

'We designers are in an

The unintended consequences of the halogen lamp phase-out are making life impossible for lighting designers who have to specify light sources for the future, says **Kevan Shaw**

The draft regulation on reflector lamps published on 17 January has rightly raised a storm of controversy. Buoyed by the 'success' of the Part 1 regulation on domestic lighting – which effectively banned the traditional incandescent lamp – this Part 2 regulation was supposed to swiftly follow on and deal with reflector lamps used in the home.

The problems with domestic reflector lamps are twofold. First, there are a lot of really inefficient mains voltage incandescent reflector lamps using old technology around people's homes. Second, there has been a fashion for studding the ceilings of new developer-built housing with grids of dichroic downlights. There is no question that this is poor lighting design that leads to excessive energy use.

Insanely complex

Study documents that led to the current legislation started to appear from Europe in March 2009, written by Vito, the consultants that undertook the studies for the previous legislation. From the outset it was obvious that the challenge of trying to make a rule that covered the huge variety of reflector lamps was insanely complex. It was also pretty clear that the favoured lighting technologies of Vito and the green NGOs – CFLs and LEDs – are just not capable of providing good directional light at the required intensities to replace all currently available reflector lamps.

The next realisation was that there is already a massive range of efficiencies across this lamp family so, to make any worthwhile impact, the legislation would have to abandon the principle that it should



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be technology neutral. It therefore sets different efficiency targets for lamp technologies rather than for functional performance.

To make sense of this, Vito created a brand new metric in a vain attempt to simplify the task of defining reflector lamp efficiency. This metric, the energy efficiency index (EEI) ignores the beam angle, requiring measurement of the luminous flux in a 90-degree cone for lamps with a stated beam angle of less than 90 degrees and in a cone of 120 degrees for lamps with a stated beam angle equal or greater than 90 degrees that includes the CFL reflector lamp substitutes. This basic measure can only be made with a goniphotometer. It is also not useful for any other purpose and is not currently published by lamp manufacturers. It then became necessary to add a whole range of correction factors to this measure, adjusting for control gear of different types, colour rendering and anti-glare shields, then a further correction factor for different light output ranges.

Expanding scope

In the course of the past three years, more things have been rolled into the legislation. All reflector lamps, not just those for domestic use, have been swallowed up as have all LED 'lamps' and low voltage lighting transformers. This conflation of the regulation's scope, coupled with the impenetrably complex measurement, has resulted in a draft

'impossible situation'

regulation with a scope that far exceeds the original intent of reducing domestic energy use.

The intent of the legislation is to push the lamp industry into offering more efficient products and it is not directly intended to decimate the range of available lamps. However, as it is currently drafted it will do this.

The naivety of the approach to the highly complex field of reflector lamps and the failure to re-address the challenges of professional use of reflector lamps as the scope grew beyond domestic use is causing this collateral damage.

Necessary data

In the weeks since this draft regulation was published, neither the lamp companies nor their lobbying body the European Lamp Companies Federation (ELC) have come forward with the necessary data to let us work out exactly what lamps will be removed from the market in September 2013. To quote Lars Stuehlen from Osram on behalf of ELC in a recent email to me: 'Of course we have an idea of the efficiency of the existing products, but due to anti-trust reasons we are not allowed to share information about how the product portfolio of ELC members will look over the next years. So we can't guarantee what will remain on the market or not or via which channel certain products will be sold.'

This statement and the previous generalisations in the ELC press release give no comfort that the many hundreds of different types of MR16, MR11 and AR111 – all with their specific applications – will

remain available. On current evidence we will be left with a very restricted range of infrared coated lamps for professional use and one or two ratings of xenon-filled reflector lamps for the domestic market in a single 'general' beam angle of 36 degrees.

Collateral damage will affect the range or availability of various other professional lamps. How about PAR 36, used extensively in entertainment lighting, and PAR56 lamps, admittedly not much used in current specifications but with an extensive installed user base? The regulation targets efficiencies in metal halide reflector lamps. Without the necessary information to calculate the EEI of specific lamps it is impossible to be specific. However, the target of an EEI of 0.2 for 'lamps other than filament lamps' in 2016 is likely to take out the majority of these. Given that they have been widely adopted in the retail sector to provide energy savings over tungsten halogen lamps, the unintended consequences of this regulation could be a return to less efficient technologies that are not being banned in the same time frame.

Impossible situation

We are in an impossible situation as designers. We just do not know what we can reasonably specify for projects that require reflector lamps. Will the products we specify be available when they are built and will they continue to be available for the life of the project? We need urgent clarification from the lamp manufacturers and some reconsideration of the timeframe and targets in the legislation by the European Commission. 📧