

Joburg stops traffic with solar power



Like many other major global cities, Joburg is harnessing its resources to go green, or amber... or red. The City's solar traffic lights are just the beginning of an eco-friendly game plan. THE Johannesburg Road Agency (JRA) has completed the installation of solar-powered traffic lights at five critical intersections in the City. This is in a bid to ease traffic congestion during a power outage. The high-tech traffic lights have been placed at the corner of Loveday and Rissik streets, the Grayston on and off-ramps from the M1; the corner of Grayston and Rivonia roads and the corner William Nicol and Sloane streets.

The solar-powered traffic lights were installed at an initial cost of R1,65-million. JRA Spokesperson, Conel Mackay said they were closely monitoring the performance of the solar traffic lights, under South African weather conditions. "Our traffic signal control boxes are being fitted with communication devices that automatically give feedback to our maintenance team if there is a fault at the intersection," he said. He added that JRA was also installing CCTV cameras to visually monitor the network performance. "This will assist JRA with responding to faults quicker," he said.

Explaining the rationale behind the project, Mackay said the purpose of installing solar-powered traffic signalling was to provide a source of clean, renewable energy and save on electricity costs. "Also, we are hoping to look at other alternative energy sources for traffic signals such as wind power fuel cells and uninterrupted power supply for traffic lights," he said.

He added that JRA had already earmarked 400 critical intersections across the City for solar power installations. "The intersections were chosen to accommodate the 2010 demands and help the police cope with the challenges," Mackay said.

Design

The traffic lights are powered by a solar panel, tilted at a 30-degree angle to ensure maximum efficiency in capturing the sun's rays. According to Mackay, the rays are received by the photo voltaic panel array where they are converted into electric power and transmitted to a set of batteries.

"The regulator determines the energy capacity needs of the batteries and fills the required amounts," said Mackay. "The inverters transform the power from the batteries in to the direct current required to power the traffic signals." Solar lights are designed to provide illumination automatically from dusk to dawn. Each system can charge itself, store and produce electricity even on overcast days. To prevent vandalism, the solar panels are located at the top of a 6m pole, while the batteries are placed in support case made of cement. The traffic signal globes were retrofitted with light-emitting diodes (LEDS) which consume less electricity than conventional light bulbs. LEDs also last for a minimum of five years as opposed to the three-month lifespan of the conventional light bulbs. "The direct benefits will be realised on the reduction of electric consumption as well as a drop in maintenance, since the LEDS consume less energy and last longer than normal bulbs," said Mackay. The solar-powered traffic-light systems have been operational in Europe for years and, more recently, have been manufactured in Jap

For more information : http://www.engineeringnews.co.za/article.php?a_id=131170