

Points for Justice DEI and sustainability converge in DOE's L-Prize Competition

The DOE L-Prize is all about breaking new ground in lighting. The digital revolution continues to change lighting and controls technologies, but lighting has never been solely about the technology. It's about people—how we feel and function in the built environment and how our needs and preferences affect the natural environment. Can electric lighting be all things to all people? That's a tall order, but lighting professionals see lots of ways that it can be better, from technical performance to societal and environmental impacts. Here, the author (and L-Prize architect) addresses two areas where competitors can earn points above and beyond the competition's technical requirements: *product sustainability* and *diversity, equity, and inclusion (DEI)*.

THE TERM SUSTAINABILITY CAN have different meanings depending on the context or community. In lighting, sustainability means considering the complex aesthetic, technical, visual and non-visual needs of people, while at the same time equitably benefiting the economy, society and the environment. The transition from legacy lighting technologies to LEDs—due to mandatory and voluntary standards, electric utility incentives, government procurement rules and private

certification programs—brought a major reduction in operational energy use and associated carbon emissions.

However, because of this success, the lighting industry has been slow to adopt other sustainability approaches, such as materiality, circularity principles or embodied carbon reporting. With the L-Prize, the DOE is expanding the meaning of exceptional lighting performance to include material sustainability, diversity in organizations, transparency reporting, equity and inclusion, and product design principles for a circular economy.

Some of the factors driving the shift toward sustainability include procurement, internal company champions, pressure from clients and improved sustainability reporting options. This awareness is broadening the landscape of sustainability opportunities to include approaches such as reduction of materials used, circular



The DOE is expanding the meaning of exceptional lighting

design approaches, life-cycle assessments, and consideration of social impacts, energy equity and environmental justice. In any lighting project, product or team, sustainability goals and DEI goals need to be included holistically, from the early stages. These two topics are both linked to energy justice, which is the focus of DOE's Justice40 Initiative, designed to provide a pathway for equitable clean energy deployment to benefit communities that are overburdened, underserved, and have been disproportionately impacted by climate change and environmental injustice.

DIVERSITY, EQUITY AND inclusion in the workplace matters. Awareness of DEI in the workplace—including taking actions that transform approaches, behaviors, programs and practices to create and sustain diverse, equitable and inclusive environments—is already built into the fabric of some organizations. For others, DEI might be less familiar or something that people are uncomfortable talking about. The L-Prize aims to support DEI in the lighting industry, and provides suggestions and guidance on this topic. If DEI is not already integrated into the competitor's organization, or not being addressed fully, our goal is to educate and support the integration and adoption of

these policies or approaches.

The L-Prize Rules DEI section asks for essay-style summaries and documentation describing the competitor's programs that promote the representation and participation of different groups of individuals, including people of different ages, races, ethnicities, abilities and disabilities, genders, religions, cultures and sexual orientations. The DEI category is optional; it has no minimum requirements and is scored subjectively by an Expert Review Panel (ERP). The ERP will score submissions based on how well the documentation addresses the high-level goals and specific requirements outlined in L-Prize Rules. Points can be awarded for DEI plans or protocols addressing three areas:

1. Implementing effective DEI plans and protocols
2. Uncovering new DEI gaps and opportunities
3. Outlining DEI in deployment and application

JUST AS WE ADVOCATE FOR education and resulting action in aspects of DEI, the L-Prize implements an educational approach regarding improved sustainability and product life cycle. Like with DEI, circularity and product life cycle should be considered from the earliest design stages and throughout the design process. The L-Prize puts a specific emphasis on extended product lifetimes, circular design, and innovation in "material health" and "material transparency."

Material transparency refers to the disclosure of the ingredients and processes used to create materials or products, and their potential human health effects, environmental impacts, or social equity in manufacturing and

recycling or disposal. Material health describes the quality or "health" of the materials used, and how these materials may affect humans and ecosystems. Material health includes knowledge about chemicals used in



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products across their supply chains and chemicals of concern. As with the DEI sections, the product life-cycle sections in the L-Prize Rules list the requirements and provide multiple examples of actions or innovations that could earn points in these categories.

In the luminaire track of the L-Prize, for example, one of the product life-cycle requirements is “circular design,” which minimizes raw resource inputs as well as waste, pollution and carbon emissions. Shifting from a linear life-cycle pathway to a circular one in the lighting industry involves changing structures, economy and practices. This change can start with manufacturers at the earliest design stages, perfect for the Prototype Phase. Circular design aims to eliminate waste and maximize the continual reuse, repair and remanufacturing of components.

This L-Prize requirement seeks to reduce or maintain energy use over the lifetime of the luminaire, extend its useful lifetime, reduce the use and extraction of harmful materials, and decrease both operational and embodied carbon impacts using a modular design approach, reducing materials wherever possible. Competitors can earn points in this category using TM66, a technical memorandum and design tool developed by CIBSE and SLL to specifically address circular economy in the lighting industry.

The L-Prize Prototype Phase represents a golden opportunity to integrate sustainability into your approach early in the design process so you can maximize points throughout the competition and have a positive social and environmental impact at the same time. The ERP may also award points

based on innovations that use recycled, bioderived, biodegradable or low-toxicity materials; innovations that reduce the use of harmful materials such as polyvinyl chloride (PVC); and innovations that restore, renew or revitalize their own sources of energy and materials. We are looking for your unique sustainability innovations, and many other prompts and suggestions can be found in the L-Prize Rules. We are hoping to enable entrants to create products and systems that will move the needle on sustainability.

THE CONCEPT PHASE OF the L-Prize concluded at the end of 2021, and Energy Secretary Jennifer Granholm announced four winners this past February. We encourage the Concept Phase winners to move on to the Prototype Phase, but anyone can enter any phase of the L-Prize. We are excited to see your unique or novel sustainability approaches and hope to feature some great examples of DEI in the lighting industry. Whether or not you plan to enter the L-Prize, we encourage you to read through the L-Prize Prototype Phase Rules document. There you can find new perspectives about these important (and related) topics in lighting—diversity, equity and inclusion, and sustainability. Without a strong focus on both, we on the L-Prize team believe that no matter the quality of the luminaires and systems, we will in some ways be remaining in the dark.

Kate Hickcox is a lighting research scientist at Pacific Northwest National Laboratory, and one of the team members that designed the L-Prize.



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