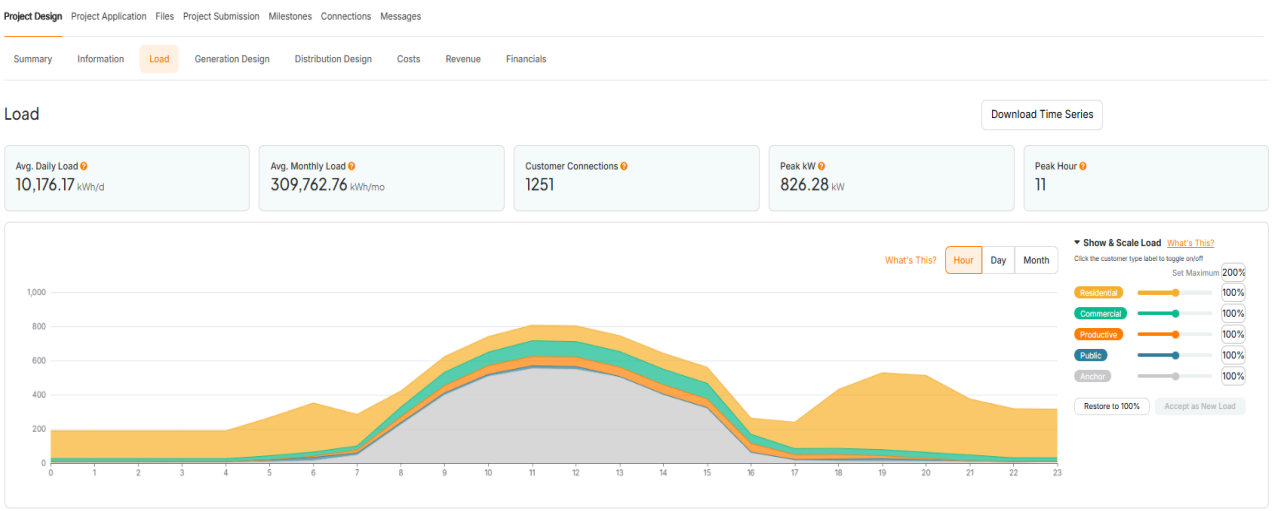

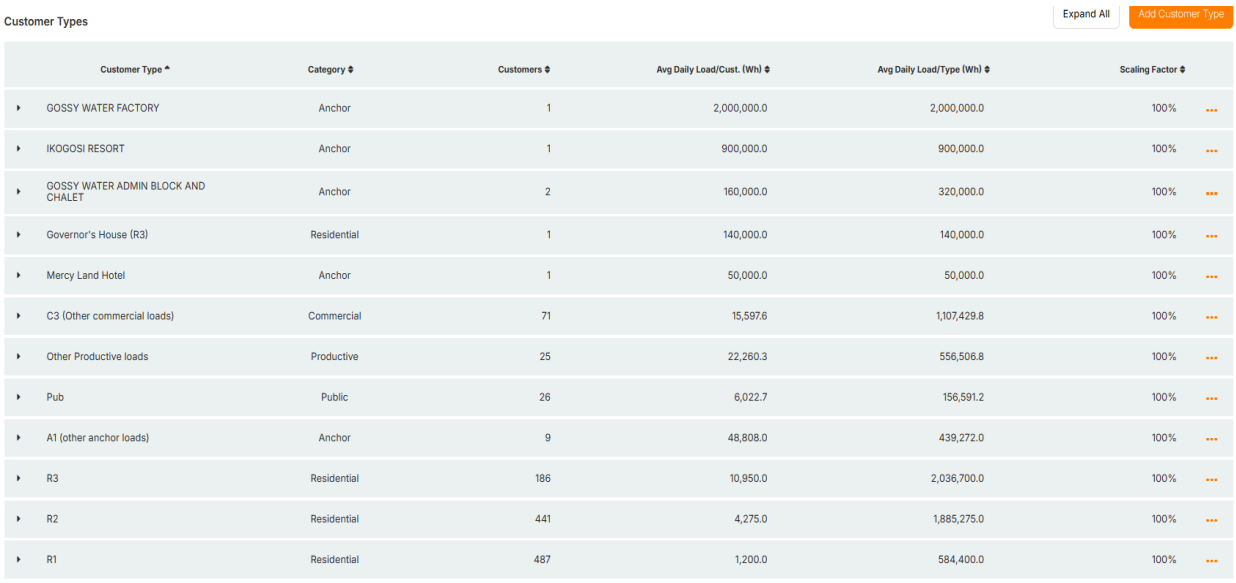

Customer Types

Expand All | Add Customer Type

Customer Type	Category	Customers	Avg Daily Load/Cust. (Wh)	Avg Daily Load/Type (Wh)	Scaling Factor
GOSSY WATER FACTORY	Anchor	1	2,000,000.0	2,000,000.0	100%
IKOGOSI RESORT	Anchor	1	900,000.0	900,000.0	100%
GOSSY WATER ADMIN BLOCK AND CHALET	Anchor	2	160,000.0	320,000.0	100%
Governor's House (R3)	Residential	1	140,000.0	140,000.0	100%
Mercy Land Hotel	Anchor	1	50,000.0	50,000.0	100%
C3 (Other commercial loads)	Commercial	71	15,597.6	1,107,429.8	100%
Other Productive loads	Productive	25	22,260.3	556,506.8	100%
Pub	Public	26	6,022.7	156,591.2	100%
A1 (other anchor loads)	Anchor	9	48,808.0	439,272.0	100%
R3	Residential	186	10,950.0	2,036,700.0	100%
R2	Residential	441	4,275.0	1,885,275.0	100%
R1	Residential	487	1,200.0	584,400.0	100%

IKOGOSI COMMUNITY MICROGRID LOAD ANALYSIS

The Ikogosi community microgrid incorporates a complex mix of heavy industrial, commercial, and high-tier residential demands. The load profile was designed using strategic daytime load-shifting techniques to optimize the Levelized Cost of Energy and prevent excessive battery storage sizing.

Strategic Load Assumptions

The daily consumption figures and utilization distributions were modeled based on the specific operational characteristics and strategic modifications of the community's primary anchor loads:

- **Ikogosi Resort (Anchor):** A total daily load of 900,000 Wh was used. Rather than modeling the resort's heavy evening consumption, this figure represents the daytime charging requirement for a recommended dedicated backup battery system. This strategy accounts for round-trip efficiency losses while forcing the energy draw into the midday solar window, eliminating the need for the community mini-grid to supply heavy nighttime power.

- **Gossy Water Factory (Anchor):** This heavy industrial facility was modeled with a total daily load of 2,000,000 Wh. The utilization profile was strictly constrained to the daytime operational shift. Treating this massive draw as a deferrable daytime load forces the system to scale up the solar array while entirely avoiding the capital expenditure required to support heavy industrial processing overnight.

- **Governor's House (High-Income Residential):** Modeled under the R3 category with a total daily load of 140,000 Wh. This accounts for the heavy, episodic cooling and modern kitchen requirements expected from a premium standout residential property.

- **Administrative and Hospitality Loads:** The administrative functions and chalet operations associated with the water factory were aggregated into a 160,000 Wh productive load. The Mercy Land Hotel was isolated as a 50,000 Wh commercial profile to capture its specific evening hospitality utilization.

Explanatory Comments on Simulation Results

The Odyssey simulation generated a robust Community Load duration curve with an Average Daily Load of 10,176.17 kWh/d , providing power across 1,251 customer connections.

The most critical outcome of the simulation is the system Peak Demand of 826.28 kW , which occurs precisely at Hour 11 (11:00 AM). This result strongly validates the daytime load-shifting strategy applied to the Ikogosi Resort and the Gossy Water Factory. By pushing over 2.9 MWh of combined anchor demand into the late morning and early afternoon, the community's peak consumption is perfectly synchronized with maximum solar irradiance.

Consequently, the simulation will prioritize sizing up the PV array (the lowest-cost generation asset) to cover the 826 kW daytime surge, while drastically minimizing the size of the battery bank needed to survive the night. This approach creates a highly profitable bulk energy sale dynamic during the day and ensures long-term financial viability for the microgrid.