CEM Global Lighting Challenge

The Clean Energy Ministerial's (CEM) Global Lighting Challenge is a global race to accelerate phase-in of high-efficiency, high-quality and affordable advanced lamps and lighting systems with a target of achieving cumulative global sales of 10 billion such units as fast as possible. A coalition of CEM governments - Australia, China, France, Germany, India, Indonesia, Korea, Mexico, Russia, South Africa, Sweden, the United States, and the Directorate-General for Energy of the European Commission – have so far endorsed the preliminary launch of the Global Lighting Challenge at the 6th Clean Energy Ministerial meeting in May 2015, with a full launch planned by the end of 2015. Additional CEM governments, including the Kingdom of Saudi Arabia, indicated their intent to join the race. The CEM Global Lighting Challenge will provide a platform for bringing together supporting actions and other contributions from governments, companies, development organizations, and philanthropies to accelerate the deployment of highly-efficient, affordable and high-quality advanced lighting solutions across residential, commercial, outdoor, and off-grid sectors.

Globally, lighting is responsible for between 15 and 19 percent of electricity consumption and 5 to 6 percent of global greenhouse gas emissions.[1] Over 1 billion people globally lack access to modern energy services, relying on highly polluting solutions for their lighting needs resulting in substantial environmental and health impacts. Replacing the current global stock of indoor and outdoor on-grid lighting with high-efficiency and high-quality advanced lighting systems would save more than $120B in avoided costs for electricity, kerosene, and candles; save an additional $233B in avoided capital investment in 280 new large coal-fired power plants; and reduce associated CO_2 emissions by 534 million metric tons every year.[2] Incorporating lighting control strategies has the potential to capture significant additional energy savings.[3]

High-quality, high-efficiency advanced lamps and lighting systems are becoming more affordable, while performance continues to increase. Markets are beginning to transition towards these more efficient lighting products, but more can be done to further spur their rapid deployment to capture substantial energy, economic, and climate benefits. A recent report[4] estimates that cumulative LED lamp and luminaire shipments for the commercial sector between 2014 and 2023 will reach around 10.7 billion and total (residential and commercial) annual shipments will reach 4.1 billion by 2024.

Endorsing governments agreed that the Challenge intends to:

- **Highlight and help accelerate existing national and international efficient lighting adoption activities**, and leverage the work by international implementation partners such as the World Bank / International Finance Corporation's Lighting Global program, UNEP/GEF's en.lighten initiative, the United Nation's Sustainable Energy for All initiative, and the International Energy Agency's Energy Efficiency End-Use Equipment (IEA 4E) Solid-State Lighting Annex (SSL Annex).

[1] http://www.se4all.org/energyefficiencyplatform/lighting/
[2] *Policy Options to Accelerate the Global Transition to Advanced Lighting*, UNEP, 2014. Available online at: http://www.enlighten-initiative.org/portals/0/documents/global-forum/Green_Paper_FINAL%20reduced.pdf
[3] According to a 2011 LBNL Meta-Analysis of Energy Savings from Lighting Controls in U.S. Commercial buildings the application of multiple lighting control strategies in a commercial space achieves an average of 38% energy savings for those controls. See http://eetd.lbl.gov/sites/all/files/a_metaanalysis of_energy_savings_from_lighting_controls_in_commercial_buildings_lbnl-5095e.pdf
[4] Navigant Research. 2015. *LED Lighting Global Outlook*
http://www.ledlighting-eetimes.com/en/led-lamp/luminaire-shipments-to-break-10-billion-mark.html?cmp_id=7&news_id=222909742

- **Seek supporting actions, consistent with the Challenge's guiding principles,** from energy and related ministries, public sector organizations , private sector manufacturers, institutional buyers, and funders that may contribute to reaching the Global Lighting Challenge target in an accelerated timeframe by supporting large-scale deployment of high-quality and high-efficiency advanced lamp and lighting systems. Such systems will include light-emitting diode (LED) lamps with integral controls, outdoor lights with control and off-grid quality-assured systems. Supporting actions could include a range of mechanisms, such as:

    - Incorporating performance criteria for such lighting systems into public procurement programs;
    - Seeking industry partners to commit to manufacturing and purchasing products that meet performance criteria laid out in guiding specifications;
    - Supporting development and implementation of national policy frameworks, such as minimum energy performance or quality standards, that reduce the risks of market spoiling and provide consumer protection from low-quality products;
    - Promoting complementary policy actions (such as financial incentive programs and product labels) to promote the adoption of high-quality and high-efficiency advanced lamps and lighting systems; and
    - Leveraging development assistance funds for energy access programs towards promoting super-efficient and high-quality off-grid lighting systems.

Endorsing governments acknowledged that **supporting actions should be consistent with the Challenge's guiding principles**:

- Commitments should utilize specifications for high-quality and high-efficiency products.
- Delivery approaches should strive to be self-sustaining and designed to minimize distortions to commercial markets.
- Programs should seek to ensure quality over the lifetime of the product/system, recognizing that quality assurance programs are generally most effective when implemented through performance-based approaches that are broadly harmonized and coordinated internationally.

The CEM Global Lighting Challenge Working Group intends to identify technical partners to inform the development of a set of categories of performance, drawing on existing efforts (e.g., Better Buildings Lighting Campaigns, SSL Annex quality tiers, SEAD Lighting Competition requirements, Lighting Global quality assurance program requirements and test method, International Test Method for LED lamps CIE S 025) that can be used to distinguish high-efficiency, high-quality and affordable advanced lamps and lighting systems.