PARADIZE CITY

Project description

CyberTown
Engineering solutions

Description of the project

The customer is constructing a large (possibly the largest on the island) construction complex, including 8 seven-storey residential buildings, each with 28 separate apartments (total more than 220) + a penthouse (total 8) and united by a common ground floor with underground parking and service facilities. As well as two buildings of 3,500 sq. m. each, with a business center, a 200-room hotel, shops, hairdressers and other service organizations located in them.

While performing construction, the Customer encountered periodic power outages in the building area. Contacting our company, the Customer requested possible solutions and, not wanting to interrupt the work processes, they chose the solution to build a small **OffGrid** solar power plant to provide the following tasks:

During the daytime — uninterrupted operation of the construction management offices (3 offices, lighting, one office air conditioning, computer equipment, communication systems).

At night — uninterrupted operation of security systems, video surveillance and on-duty lighting.

Solutions

As a solution, a project was developed and the following subsystems were implemented:

- Starlink satellite communication system and distribution facilities.
- The grounding system of the power plant location building.
- A solar generation system assembled on Victron Energy equipment.
- A subsystem for the distribution and routing of “guaranteed” electricity, bypass panels and consumer protection against electric shock.

Results

Communication facilities allow the Customer to work with the Internet at any time of the day without being tied to the ground infrastructure on the island of Zanzibar, which is especially important due to the unstable and low-quality work of local telecom operators.

The solar power plant system allows you to recycle and accumulate both incoming electricity from the connecting operator (ZECO) and receive energy from solar panels. The customer now has no interruptions in work, even if ZECO turns off electricity for a day or more.

The grounding system and the use of SPD devices allows you to reliably protect the equipment from accidental damage or natural events such as lightning.

Implementation features and measurements carried out

The power consumption of the created system now averages 2 kVA, with an installed panel capacity of 1.5kW, the capacity of the installed batteries is ~2.5kWh.

The resistance of the ground loop is 2 ohms.

The speed of satellite access is up to 250 Megabits/sec.

The customer ordered a 4-fold expansion of the system. The equipment allows you to do this with minimal changes without losing or replacing individual elements. New project is in the production stage at 20 Aug 2024.