

## SolarInnovate Energy Solutions

# The lighting effect of solar lights at night



## Overview

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How does artificial nighttime lighting affect ecosystems?

Variation in the spectral composition of artificial nighttime lighting doubtless influences the nature and extent of the impacts on ecosystems. Much remains to be understood about these effects. However, broader spectrum lighting enables animals to detect objects that reflect light over more of the spectrum to which they are sensitive.

How has artificial lighting changed the outdoor nighttime environment?

Artificial lighting has transformed the outdoor nighttime environment over large areas, modifying natural cycles of light in terms of timing, wavelength, and distribution.

Why is nighttime lighting important?

Indeed, some cities, such as Shanghai, have achieved iconic status through intensive use of nighttime lighting to create a distinctive nighttime skyline. The Cities of Light Partnership (LUCI) actively promotes such lighting as a means of increasing tourism revenue in cities across Europe.

Is artificial light at night affecting human activities?

Human activities are almost exclusively associated with brightly lit environments. The last century has seen an unprecedented increase in the use of Artificial Light at Night (ALAN), with a current ongoing global increase rate of more than 6% per year (Hölker et al., 2010). This is dramatically affecting land as well as aquatic and open sea areas.

What are examples of artificial lighting at night?

Examples of artificial lighting at night. (a) Aesthetic lighting of buildings, Prague, Czech Republic; (b) city centre lights of Brisbane, Australia; (c) lights of the city of Plymouth, UK; (d) car park lighting, St Ives, UK; (e) beach-side lighting St Ives, UK; and (f) ships' lights in Falmouth Bay, UK. Photographs by J.

Duffy and K.J. Gaston.

How have humans changed the outdoor nighttime light environment?

Humans have dramatically transformed the outdoor nighttime light environment. The introduction of artificial lighting, and particularly electric lighting, has disrupted natural cycles of light and darkness that had previously been rather consistent over long periods of geological and evolutionary time.

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