



AMARALEJA: OPTIMIZATION OF PHOTOVOLTAIC PLANTS: SUCCESSFUL INTEGRATION OF THE REACTIVE CONTROL EQUIPMENT IN COLLABORATION WITH ACCIONA

Introduction

The collaboration between Acciona and eks Energy in the successful implementation of Statcom (WD3) in an existing photovoltaic plant. This project represents an important milestone in optimizing renewable energy generation by improving plant stability and operational efficiency. Through this case, we will explore the challenges overcome, the solutions implemented and the results obtained, demonstrating the joint commitment to innovation and sustainability in the energy industry.

Background

The project arises from Acciona's need to optimize an existing photovoltaic plant, adjusting its reactive control according to the requirements of the electrical grid. To address this challenge, Statcom equipment (AVCS 2MWD3-V690-MV20) is supplied along with medium voltage components. This initiative seeks to improve the stability and operational efficiency of the plant, reflecting the commitment of Acciona and eks Energy to innovation and adaptation in the energy sector.

Objectives

1. Control existing PV plant reactive.
2. Integrate reactive control equipment in a plant with photovoltaic inverters from another manufacturer.
3. Guarantee the operation of the installed equipment.

Implemented solutions

1. Compatibility and adaptation analysis: the supplied Statcom was adapted to efficiently integrate with the existing photovoltaic inverters from another manufacturer in the plant.
2. Development communication protocols: effective communication protocols were established between the Statcom and the photovoltaic inverters to control the reactive power according to the requirements of the electrical grid.
3. Continuous monitoring and remote diagnostics: a remote monitoring and diagnostic system was implemented to proactively identify and address any issues, ensuring uninterrupted operation.
4. Training and technical support: training was provided to operations personnel and a technical support service was established to ensure continuous and reliable operation of the system.



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Location	Moura, Portugal
Model	Statcom supply
Statcom Power	2,5KW
Clients	Acciona
Year	2022
Main objectives	Sustainability goals, carbon emissions reduction and renewable energy storage

Results and Benefits

Despite a specific failure in the stack, the reactive control equipment integration project has been generally successful in terms of Operation and Maintenance (O&M). However, restrictions imposed by the utility have significantly limited the equipment's operating time to just 2 years from its initial installation. Although Acciona has barely been able to fully utilize the equipment during this period, customer expectations indicate renewed optimism for 2024. Despite temporary challenges, the project has laid the foundation for future benefits, such as continued plant optimization photovoltaic and the improvement in its response capacity to the demands of the electrical grid. The efficient resolution of O&M incidents and the maintenance of stable operation during the operation period highlight the robustness and reliability of the implemented system.

Conclusions

Despite the temporary restrictions imposed by the electricity company, the reactive control equipment integration project has been successful in efficiently resolving O&M incidents. Although Acciona has had a limited time of use, a promising potential is seen for the year 2024. The collaboration between Acciona and eks Energy lays the foundations for future improvements in the efficiency and stability of the plant, highlighting the commitment to innovation and sustainability in the energy industry.

