LUTRON® ELECTRONICS CO., INC.

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Vice President

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The Honorable Ed Whitfield
Chairman
Subcommittee on Energy and Power
Committee on Energy and Commerce
2125 Rayburn House Office Building
Washington, DC 20515-6115

Dear Chairman Whitfield:

Please see the attached document regarding additional questions from members of the Subcommittee to my testimony during the hearing entitled "H.R. ____, the EPS Improvement Act of 2016".

Thank you again for allowing me to testify on behalf of my company and the industry. Please feel free to contact me with any further questions.

Sincerely,

[redacted]

Pekka Hakkarainen
Vice President, Lutron Electronics

[redacted]

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Additional Questions for the Record

The Honorable Frank Pallone

1. **Your written testimony states that "[t]his inclusion of lighting products as part of the EPS rule is a problem because DOE did not consider SSL in their analysis; thus the test procedure was designed for EPSs only and did not take into account the complexity of solid state lighting drivers."**

   A. **Can you elaborate on NEMA's concern regarding the complexities of solid state lighting drivers so that we can better understand what that means?**

   Response: Typical external power supplies like the ones used for laptop computers or cell phones simply supply power at a steady level to charge the device. SSL drivers often contain – because of market requirements – additional circuitry for the support of a range in wattage of LED loads, network communication, status monitoring, and dimming of the lights. All of these features come at a cost of power consumption, and none of these features are contained in typical EPS products. The EPS energy standard and the test procedures prescribed by DOE do not take into account these additional features and power consumption requirements. As such, certain SSL drivers tested against the DOE test procedure would not comply with the energy conservation requirements. At the technical level, EPS products have a single power conversion stage from household AC current to (typically) a relatively low voltage (5-12V) DC current. The efficiency of this power conversion can relatively easy meet DOE's standards. LED drivers use a two stage power conversion, first from household AC current to a higher voltage DC stage, and then from that to another (often modulated) DC stage to operate the LEDs. While the efficiency of the first stage (the actual power supply) meets DOE's standard, the overall efficiency of the driver is the product of the efficiencies of the two stages, and that overall efficiency falls short of the requirement. This type of driver design is required because of the additional features mentioned above.

   As mentioned in our testimony, when the DOE final rule was issued, DOE stated that it had not evaluated SSL drivers during the process of establishing the EPS efficiency requirements. One significant example of this is the statutory requirement to meet a "No-Load Test" condition, i.e. minimum power consumption by the EPS when disconnected from the external device. SSL drivers are typically hardwired into the light fixture, so the no-load condition does not exist. The No-Load Test condition is more accurately applied to an external power supply that is often left plugged in even when the device is somewhere else (like a cell phone). However, the DOE rule prescribes a No-Load efficiency requirement for all EPS products, including SSL drivers.

B. What is the practical impact of such a rulemaking at this time: are you concerned about cost increases, manufacturing impediments, or something else?

Response: Most SSL drivers would not comply with the DOE energy conservation standards and would not be able to be purchased or installed. This would be very disruptive to the adoption of highly energy-efficient lighting by consumers and businesses which are rapidly embracing SSL technologies. A result would be higher energy costs as compared to energy costs using SSL technologies. Investment in SSL technology by manufacturers is significant and on-going. Having to divert investment dollars to re-design SSL drivers, with the result of reduced features, would slow market adoption of these highly efficient technologies.

2. One of the provisions in the legislation explicitly grants DOE authority to set future standards on these products is critical to ACEEE's support for the bill." Our goal here is to enact very narrow legislation. In essence, we are looking to surgically remove solid state lightings drivers from the current rulemaking for EPSs. However, we want to preserve the Secretary's ability to set efficiency standards for solid state lighting in the future.

A. Can you give us NEMA's views on the provision in the bill explicitly granting DOE authority to set future standards on these products?

Response: Section 3 of the legislative proposal would provide the Department of Energy flexibility to prescribe energy conservation standards for solid state lighting drivers either under the consumer product category or under the commercial product category, subject to existing requirements in the Energy Policy and Conservation Act. This provision restates that DOE has the statutory ability to set standards for SSL drivers in the future, subject to other EPCA requirements.

B. In NEMA's view, what advantage does the language in the current legislative proposal provide over using existing authorities to promulgate efficiency standards for solid state lighting in the future?

Response: In order to set energy conservation standards on a product, there must first be a documented test procedure on how to measure and test the product. The language in the proposed legislation makes it clear that the test procedure applicable to SSL drivers must be issued by the DOE no later than one year from when the DOE would issue energy conservation standards on the products. This one-year timeframe is important to ensure that the efficiency levels that are proposed and eventually prescribed by the DOE are levels that can be properly tested and that industry has sufficient time to make necessary adjustments to products in accordance with the test procedure.