DANISH ENERGY AGENCY

European Commission
DGENER
att. Mr. Leo Wierda

20. August 2015
Ref. SFC
Building and Energy Efficiency

By e-mail

The Danish Energy Agency (DEA) is grateful for the opportunity to provide inputs for the task 7 of the Lot 8/9/19 Ecodesign Preparatory Study on Light sources.

Following Task 6 the LED based design (and replacement) options are expected to be very central in the analyses of Task 7.

LED retrofit options for directional and non-directional filament lamps
LED lamps with high colour rendering index as Ra≥90 or even Ra≥95 and dimming possibility are available on the market now and there will be even more in the near future. There is a natural desire among the users for such improved replacement products however the price is higher.
They have much lower LCC than filament lamps despite a higher price of purchase.

Therefore Task 7 should include such LED lamps in the analyses as a special BAT option ("BAT LED CRI Dim"). It is important to show that such high quality LED replacement lamps are nearly as economical beneficial for the consumer as "normal" LED replacement lamps.

The report should also make it clear that the LED lamps are not perfect replacements for filament lamps before they are also without (harmonic) flicker as caused by rectified AC and/or switch mode power supply. The current lack of standardized parameters for quantification of flicker makes it difficult to address this issue in regulations.

LFL fluorescent lamps and LED tubes
In Task 6 LED tubes are replacement options for LFL fluorescent lamps. It is concluded in task 6 that the LED 2015 replacement option may never pay back. This conclusion is based on the condition that the LFL and the LED tube have equal maintained lamp flux. For general lighting applications, we agree with this conclusion.

However, there are a number of applications and luminaire types where the directional intensity distribution for the LED replacement tube with lower lamp flux (50 – 80 % of the LFL flux) can be sufficient and thus beneficial.
In many industrial like installations, storage halls, parking lots etc. with simple open or batten luminaires the omnidirectional intensity distribution of LFL is not optimal and the lamp flux

Energistyrelsen
Amaliegade 44
1256 København K
DANISH MINISTRY OF CLIMATE, ENERGY AND BUILDING

Phone 33 92 67 00
Fax 33 11 47 43
E-mail: ens@ens.dk
www.ens.dk

Office hours:
Mon-Thursday 8.30-16
Friday 8.30-15.30
CVR No. 59 77 87 14
EAN No. 5798000020009

Signe Friis Christensen
Direct 33 92 75 88
sfc@ens.dk

is poorly utilized for illuminance. Ceiling and upper parts of walls, racking etc. may be over lit to achieve the required illuminance on the floor or working plane.
In many such cases the LED tubes will provide about the same maintained illuminance as provided by the LFL despite the lower lamp flux of the LED tubes and the replacement will certainly pay back.

We propose that Task 7 includes a scenario for the analysis of such replacement options, where the LFL is replaced by a LED tube of lower lamp flux and lower wattage. It should be underlined that this scenario exclusively applies for lighting cases where the lower lamp flux of the LED tube provides the required illuminance as well as the LFL it replaces or in other way is considered to be sufficient for the replacement.

The IEA 4E SSL Product Performance Tiers (http://ssl.iea-4e.org/product-performance) has a similar devision of LED tubes.

The study team may deem the analysis to be better placed in the Lot 37 study (on Lighting Systems), but in that case a clear explanation should be given in the Lot 8/9/19 study that a LFL might in a number of directional applications be replaced with a LED tube of a much lower lamp flux and in such cases the LED option is more beneficial.

We look forward to see the next draft task reports.

Prepared by Peder Øbro poe@afhh.dk , ÅF Lighting/ÅF – Hansen & Henneberg for The Danish Energy Agency, DEA

Yours sincerely

Signe Friis Christensen