



Echelon NES Smart meters enable selective backup-generation at Clearwater Mall allowing tenants to opt in or out of program

Clearwater Mall is a large shopping mall situated on the West Rand of Johannesburg with over 90 000m² gross lettable area. The tenant mix consists of nine majors and a balanced mix of local and international fashion outlets, fast food outlets, restaurants, banks, electronic goods and other speciality outlets making up the bulk of the more than 240 tenants.

In 2009 South Africa experienced a major shortage of electrical energy with rolling blackouts becoming commonplace. The situation has improved temporarily as a result of the economic downturn and cut backs in major mining and aluminium smelter projects, but this is however only a temporary relief since the problem can only effectively be solved by increasing the base-load generation capacity for the country, which will take more than a decade to complete.

It is anticipated that energy shortages will continue to be a fact of life in South Africa for some time to come. These blackouts, while annoying to domestic users, have a devastating effect on the commercial sector and Shopping Malls are particularly badly affected.

Most anchor tenants have the ability to provide their own emergency generation, but this is simply not possible for the smaller tenants. Although the malls themselves have emergency generation, the capacity of these generators is only sufficient to provide power to emergency supplies such as essential lighting systems, elevators etc.

The owners of Clearwater Mall decided to solve this problem by installing additional generation capacity over and above the regular emergency generation, sufficient to supply electrical energy for near normal operation for most tenants in the mall.

The majority of tenants in the mall saw the potential benefits of the additional standby generation and were prepared to contribute to the capital and running costs of the generators, but not all tenants opted in to the project.



The problem then was to find an equitable method to allow those tenants who opted in to use of the facility to pay for it, while ensuring that those tenants that opted out did not get the benefit of the system and to ensure that the generators are not over-loaded.

The solution implemented by PMT was to leverage the functionality of Echelon NES smart meters, which were installed for all tenants as part of a sub metering upgrade for billing. The whole-current Echelon smart meters are all equipped with an integral disconnect switch and the CT connected meters used for loads larger than 100A are similarly equipped with a control relay output to enable remote operation of a circuit breaker.

A customised software application was developed as part of the Meteringonline system, which allows an administrator to select whether tenants have opted in or out of the generation scheme.

Simple transducers are placed at each of the five emergency generators to provide a signal to Meteringonline in the event that there is a power failure. The Meteringonline software then disconnects the supply to all the tenants that have not opted in, leaving full supply to the tenants that have. Once normal power is restored to the shopping centre, the transducers send the appropriate signal to the Meteringonline application and power is restored to the disconnected tenants.

Depending on the quality of the GPRS network at the time, the process of switching tenants on or off takes only a few seconds. Meteringonline accurately records the exact amount of energy used during the outage and a monthly report is provided to the Mall for reconciliation.