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Department of Energy

# Hydrogen power lit Academy Awards

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This prototype mobile lighting unit, which uses energy-efficient lighting and hydrogen fuel cell power, was used during the Academy Awards. Its backers hope similar technologies can replace noisy, polluting diesel-based mobile lighting. | Photos courtesy of the Academy of Motion Picture Arts and Sciences®

While outstanding performances in film were being honored at this year's [Academy Awards](#), some engineers and businesses were focused on a different performance – that of a lighting system illuminating the famed red carpet.

The innovative mobile lighting unit used a [hydrogen fuel cell](#) and energy-efficient plasma lighting technology to generate light and electricity for the show with zero on-site emissions or technical problems. The unit's designers at [Sandia National Laboratories](#), and its industry partners, believe the lighting could significantly improve the way events such as the Oscars are lit.

“The idea is to combine, in one project, the people who hold this new technology with mass manufacturers and also end users,” says Lennie Klebanoff, project lead for the mobile lighting project at Sandia. “Our goal is to get fuel cell technology into real commercial equipment products.”

Conventional mobile lighting units, which are used for outdoor events, road construction projects and airports are powered by diesel generators. That means they emit soot, carbon dioxide and nitrogen oxides. Not only is this bad for the environment, but also it makes the units unsafe to use indoors because of the fumes. They're also noisy, which can make them a safety hazard during road work and requires TV and film crews to move the units as many as 100 yards from cameras.

The Sandia team developed a mobile lighting unit with none of these problems. It uses hydrogen fuel cells to power the lights quietly and with zero emissions. In addition, the engineers replaced conventional lights with a proprietary Light Emitting Plasma system, developed by [Luxim Corp.](#), that produces the same light as conventional lighting with about half the energy. The unit even generates enough extra power to allow users to plug in other appliances.

Lennie estimates that each fuel-cell mobile lighting unit could prevent the consumption of about 900 gallons of diesel per year while eliminating emissions from burning that fuel. If the hydrogen comes from carbon-free sources, each unit could reduce carbon dioxide emissions by about nine metric tons per year.

The fuel-cell lighting unit was used during the weeklong setup process that precedes the Academy Awards. Then, on the night of the awards ceremony, the unit was used to power a security check-in area for the international press. Lennie was there in a tuxedo, along with other team members.

"This was not a demonstration project," he says. "In the week leading up to the event, and for the event itself, the Academy staff used it just like they'd use any other piece of construction equipment. They turned it on and off, moved it around and used it as they desired."

Sandia and its partners hope to the unit's success will showcase its ability eventually replace diesel-based systems altogether in other types of construction equipment. The success at the Oscars has also helped Sandia get funding to continue refining and commercializing the mobile lighting units. At the moment, Lennie's team is working on additional units, using funding from the U.S. Department of Energy and private companies.

"The DOE support will now allow us to rigorously test the system," Lennie says. He hopes his team can "help transform the fuel cell equipment market, one product at a

time.”

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