

# **LED based solar lamps show the way**

With international pressure mounting on India to cut emissions in the fight against climate change, the government's goal of providing 'power for all' seems to be a tall order. The country remains critically dependent on coal for electricity generation. The government must promote off-grid electricity solutions from renewable sources like solar along with energy conservation if it wants to meet the twin challenge of universal electricity access and climate change.

Off-grid solar generation coupled energy efficient lighting solutions should go a long way towards meeting the two challenges. For example, most rural areas in India still lack access to grid-supplied electricity and burning diesel and kerosene is the only way for inhabitants there to get lighting. However, these power sources are highly polluting and bad for human health. Light emitting diode (LED)- based solar lighting solutions can pave the way for better rural development while reducing the country's carbon footprint.

LED-based solar lights—composed of a LED lamp, a photovoltaic solar panel and rechargeable batteries—are highly efficient and long lasting. They consume 50% less energy than CFL lamps but have double the shelf life. LED-based solar lighting is a low-cost solution for rural home lighting as it provides a uniform and constant bright light output for 11 to 102 hours.

If introduced on a mass scale, this lighting technology can aid rural empowerment, by providing extra study and working hours for students and skilled labourers after sunset. Being a low-cost and low maintenance product, the lamp can be used for applications like power supply for remote telecommunication equipment; monitoring systems for the oil & gas industry; traffic, security, signalling systems and other remote monitoring; water pumping systems; rural electrification and small home power systems; and rural commercial application systems.

In history, incandescent bulbs, which replaced gas lanterns, had become the one-stop solution for lighting the world over. Although energy guzzling, the bulbs were a more environment friendly option than the polluting gas lanterns. With science making progress, compact fluorescent lamps or CFLs that consume less power and lower carbon footprint have become the favourites, only to be replaced by the more efficient light-emitting diodes or the LEDs. LEDs based on solar power models are more efficient than traditional forms of lighting.

According to National Sample Survey Organisation statistics, lighting is one of the most essential end-uses of electricity in rural areas where about 39% of households still use kerosene to meet their lighting requirements, thus creating the need for an alternative lighting solution.

LED-based solar solutions, if used effectively, can become a boon for an energy starved but solar abundant country like India. While factors like high luminosity, energy sustenance, longevity and monetary incentives by government work a long way in making it a preferred medium of rural lighting, steps should be taken in to bring down the cost of the lamps to bring it more affordable to the rural populace (Financial Express 27-12-11).