



First 'green' transport facility in South Africa unveiled



SOLAR PV

The City of Cape Town has unveiled the first 'green' transport facility in South Africa that generates its own electricity, enabling it to operate off the electricity grid. Furthermore, all the water used at this facility, besides drinking water, is provided for through rooftop rainwater harvesting and recycling.



The Wallacedene taxi rank is the first public transport facility in the country to be regarded as a 'green' building from its very foundation to the rooftop. It is largely self-sufficient in all its energy needs and saves thousands of litres of water through clever design.

"The City of Cape Town is extremely proud to be at the forefront of combining intelligent architectural design and technology in our effort to improve service delivery to our residents. The Wallacedene taxi rank sets the benchmark for future public transport facilities in the country, showcasing the City's commitment to conservation and innovation," said the City's Mayoral Committee Member: Transport for Cape Town, Councillor Brett Herron.

This taxi rank uses a rooftop solar photovoltaic (PV) panel system, arrayed at optimum orientation to the sun, for its electricity generation. It is equipped with 24 large batteries for the storage of reserve solar electricity to be used at night or on cloudy days. From the LED lights under the roof, to the electronic gates at the entrance and the hydro-boils in the kitchen – everything is powered by this PV system.

"In fact, since 1 August 2014, this facility (has) only needed one hour's worth of electricity from Eskom (this is an Eskom supply area), which we believe was needed only because the contractors used power tools on site during the final construction phase," said Councillor Herron.

It is estimated that the capital cost of this solar installation will be recovered within six to 10 years in monthly energy cost savings.

In designing this taxi rank, the City's architects have also taken into consideration the huge demand for water at this site for the washing of taxis. The use of potable water for car washing is regarded as a colossal waste of resources – from the precious source itself, to the infrastructure and electricity required to filter and pump the water.

Thus, the taxi rank was designed to be self-sufficient in meeting its basic water needs, firstly through the harvesting of rainwater and secondly by recycling up to 70% of the water used at this facility through an underground filtering and reclamation system.



See the Light



“One of the most exciting features of this facility is the manner in which we are using the rank’s considerable roof area for the harvesting of rainwater. The rainwater is stored in an underground tank system with a storage capacity of up to 20 000 litres and is equipped with the necessary infrastructure to pump this water to the washing bays,” said Councillor Herron.

This water savings system is to the benefit of the residents, the City and taxi operators alike: potable water will be conserved and there will be a considerable reduction in monthly water bills (which could amount to savings of approximately 40%), thereby ensuring the future sustainability of the taxi rank washing bay.

The City anticipates that the Wallacedene public transport facility will achieve a four-star rating from Green Star South Africa, a rating system used by the Green Building Council SA to measure how green buildings are, once the rating process has been concluded.

About 5 000 commuters will be arriving at or departing from this taxi rank on a daily basis, with approximately 50 minibus-taxis operating from there.

Previously, the passengers and operators had to operate from an open piece of land with no formal infrastructure. However, henceforth they will no longer be standing in the rain or walking through mud. There are full flush toilets at the facility, recycling bins, as well as loading bays for the operators, and benches for commuters who are waiting for the next available taxi.

Furthermore, trading opportunities have been created for local entrepreneurs with the provision of six informal trading bays and two kiosks just outside the facility.

“We have spent approximately R25 million to build a public transport facility that is safe, secure and decent and the City is certain that the elderly, women, children and people with special needs in particular, will benefit from this new development. This project is a confirmation of our commitment to improving our residents’ access to public transport, especially those who live far away from opportunities and amenities, spending about a third of their income to get to work and back,” said Councillor Herron.

The consumption metre at the Wallacedene public transport facility indicates the facility’s electricity usage and source of electricity at any given hour and day. For example, the blue lines indicate the usage of the reserve solar electricity that has been stored in batteries, the yellow lines indicate the direct usage of solar electricity from the PV roof panels, and the red indicates the usage of Eskom power which has been less than 1%, or approximately one hour, since 1 August 2014.

Reserve solar electricity is stored in 24 batteries in the battery room and the Wallacedene public transport facility can tap into these reserves at night or on cloudy days.



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