

## **Best Practice: Solar Powered Emergency Street Lights**



<b>Category:</b>	<b>Lighting</b>
<b>Location First Observed:</b>	Ports of Chennai & Eenore, India
<b>Date First Observed:</b>	May, 2005

**Description:** Inside each gate, the port had installed solar powered emergency street lights to supplement port security lighting in event of a power outage of the primary and secondary power sources.

**Discussion:** Solar powered emergency street lights consist of a photo-voltaic panel to collect solar energy and convert it into DC electricity, a bank of batteries to store the electricity, and a DC power light fixture to convert the stored electric into lighting when other lighting was unavailable. The Ports of Chennai and Eenore used these lights at each of their facility entrances, as backup power to both their municipal electric and their diesel emergency electric generators. The solar lights require almost no maintenance, are long lasting, and require no outside fuel source (except sun). Depending on the make and model, a fully charged light can provide light during 8 – 16 hours of darkness. Lights can be adjusted to either automatically light at dusk or when electric municipal power goes out, or for manual switching.

**Potential Down-side:** Over time, batteries and photo-voltaic cells start to wear out. Deep cycle batteries have a life expectancy of 2 – 5 years and are inexpensive to replace. Photo-voltaic cells have a life expectancy of ten – fifteen years, with a gradual loss of efficiency after five years. Extended weeks of cloudy or overcast weather can result in inadequate charging of the batteries.

**Conclusion:** In locations that receive an above average amount of sun, solar powered lighting can be an excellent emergency lighting source. Initial cost for purchasing the lights can be significantly (2 - 3X) higher than lights attached to municipal electric, but reduce the need to run overhead or buried wires, or to install emergency electric generators as a back-up lighting source.

**Cost:** Approximately \$2,000 USD per light fixture, including installation.