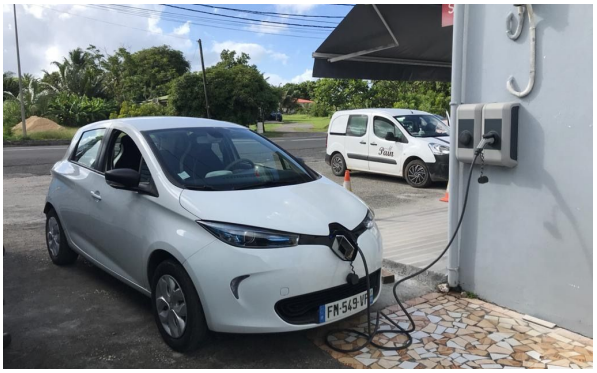
ELUM ENERGY

Use Cases

EV Charging

Supermarket PV & EV charging
Guadeloupe



Application: Zero Export & Vehicle Charging Station Control.

Produit: ePowerControl SC

System layout:

- 1 Goodwe DT-series inverter, 25 kW PV capacity
- 2 x Keba P30 x-series charging stations

Context : Control and supervision of the rooftop solar power plant with IRVE of a C&I building.

The objective of this project is the total optimization of the solar production of this rooftop installation of a supermarket in Guadeloupe.

The system is connected to the network, without permission to export energy to the grid. Elum's ePowerControl SC controller allows real-time control of the PV production to ensure that all the energy produced is consumed on site.

Electric vehicle charging stations installed on site are used to maximize solar penetration. The ePowerControl SC Elum controller allows the acceleration of vehicle charging during peak solar production to avoid the clipping of the surplus.

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Use Cases

Microgrid

Hotel Resort
Bahamas - Exuma archipelago

PV - 70 kWp
BESS - 36 kW / 76 kWh
Gensets - 72 kVA

Application: Solar, battery, diesel off grid integration

Product: ePowerControl MC-S

System layout:

- Inverters: 2
- Genset: 2
- AC meters : 7
- Battery inverters : 6

Elum ePowerControl MC allows the implementation of a cycling strategy. BESS is grid forming most of the day, ensuring the supply for the whole island thanks to PV generation and energy storage management. Then, gensets ensure the spinning reserve, mainly running at night. Gensets load is controlled to optimise diesel energy generation ratio, and to share operating time for longer engines lifetime.

Elum ePowerMonitor platform allows the remote monitoring for performance analysis, consumption supervision and alarms notification.

This isolated island is more independent from boat diesel resupply thanks to hybrid solar power. The system was deployed by client's autonomous team on site with Elum remote assistance during COVID lockdown.

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Use Cases

Solar Diesel

Export Company
Argentine

PV - 160 kWp
Gensets - 240 kVA
Off-grid

Application: Solar diesel integration

Product: ePowerControl HFS

System layout:

- Inverters: 2 x Growatt max 80KTL
- Genset: 2

In this project located in the North of Argentina, ePowerControl HFS has been installed to a livestock export company to reduce their diesel consumption and maximize their solar penetration.

Their off-grid facility is equipped with 2 Growatt inverters and 3 gensets.

Decrease fuel consumption, ensure that the generator does not work at more than 30% of its nominal capacity during sun sours so that the PV park delivers the remaining 70%.

Ensure that what the diesel generator produces plus what the PV farm produces is not greater than what the load consumes.

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Solar Diesel integration on a chemical factory

Pakistan

PV - 200 kWp
Gensets - 350 kVA

Application: Solar diesel integration

Product: ePowerControl SD

System layout:

- Inverters: 4 × Growatt MAC50KTL3
- Diesel Genset: 1

Elum Energy provided ePowerControl SD for a chemical factory.
This is a grid-tied project of 200 KW PV Solar with 1 x 350 KW Diesel genset backup. This site is also equipped with 5 x 50 Growatt inverters.

When the grid operates correctly, the client requested that the hybrid system work at its maximum output and export the extra energy back to the grid. However, when the grid doesn't work, ePowerControl SD will reduce the inverter output and allow minimum genset loading.

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Wine & Cheese farm South Africa

PV - 4 x 60 kWp
Gensets - 500 kVA
Grid-tied

Application: Solar diesel integration

Product: ePowerControl SD

System layout:

- SMA inverters: 4
- Genset: 1

This wine farm in South Africa requires stable power supply to maintain service quality despite frequent load shedding episodes. In order to reduce fuel energy cost, a large rooftop PV plant has been added.

Indeed, the goal of this project was to reduce the consumption of fuel and allow self-consumption through PV energy for an industrial building.

Elum Energy ePowerControl SD made possible the integration of 1 solar plant (4 SMA inverters total) on 1 existing diesel genset plants disconnecting with main incomer during outages. It ensures optimal PV production while making sure that the genset works at the minimum genset loading

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Public School Pakistan

PV - 100 KWp
Gensets - 200 KVA
Grid-tied

Application: Solar diesel integration

Product: ePowerControl SD

System layout:

- Inverters: 2
- Genset: 1

The public school in Pakistan was depending on Diesel genset as a backup energy source during the load shedding periods. To reduce the fuel consumption, solar panels were implemented to have a grid-tied PV/Diesel system.

In order to increase the reliability and the solar penetration to the system, ePowerControl SD was added and successfully integrated to 2 SMA inverters with 2 Janitza meters to make sure the genset is running at its minimum loading and the system respect the grid code.

Thanks to our onsite platform, the controller was commissioned remotely by the EPC technical team with the support of our deployment team.

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5 star Superspar mall South Africa

PV - 360 kWp
Gensets - 559 kVA
Grid-tied

Application: Solar diesel integration

Product: ePowerControl SD

System layout:

- Inverters: 6
- Genset: 1

As load shedding becomes the norm in South Africa, many C&I building are now equipped with site backup gensets and PV panels. This mall in South Africa requires stable power supply to maintain service quality for its customers despite frequent outage episodes.

In order to avoid losing solar production during load shedding episodes ePowerControl SD has been added. It provides safe and autonomous solar integration with 1 genset.

Embedded control system + dedicated UPS ensure optimal PV production while making sure that the genset works at the minimum genset loading all the time during this period.

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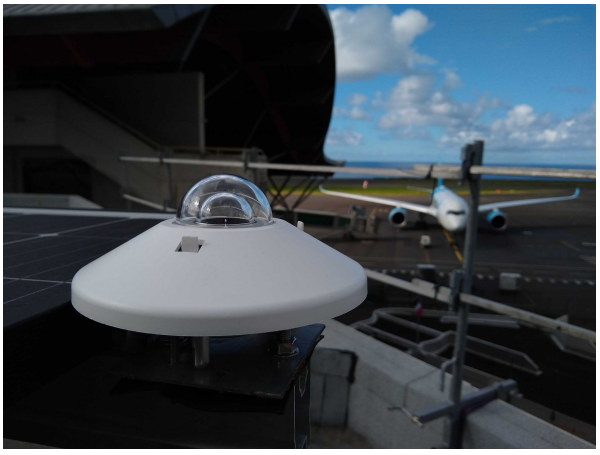
Roland Garros airport
Réunion Island



Application: Zero Export

DEIE, scope < 1 MW

Product: ePowerControl GI S

System layout:

- 9 Delta RPI inverters with 450 kW PV capacity
- 1 pyranometer Kipp&Zonen SMP 10
- 2 IMT temperature sensors
- 1 SL700 meter
- 2 meters EM210 Carlo Gavazzi

Context : Control and supervision of the solar power plant connected to the ARRG's main Hall grid.

On this project, the Elum controller deals with the double issue of the control of the solar production of the site connected to the HV grid, and the management of the DEIE according to the EDF SEI REF 06 V5 DEIE specifications.

In grid-connected mode, Elum's ePowerControl GI hybrid controller provides injection control to ensure total self-consumption on site and to avoid the transfer of power to the EDF grid. In addition, the controller interfaces with the DEIE terminal block provided by EDF in order to ensure the correct application of EDF's coupling and decoupling requests.

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Use Cases

Utility scale

Power Plant
Tamatave,Madagascar

PV - 2MW
Gensets - 42 MW
Off-Grid

Application: Utility scale Solar hybrid power plant

Product: ePowerControl PPC

System layout:

- Inverters: 15 * PVS100 Fimer
- Genset plant: 42 MVa

This 2 MWp solar plant is the first phase of a 20 MWp solar hybrid power plant, including a 42 MVa HFO Power Plant.

The current plant allows the reduction of 1400t of CO2 per year.

ePowerControl Power Plant Controller + SCADA controls solar injection, provides plant status onsite.

The ePowerMonitor platform provides detailed monitoring of the plant's performance.

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Power Plant
Atalaya, Peru

PV - 500 kWp
Gensets - 2 MW
Hydro - 860 kW

Application: Solar diesel integration

Product: ePowerControl HFS

System layout:

- Inverters: 14
- Gensets: 4
- Hydro turbines: 3

Atalaya, a city located on the banks of the Ucayali River is one of the many isolated cities in Peru that are not connected to the country's electrification system. The city has fed the energy demand of its inhabitants mainly through the Canuja Hydroelectric Plant and the Atalaya Thermal Power Plant.

The Solar Power Plant is equipped with an **ePowerControl HFS** that allows the interconnection of the generation of the Canuja Hydroelectric Plant and the Atalaya Thermal Power Plant. The controller prioritizes the use of renewable sources and ensures minimum genset loading.

The Atalaya Solar Power Plant is made up of 1,260 400 W solar panels and 14 inverters, and has a power of 500 kWp, but can be expanded to an additional 1,500 kWp in the second stage of the project.

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Utility scale Solar / BESS / Genset plant

Comoros

PV - 4 MWp
Gensets - 6 x 2 MVa
Storage - 1 MW / 2 MWh

Application: Utility scale

Product: ePowerControl PPC

System layout:

- Inverters: 30
- Genset: 6
- BESS: 2 Tesla Power pack

This Solar/BESS plant, the first one in Comoros, is able to handle grid-tied operation, connected to Comoros island genset plants.

Depending on the genset plant running, the power will be injected on the island's main grid, or on a small portion of the grid. The plant is also able to operate in grid-forming mode, completely islanded from the grid, or connected to the local grid.

ePowerControl PPC manages BESS synchronization and transitions between different operating modes.

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