

Leading Sustainable Packaging Manufacturer Shrinks Electricity Costs by ~30% with SolarEdge System

The Challenge

Alta Plastic Ltd. is a leading manufacturer of biodegradable plastic packaging products and food pouches, exporting to Asia, Europe, Australia, and North America. The manufacturing facility located in Ho Chi Minh City, Vietnam, uses energy-intensive machinery that consumes approximately 300MWh of power each month.

To reduce their high electricity costs, the plant decided to install an energy-efficient PV solution onsite. When considering different PV systems, employee safety and asset protection were top priority. Additionally, the factory wanted to take advantage of a 20-year Vietnam-government FIT program offered as an incentive for installing PV, where unused PV energy exported to the grid would yield FIT revenue.

The Solution

When Alta Plastic's General Director, Mr. Tu Minh Hoang, was searching for a PV solution that would best meet the company's needs, he consulted with Technology consultant and EPC Sao Nam which recommended SolarEdge. In November 2020, the 920kW PV array with the SolarEdge DC-optimized solution was installed on the manufacturing facility's rooftop, including nine SolarEdge Three-Phase Inverters with Synergy Technology.

By installing the SolarEdge PV system to generate power for the plant's use, the factory was essentially converted into an environmental-friendly production plant, which also helped Alta Plastic meet their commitment to environmental sustainability.



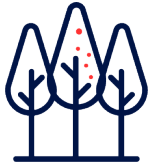
Alta Plastic manufacturing facility in Ho Chi Minh City, Vietnam

PV System Details:

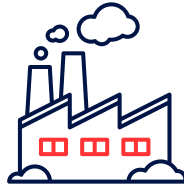
- Capacity: 920kW
- PV Modules: 2300 Lepton Solar
- Power Optimizers: 1150 x P801
- PV Inverters: 9 x Three Phase Inverters with Synergy Technology SE82.8k
- Accessories: 1 x Energy Meter with Modbus Connection
- Distributor & EPC: Sao Nam Integrated Technology



With the SolarEdge PV system, Alta Plastic saved in 15 months (from November 2020 to February 2022):



Equivalent Trees Planted
~15,798.66



CO2 Emission Saved
~529,322.56 kg

Benefits

More Energy, Higher Revenue

Using the PV energy generated from the SolarEdge system, Alta Plastic was able to **lower their monthly electricity costs by ~30%** which amounts to substantial financial savings—given the high energy consumption of the plant's manufacturing equipment.

By connecting a SolarEdge Power Optimizer to every two solar modules, the SolarEdge's DC optimized inverter solution maximizes the PV system's energy output. Due to this unique approach, where each pair of modules operates independently, the maximum power point (MPP) of each pair of modules is continuously tracked and their current and voltage are adjusted. Any underperforming modules do not affect the output of other modules in the same string. This eliminates mismatch-related power losses due to natural module degradation or shading from clouds, dust, bird droppings or from surrounding trees or buildings. The maximum amount of energy is therefore extracted from each module, enabling the SolarEdge system to produce more solar energy and accelerate ROI.

Keeping People and Assets Safe

Safe and reliable by design, SolarEdge's technology is certified for safety in Europe and in the U.S. where it's compliant with NEC 2020 for Rapid Shutdown (RSD) and with UL1699B for Arc Fault Circuit Protection. The Rapid Shutdown governmental regulation was introduced in several countries in Southeast Asia, including The Philippines and Thailand.

The built-in SafeDC™ and optional Rapid Shutdown can automatically drop the output voltage to a safe-touch level of 30V within up to 30 seconds, providing extra protection to personnel, maintenance crews and firefighters, and preventing damage to equipment and structures.

The automatic Arc Fault Detection prompts the inverter to shut down when an arc fault is detected. This reduces the risk of fire due to faulty or improperly connected cables or overheated components.

Export Limitation and FIT Monitoring

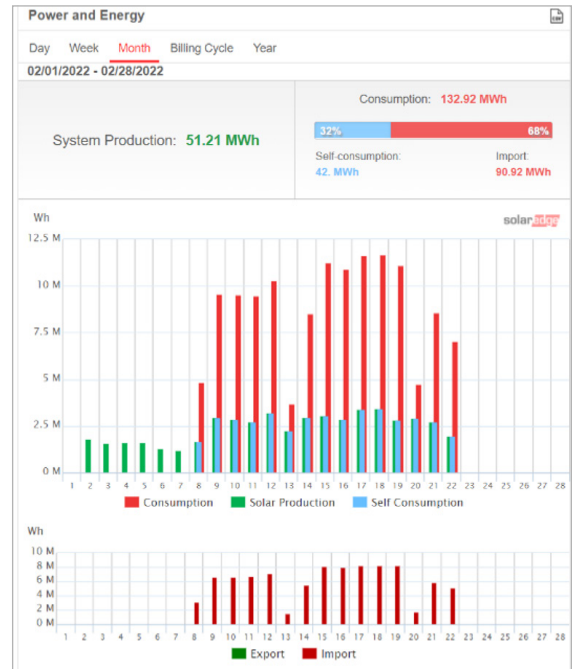
All the solar energy produced during weekdays and weekends from the PV system is used for the factory's self-consumption. On public holidays, including the long Lunar New Year holiday, the plant is closed, and any produced power is injected automatically into the grid in return for FIT payments by EVN-Vietnam's national power company. To ensure that no PV power is exported when the plant is operating, and that power is exported to the grid only on holidays, Alta Plastic installed the SolarEdge Energy Meter with Modbus Connection—an accessory integrated with the inverter firmware.

Additionally, this meter enables easy tracking of the amount of power the plant uses for self-consumption, and the percentage of power consumed vs. power exported to the grid.

An additional monitoring function is the system Remote Shutdown, required by the EVN power company, which prevents overloading the grid with too much renewable power during peak times.

End-to-End PV Management Software

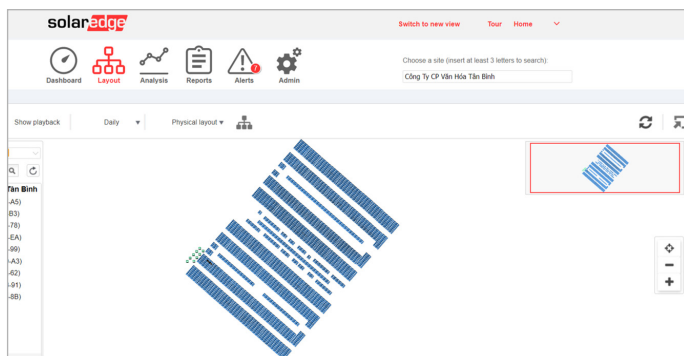
Another major benefit of the SolarEdge solution is its comprehensive software for managing the entire PV project lifecycle from inception to installation. For easier planning, Sao Nam EPC used SolarEdge Designer, a powerful web-based design tool, to create a detailed 3D proposal visualizing the PV system's site layout which instantly validates the design's accuracy. To simulate various energy parameters for the Alta Plastic proposal, Sao Nam generated a customized summary report from SolarEdge Designer, showing the amount of energy that will be produced, suggested equipment, a detailed shading analysis, emissions saved, and more.



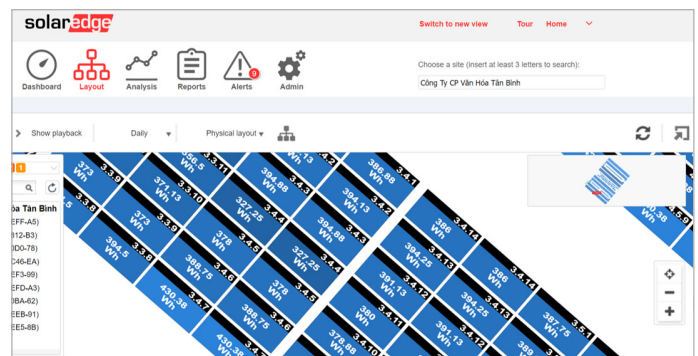
Energy produced by PV system was used for the factory's daily operation, while energy was exported to the grid during Lunar New Year in February.

Module-Level Monitoring Lowers O&M Costs

The SolarEdge Monitoring Platform displays a physical layout of the site and provides continuous system performance tracking, data analysis, and troubleshooting of each individual module. This enables the EPC and O&M provider Sao Nam to pinpoint the location of underperforming modules by viewing the physical site from any mobile device, and remotely troubleshooting before scheduling a site visit. Alerts indicating severity level are sent by email, which reduces the number of site visits and the time spent onsite. This can save considerable O&M costs and increase system uptime. In addition, the mySolarEdge app, also included with the system, enables Alta Plastic's General Director, Mr. Tu Minh Hoang, to track system performance in real time from any mobile device on his own, without needing to contact the EPC.



SolarEdge site physical layout in Monitoring Platform



SolarEdge Monitoring Platform tracks power generation at module level

Long-Term Warranty

SolarEdge provides a standard 12-year warranty for its inverters, with a 20 and 25-year extension option. The warranty covers costs involved in replacing the inverter within the warranty period and within the 20-year FIT period.



SolarEdge Three Phase Inverters with Synergy Technology

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“Integrating renewable energy into the traditional plastics manufacturing industry is a critical step towards protecting our environment. For our plant, this means becoming a completely green manufacturer—in materials, machinery and energy sources. The SolarEdge solution helps us meet our commitment to environmental sustainability. It has been our great pleasure to collaborate with SolarEdge, which has provided us with such an extraordinary system that smartly manages all the plant’s power and maximizes the energy output of each solar panel in which we have invested.”

Tu Minh Hoang, General Director of Alta Company Jsc.



The Bottom Line

A growing number of manufacturers are investing in renewable energy to power their factories. PV energy is a sensible investment for any plant with unutilized roof space and/or outdoor areas, or which use power-intensive machinery. Since most of the energy at manufacturing facilities is consumed during the daytime when solar production is at its peak, these systems can supply a significant portion of a plant’s energy needs.

Going green also creates a huge opportunity for factories to demonstrate their commitment to sustainability. Customers of Alta Plastic—knowing that their favorite products are manufactured using sustainable energy—are more likely to remain loyal to the brand.

About SolarEdge

SolarEdge is a global leader in smart energy, delivering innovative commercial and residential solutions that power our lives and drive future progress. Leveraging world-class engineering and worldwide experience, SolarEdge developed a ground-breaking intelligent inverter solution that changed the way power is harvested and managed in photovoltaic (PV) systems. As a result of this and other innovations, today SolarEdge is the world’s #1 solar inverter company in revenue with millions of systems installed in 133 countries. SolarEdge addresses a broad range of smart energy market segments through its PV, storage, EV charging, battery, UPS, and grid service solutions.