

Solar panels installed over approx. 270-car parking lot Gaining great attention with solar parking that makes effective use of land



Customer

Nisshin Kensho Co., Ltd. (Satellite-Mito)

- Shirosato-cho, Ibaraki Prefecture, Japan
- "Satellite-Mito," an off-track bicycle race betting facility, was opened in 1998. Satellite-Mito is one of Japan's finest bicycle race facilities where fans can watch live races on large screens. Approx. 670,000 people visited in 2013. Nisshin Kensho contributes to the community's safety and security through their affiliated companies, including a security company and private patient transport company.



Implemented product

High-output photovoltaic module (single-crystalline)

NU-180LW x 2,751 modules = 495.18kW

- Selected by Japanese government's "FY2009 New Energy Commercialization Venture Support Project" and installed at the Satellite-Mito parking lot. Started operations in Feb. 2010, with an annual average power generation amount of approx. 620,000kWh.

This is what we realized.

Challenges before implementation

Our main facility has a theatrical design with a 3-storied atrium. The air-conditioning consumes a large amount of power, so we were challenged with further energy conservation. We were also examining whether there were ways to effectively use our generous large parking lot.

The approx. 500kW solar power generation system installed in the parking lot can supply approx. 50% of the power used by the facility and reduce electricity costs.

The modules are installed on an approx. 4.5m-high frame. Power is steadily generated without heat buildup even during sweltering summer months.

Many citizens and companies have visited there to see this model facility that utilizes new energy. This has improved our corporate image.



Yoichi Shiraishi
Manager of PR and Planning Department
Nisshin Kensho Co., Ltd., Satellite-Mito

Background of implementation

We looked at solar power generation when searching for a new project to effectively utilize our vast parking lot.

Satellite-Mito is blessed with an expansive land area housing a 3000-car parking lot, and we were looking for a suitable project. We had been interested in solar power generation from an early stage and were considering installing a solar power plant. Around that time, the government announced a plan to subsidize projects for the diffusion of renewable energy, so we decided to implement the system. A plan to effectively use the land was developed, and the solar power generation facility was built in one section of the parking lot.

Reasons for selection

Single-crystalline modules with high conversion efficiency and delivery of 2,751 panels within a set deadline were the requirements.

After comparing and examining modules from different manufacturers, we decided to use a single-crystalline module, which has a higher conversion efficiency than a polycrystalline module. The government subsidy required that the project be complete by a set deadline, so the 2,751 solar modules had to be delivered within a short time. Sharp's single-crystalline module satisfied these conditions.

Effect after implementation

Satisfied with power generation amount covering approx. 50% of power consumption. 4.5m-high frame is well ventilated and efficiently generates power even during summer.

The generated solar power is consumed in-house and covers approx. 50% of the energy used by Satellite-Mito. Solar power generation has also helped us reduce power consumption at peak time. The purchased power has dropped by about 100kW compared to before implementation, leading to a reduction in electricity costs. Silicone modules are typically susceptible to high temperatures, and the power generation amount is said to drop in the summer. The modules have been installed on a 4.5m-high frame that ensures proper ventilation and little heat buildup. Power is steadily generated even during sweltering weather.

Future prospects

Promoting our system as a model solar parking facility that matches the regional motorized society.

Satellite-Mito is included in the "Ibaraki Prefecture Next Generation Energy Park" tour course, which introduces model facilities using new energy. Bicycle race fans, as well as many citizens and companies, have come to tour the facility. We will continue to promote our system as a model solar parking facility that matches the regional motorized society. We will also strive to achieve further energy conservation and saving from a perspective of preventing global warming. Admission and parking for Satellite-Mito are both free, so anyone can freely tour the solar power plant. We hope that visitors will also enjoy bicycle races.



Solar parking with approx. 500kW solar power generation system



Frame design prevents heat from building up. Maximum power was generated in August 2013.



Drivers using the parking lot enjoy the shade provided by the panels during the summer.



Situation of power generation is posted in real-time on our website, etc.