

From: John Green <john.d.green@gmail.com>
Sent: Monday, November 23, 2015 4:25 PM
To: lighting@energystar.gov
Cc: 'Lambda 530 Gmail'
Subject: Comment on Lamps V2.0

During today's call I made a suggestion on how to handle the power factor requirement. I thought it might be of benefit to commit that comment to writing for your reference.

A little background:

Power factor can either be "leading" or "lagging". Lagging power factor is a result of inductive loads such as motors in refrigerators, fans, air conditioners and dehumidifiers. Leading power factors come from electronic-type power supplies, such as those found in LED lamps. Historically, the inductive (lagging PF) loads were the major component of residential and commercial buildings connected to the grid. Utilities often add capacitors to the utility lines to balance the lagging PF from inductive loads. Capacitors have pure leading power factor, counteracting the net lagging PF from buildings.

Electronic loads, such as those characteristic of LED drivers, also have leading power factors. Adding this type of load further corrects the net lagging PF from a building, so should be beneficial for the utility. Saying a low power factor is bad is too simplistic a statement to address a utilities concern.

As a compromise, I would suggest that the PF criterion for ENERGY STAR discriminate between leading and lagging. I propose the following language:

"Power factor of the lamp shall be no less than 0.7 lagging and no less than 0.5 leading."

Although I believe a leading PF down to 0.4 should be acceptable (many good LED lamps have a leading PF hovering close to the 0.5), the above is a proposal that should benefit all parties.

Lambda 530 is a consulting entity specializing in lighting. As president, I have over 40 years of lighting experience covering all aspects of the field, including luminaires, ballasts/drivers, optics, poles, testing facilities and testing, corrosion, controls and light sources. I also have extensive experience in codes and standards, covering NEMA, UL, ANSI, CSA, IEC, DOE and EPA, as well as state initiatives, particularly those from the CEC.

Thank you for your time.

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