



PROJECT. Sustainable Living Concepts

Subproject: Intelligent Solar Lighting

We created a Master Development Plan for Energy saving Lights in Ghana

Our Main Target is : to install Factories in Ghana producing Lights for the whole african market

Project Description:	Pcs.	Timeframe :	Investment	MW
Solar Street Lights	4.000	Q2 to Q4 2016	1.200.000 USD	0,16
Solar Street Lights	6.000	Q1 to Q4 2017	1.800.000 USD	0,24
Solar Street Lights	10.000	Q1 to Q4 2018	3.000.000 USD	0,4
Solar Street Lights	15.000	Q1 to Q4 2019	4.500.000 USD	0,6
Solar Street Lights	20.000	Q1 to Q4 2020	6.000.000 USD	0,8
Total Amount	55.000		16.500.000 USD	2,2
Generated Jobs for Ghana with this Project (until 2020)			300	



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Solar street lights are raised light sources which are powered by photovoltaic panels generally mounted on the lighting structure or integrated in the pole itself. The photovoltaic panels charge a rechargeable battery, which powers a LED lamp during the night.

Features

Most solar panels turn on and turn off automatically by sensing outdoor light using a light source. Solar streetlights are designed to work throughout the night. Many can stay lit for more than one night if the sun is not available for a couple of days. Older models included lamps that were not fluorescent or LED. Solar lights installed in windy regions are generally equipped with flat panels to better cope with the winds.

Latest designs use wireless technology and fuzzy control theory for battery management. The street lights using this technology can operate as a network with each light having the capability of performing on or off the network.



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Advantages

- Solar street lights are independent of the utility grid. Hence, the operation costs are minimized.
- Solar street lights require much less maintenance compared to conventional street lights.
- Since external wires are eliminated, risk of accidents is minimized.
- This is a non polluting source of electricity
- Separate parts of solar system can be easily carried to the remote areas





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Report in "THE GUARDIAN" September 2014:

Bright idea: transforming Ghana with street lights.

The Ghanaian government thinks better street lighting can help tighten security, improve living standards and even boost foreign investment. How does the project work?

Street lights are a fundamental component of any city's infrastructure, providing safety and security benefits to communities and businesses. However, the high cost of installation and maintenance can prove prohibitive for developing countries, leaving road users at risk and districts in darkness.

A 2013 publication on pedestrian safety by the World Health Organisation lists inadequate visibility as one of the key risk factors for pedestrian road traffic injuries (RTI). Pedestrians are more likely to be struck by vehicles during periods of low light such as dawn and dusk, and at night. Results from studies carried out in Australia reported a 59% reduction in pedestrian crashes following improvement in roadway lighting.

In Ghana, the rate of pedestrian RTIs is disproportionately high, making up more than 40% of all road-user fatalities. In 68% of those cases, vehicles had struck pedestrians when they were in the middle of the road.

The Ghanaian Ministry of Energy lists provision of street lights in its 10 regional capitals





and some district capitals as one of its main achievements. Even so, huge infrastructural issues such as irregular power and fuel supplies and nationwide blackouts remain. According to a 2013 US Government report, Ghana is experiencing an infrastructural funding gap of at least US\$1.5bn (£0.9bn).

In a 2011 draft policy document on street lighting, the Ghanaian government stated that a "lack of adequate developmental, regulatory and operational framework on streetlights over the years has rendered their continuous expansion untenable."

To put it into perspective, Ghana's total road network length is almost 117,000km. In May 2013, the reinstallation of street lights along a 19km stretch of road from Peduase Lodge to Aburi in Ghana's eastern region cost approximately £420,000, and provided an improvement of only 0.2% of the total road network. At a



time when the government is also facing challenges of cable and bulb theft on other parts of the network, it's clear to see why progress has proven slow and costs remain high.

However, despite the challenges, in a bid to tighten security, improve living standards and even encourage greater foreign direct investment, the Ghanaian government announced a new countrywide street lighting project which began in earnest in January. Pilots have already been successfully launched in Tema, Ghana's main harbour town, with a population of over 160,000, and all of the major roads in Kumasi, one of Ghana's largest economic and industrial hubs, where damaged lights will be repaired and new solar-powered lights installed.



Over the past five years, foreign governments and big businesses have also taken an interest in enhancing visibility on Ghana's roads. In October 2012, Ghana secured \$1.2m in funding from the Chinese government to install street lights in Cantonments, one of Accra's most exclusive areas. Two years prior, Philips Light in partnership with the Dutch and Ghanaian governments committed to installing energy-efficient lights along 420km of road between Accra and Kumasi.



Non-governmental organisation Amend have created reflector-enhancing school bags for children as part of their See and Be Seen Campaign, which their research claims improves a child's visibility to other road users by 400%.

What impact has this latest investment in street lights had on Ghana's communities so far? Paul Bampo, CEO of Crime Concern Ghana, a community-based organisation promoting safety awareness to reduce crime and fear of crime, said, "One of the basic problems is lack of light at night. The lighting system hasn't improved enough to link it to a reduction in crime. In new communities where the city is expanding people are building new houses but there is no proper civic planning and people are living in darkness."



Picture: The exclusive Development of a Hight Tech Street Solar Light.

It turns on and off automatically by sensing outdoor light using a light source. We use wireless technology and fuzzy control theory for battery management. The street lights using this technology can operate as a network with each light having the capability of performing on or off the network. This innovative product is going to be produced in our factory in Ghana.



Regarding the theft of light bulbs, he added, "People stealing bulbs was a problem but now measures have been put in place to forestall that. The police are on high alert." And while the changes may not be immediately noticeable, he is confident that street lights do make a difference to safety and security. "I believe once the lighting project is completed, it will significantly help in reducing the crime situation."

Where there is progress, there is also usually politics, and while the Ghanaian government is confident that street lights will make for safer communities across the country, renewed investment in this project also serves as a big tick in the Better Ghana Agenda box, the government's action plan for socio-economic development.

Plus, if this project is completed and managed efficiently, it could lead to lucrative spin-offs, attracting the foreign direct investment Ghana needs and serving as a model for other developing nations.



WALL LIGHTS



GARDEN LIGHTS



EMERGENCY LIGHTS



STAIR LIGHTS



Picture: Our latest development: The Jupiter Solar Umbrella provides pleasant shade and seating, as well as effective lighting at night. additionally it produces electricity that is fed into the power grid. This innovative product is going to be produced in our factory in Ghana.