

Case study

Energy storage system

Corsica Island, Mediterranean Sea

A French island adds solar power and energy storage

Project Summary

Project: Mortella

Location: Corsica, Mediterranean Sea

Client: Akuo Energy

Application: Solar plant with energy storage

Load Peak demand: 7 MWp

Status: Under construction

Technology: monocrystallin solar panels / lithium-ion batteries

GHG emission reduction per year:

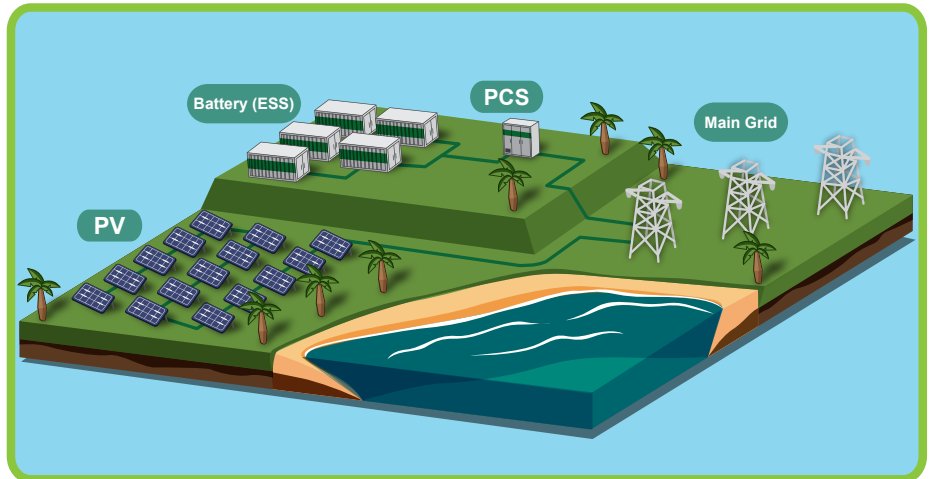
4 502 tons of CO₂

Power supply per year: Equivalent to 3 531 households

System components supplied by Nidec ASI

A water-cooled Power Conversion System (PCS), consisting of:

- a PCS Converter, including
 - an AC/DC converter in Active Front End configuration
 - a DC/DC converter for DC bus control
- a PCS Controller
- a Transformer



The challenge:

To generate and store renewable solar energy that can be sold on the power grid Corsica, a French island with less than a 320 000 permanent inhabitants and a peak around 650 000 residents in the summertime, is located in the Mediterranean Sea. Corsica has an abundant supply of sunshine making it an excellent candidate for solar power generation.

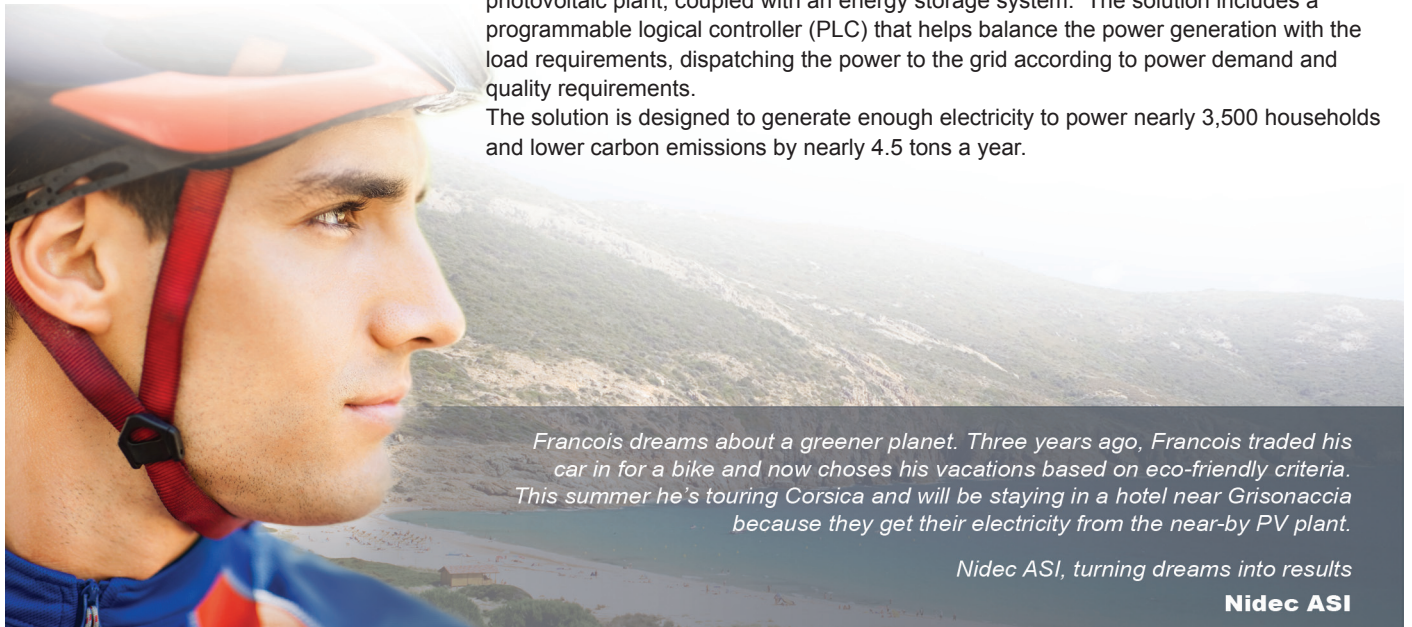
Akuo Energy, a French renewable energy power producer, sought to support the island's electricity needs by generating a predictable supply of solar energy that it could store and sell to the public power distribution grid.

The solution:

Solar production and energy storage system

Among Akuo Energy's projects to increase Corsica Island's energy supply is a 7 MW photovoltaic plant, coupled with an energy storage system. The solution includes a programmable logical controller (PLC) that helps balance the power generation with the load requirements, dispatching the power to the grid according to power demand and quality requirements.

The solution is designed to generate enough electricity to power nearly 3,500 households and lower carbon emissions by nearly 4.5 tons a year.



Francois dreams about a greener planet. Three years ago, Francois traded his car in for a bike and now choses his vacations based on eco-friendly criteria. This summer he's touring Corsica and will be staying in a hotel near Grisonaccia because they get their electricity from the near-by PV plant.

Nidec ASI, turning dreams into results

Nidec ASI

Nidec ASI's role

The Power Conversion System supplied by Nidec ASI enables Akuo Energy to convert power generated by its solar panels into AC voltage for transmission to the grid.

According to the standards of the French Grid, a part of the produced solar energy is converted into DC power to be stored in three batteries on hand. This energy will be injected into the grid following a flat profile of production.

Energy Management System software links the PLC to predictive production according to data from weather forecasts and active power instructions received from the grid.

The charging and discharging of the batteries are controlled by separate DC/DC converters, each of which is dedicated to a group of batteries with its own battery management system.

Nidec ASI realized the entire plant as an EPC Contractor

Power Conversion System Converter technical data		
	Grid Side (AC voltage)	Battery Side (DC voltage)
Voltage	15000 KV	<1000 VDC
Power	2,8 MW	7MW per our
Cooling System	water	