

# African villages electrification

**Marc Guirguirian**

Elodie Hestin

Socomec

Route de Westhouse, 67235 BENFELD

Phone: +33 7 60 92 95 12

E-mail: marc.guirguirian@socomec.com

Website: www.socomec.com

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## **Electrification: what are the options?**

The electrification of African countries is becoming increasingly vital, not only to serve basic human needs, but also to access commercial and developmental opportunities.

The first and seemingly simplest solution is to install additional diesel generators to provide electricity over a longer period of time. Despite appearing straightforward, this solution has several drawbacks; in some remote areas, access can be a significant challenge not only in terms of installation but also when it comes to refueling. Additional generators come at a price, with the rising cost of fuel being a serious drawback but also in terms of the negative environmental impact. The associated increase in CO2 emissions is in direct conflict with wider sustainability objectives making it both impractical and unattractive to deploy additional generators.

A second solution is the installation of large scale photovoltaic plants of several tens of MW, used as standard thermal power plants to guarantee a stable power supply. Generally, these are connected to the grid and their size is sufficient to cover the annual needs of the population, enabling access to education and medical care, for example. On the down side, however, it doesn't work for isolated sites that are not connected to the grid.

For these off-grid isolated sites, creating new infrastructure for connection to the grid is not a workable solution – as well as being cost-prohibitive, the complexities in terms of access are difficult to address successfully. In the case of industries, hospitals, entire villages or even islands, the most pragmatic solution would be the installation of solar panels in conjunction with a battery energy storage system; this was exactly what was done by us in the project we will present you.

## **18 months to electrify isolated African Villages**

A project has been running in Senegal since 2017 to electrify very remote areas.

The tens of MWp of PV installed for this project aim to meet the annual needs of 140,000 people - whilst also reducing atmospheric CO2 emissions amounting to 18,919 tons per year. In addition to solar panels, the plants also include generator sets and batteries.

To support this development, Socomec supplied and installed 4 energy storage systems – from 132 kW / 183 kWh to 396 kW / 731 kWh - composed of lithium-ion batteries, with Socomec DC and AC distribution cabinets and controllers. Delivered in maritime containers, the installation supplies 4 islands; with a combined total of 1 MWp of photovoltaic panels, they reduce the use of the Gensets, diesel consumption and harmful CO2 emissions - and provide the islands and other remote locations with unprecedented reliability and control.



