MICROGRID IN THE BRAZILIAN RAINFOREST

Off-grid community is powered with hybrid power

DEIF

A unique power plant in the Brazilian rainforest combines three energy sources and provides 24,000 people with green and reliable power.

The French global player in renewable energies Voltalia powers Brazilian remote off-grid community with electricity from its hybrid power plant that combines three energy sources, including solar power.

Surrounded by mangroves and rain forest, Oiapoque is situated in the northernmost part of Brazil and is a remote community, counting 24,000 inhabitants. The frontier city is not connected to the national grid and highly dependent on having a power producer that can supply power non-stop, 365 days a year, 24/7.

"In 2014, Voltalia won a tender to supply electricity for Oiapoque, standing out as the only company that could offer a hydro/thermal mixed project, producing a cleaner and cheaper electricity than the one generated by the diesel generators. In 2017, it was decided to extend the power plant with a 4 MWp (3.3 MW AC) solar unit."

The intention was to optimise the infrastructure and operating costs of the plant by reducing the use of diesel fuel for electricity generation. Besides, the solar unit would enable Voltalia to deliver a greener electricity production for the citizens in Oiapoque.

The solar PV plant was commissioned in 2017 and counts 15,840 solar panels, 132 inverters and covers an area of 70,000 m2. The plant is located on the outskirts of Oiapoque, and the remote location complicates fuel delivery. The solar plant employs 12 persons and generates around 5 GWh yearly.

“DEIF’s controllers were the only solution we could find on the market that could integrate both the thermal and solar plant. The controllers from both plants communicate together and provide us with good options for monitoring and supervision. I think it is a unique solution in the market,“

Leonardo Salgardo

Power Plant Manager

Voltalia

Controller is the backbone of the hybrid plant

Integrating solar power to the solution has already had a positive impact on fuel consumption as Voltalia annually has saved 10% diesel – a result of many sun hours, professional staff and an efficient power management system.

To ensure seamless and intelligent control of the hybrid plant, Voltalia is using a power management system from DEIF, counting 6 ASC controllers mounted and 10 AGC-4 controllers that compose the backbone of the power management system.

Voltalia has been using the DEIF controllers since the thermal plant was commissioned back in 2015, and according to Power PlantManager Leonardo Salgardo, the controllers are unique.

"DEIF's controllers were the only solution we could find on the market that could integrate both the thermal and solar plant. The controllers from both plants communicate together and provide us with good options for monitoring and supervision. I think it is a unique solution in the market," says Leonardo.

Securing uptime with intelligent spinning reserve features, this automated solution guarantees minimum fuel consumption by maximising PV penetration without compromising minimum genset load requirements.

"We can monitor and control the whole plant from the office, and we don't need to go to the plant to open and close breaks and see alarms. We can access everything from the operation room also history logs from DEIF's controllers, and by analysing the data, we can optimise the operation and increase the power production," says Leonardo.


voltalia
voltalia
voltalia

"We can monitor and control the whole plant from the office, and we don't need to go to the plant to open and close breaks and see alarms. We can access everything from the operation room also history logs from DEIF's controllers, and by analysing the data, we can optimise the operation and increase the power production," says Leonardo.

Training, fast feedback and sparring

To make sure that Voltalia's team was familiar with the solution from DEIF, a training session focusing on AGC-4 and utility software was conducted at DEIF do Brasil's premises in São Paolo.

"Working with DEIF is a really great experience. We have had good feedback from the team in São Paolo. We always get quick replies to our questions, and we are guaranteed good service. DEIF is a great company that can provide everything that you need for an efficient hybrid power management system", concludes Leonardo.

Renewables will cover 90% of the energy demand

TVoltalia is planning to construct a 7,5 MW run-of-river hydropower plant in Oiapoque. The plant is expected to be ready at the beginning of 2023 and will further bring down the diesel consumption, providing the community even greener energy. DEIF controllers will integrate the thermal/solar plant with the hydropower plant.

Once the hydropower plant is up and running, Voltalia expects that renewables will cover up to 90% of Oiapoque's energy demand.

DEIF A/S
Frisenborgvej 33, 7800 Skive, Denmark
Tel. +45 9614 9614
www.deif.com