP Firenze S.C.
30. UNICOOP Tirreno S.C.
31. Universidad Nacional de Educación a Distancia (UNED)
32. VZW K.S.O.Z.

II. Winners of the Green Light Awards

2003

1. Statoil (Norway)
2. Apoteket AB (Sweden)
3. Comune di Trezzano Rosa (Italy)
4. Lorentz Casimir Lyceum (The Netherlands)
5. Monte dei Paschi di Siena (Italy)
6. Neukauff Merz (Germany)

2004

1. Athens International Airport (Greece)
2. Carrefour Italia (Italy)
3. City of Hamburg (Germany)
4. City of Helsinki Educational Department (Finland)
5. City of Zurich (Switzerland)
6. Dolce & Gabbana (Italy and Germany)
7. Futebol Clube do Porto (Portugal)
8. Gemeente Sittard-Geleen (The Netherlands)
9. Groupe Casino (France)
10. Dn BNOR ASA v/Vital Eiendom AS (Norway)

2005

1. San Paolo IMI (Italy)
2. Provincia di Reggio Emilia (Italy)
3. TIM (Greece) – today WIND
4. Auchan (France)
5. Q8 (Denmark)
6. Centocor (The Netherlands) – today SenterNovem
7. Halliburton (Norway)
8. EDP (Portugal)
9. McDonald's (Europe)
10. Wipark (Austria)

2006

1. City of Oslo (Norway)
2. COOP (Italy)
3. Gates Europe nv (Belgium)
4. Hospital Universitario Virgen de las Nieves de Granada (Spain)
5. Nyborg Municipality (Denmark)
6. Philips (The Netherlands)
7. Piraneus Bank (Greece)
8. Servicio Extremeño de Salud (Spain)
9. SP-Tratek (Sweden)
10. Stadt Graz (Austria)
11. Stadt Frankfurt am Main Hochbauamt (Germany)
12. swb Netze Bremerhaven (Germany)
13. Vodafone Portugal (Portugal)
14. Zehnder Group Produktion Graenichen (Switzerland)

2008

1. Dumaplast NV (Belgium)
2. Stadsbestuur Sint-Niklaas (Belgium)

3. Municipality of Gorna Oryahovitsa (Bulgaria)
4. Zlin Municipality (Czech Republic)
5. Town of Kladno (Czech Republic)
6. Bic (France)
7. Communauté Urbaine de Dunkerque (France)
8. Kautex Textron GmbH (Germany)
9. Unicredit (Italy)
10. Comune di Piombino (Italy)
11. Kaunas Municipality (Lithuania)
12. Stadhuis Amsterdam (The Netherlands)
13. DSM (The Netherlands)
14. Instituto Superior de Engenharia do Porto (Portugal)
15. METROREX (Romania)
16. Parliament House (Romania)
17. PREDILNICA LITIJIA d.o.o (Slovenia)
18. TAIM-TFG S.A (Spain)
19. Vattenfall Service Nord AB (Sweden)

2010

1. Dagda Town Council (Latvia)
2. ING Real Estate (The Netherlands)
3. E-on (Germany)
4. O.S.V.O Comp. a.s. (Slovakia)
5. Municipality of Dobrich (Bulgaria)
6. Prague Marriott Hotel (Czech Republic)
7. Public Service of the City of Villingen-Schwenningen (Germany)
8. Saule Birinius Pils SIA (Latvia)
9. NH Hotels (Spain)
10. Aguas do Cavado (Portugal)
11. Decathlon (Spain and Romania)
12. Center of Dialysis in Bearn Pau-Aressy (France)

2011

1. City of Tilburg (The Netherlands)
2. City of Zaprešić (Croatia)
3. Delhaize Belgium (Belgium)
4. Gemeinde St. Georgen (Germany)
5. ING Luxembourg (Luxembourg)
6. MBZ N.V. (Belgium)
7. Nestlé France (France)
8. Prokind Scholengroep, (The Netherlands)
9. Unibail-Rodamco shopping centres (Spain)

2012

1. bft Petrol station Vornmoor GmbH (Germany)
2. City of Lille (France)
3. COOP Lombardia (Italy)
4. Decathlon (Italy and Romania)
5. Migration Solutions (UK)
6. Stadt Langen (Germany)
7. Telenet Group Holding (Belgium)
8. VZW K.S.O.Z. (Belgium)

European Commission
EUR 25811 – Joint Research Centre – Institute for Energy and Transport

Title: The European GreenLight Programme Evaluation 2011

Authors: Paolo Bertoldi and Marion Elle

Luxembourg: Publications Office of the European Union

2013 – 23 pp. – 21.0 x 29.7 cm

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

ISBN 978-92-79-28596-7 (pdf)
ISBN 978-92-79-28597-4 (print)

doi: 10.2790/80701

Abstract: This report analyses the results of the GreenLight programme during year 2011. It calculated to total annual energy savings, the type of projects implemented in terms of technologies, buildings, companies and pay back times.

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.