

**Founded in 2005**, ENERSOL is located in Battice (close to the city of Liège), **in Belgium**. It consists of a bonded warehouse, a workshop and offices where the sizing and the planning of works happen. Our company employs **about 50 people**: engineers, technicians, electricians, heating specialists, roofers and administrative staff. As of today, ENERSOL is one of the most important solar energy installer in Belgium. To date (2016) it has setup **about 30MWp of photovoltaic installations in Belgium and abroad**.

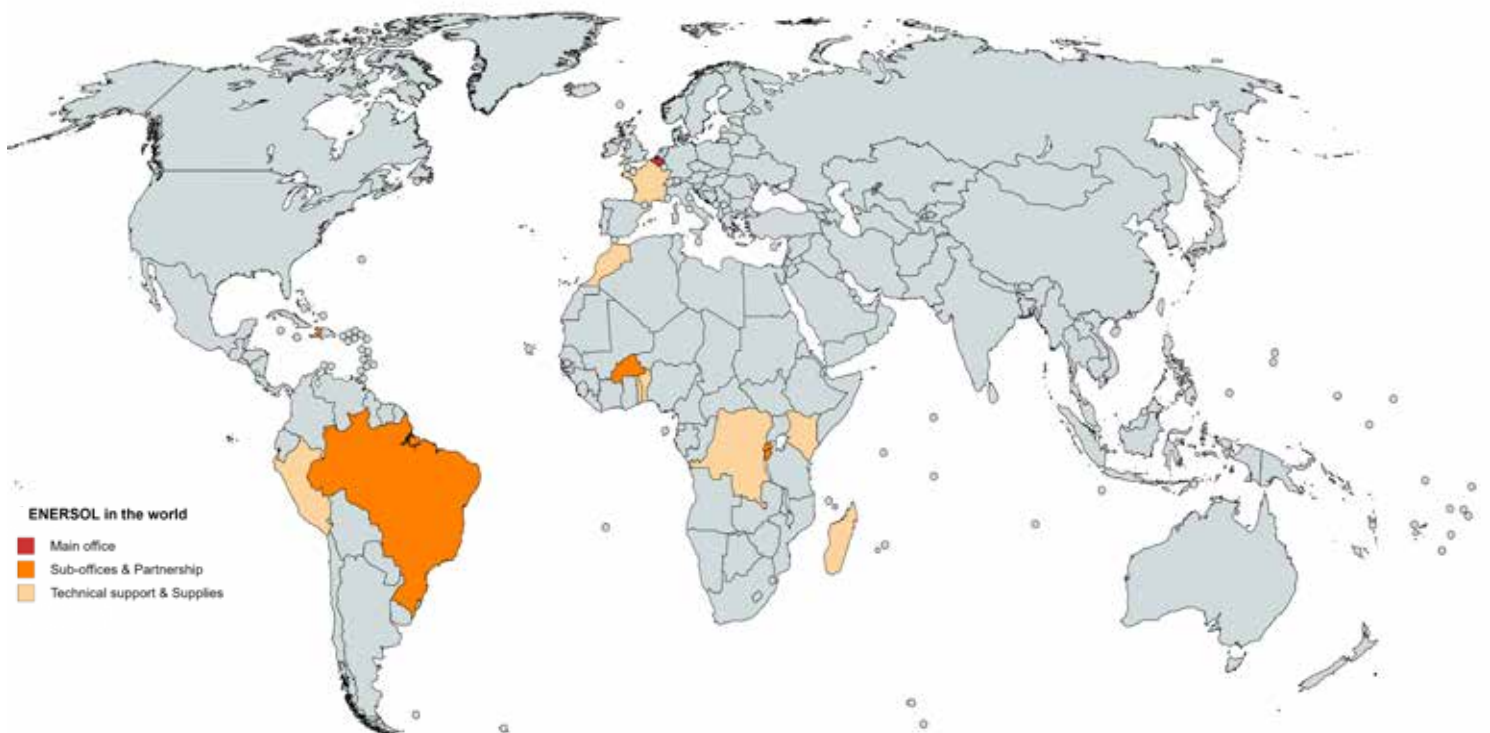
Throughout its evolution, ENERSOL has integrated the values of **sustainable development** and our company wants **to improve access to energy for southern countries**. It sets up **partnerships with local qualified partners** in order to guarantee the technical follow-up of the installations. For this reason, ENERSOL created a department devoted to off-grid areas, called Eneroffgrid.

Based on a very good experience of southern countries, ENERSOL's goal is to be able to provide appropriate solutions to local needs, precise information and fair prices.

For larger installations, ENERSOL engineering consultants have necessary skills to take care of each project from A to Z.

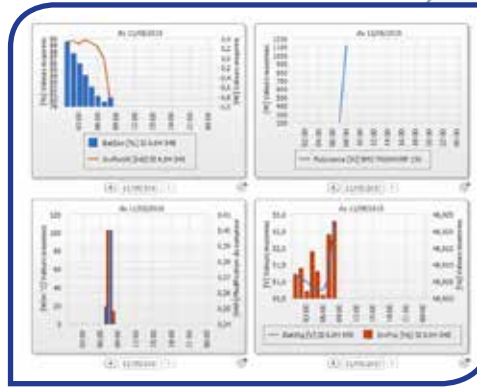
Eneroffgrid engineering department offers services for various applications as **off-grid electrification, solar pumping, solar heating** (for domestic hot water or for some industrial applications), **streets LED lighting**, full solutions & solar generators containers, **studies** of specific solutions. We work with **renowned brands**, mainly **made in Europe**.

## OUR EXPERTISE FOR YOUR ELECTRICAL INSTALLATION IN OFF-GRID AREAS !



ENERSOL aims to create an installators network and empower them offering trainings, assistance and technical advice in order to make them able to manage and maintain off-grid installations. We currently have sub-offices and/or partnership offices in Brazil, Burkina Faso, Burundi, Haiti and Rwanda. Beside that we work as contractor/service provider/supplier in other countries.

## Offgrid Hybrid PV + genset/grid + monitoring - Burundi



**Remote monitoring**  
load, production, batteries, consumers...

**Remote control**  
On/Off genset, consumers, PV...

**Available for all On&Off-grid installations**

## Offgrid Hybrid PV + genset – Kinyinya Hospital in Burundi

**PV 18 kWp** PV module IBC Solar (DE)  
Inverters SMA (DE)

**Genset 60 kVA** existing

**Batteries 160 kWh** Sonnenshein (DE)



## Offgrid Hybrid PV + Electrification - 40 health centers - Burundi



**PV 2 kWp** PV modules ISTAR (IT)  
Solar charge controller Steca (DE) and Western & Co (IT) - Inverter Studer (CH)

**Batteries 33 kWh** Sonnenshein (DE)

**Wiring and LED lighting**

## Offgrid Hybrid PV + genset/grid – Université Catholique de Kinshasa - RDC

**PV 18 kWp** PV modules BOSCH (DE)  
Inverter SMA (DE)

**Genset 50 kVA** existing

**Batteries 190 kWh** Sonnenshein (DE)

**Wiring and LED lighting**



## Offgrid Hybrid PV + genset – Port Au Prince - Haiti



**PV 6 kWp** Siliken (ES) - Solar charge controller and inverters Outback (US)

**Genset 20 kVA** Europower (BE)

**Batteries 120 kWh** Sonnenshein (DE)

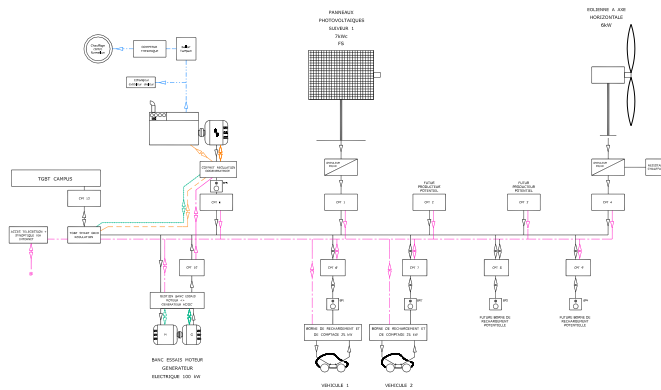
## Offgrid PV + Wind turbine + CHP – Francorchamps - Belgium

**PV 7 kWp** PV modules Panasonic (KO)

**Wind turbine 6 kW** Braun (DE)

**CHP 50 kVA / 84kWh** CogenGreen (BE)

**Storage in car batteries** Nissan Leaf



## Offgrid Minigrid Hybrid PV + genset - Water treatment plant - KENYA



**PV 41 kWp** PV modules S-Energy (KO) - Inverters SMA (DE)

**Genset 66 kVA** SDMO (FR)

**Batteries 260 kWh** Sunlights (GR)

**6 Solar water heaters 3 m<sup>2</sup> / 200L** Heliokmi (GR)

## Offgrid hybrid PV + genset - Boat

**PV 3 kWp** Sunpower (FR)

**Genset 8 kVA** existing

**Batteries 20 kWh** Sonnenshein (DE)

**Heatpump water heater 200L**





## Hybrid PV + Windturbine + Heatpumps + Biomass Boiler - Enersol office - Belgium

**Construction** : passive building, energy positive  
**PV 40 kWp** PV modules ISSOL (BE) - Inverter SMA (DE)  
**Wind turbine 5 kW**  
**Batteries 80 kWh** Propower (LU)  
**UPS 60 kVA** Visionups (LU)  
**Heatpump air/water and ice/water** Viessmann (DE) and Panasonic (JP)  
**Pellet boiler** Ecometis (FR)



### AEEP Energy Access - Best Practices 2016



- **Organisation:** SM ENERSOL-ETRAVE
- **Title:** Installation of 150 PV off grid mini-power plants on 40 health centres and one hospital with 20 kWp
- **Location:** Eight provinces in Burundi
- **Year of completion:** 2015



#### The Companies

ENERSOL SPRL (Belgium) was responsible for the technical and engineering part of the project, the on site assistance and for the logistics from Belgium to Bujumbura. ETRAVE (Burundi) was responsible for all logistics and administration issues in Burundi, the devices installation and the construction of cabinets with the technical support from ENERSOL.

#### The Challenge

The challenge was to complete the project within six months, while transportation alone took up to two months. Moreover, very specific products and large quantities of batteries, inverters and others LED bulbs had to be used. ENERSOL and ETRAVE set up the off-grid PV system and the electrification for each building, including installation of light, switches and power plugs. Each of the 40 health centres was installed in one day (around 17 panels, 16 batteries, 1 km of cables, 50 LED bulbs with sockets, 20 power plugs for each centre). A 20 kWp PV system was also set up at the Kinyinya Hospital in Burundi.

#### Opportunities for Renewables

The installation supply energy to conserve vaccines correctly and enable future mothers to give birth in acceptable health conditions.

#### Renewable Solution

680 solar panels, 680 12V/230Ah batteries and 150 inverters were installed. 100 metal cabinets were constructed to minimise the risk of burglary or destruction. A second project for an hospital was realised in Kinyinya, Burundi, and consists of a 20 kWp PV system with 48V/4000Ah gel batteries and a three phases system with 3 PV 6kWp inverters.

In each health centre, ENERSOL trained a local technician during the installation to maintain the plant. All the installations were made by two crews of eight people, two Belgian technicians, six Burundian and Rwandan technicians. ENERSOL's local partner agreed to take care of annual maintenance for three years. All the work was done in two months on site, and lasted around six months from the signature to the reception.

#### Project Financing and Costs

The project cost was about 1,300,000 EUR and was financed by the European Union (10th European Development Fund).

#### Project Outcome

The project was part of the health centres improvement policy in remote areas, including vaccines preservation, light at night time, electricity for medical equipments, improved sanitary conditions, etc. It is estimated that the project has helped a minimum 30,000 people. All the installations were successful and were properly received by the community. At the Kinyinya Hospital, ENERSOL improved the initial project by studying, proposing and adding a mini-grid system and a more powerful PV system for the hospital. Therefore the hospital has now the possibility to respond to higher peak energy demand and to support heavier medical equipments. This solution allows to increase the PV power by 20% (with its 250 Wp 60 cells panels, cheaper) and gives a sustainable solution with better lifetime batteries (800 cycles instead of 1200) for the same total capacity.

*Source : AEEP Energy Access - Best Practices 2016, European Union Energy Initiative Partnership Dialogue Facility (EUEI PDF), September 2016*

#### Contact

- ENERSOL sprl
- Rue de Maestricht 70 B4651 Battice Belgium
- +32 87 686 822 - [www.enersol.be](http://www.enersol.be)

**ENERSOL**  
ENERGY SOLUTIONS