Setting the Stage

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U.S. Department of Energy Lighting R&D Workshop • Co-sponsored by the Illuminating Engineering Society

U.S. DEPARTMENT OF ENERGY | Office of ENERGY EFFICIENCY & RENEWABLE ENERGY

IES Illuminating ENGINEERING SOCIETY

Workshop Objectives

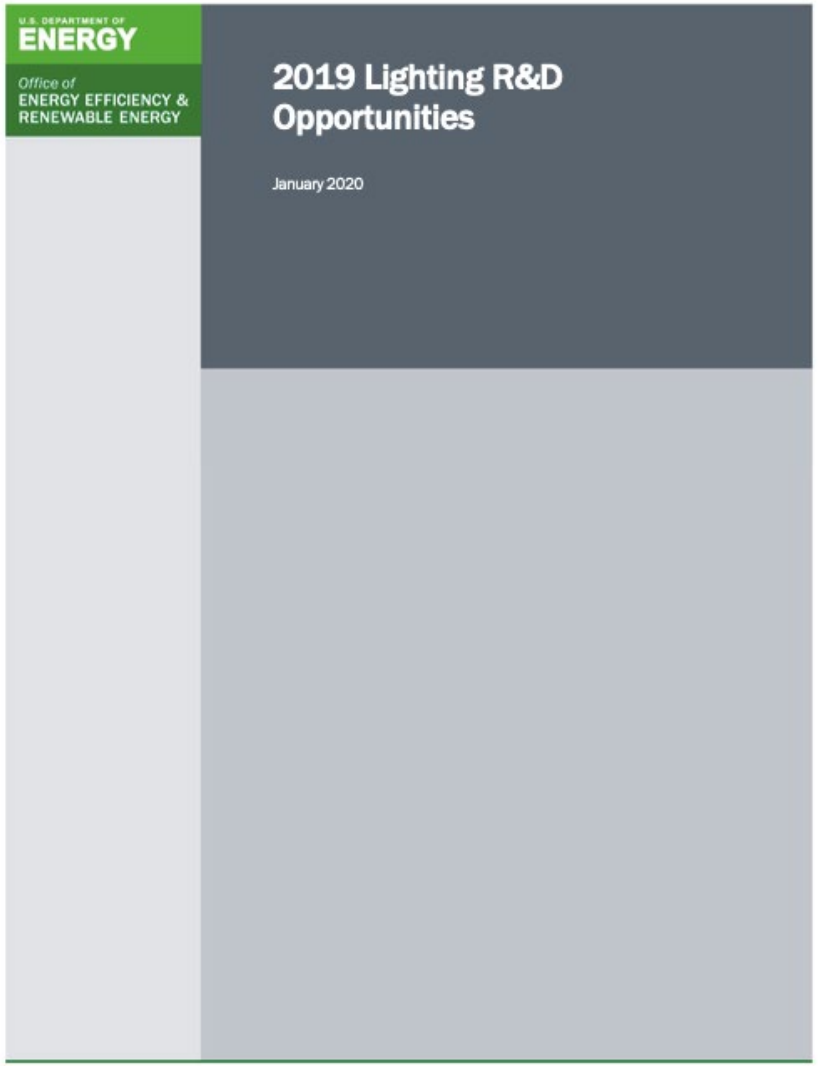
Gather inputs for DOE Lighting R&D Program

- Panel topics and speakers chosen to provide inputs
- Questions and discussions
- Comment Cards
- Hallway discussions

DOE Lighting R&D Process

https://energy.gov/eere/ssl/research-development

R&D Opportunities Document



2019 R&D Opportunities

- **Developing the Lighting Application Efficiency (LAE) Framework:** Understanding relationships between and energy impacts of light source efficiency, optical delivery efficiency, spectral efficiency, and intensity effectiveness.
- **LED Research:** Improving basic understanding of LED material-device-synthesis relationships to develop a path to meet DOE LED performance objectives.
- **High Luminance Emitters:** Improving efficiency at high luminance to enhance optical control, including device structures and phosphors.
- **Diffuse Light Source Emitter Materials:** Advancing the efficiency and lifetime of emitter materials and device architectures for low profile, diffuse, and direct emitters, such as OLEDs.
- **Understanding and Advancing Quantum Dot Optical Down-converters:** Improve quantum dot down converters for on-chip LED usage.
- **Diffuse Light Source Optical Efficiency:** Improve light extraction efficiency and optical control for low profile, diffuse direct emitters, such as OLEDs.
- **Advanced LED Light Sources:** Develop LED packages, modules, or lighting products that demonstrate highly advanced performance.
- **Power and Functional Electronics:** Improve power supply efficiency, functionality, and/or form factors.
- **Additive Fabrication Technologies for Lighting:** Develop advanced additive manufacturing technologies for full scale production of lighting products.
- **Understanding and Demonstrating Human Physiological Impacts of Light:** Translate lab-scale human physiological responses to light understanding to practical guidance and understanding of impacts in realistic lighting situations.