

## **NEMA ELS Response to CEC Rulemaking Proposals for Emergency Systems with Battery Chargers**

### **Background**

Ecos Consulting of California prepared a proposal to the CEC to move Battery Charging System requirements from Title 24 to Title 20 and to modify those requirements. The proposal is catalogued as: Codes and Standards Enhancement (CASE) Initiative For PY2010: Title 20 Standards Development Title: Analysis of Standards Options for Battery Charger Systems.

This proposal includes products referred to as “Emergency Signs” and “Emergency Backup Systems”.

The NEMA Emergency Lighting Section (ELS) strongly opposes the inclusion of life safety systems (all types of emergency lighting systems) in the proposal.

### **ELS Response**

NEMA understands the CEC intent and is interested in working with the CEC on a meaningful efficiency measurement tool for battery chargers. However, the NEMA ELS expects the CEC and other interested parties to understand the important differences between battery chargers for consumer appliances, such as power hand tools and cell phones, and chargers for life safety devices. Failure to do so would likely compromise public safety where emergency lighting devices with these chargers are used.

Regarding the CEC Preliminary Staff Report Document, this document explains the rationale and events leading up to the most recent CEC proposals. It is mentioned that with respect to Battery Charging Systems, both the EPA and DOE have taken measures to enact a battery charging systems measurement plan but neither pertains to the emergency lighting portion of the market. It is our desire to illustrate that the critical readiness of the life safety equipment can not and should not be altered in a fashion that may impact regulatory (UL, NFPA, and IBC) requirements and lessen the reliability of UL 924 equipment to the point where public safety could be compromised.

NEMA ELS manufacturers are responsible the aforementioned entities regarding the performance of Life Safety Equipment, and none of these entities appear to have been involved in the research or and drafting of the proposal in question. ELS manufacturers are responsible for meeting the requirements of EAct 2005, which mandates a very low power draw for Emergency Exit Signs. This power draw is comprehensive and does not differentiate between charging power and illumination power in the normal mode. ELS manufacturers are also responsible for supplying products which satisfy National Electrical Code (NEC) and National Fire Protection Agency (NFPA) 101 code requirements. Additionally, ELS manufacturers are also required to meet UL Standard 924 for Exit Sign performance. NEMA ELS members are concerned that products made to the specifications set forth in this proposal might not be able to meet UL 924, NEC or NFPA requirements.

Specific to subject proposal:

1. If ELS products had to be placed into one of the proposed categories they would fall into the non-consumer, small battery charger systems as defined in Appendix A, pg. 59. This category would best apply to consumer UPS models related to devices such as backup power for computers or health related equipment and not emergency lighting. Inclusion of emergency products into any of these categories would be inadvisable since ELS products are already regulated by EPA Act 2005, are held to strict U/L 924 standards, are federally required Life Safety building components and as such are not optional equipment for building occupancy. Large (U/L 924) AC inverters (UPS systems) would fall under the same regulations and applicability as the smaller exits and unit equipment.
2. The definition of emergency lighting products in the proposed language is inappropriate. Exit signs are the only implied products called upon for this study. Implications of "egress lighting" and "emergency backup lighting" are referred to on page 5 and a photo of a piece of emergency lighting unit equipment (or emergency egress lighting) is found on page 6. Additionally several tables use both of these terms. If exit signs are in fact the nature of this investigation then they need to refer to EXIT signs and not confuse the issue with language that implies other pieces of life safety equipment. Table 7 further enables this conclusion in that the report is on record noting that the current baseline energy use is 1.6W in charge mode and in maintenance mode. With respect to emergency lighting equipment, only exit signs draw this little power. If the scope of this investigation is being expanded to include emergency lighting then the background study is far from complete.
3. With respect to table 7 and figure 4, we question if the LED lamp loads were defeated in order to measure charging characteristics. If figure 4 is relative to measuring efficiency, there is a split of power that is not taken into consideration. For exit signs, at the point in the diagram between the Power Supply and Charge Control Circuitry the power supply usually feeds not only the charging circuitry but also the LED light bar. This power does not appear to have been taken into consideration in the analysis. If the power consideration for driving the LED light bar was taken into consideration it should be explained as such as every code standard available mandates that exit signs are to be illuminated at all times.
4. Table 10 indicates the proposed amount of power consumption that should be allowed for under this proposal. Without definition as to what type of emergency lighting equipment is being implicated (exit signs, emergency lighting equipment or both), this chart is useless. As previously mentioned, this does not appear to include the power required to operate the LED light bars in exit signs. The data is not complete enough to agree or disagree with this particular portion of the proposal.

To expand on the above mention of Federal mandates and other listing and code requirements; the research performed seems to have ignored UL standard 924, the standard for Emergency Lighting and Power Equipment. This standard includes all products that have the ability to operate in the emergency mode whether be it by integral battery or by other means such as having the ability to be connected to a remote source of power such as a generator. It would appear that the time has not been taken to review the performance requirements we are held to with respect to Life Safety equipment. UL Standard 924 dictates the discharge testing requirements for the emergency lighting equipment in order to substantially provide egress lighting for building occupants. Additionally, as the manufacturers are held to meeting the UL 924 requirements, the specifiers and facility owners are bound by performance requirements found in the International Building Code (IBC), National Fire Protection Association Life Safety Code (NFPA 101), and National Fire Protection Association National Electrical Code (NFPA 70) in order to determine how many units are required for a given facility. Obviously, the needs of the facility are the driving factor as to what type of equipment is employed and power demand changes with product capabilities.

We question the accuracy of the California stock and sales data for Emergency Lighting products cited in the rationale. The authors seem to have not taken into account that California is one of the largest consumers of generators and large emergency lighting inverter systems in the country. Because of this, a majority of exit sign sales into the state of California are for non-battery contained units. Emergency power to the equipment is delivered by the remote generator or inverter system thus making a large portion of the volume of sales claimed non-relevant to this evaluation.

NEMA ELS members question if this standard replaces the requirements found under the CEC's appliance efficiency standard database currently in use for exit signs. The reporting requirements for exit signs for the subsequent sale of products into the state of California have been required per the CEC since about 2005. Many NEMA ELS members have been participating in this program since its inception, though it has not prevented any other manufacturing entity from selling exit signs into the state of California.

An affectivity date of 2012 is not attainable. It is almost 2011 and this is still a recommendation document. While the design parameters and reliability testing might be able to be completed in due fashion, it is evident that none of the individuals conducting this review have ever had to deal with UL to gain regulatory approval. Product testing and listing requirements would extend well into 2012 and beyond.

The NEMA ELS disagrees with the claim in clause 7.1 third bullet that "A battery charger can be totally redesigned and brought to market at an incremental manufacturing cost near zero. By replacing some components with more efficient ones, incremental costs near \$0.40 are common." Redesign considerations effect more than component costs. The time of engineers and product testers is not included in this claim, nor are the application and testing costs of obtaining safety listing with UL and similar entities.

Lastly, there is frequent reference in the proposal to the DOE and the Energy Star program. We hope it is understood that the Energy Star program for Exit Signs was indefinitely suspended in 2008 due to the fact that EPCA 2005 mandates a maximum of 5 watts power consumption per face for Exit Signs. Due to the saturation of compliant products in the market place, exit signs no longer have a program certification requirement under Energy Star.

The NEMA Emergency Lighting Section reiterates their position that the product category for exit signs is not a consumer related convenience item. We are held to rigorous performance requirements under UL standard 924 in order to provide the highest level of readiness to safely assist building occupants in exiting a facility. To imply that power requirements can be levied upon these products without understanding the performance requirements is reckless and stands to be in conflict with the inherent necessity to meet these life safety needs.