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Improving light quality and energy efficiency through new EU legislation for lighting systems – a project of the European lighting industry

One of the presentations at the recent CIE, International Commission on Illumination, conference held on 14 to 17 March 2010 in Vienna, Austria at which the IEC was a partner, focused on the lighting industry's approach to new legislation in Europe. Kay Rauwerdink spoke on behalf of Brussels-based European lighting industry trade organizations such as CELMA (Federation of National Manufacturers' Association for Luminaires in the European Union) and ELC (European Lamp Companies Federation), the trade association related to lamps manufacturers. Since 2009 Rauwerdink has been Responsible for Branch & Legislative Affairs and standardization at Philips Lighting.

European parliament in Brussels - The new Lighting System Legislation needs to fit into the legislative framework of the 27 Member States in Europe

Rauwerdink gave attendees an industry perspective on the matter of LSL (Lighting System Legislation), a project initiated by the lighting industry to improve light quality as well as the energy efficiency, and at present being developed by different players in the value chain. One of the objectives for 2010 is to find a legal framework that enables the European Commission to take ownership.

As Chairman of the LSL taskforce, Rauwerdink is quick to point out some of the challenges the European lighting industry faces in developing new policy in partnership with the EU. "There are 27 Member States in Europe so the new LSL needs to fit into a legislative framework they already have with the freedom still to explore new techniques and innovative solutions".

Twenty, twenty, twenty

"The EU project goes by the name *20-20-20*", explains Rauwerdink. "The EU targets consists of three objectives to be reached by 2020: a 20% reduction in CO_2 (carbon dioxide) emissions, a 20% reduction in energy use in Europe and an increase of 20% of energy produced from renewable sources."

He points out that similar efforts are being undertaken in North America. "The US Department of Energy has set up an energy efficiency campaign informing citizens about how they can go about reducing their consumption at home, in the workplace and on the road," he says.

"The EU Commissioner for Energy, Günther Oettinger, has told us his aim is to increase energy efficiency by reducing the costs of energy-efficient investment," says Rauwerdink. "He's looking for greater willingness to invest in energy-efficiency measures.

"There are three aspects to that. First we have to ensure that energy can be supplied securely but in a way that makes it less dependent on fossil fuels. Then we need to look to protecting the environment, particularly as regards the threat of climate change. Finally, we need to remember that money spent on fuel can't be spent on other goods and services." He outlines the EU legislative project, "The essence of LSL is in promoting intelligent lighting systems where the most significant energy savings can be made.

Lighting a sure investment

"From an industry perspective, it gives us tremendous opportunity," continues Rauwerdink.

"Statistics from the International Energy Agency show that total lighting in Europe consumes 14 % of all electricity – the figure increases to 19 % worldwide. That's a significant part of energy use. A recent McKinsey study showed that if you want to invest money in Europe to bring down and abate the level of CO_2, one of the best investments is lighting. That's what gives you the highest return on each euro you invest.

"Up until now", summarizes Rauwerdink, "the regulations from the EU commission have been related to the products placed on the market, the *EuP* (Energy-using Products). There are two EcoDesign regulations: one is regulation 244/2009 which concerns the Domestic sector (e.g. phase out of the incandescent lamp) and the other regulation 245/2009, which has a more professional application since it's concerned with the Tertiary sector of offices and industry but also deals with road lighting."

The systems approach to lighting

Rauwerdink stresses the importance of a systems approach in dealing with energy efficiency.

"From a luminaire sense, looking simply at the energy efficiency of products is the wrong way to go", he says. "We need to look more to the end results. After all, with lighting if you really want to save energy, you simply switch the light off so that you don't use it! We need to concentrate more on good lighting design. Of course that still means putting into place the applicable controls. We shouldn't be looking at the place of the product in the market and energy efficiency of a single product. What's more important is the system that is put into service. At present, our discussions with the European institutions are concentrating on redefining energy in this way.

"We're looking at the design of energy-efficient lighting schemes in the tertiary sector lighting, how they're installed, operated and maintained. We're specifying how you can control and carry out approvals of lighting systems. The energy saving potential is enormous if you use control appropriately. But, we don't want to

simply design new schemes. We want to apply our approach to existing schemes, too."

Freedom to explore new technologies

Rauwerdink continues " A significant part of the existing installed base in Europe is very old. Seventy-five per cent of it is over 25 years old, and the natural refurbishment rate is very low. That means that if you don't do anything it will take between 15 and 30 years before all the old existing installations are up to today's standards. If we want to achieve the levels set for 2020, we have to speed up that refurbishment rate both for indoor and outdoor lighting. That's an interesting challenge for the European Union, but it's an opportunity for industry, too. We can use legislation to design new lighting schemes. That opens up the market for intelligent lighting systems while speeding up the refurbishment rate of the poor and inefficient lighting schemes. At the same time, it retains the designer’s freedom to explore new techniques and innovative solutions. Lighting designers need to have the freedom to explore technologies. We can't curb that!"

He provides some benchmark figures for lighting, talks of LENI (Lighting Energy Numeric Indicator) and the benefits in Mt (megaton) of CO_2 that could be made. "Statistics show that if lighting continues on the present level of business as usual there will be an increase in energy use for lighting," he says. "The impact of EuP implementing measures show a slight decrease and the potential impact of the LSL, particularly as far as concerns the refurbishment rate shows a distinct decrease of between 7 % and 10 %. The potential savings can easily triple the benefits of the EuP implementing measures which are in place today."

Comfort in addition to efficiency and performance

Rauwerdink is conscious that it's important to not concentrate solely on the energy efficiency aspects. "Quality of light is important, both indoors and outdoors," he says. "Lighting's not only about efficiency. It's about performance and comfort, too. In order to carry out a task you have to feel comfortable where you are. So our efforts are also focusing on the quality! It's not difficult, because most of the technology is already available today.

"Essentially, if you have intelligent lighting systems that concentrate on where the most significant energy savings can be made, you have competent people looking after the scheme design and the installation sign off processes and support from the other players in the value-chain, then the aim of LSL to triple the benefits of EuP will be achieved and the lighting industries will have made their contribution to climate change!"