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October 15, 2008

Mr. Gary Flamm
 Docket No. 07-AAER-3
 California Energy Commission
 1516 Ninth Street, MS-4
 Sacramento, CA 95814-5512

Subject: Title 20 2008 Metal Halide Luminaire – Proposed code language

Dear Mr. Flamm,

The National Electrical Manufacturers Association (NEMA) Lighting Systems Division is appreciative of the time and effort that has been spent by the Staff of the CEC in working to come up with a proposal which would comply with the guidelines of AB 1109 and be acceptable to both NEMA and the CEC. We are aware that these guidelines require a 25% reduction in electrical energy for indoor commercial and outdoor lighting by 2018, and that the CEC is required to adopt lighting standards by December 31, 2008.

The past CEC indoor and outdoor lighting proposals have reflected not only the CEC’s desire to implement high efficiency MH ballasts, and more particularly electronic ballasts, for MH luminaires but to promote other energy saving MH lighting options as well. Both integral luminaire dimming and the use of reduced wattage pulse start lamps operating on 88% efficient pulse start ballasts have been discussed since May 2008.

NEMA is recommending that the 3-option approach, which was proposed in the CEC 45-day document, be kept and that the CEC Rev 5 elimination of the expiration date of 2014 for the use of reduced wattage pulse start ballasts outdoors (which elimination is considered critical by NEMA) be extended to indoor applications. In consideration of such a regulatory approach by the CEC, NEMA is willing to agree to the following changes to the wattage limits of the reduced wattage ranges (“bins”):

<u>45-day Range</u>	<u>Proposed Range</u>
150-160W	150-160W
185-225W	200-215W
280-350W	290-335W.

The intent of these tighter wattage ranges is to encourage energy savings by providing lower wattage systems with equal or better lumen performance than older MH systems and to reduce the likelihood of upward bin jumping, e.g. a customer replacing a 175W system with a 185W system (instead of dropping down to a 150W system). By increasing the next bin to 200W, we believe that there would be a lower

risk of upward jumping. The energy savings realized by simply switching from traditional 400 watt, 250 watt and 175 watt MH ballasts to these lower wattage pulse start ballasts is close to 20%, since within these wattage bins the only currently available pulse start ballasts are 150, 200 and 320 watts. This more than doubles the energy savings originally proposed in the April 3, 2008 PG&E CASE study which resulted in the subsequent CEC proposals beginning in May 2008.

The other option, integral fixture dimming, also provides more energy savings than high efficiency/electronic ballasts. Through dimming, by the minimum 40% for just half the time the fixture is operating, an energy savings of 20% would be realized.

NEMA believes this is the best regulatory proposal for everyone. The electronic ballast is not a suitable lighting option for all applications, especially outdoors. NEMA appreciates the CEC's recognition of such outdoor unsuitability in its Rev 5 elimination of the 2014 sunset of the outdoor reduced wattage pulse start exemption. While the use of integral dimming and reduced wattage pulse start systems are practical and available solutions in most outdoor and indoor applications, the challenges presented by outdoor electronic ballast use are formidable. The modifications which are technically feasible in the foreseeable future are likely to lead only to customer abandonment of a lighting technology that can presently provide energy savings on the order of 20%. The integral dimming and reduced wattage options more than double the proposed savings of the electronic ballast option.

We have also proposed a new definition for the Outdoor MH Luminaire since we do not believe that the current definition is practical. Neither UL1598 nor the 2005 National Electrical Code (NEC), which has been accepted by California, defines an outdoor luminaire. Instead, these documents define luminaires suitable for damp and wet locations. Luminaires with these ratings are chosen, as needed, for outdoor lighting applications.

We also recommend that the NEMA guideline document on HID Dimming, LSD14 -2002, be referenced in sections (n)(2)(A)(2)(i, ii) and (n)(2)(B)(2).

The NEMA revised proposal is attached to this letter. If you have any questions or comments, please do not hesitate to contact Dain Hansen of NEMA Government Relations at (703) 841-3221 or dain.hansen@NEMA.org.

Sincerely,



Kyle Pitsor
Vice President, NEMA Government Relations

This document contains NEMA recommended changes as of Oct. 15, 2008.

(n) Luminaires

“Outdoor Metal Halide Luminaire” means a metal halide luminaire that is UL 1598 Wet Location Listed and labeled “Suitable for Wet Locations” as specified by the National Electrical Code 2005, Section 410.4(A).”

(2) Energy Efficiency Standard for Metal Halide Luminaires. Metal halide luminaires rated for 150 to 500 watt lamps manufactured on or after January 1, 2010 shall not have probe-start ballasts; and shall comply with either (A) or (B):

(A) Metal halide luminaires rated for indoor applications shall comply with 1 or 2:

1. Shall have a minimum ballast efficiency as follows:

- i. 90 percent minimum ballast efficiency for 150 to 250 watt lamps
- ii. 92 percent minimum ballast efficiency for 251 to 500 watt lamps; or

2. Shall have a minimum ballast efficiency of 88 percent and shall comply with i, ii, or iii:

- i. Shall have an Occupant Sensor which is an Integral Control as defined in Section 1602(n) of this Article, shipped with the factory default setting to automatically reduce lamp power through dimming by a minimum of 40 percent within 30 minutes or less after the area has been vacated.
- ii. Shall have an Automatic Daylight Control which is an Integral Control as defined in Section 1602(n) of this Article, shipped with the

factory default setting to automatically reduce lamp power through dimming by a minimum of 40 percent.

- iii. Shall be equipped with a ballast able to operate only 150-160 watt, 200-215 watt, or 290-335 watt lamps; and shall have a permanent, pre-printed factory installed label on the luminaire indicating the relamping rated wattage. The relamping rated lamp wattage shall be listed as within 150-160 watt, 200-215 watt, or 290-335 watt, as appropriate.

(B) Metal halide luminaires rated and labeled for outdoor applications, as defined in Section 1602(n) of this Article, shall comply with 1, 2, or 3:

1. Shall have a minimum ballast efficiency as follows:
 - i. 90 percent minimum ballast efficiency for 150 to 250 watt lamps
 - ii. 92 percent minimum ballast efficiency for 251 to 500 watt lamps; or
2. Shall have a minimum ballast efficiency of 88 percent and shall have an Occupant Sensor which is an Integral Control as defined in Section 1602(n) of this Article, shipped with the factory default setting to automatically reduce lamp power through dimming by a minimum of 40 percent within 30 minutes or less after the area has been vacated; or
3. Shall have a minimum ballast efficiency of 88 percent and shall be equipped with a ballast able to operate only 150-160 watt, 200-215 watt, or 290-335 watt lamps; and shall have a permanent, pre-printed factory installed label on the luminaire indicating the relamping rated wattage. The relamping rated lamp wattage shall be listed as within 150-160 watt, 200-215 watt, or 290-335 watt, as appropriate.

EXCEPTIONS to Sections 1605.3(n)(2)(A) and 1605.3(n)(2)(B):

The following metal halide lighting systems shall not have probe-start ballasts and are not required to meet the minimum ballast efficiency requirements:

- 1) Luminaires that use regulated lag ballasts;
- 2) Luminaires that use electronic ballasts which operate at 480 volts; or
- 3) Luminaires that meet all three of the following requirements:
 - a. Are rated for use only with 150 watt lamps, and
 - b. Are rated for use in wet locations, as specified by the National Electrical Code 2002, Section 410.4(A); and
 - c. Contain a ballast that is rated to operate at ambient air temperatures above 50 degrees C, as specified by UL 1029-2001.

Based on final CEC action, the data submittal requirements in Table X will need to be revised to align with the approved regulatory language.