



A South African flagship for communal energy independence



AdSolar Efficiently used up most of the available roof space to install all the PV modules needed to power the development.

Schneider Electric and AdSolar collaborated to build a unique solution giving energy independence and self-sustainability to a high end residential estate development in South Africa using a community level centralized storage with decentralized power generation.

Background

At a time of rolling black-outs on the South African electricity grid, AdSolar was tasked with designing a power solution for 11 new homes in a luxury estate development in the Upper Highway area of Durban's western suburbs. The goal was to provide power generation, delivery and security without compromising the homeowners' lifestyle. Given the complexity of the project, AdSolar selected a solution from

Schneider Electric's broad range of solar technologies to meet their client's needs.

The cost of grid power in South Africa is ever increasing to allow utilities to maintain and expand their distribution networks and generation capacity. This increase in power costs in South Africa combined with deteriorating grid stability is pushing more consumers to want to take control and go off-grid.

Rolling black-outs leave homes in South Africa exposed to the risk of crime, food decaying in fridges and freezers or simply the inconvenience of power going off when you need it most (in the middle of preparing your meals, showers in the morning, kids not being able to finish homework at night).

Homeowners paying to be off-grid want the process to be easy and simple. They do not want to have large, potentially dangerous, battery banks (that require ventilation and maintenance) standing in their garages or noisy diesel generators that require constant refueling. They want the luxury of energy security without having to make adjustments to their lifestyles and without paying premiums.

From the perspective of the utilities and developers – in outlying regions in places



5 kW Conext RL Inverter installed in each home



The multi-cluster is made up of 9 x 8.5 kW Conext XW+ inverters, which are all connected to a 5600Ah battery bank. In the battery room, a 20 kW Conext TL grid-tied inverter also manages the harvesting of additional solar energy



A bird's eye view showing the decentralized production with centralized storage architecture used on the One Everton Road project. The installation consists of a 76kW battery based installation and 11 grid-tied inverters all connected to keep the development running off-grid

like South Africa, it is becoming harder to get access to reliable (or even any) grid power for new developments. Further, the utility is often concerned with the impact large grid connected hybrid systems have on the safety and stability of the grid.

Schneider Electric Solution

After careful design and optimisation, AdSolar and Schneider Electric decided the best solution for this project would be to implement a centralized storage solution using a nine unit Conext XW+ multi-cluster with 10 sources of decentralized power (AC coupled grid tied inverters).

This design architecture was selected as it allowed for a far simpler and easier interface for homeowners – each home was equipped with a 5kW grid tied inverter that requires no daily maintenance and is safe and easy to operate. Homeowners are able to monitor their grid tied inverters via the Schneider Electric Conext Monitor 20 or via the Conext Combox interface.

The 5600Ah of storage in the Battery Room, which also houses a 20kW TL grid tied inverter, puts all the storage in one place. This gives the opportunity to homeowners to harvest any excess production, allowing them to bank power for future use. The multi-cluster and Conext TL inverter can be monitored via the Combox, locally, or Conext Insight from anywhere in the world.

The robustness and reliability of the Schneider Electric Conext XW+ range of products combined with the efficiency of the Schneider RL and TL grid tied inverters made Schneider Electric's the first choice as a hardware supplier. AdSolar has relied on the flexibility of the Schneider Electric offer for a number of complex hybrid applications allowing them to install this system and set it up in a remarkable short span of time.

'Schneider Electric is our preferred partner for our complex off-grid projects because they offer such a comprehensive solution for everything ranging from the electrical protection through to the solar inverters and logic control'

– Lloyd Wilford, CEO, AdSolar

Impact

Using a Schneider Electric 76kW multi-cluster with multiple decentralized, grid tied inverters, AdSolar was able to realize the dream of an up-market estate designed to run off-grid with absolutely no compromise to lifestyle. Luxury living can be delivered with reliable energy independence where all power is delivered through sustainable means.

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