



The Solar Leaf system is an on-land, modular regenerative installation located entirely within the designated Energy Design Site Boundary in Marou Village, Fiji. This area—a gently sloped clearing between the village and nearby mountains—is used for farming and play, and experiences seasonal flooding due to nearby stormwater channels. To suit these conditions, 41 palm-inspired tensegrity structures are distributed across the site following natural contours, avoiding major land disturbance while preserving existing uses and enabling shared land use, such as agriculture and gathering.

Each module features sloped monocrystalline photovoltaic “leaves” designed for both solar capture and rainwater harvesting, directing runoff into strategically placed concealed reservoirs. The modules are irregularly spaced to optimize sunlight, drainage, and site integration, while their varying angles are managed through inverter systems with multiple MPPTs. Lightweight, locally sourced materials like bamboo and reclaimed palm fronds ensure the system is easy to transport, build, and maintain by local residents. The design blends environmental performance, cultural sensitivity, and long-term resilience into a replicable model for sustainable island infrastructure.

Altogether, the land and module distribution strategy demonstrates a holistic understanding of site conditions, environmental resilience, and cultural integration. The layout not only delivers clean energy and water to the 67 households of Marou Village but also creates a sculptural, educational, and social landscape that can evolve alongside the community. This on-land configuration offers a replicable model for climate-adaptive infrastructure in similar island contexts, where land is sacred, topography is complex, and multifunctionality is essential.

