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To: 'lighting@energystar.gov'
Subject: Soraa Comments to ENERGY STAR Lamp V2.0 Draft 3

After attending the EPA webinar, we would like to formulate the following comments.

1. As previously commented, we advise that the efficiency limit be CRI-dependent. It is well documented that increasing the Ra and R9 value of a lamp has a fundamental cost in lumen efficiency – on the order of 15% lumen loss, for an Ra increase from 80 to 95. Therefore having a fixed lm/W limit, regardless of CRI, incentivizes against high-CRI products. This is especially crucial in directional sources, where high efficiency is harder to achieve in the first place.

2. Moreover, we note that there have been suggestions during the webinar of further increasing the efficiency beyond the proposed 65lm/W – based on the observation that many lamps are above this value. However, as was shown in EPA's slides, this is only true for omnidirectional lights. High intensity directional lights such as MRs and PARs incur an efficiency penalty vs. omnidirectional sources. When compounded with the fundamental efficiency loss of high-CRI products, this means that most directional high-CRI products already do not meet the 65lm/W limit. Further increasing this value would essentially phase out the directional high-CRI offering. While such products do not constitute as large a market as omnidirectional A-lamps, they are essential in some fields – especially in the retail and hospitality industries. We believe it is crucial that the regulation not dis-incentivize high-CRI directional lamps.

3. There was a discussion about the usefulness of using color rendering metrics (Ra, R9, TM30). Soraa has found that a high color-rendering product (Ra=95, R9=95) was key to adoption at several retail and hospitality customers, who had previously stayed with halogen lamps due to the lack of high color quality LED options. As mentioned by other participants, the R9 value may in fact be more significant for perception than the Ra value. Therefore, EPA might consider having an efficiency limit which depends on R9 in addition to Ra.

We would be happy to discuss the technical aspects of these comments in more details.

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