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NRDC's Response to CEC's Invitation to Participate in the Development of Appliance Energy Efficiency Measures

2013 Appliance Efficiency Pre-Rulemaking on Appliance Efficiency Regulations: Docket Number 12-AAER-2B - Fluorescent Dimming Ballasts

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Submitted by:
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On behalf of the Natural Resources Defense Council and our more than 250,000 members and online activists in California, we respectfully submit this response to the Energy Commission's Invitation to Participate in the Development of Appliance Energy Efficiency Measures, posted on March 25, 2013. This response addresses the Commissions questions on fluorescent dimming ballasts.

NRDC has reviewed the submission made by the California Investor Owned Utilities (IOUs) and is in agreement with their data and analysis. Rather than repeat much of their content, NRDC provides below supplemental answers to selected topics listed in the Commission's Invitation to Participate (ITP).

The market is expected to grow rapidly starting 2014 - While current sales and existing stock of fluorescent dimming ballasts are modest, sales will greatly increase when the 2013 update to the California state building energy code (Title 24) goes into effect in January 2014 and requires dimming ballasts in most commercial fluorescent fixture installations. Given that no minimum efficiency standards exist for these dimmable fluorescent ballasts, and that the efficiency gap between high efficiency and low efficiency dimmable ballasts is substantial, we expect significant savings from efficiency standards for dimmable fluorescent ballasts.

Saving potential - The California IOUs estimate annual ballast shipments of 3 million units starting in 2014, with a total stock of dimming ballasts which could be the majority of the total of 90 million ballasts after stock turnover. Based on the Sep. 2011 CA IOUs Appliance Proposal Template estimate of 17 kWh annual energy savings per unit, efficiency standards could reduce statewide electricity consumption by 500 GWh annually, saving Californians $66 million in avoided electricity bills and reducing CO_2 emissions by 340,000 metric tons, the equivalent of taking 75,000 cars off the road for one year.

Test procedure and metrics - The U.S. Department of Energy has recently finalized a new test method and metric called Ballast Luminous Efficiency (BLE) for fixed output ballasts. This test method and metric

can easily be adjusted for use with dimming ballasts, by measuring ballast efficiency for each of the intermediate input power levels as well as full power, which would allow setting efficiency requirements either for each dimming level, or for the overall output range via a formula using each intermediate measurement.

The efficiency gap between high efficiency and low efficiency dimmable ballasts is substantial - The Consortium for Energy Efficiency (CEE) maintains a list of high efficiency ballasts[1] which shows a 3-5 watts range of efficiencies between qualified products, even though it only lists the most efficient products on the market. This suggests a significant energy saving potential from efficiency standards.

The CA IOUs are currently performing efficiency testing on a broad sample of dimming ballasts, and will share their results by Fall 2013. This will enable CEC to refine savings estimates.

Cost-effectiveness - The Sep. 2011 CA IOUs Appliance Proposal Template estimated that the cost premium of higher efficiency is likely to be in the $0-10 range per unit, with expected lifetime electricity savings of $44, which represents at a minimum a 4:1 benefit to cost ratio, potentially better. While these numbers need to be refined through ongoing market research, they clearly show the potential for cost-effective efficiency savings with fluorescent dimming ballasts.

Conclusion

NRDC thanks the Energy Commission for its leadership in establishing cost-effective appliance efficiency standards that reduce electricity bills as well as climate and other harmful emissions for all Californians.

NRDC strongly encourages the Commission to move forward with minimum efficiency standards for fluorescent dimming ballasts.

Thank you for your consideration of NRDC's input.

Respectfully submitted,

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[1] http://library.cee1.org/content/commercial-lighting-qualifying-products-lists