Preparatory Eco-design study Lot 19
Domestic Lighting
Minutes of the 3rd stakeholder meeting on 26th May 2009

Minutes by: Lieven Vanhooydonck

Date: 26th May 2009, 10.00h

Location: Centre Albert Borschette, Froissartstraat 36, Brussels

Organization: VITO, BIOIS, Energy Piano and Kreios (service contract to the European Commission, DG TREN)

Participants:

***European Commission*:**

András Tóth andras.toth@ec.europa.eu	DG TREN, responsible Lot 19, Consultation Forum, Coordination between lots, horizontal issues

Consultants:

Paul Van Tichelen Lighting paul.vantichelen@vito.be	VITO, Project Manager Energy Technology, expert, Coordinator contractor
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Excused:

Casper Kofod *ck@energypiano.dk*	*ENERGY PIANO,*

Stakeholders:

See list in annex.

Welcome:

Mr. András Tóth from the European Commission welcomes all participants to this stakeholder meeting, which is organized by the consultants VITO and its partners.
Then he explains that the study on domestic lighting products turned out to be a more complicated situation than originally planned. After the announcement of the Australian government to ban the incandescent bulbs, the European decision makers wanted to speed up the study in relation to these incandescent bulbs.
Therefore the preparatory study was split up in two parts: part 1 on non-directional household lamps and part 2 on directional lamps and household luminaires.
The already finished part 1 of the study dealt with the non-directional household lamps and resulted in Commission Regulation 244/2009.
In this meeting, the interim task reports of part 2 of the study on directional lamps and household luminaires will be discussed.
It must be noted that definitions in this part 2 must be consistent with the definitions that are already set down in the legislation.
Also this part 2 returned to the beginning of the study process to examine the remaining products, starting with tasks 1 up to task 7.
Chapter 8 will only be performed and published after this meeting and will not yet be discussed today. The aim of this meeting is to discuss data and technical aspects in the interim task reports for the first seven chapters, so as to provide a sound basis for improvement and policy proposals in chapter 8.

Paul Van Tichelen, project leader, also welcomes the participants and thanks everybody for their comments. Chapters 1 to 7 were published on the website of this study and stakeholders have had the occasion to react and comment on all interim task reports. All the individual comments are compiled; this compilation and the answers from the project team are printed out and are available for every participant at the entrance of the meeting room.
First a short presentation of every chapter will be given. Afterwards, a discussion on significant comments and answers will be held. Every participant is requested to look at his comments and the answers of the consultants; in case of disagreement, that specific answer can be discussed again in this meeting.
After this meeting, chapter 8 will be performed and finally after this preparatory study a study on the impact assessment will be done by another consultant before a regulation is made.
No discussion will be reopened on topics related to part 1 of the study unless they are relevant for the analysis in part 2.

Short presentation of the different tasks:

See presentations in annex.

Especially for tasks 2, 4 and 6, the consultants request all participants who have more market, economic and technical data to provide it to them so that these chapters can be improved.

For the luminaire approach, the consultants still expect additional data, especially from luminaire designers and manufacturers. The basis for the approach of luminaires is Table 4.3: 'Average luminaire market distribution and control properties'. This table is available as a spread sheet on the website where all stakeholders can fill it in; information can be submitted until 15th June 2009 (CELMA asks a delay until 22nd June 2009, which is allowed).

Discussion of some comments:

Lock-in effects

Space and socket lock-in effects are similar with part 1. Especially for LED's the thermal effects have to be taken into account as well.

Data

Of course many data are based on assumptions about the future and are inherently inaccurate. Available information about the installed base might be inaccurate too. As a consequence the calculated impact has a certain degree of uncertainty and a sensitivity analysis in chapter 8 will be necessary.

A Professional lighting Designers Association (PLDA) member asks for an academic research not only on installed base data but also on how consumers use those products.

The consultants answer that this is not a task in this study. They can only use published data or data that are provided by the stakeholders. Moreover, this study does not focus on absolute numbers but on comparison of products and products under improved conditions to help decision makers. A sensitivity analysis will be conducted on uncertainties and again stakeholders are invited to provide additional/better data to improve the study.

PLDA insists that an academic research on domestic lighting should be recommended.

Consultants agree with such a recommendation but mention that the REMODECE study is an academic study. This study that is finished investigated the domestic electricity consumption, domestic lighting included; the results of this study were intensively used in chapter 2.

A discussion raised about installing several meters in the homes or using smart grids etc.

At the end of the discussion, the consultants promise to put the REMODECE study as background information on the eup4light website.

LED

ELC distributed a road map on LED scenario's in the next decade, covering the time frame of this study, i.e. until 2018. This is of course a draft and it will regularly be brought up to date. The curve doesn't give expectations for the LED chip itself but for the system, i.e. a finished product. It is expected now that the LED light sources will reach energy class A in the next year and prices will come down as already experienced for other new technologies, e.g. flat screen TV's.

PLDA replies that LED's will indeed become a valid light source, but this expectation cannot be applicable for LED retrofit lamps because the dimensions will not match with the small halogen lamps and they will never give the same kind of light quality as a halogen lamp.

ELC stresses that the curve is corrected for this phenomenon and one of their members shows a prototype of an LED GLS-retrofit lamp, warm white and 50lm/W.

PLDA specifies that, for the same dimensions maybe efficacy can be reached but not the same light output (amount of lumens) as for small halogen reflector lamps.

ELC confirms that also this problem of requested lumen output will be solved as foreseen in the road map. They are also preparing a reference table with minimum requirements (lumen output) for all kinds and types of reflector lamps, halogen and LED included.

Another stakeholder reports an inhomogeneous chromaticity distribution in LED light beams and asks ELC if progress is expected.

ELC answers that they will discuss this topic 'off-line' because the discussion would become too technical. PLDA replies that this problem could be solved by using single chip technology with phosphor coating on the front glass.

Improvement options for halogen lamps:

Auer lighting has reported improvement for halogen reflector lamps such as IR-coating and super IR-coating of the small bulb; he provided the efficacy data for the different coatings and also the relation between lifetime and efficacy.

There are also possible improvements related to the reflector: cold mirror technology (dichroic reflector) instead of evaporated aluminium coating and even silver coating. Related to the dichroic coating, silver coating does not allow the heat to pass backward (difference GU10/GZ10) and can easily be applied in improved PAR20 or PAR30 reflectors.

An anti-reflective coating on the front cover glass of a reflector lamp could also result in an additional improvement of 5%.

Pressed glass reflector lamps should use borosilicate glass as this glass can be better coated and much care should be given to the design and quality of the facets in the reflector.

As BNAT, there is also a super super IRC or double IRC that gives possibilities to increase efficacy.

The reported positive results of IRC on main voltage halogen lamps are for (American) 120V lamps and cannot be achieved on the 230V lamps due to the larger filament wire.

There is also a significant influence of the cap design on the efficacy of the reflector lamp; the drawback for this possible improvement option is the high price.

As the provided data are mostly related to very low voltage halogen lamps, the consultants ask the stakeholder if it is possible to provide improvement data for main voltage lamps too.
Technical and price data of base case lamps should possibly be corrected.

LOR:

The Danisch Energy Agency (DEA) regrets the fact that light output from a luminaire as a functional unit is abandoned because people need to know how many light sources and how much energy they need to obtain the intended illumination. A good comfort can be achieved in different ways but also for different costs. As an example two luminaires are shown with the same appearance but very different LOR and consequently very different lumen output. Consumers should be warned about such differences.
CELMA replies that LOR is not the same as energy consumption. LOR is a technical parameter, only needed for light calculations. The consumer has to know the energy consumption of the luminaire. Moreover, some handcrafted lamp shades can differ for each item and as a consequence, in this case, each individual luminaire should be measured.
DEA agrees that LOR should be converted into a comprehensible parameter for the consumer but besides the appearance of the luminaire, the consumer should be informed about the illumination he gets from the luminaire. Therefore a certain classification of luminaires could be useful and if LOR is so poor, a warning should be given that the luminaire is not intended for general illumination but only for decorative purposes.
PLDA admits that LOR is needed for their job in shops and horeca but that the cost of a LOR measurement for all domestic luminaires could possibly not be justified. Normally domestic consumers buy a luminaire for its appearance.
The environmental NGO's reject the statement of CELMA that they only provide what customers demand. Luminaire manufacturers are building lock-in effects into their luminaires e.g. by equipping the luminaires with socket types that cannot house energy efficient light sources. They should only bring luminaires on the market that can house energy efficient light sources. Consumers should also be informed about the lamps that a luminaire can house.
Legrand (an electric equipment manufacturer) mentions that information on the control equipment is necessary as well (dimmer, sensor etc.) because this can influence the choice of the lamp; especially the compatibility between control equipment and light source should be respected.
CELMA adds the remark that standard EN 60598-1 already demands that every luminaire manufacturer gives clear information on the luminaire about the types of lamps and the maximum wattage of every individual lamp that is allowed in the luminaire. They also emphasize that walls and ceilings have a significant influence on the resulted room illumination. The use of an up-lighter with a LOR of 100% that directs his light to a dark ceiling can result in less room illumination than a pendant luminaire with 50% LOR.
Groen Licht Vlaanderen suggests to use dedicated fittings with dedicated wattage, e.g. for T5 it is 30W/m².

The consultants will take note of this remark in the final version of chapter 6 and ask the stakeholders for more accurate data.

Power factor:

ELC is preparing a statement about this issue. They claim that raising this power factor for lamps is not necessary and will cause a higher price.
The consultants admit that under the influence of different quality charters, the negative influence of the power factor on energy consumption (+5%) is exaggerated. They intend to lower this factor in this second part of the study for lamps with wattages lower than 25W (a.o. LED's).
PLDA refers to the New-Zealand situation where high power factor lamps are sold at lower prices than low factor ones.
Consultants react by saying that the experience of most European operators shows that their electricity distribution networks have more inductive than capacitive loads; as a consequence no problems are to be expected. Moreover lighting industry is already using the highest quality parameters on EMC compared to other domestic appliances and ICT equipment.

Comments to discuss on chapter 5 and 7:

Data in the results of the eco-reports can seem to be incorrect due to the rounding off to one digit after the decimal point. It is proposed to look on the spread sheets on the website where the complete data are shown. The VHK methodology that is supposed to be used cannot be adapted or changed.
Andras Toth stresses that the VHK methodology was intended for different energy using products, including lighting and especially public lighting. Maybe there are some minor inconsistencies for domestic lighting, e.g. warehouse space estimated for household lamps in the distribution phase similar to that for dishwashers, but because the use phase is so dominant over the distribution phase, the total result will not differ.
The consultants add that not the absolute values but only the relative values are compared, so the possible errors will not influence the outcome of the study.

A stakeholder working for MTP (UK) reports that the used operating hours differ from his calculations and assumptions; in his opinion the used operating hours are too low.
The consultants reply that those data are resulting particularly from the European REMODECE study, completed with extra data supplied by a colleague consultant for MTP and the EURECO-study. The REMODECE study was executed among 500 households in 15 EU member states. Moreover, another stakeholder supposed that the used operating hours were too high. It is possible that a reflector lamp that is normally not installed in cellars, has more operating hours compared to a non-directional lamp but the differentiation in the REMODECE study is not so fine that this can be concluded. In the sensitivity analysis, this uncertainty will be calculated. The consultants will also try to improve technical and price data with input from the stakeholders.
The stakeholder (MTP) will contact Casper Kofod (from the consulting consortium) to discuss those data.

PLDA asks what 'domestic lamps' means exactly.
Consultants answer that market data do not show where 'domestic' lamps are used. It is known that domestic lamps are also used in horeca and shops. In fact it doesn't matter if lamps are used in domestic or non-domestic applications because it is assumed that all lamps that are sold will be used and will consume energy.
PLDA says that it can make a difference especially for small metal halide lamps that are currently replacing high wattage incandescent and halogen lamps in shops and horeca.
Consultants agree that this is a cross border case that could possibly be solved by introducing a new base case for high wattage lamps.
Andras Toth explains that the name of this study could be confusing. In 2005, when energy using product were categorized, three product categories in lighting were discriminated: products for public street lighting, for office lighting and for domestic lighting. After finishing the studies on public street and office lighting, it was acknowlegded that those lamp technologies were also used in other applications and implementing measures can only cover the product and not the application. Albeit the title of this study still refers to 'domestic lighting', it is intended to cover all other technologies that were not addressed in the former studies. HID technology was covered by the street lighting study and is tackled by the European Regulation on tertiary sector lighting but not fully applied for small metal halide lamps. This application and technology can be a point of discussion and it is rather up to VITO to decide if this is taken into account in this study but it is certainly recommended to do so. In any case the impact analysis after the study will take into account that these lamps are also replacements to high-wattage reflector lamps in some applications.
(As a result of this discussion, the consultants decided to add an additional base case for high wattage incandescent or halogen lamps and the small metal halide lamps as an improvement option.)
ELC suggests to also compare GX10-capped low wattage metal halide lamps (non integrated) with MR16 very low voltage, as they have the same diameter; the comparison should be done on LCC and energy savings.
The consultants reply that this also needs a luminaire change because the luminaire must house the external ballast.

At the request of a stakeholder, an eco-report on integrated LED luminaires will be made in chapter 8 and published on the website.

Comments to discuss on chapter 4 and 6:

PLDA states that the need to have a beam is the first reason to choose for a reflector lamp; beam quality takes into account intensity (candela) and light distribution in the beam. The study has also shown differences in efficacy depending on the beam angle.
ELC answers that the narrower the beam, the deeper the burner is placed in the reflector and this causes neck losses. The choice for a reference cone of 90° for all reflector lamps to calculate the efficacy is made because lamp manufacturers don't always have the same beam angles (e.g. 8° versus 10°, 36° versus 40° etc.).

PLDA refers to the American system where reflector lamps are divided in groups as around 10°, around 24°, around 36° and from 35° to 60°. Looking to peak intensities in catalogues, much higher differences in efficacy between normal and IRC lamps can be seen than the ones in the study.
ELC answers that a good IRC coating can cause an energy saving of 30%. For the difference in candela it must be taken into account that there is already a huge difference in candela between a lamp with 8° and a lamp with 10° beam angle.
PLDA insists that this 30% gain in efficacy should better be visible in the study so that consumers should start to use these quality lamps instead of the 'rubbish' on the market.
The consultants agree to improve the base cases for very low voltage halogen lamps. They will extend table 4.8 with lamps with different lifetimes and the corresponding efficacies. Also the prices will be revised. Input from stakeholders is welcome.The extension of this table will also result in an extended table with improvement options.
In chapter 3 they will refer to the beam quality as a criterion for lighting design.
ELC declares that all important information such as beam angle, peak intensity and lifetime should be mentioned on the packaging.
MEGAMAN disputes the 90° cone angle because for ambient lighting a 120° cone is useful; ambient lighting is mostly used in downlights.
ELC reacts to this by saying that they are preparing a kind of reference list giving the minimum lumen packages per lamp type, and secondly that they are working on a list with performances for a variation of 7 beam categories from narrow spot, spot, etc. up to a very wide flood (60°) so that lighting designers will be fully informed. This list will not address energy efficiency.
The consultants agree that for certain applications and technologies a 120° cone can be useful especially where a downlight luminaire with a CFLi is replaced by such a lamp.
For the update of the tables in chapter 4 and 6 the consultants welcome additional data from manufacturers.

The correction factor for very low voltage lamps due to the use of a transformer in the base case in chapter 4 is taken as 1.11 because the installed base still has an amount of magnetic transformers. For the improvement options and also in new luminaires, only electronic transformers are considered and as a consequence a correction factor of 1.06 will be used. For the lamp labelling the BAT, i.e. the electronic transformer, will also be taken into account with 1.06 correction factor.

Comments to discuss on chapter 2 and 3:

A stakeholder disputes the statement that UV-radiation was already tackled in part 1 because in LED's, most efficient LED's are based on the blue light diodes. Additionally she asks if there is a difference in radiation between normal halogen and reflector halogen lamps.
Andras Toth answers that this issue should be tackled by a new SCENHIR study so that not only halogen technology but all technologies will be treated on the same base. So this is not an issue for this study.

ELC reacts by saying that there is already a safety standard for photobiological radiation of lamps. Part 2 of this standard (this is not yet a European standard) requires a marking on the lamp packaging if the lamp fulfils this requirement.
CELMA adds that the requirements of the safety standard are also taken into account in the low voltage directive and thus applicable to luminaires too.

General questions:

CELMA wants to know if the consultants still have the intention to publish chapter 8 by the end of June.
Consultants answer that this will be difficult because they have to process a lot of new information in different chapters and chapter 8 must be based on those chapters.
They foresee that the publication will rather be ready the first half of July. After this, a period for commenting is needed.
The exact timing will be discussed with the EC and the stakeholders will be informed about the timing on the website.

Consumer organizations request good information so that consumers can choose the best solutions.
ELC agrees and stresses that this is the reason why they absolutely want minimum requirements in the regulation.

A stakeholder asks what exactly will be covered by chapter 8.
The consultants answer that it will cover directional lamps and all luminaires that can house the lamps from part 1 and from part 2 of the study; it will also cover integrated LED luminaires.

A stakeholder asks if a labelling for reflector lamps is aimed at in the study.
The consultants answer that this will indeed be covered as it was already covered in part 1 of the study for non-directional household lamps, but of course as a recommendation. Most probably this will be done by using the proposal for part 1 and introducing a correction factor for the directional function.
ELC adds that they already prepared a proposal for this correction factor.

Considering the amount of remarks and the presumable changes in the draft document, ELC demands to work with track changes so that stakeholders can see what is changed.
The consultants answer that they are not in favour of working with track changes but that they will examine how they can solve this problem. In the meantime they ask that every stakeholder should look at his comments and the replies of the consultants; they ask to react during the next days by e-mail if their comments are not answered properly.

Closing:

The consultants thank all participants for their cooperation.

Annex: Attendants Stakeholder Meeting 26/05/2009

Organisation	CompanyName	First name	Name	country
DEA	ÅF - Hansen & Henneberg	Peder	Øbro	Denmark
CELMA	ASSIL / ANIE	Fabio	Pagano	Italy
	Auer Lighting GmbH	Dirk	Tedeschi	Germany
	BIO Intelligence Service	Alexander	Thornton	France
	BIO Intelligence Service	Benoît	Tinetti	France
	BIO Intelligence Service S.A.S.	Shailendra	Mudgal	France
>	CELMA	Stéphanie	Mittelham	Belgium
>	DKI Deutsches Kupferinstitut Berufsverband	Stefan	Fassbinder	Germany
>	ECOS	Edouard	Toulouse	Belgium
>	ENEA	Simonetta	Fumagalli	Italy
>	ENEA	Giuseppe	Leonardi	Italy
>	European Lamp Companies Federation (ELC)	Jurgen	Sturm	Belgium
CELMA	FLOS SpA	Fabrizio	Tironi	Italia
	Groen Licht Vlaanderen	Catherine	Lootens	Belgium
ELC	Havells Sylvania	Gunther	Van De Poel	
	Home Retail Group Plc	Mark	Kennedy	United Kingdom
	KREIOS	Lieven	Vanhooydonck	Belgium
PLDA	KSLD	Kevan	Shaw	United Kingdom
DEFRA	Navigant Consulting, Inc.	Michael	Scholand	United Kingdom
	Neonlite Electronic & Lighting (HK) Ltd	Aaron	Chan	China
	Neonlite Electronic & Lighting (HK) Ltd	Keith	Wu	China
CECAPI	Niko	Rony	Haentjens	Belgium
	Oekopol GmbH - Institut fuer Oekologie und Politik	Norbert	Reintjes	Germany
	Öko-Institut e.V.	Dietlinde	Quack	Germany
CELMA	Organisation: ZVEI	Johannes-Gerhard	Kaiser	Germany
ELC	OSRAM GmbH	Gareth	Jackson	Germany
CELMA	Philips Consumer Lighiting	Johan	Verhegge	Belgium
ELC	Philips Lighting	Bob	Knijnenburg	The Netherlands
ELC	Philips Lighting	Kees	van Meerten	The Netherlands
	PhotonStar LED Ltd	Robin	Morris	United Kingdom
	SGS - CEBEC	Ronan	Maquestiau	Belgium
	Texas Instruments	Stephen	Bonner	Belgium
	Umweltbundesamt	Christoph	Mordziol	Germany
	VEG Association electric wholesalers	Michael	Faber	Germany
	VITO	Paul	Van Tichelen	Belgium
CELMA	ZVEI / CELMA	Dieter	Schornick	Germany
	ENEA	Erica	Leonardi	
CECAPI	Legrand	Wim	De Kesel	Belgium
	I.S. NV (Memostar)	Sam	Lievens	Belgium