

Case study

Energy storage system - Aghione, Corsica

A French island adds solar power and energy storage

Project Summary

Project: Olmo

Location: Corsica, Mediterranean Sea

Client: Akuo Energy

Application: Solar plant with energy storage

Load Peak Demand: 4 MWp

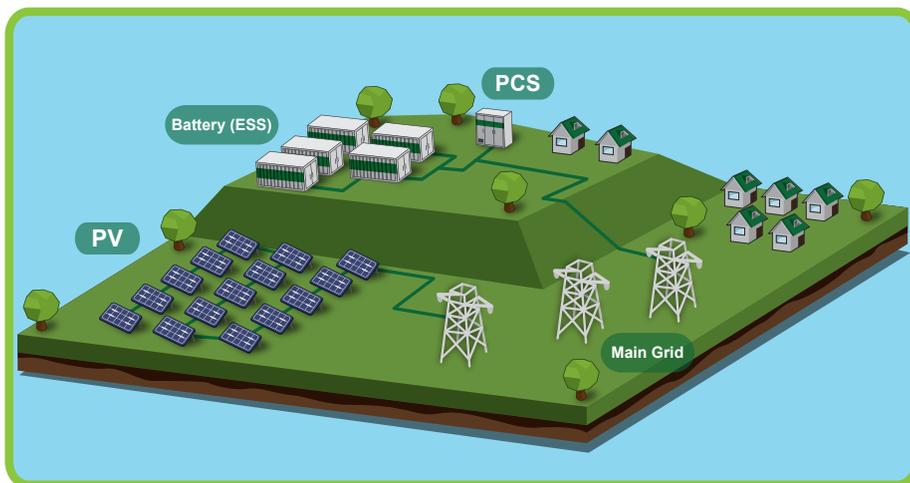
Status: Under construction

Technology: monocrystallin solar panels / lithium-ion batteries

GHG emission reduction per year:
2 534 tons of CO2

Power supply per year:

Equivalent to 1 987 households



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 meteo's forecasts data and active power instructions requested 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.

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 on summertime, is located in Mediterranean Sea. Corsica is in 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. It simultaneously wished to promote its innovative approach to aquaculture, the farming of fish and other aquatic organisms.

The solution:

Solar production and energy storage system

Among Akuo Energy's projects to increase Corsica Island's energy supply is a 4 MW photovoltaic plant, coupled with an energy storage system. The solution includes a programmable logical controller (PLC) that helps to balance the power generation with the load requirements, dispatching the power to the grid according to its power demand and quality requirements.

The solution is designed to generate enough electricity to power nearly 2,000 households and lower carbon emissions by nearly 2.6 tons a year.



Marie was born in Aghione, Corsica and loves her village. Her dream is to see the local community revitalized so that her grandson can move back to town. She hopes the new PV plant near her home will allow the village to support more summer tourism, creating new jobs.

Nidec ASI, turning dreams into results

Nidec ASI

System components supplied by Nidec ASI

An air-cooled Solar Power Production (SPP) System consisting of:

- AnswerDrivesGS Solar inverters
- Integration in concrete shelter

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

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

Nidec ASI France realized the entire plant as an EPC Contractor.

Power Conversion System Converter technical data		
	Grid Side (AC voltage)	Battery Side (DC voltage)
Voltage	15 KV	<1000 VDC
Power	1,6 MW	4MW per hour
Cooling System	water	