

# Back-Up power in times of power outages

**The Johannesburg Roads Agency (JRA) is currently implementing the “Total Energy Solutions Project for traffic signals (robots). The goal of the project is to have all traffic signals powered by alternative energy solutions subsequently saving 56373 Mw/h on energy consumption. The solutions will include use of renewable energy sources such as solar or wind power and alternative energy sources such as fuel cells and UPS ,uninterruptible power supply batteries.**

A total of 400 critical intersections across the city have been identified and audited as pilot sites for energy solutions implementation. The intersections were chosen considering congestion, 2010 soccer spectacle, pressure areas during power outages as well as those that provides opportunity for smash and grabs as identified by the Metro police.

At the moment 5 solar panel installations has been completed and they are being monitored for performance on the South African conditions, such climate and environmental impact, vandalism, damage as well as durability and sustainability. A total of 60 UPS installations on the BRT routes intersections have been completed, lastly, more than 350 intersections are retrofitted with LED lights which consumes little energy, last longer and are brighter to improve on road safety.



*Picture: Solar Panels and battery back up for traffic signals.*

The 5 intersections with solar panel are Grayston Drive both M1 South and North, De Korte and Rissik in the city centre, Coner Rivonia and Grayston roads in Sandton as well as Sloane and William Nicol Streets.

The installation of the alternative energy sources at the intersections has improved the flow of traffic during the power outages. The recent rains have led to number of traffic signals experiencing faults and power outages, with an exception of the signals fitted with UPS and solar panels.

While the availability of traffic signals during power outages is a welcome relief, the focus still remains on energy saving and the JRA intends on removing all of its 2000 signalised intersections from the Eskom electricity grid and power them with alternative energy sources such as solar power. Currently the energy consumption of the traffic lights using 50/75 watt incandescent globe is 13020 Mw/h per year. When the JRA has completed with retrofitting all traffic lights with 8 watt LED's the consumption will only be 1745.5 Mw/h per year, resulting in a saving of 86.6% on energy consumption.

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The projected financial savings of R49.12 million over 5 year period are anticipated on completion of the project.

	Existing Light	LED Light	Savings
<b>Energy consumption (5yrs)</b>	<b>65,100 Mw/h</b>	<b>8,727 Mw/h</b>	<b>56,373 Mw/h</b>
Energy Consumption R-value	<b>R 19.53 million</b>	<b>R 2.62 million</b>	<b>R 16.91 million</b>
<b>Maintenance cost (5 yrs)</b>	<b>R 35.79 million</b>	<b>R 3.58 million</b>	<b>R 32.21 million</b>
<b>Total Savings (5 yrs)</b>			<b>R 49.12 million</b>

***“The installation of the alternative energy sources at the intersections has improved the flow of traffic during the power outages”***