



## CASE STUDY

Business Challenges:  
Module Breakage  
Transit Time  
Replacement Costs

# How Greentech Renewables Midwest Reduced Module Breakage by 100% with PVpallet Series X

## Scenario

When a customer order of PV modules is less than 30 modules, the load is removed from its original wood pallet and repalletized into a smaller load. At Greentech Renewables Midwest (formerly CED Greentech Midwest) in Hammond, Indiana, the standard procedure of repalletizing orders for their customers includes flat-stacking modules onto a large wood pallet. To aid in maneuverability, a second standard-sized pallet is then placed at the bottom to allow a forklift to move the load from both the short and long side of the pallet. This method can increase the chances of module breakage due to forklift damage and road vibration. The 4-hour transit time from Greentech Renewables's warehouse to the holding facilities of their customer, Palmetto, created more opportunity for damage—and increased the true cost of a broken module for both Greentech and their customer. Although Palmetto's broken modules themselves were costing Greentech Renewables \$2500 each month, the true cost of broken modules was over three times that amount, totaling \$8,000 each month in losses with just one customer.

## Challenges

### BREAKAGE RATES: 10 MODULES PER MONTH

Deliveries to Greentech Renewables's customer Palmetto were averaging 10 reported broken modules per month.

### TRUE COST TO GREENTECH: \$8,000 PER MONTH

When factoring in the price of the module itself (\$250) plus the cost to replace it (transportation, driver, labor, and recycling costs), each broken module was costing the company \$800. At a true cost of \$8,000 each month, Greentech Renewables projected \$96,000 in losses in a single year.

### TRUE COST TO CUSTOMER: 20% LOST REVENUE

Broken modules are often found at the time of installation, adding labor costs as crews are unable to complete a job until replacement modules arrive. One broken module could result in an entire day of lost work, cutting that week's revenue by 20%.



## About Greentech Renewables

Greentech Renewables (formerly CED Greentech) is a full-service wholesale distributor of solar, electrical, and renewable energy products that provides its customers with efficient and affordable solar PV and energy storage solutions. With an extensive on-site inventory, privately-owned shipping fleet, and daily dispatches, Greentech Renewables is committed to providing superior service and support through genuine customer relationships and innovative solutions.

## Solution

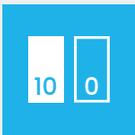
Greentech Renewables Midwest needed an innovative solution that would provide a premium level of service and demonstrate their unwavering commitment to customer care and relationships. To that end, they resourced PVpallet Series X in July 2022 with the goal of reducing breakage rates, installation delays, and resulting costs that occur when solar PV modules are shipped on traditional wood pallets.

Over the course of the 1-month case study, Greentech Renewables used PVpallet Series X for weekly deliveries of solar PV modules to Palmetto's holding sites. Modules were vertically stacked in PVpallet Series X using the banding recommendations provided by the PVpallet team. Each delivery contained 2 - 7 PVpallets loaded with 15-20 modules. In all, Greentech Renewables Midwest delivered 264 PV modules to Palmetto over a 4-week duration.



## Results

During the 1-month duration of the case study, zero damage was reported. The robust base of PVpallet Series X prevented forklift tines from breaching the pallet and the sidewalls of the Series X enabled the modules to be shipped vertically, minimizing the weight on each module during transit.



**ZERO BROKEN MODULES**  
Over the duration of the study, PV module breakage rates were reduced from 10 to 0.



**\$8,000 SAVINGS PER MONTH**  
Greentech prevented \$8,000 in product damage by using PVpallet Series X with 1 customer in 4 weeks.



**ZERO INSTALLATION DELAYS**  
In 4 weeks, Palmetto experienced zero installation delays due to broken PV modules.

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**“I cannot overemphasize how instrumental PVpallet Series X will be in our efforts to innovate and provide premium service to our customers.”**

DERIC PERISH  
PC Manager, Greentech Renewables Midwest

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## Outcome

“We wanted to bring a creative solution to our customers,” said Deric Perish, PC Manager of Greentech Renewables Midwest. “PVpallet Series X was that solution.”

“This pallet is a tank,” Mike Nagle, Senior Inside Sales Representative for Greentech Renewables Chicago adds. “It screams to the customer how much we care about their product.”

By eliminating broken modules with PVpallet Series X, Greentech Renewables also helped Palmetto avoid costly delays in their installation schedule. Innovative problem solving and thinking ahead on behalf of their customers allowed Greentech Renewables to ensure Palmetto's product—and revenues—remained intact.

“I cannot overemphasize how instrumental PVpallet Series X will be in our efforts to innovate and provide premium service to our customers,” Perish says. “Building long-term customer relationships based on trust and consistency is our priority—and saving everyone time and money is a great way to build that foundation.”

## Future

Greentech Renewables Midwest is committed to delivering innovative solutions to their customers. Moving forward, they plan to offer PVpallet Series X as a premium delivery service as well as for purchase by customers. Greentech Renewables will manage the PVpallet Series X's deployment, protecting their clients' solar PV modules so they arrive to the job site unbroken. Interested customers can speak with Perish about trialing the company's onsite inventory of PVpallet Series X.



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