Solar energy storage malawi

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A tale of innovation, empathy, and sustainability.

Completed in 2021, the Golomoti Solar PV and Battery Energy Storage Project in Malawi is more than just a remarkable civil project. It’s an inspiring story of how creativity, empathy, and sustainability can merge to create a best-of-class project that not only provides electricity but also touches the earth lightly.

Zutari led the team behind a project to bring electricity to one of the poorest countries in the world. The project faced challenges such as difficult ground conditions, a landlocked country, and a complicated site shape. However, the team used their creative intelligence to solve the problem and completed the project successfully.

Zutari was the Engineer for the Golomoti Solar Project in Malawi and undertook detailed design for this 28.5 MWp solar PV and Battery Energy Storage (BESS) project. The solar plant is coupled with a 5 MW/10MWh battery storage system and will provide the Malawian power grid with 20 MW of much-needed power.

The Golomoti PV project is the first to be built using Zutari’s innovative computational design tool, 7SecondSolar. Developed in-house, this tool enabled efficient optimization and design, resulting in cost and time savings. In the early stages of the project, multiple design iterations were possible in just a few hours instead of weeks, allowing Zutari to help the client with comprehensive design optimisations, providing greater certainty of capital expenditure right from the start of the project. These optimisations continued throughout the development process without the need to redo complex manual CAD drawings.

The power plant was modelled by Zutari in a 3D interactive space, continually updated to reflect the latest designs, and assisted in design discussions with the client and contractors. It made dynamic visualisation and movement possible around the virtual site and evaluated the potential for PV panel shading by having the panels track the sun''s position.

The result was a custom-designed solar PV plant that paid homage to the Baobab tree and adapted to the site’s complexities, enabling optimised energy production while ensuring the tree flourished. The design also considered the needs and constraints of the client, JCM Power, and the communities living next to the solar PV plant.

Co-creation and collaboration

The Client formed part of the project creation and delivery and had direct access to each team discipline. This allowed problems to be solved and actioned quickly, especially during construction works requiring rapid decisions.

As a trusted advisor to JCM Power and InfraCo Africa throughout the process, Zutari was involved in site identification, concept development, tender development/procurement, preliminary design, detailed design, and project execution. This included civil works, geotechnical investigation, foundation design, and electrical works.

Imagining what could be possible beyond the conventional way of delivering a solar PV plant enabled the design team to solve project complexities. The teams committed to finding the right overall solution - the tree, the villages and the land are part of the design and were not compromised to make the development possible.

The project aims to support ESCOM, which is a government-owned utility in Malawi, in its efforts to reduce poverty and business costs. This will be done by revitalising the country’s power supply and expanding access to power through the promotion of renewable energy development. Additionally, the project is in line with Malawi’s strategy of attracting more private investment in the energy sector.

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