



## CASE STUDY

Business Challenges:  
Solar Panel Breakage  
Packaging Waste  
Labor Inefficiencies

# How Stateline Solar Transformed Their Solar Installation Preparation Process with PVpallet Series X

## Scenario

When Ethan Fiene, Founder and CEO of Stateline Solar, first saw the PVpallet Series X, he immediately recognized its potential to streamline their job preparation process and prevent panel breakage issues. In an initial attempt to reduce breakage, Stateline ordered solar panels in bulk directly from the manufacturer. However, shipping panels in their original packaging meant sending fixed quantities of 30 panels for every job, regardless of the actual number needed. If a job required 36 panels, 60 were sent, the remaining 24 had to be repalletized and returned to the warehouse. No matter how carefully the solar panels were packaged, damage was common during the return trip. When factoring in the price of the panel itself plus the cost to replace it (transportation, driver, labor, and recycling costs), each broken solar panel cost Stateline an estimated \$800. On average, two broken solar panels per month cost Stateline \$19,200 annually, not to mention the additional labor costs and time spent on packaging and cleaning up trash. Altogether, their current process was costing Stateline over \$30,000 per year.



## Challenges

### BREAKAGE RATES: 24 SOLAR PANELS PER YEAR

On average, two solar panels were broken on the return trip to the warehouse, equating 24 broken panels each year.

### TRUE COST TO STATELINE SOLAR: \$19,200 PER YEAR

When factoring in the price of the solar panel (\$250) plus the cost to replace it (transportation, driver, labor, and recycling costs), each broken panel cost Stateline \$800. At a true cost of \$1,600 each month, the company averaged \$19,200 in solar panel breakage costs every year.

### LABOR INEFFICIENCY: \$14,352 PER YEAR

Packaging partial loads of solar panels and cleaning up packaging trash was time consuming, adding an average of 1.2 hours per job. At 10 installations per week, labor inefficiencies were costing Stateline 624 hours annually equating to \$14,352 in labor costs each year.

## About Stateline Solar

Founded in 2017 by Ethan Fiene, Stateline Solar quickly became a trusted and reliable solar installation, maintenance, and repair company in the Illinois/Wisconsin state-line area serving over 400 satisfied solar customers. Stateline Solar takes pride in both their work and the environment. Rooted in Lena, Illinois, they strive to make solar power a common source of green energy for all Midwest homes.

## Solution

Stateline Solar purchased four PVpallet Series X units in June 2022 to simplify their job kitting process, reduce solar panel breakage, and increase job site efficiency. They use two units daily for installations, loading them with the exact panel count needed for each site. The pallet's load management system and 2" ratchet straps secure the solar panels during transit. The other two units are used to store surplus solar panels in the warehouse.

Over the course of the six-month case study, Stateline Solar used their two job site Series X units to transport solar panels to projects daily (totaling 150+ uses). Their warehouse units are used one to three times each week (totaling 60+ uses). This new process eliminates solar panel packaging waste on the job site and reduces the need to return extra panels to the warehouse.



## Results

During the 6-month study, only one solar panel was damaged. The robust sidewalls and base of PVpallet Series X, combined with the unit's load management system and 2" ratchet straps, allowed partial loads to be securely transported and stored. Packaging waste and labor inefficiencies were significantly reduced.



**92% BREAKAGE REDUCTION**  
Solar panel breakage was reduced by 92% from 12 to 1, preventing \$8,800 in product damage in 6 months.



**260 HOURS SAVED**  
Over 6-months, added efficiency saved a total of 260 hours, resulting in \$5,980 in reduced labor costs.



**\$29,560 ANNUAL SAVINGS**  
Stateline projects \$29,560 in annual savings by implementing four Series X units into their daily operations.

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**"PVpallet Series X makes organizing our solar panels a dream. They ensure we have exactly what we need for each project and keep our warehoused solar panels separated and safe."**

ZACH NJOS  
Stateline Solar, Chief Operations Manager

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## Outcome

"PVpallet Series X is a no-brainer solution," explained Ethan. "Being in the renewable industry means having a green mindset. At first sight, I knew incorporating Series X into my daily operations would help reduce the packaging waste we see on job sites. The cost savings we experienced just further underscores the benefits of this innovative product."

"PVpallet Series X has been a game changer—when preparing for each job site and to my installer crew," says Zach Njos, Chief Operations Manager of Stateline Solar. "These reusable pallets have made organizing our solar panels a dream. They ensure we have exactly what we need for each project and keep our warehoused solar panels separated and safe."

Integrating PVpallet's robust, thoughtfully engineered solution into their operations allowed Stateline Solar to streamline its processes, prevent module breakage, and increase efficiency on the job site. After 150+ uses and \$14,780 in savings within the first six months, PVpallet Series X has become an irreplaceable part of their operations. In all, Stateline Solar projects \$29,560 in yearly savings by implementing only four PVpallet Series X units into their daily operations.

## Future

"We have utilized PVpallet Series X for over six months now and we're amazed by the improvements it made to our productivity and waste elimination. We plan to continue integrating PVpallet products into our daily operations at Stateline Solar," explained Ethan.

Ethan also sees the product's potential for the solar industry at large. In fact, he hopes to see worldwide adoption of PVpallet Series X to address the industry's growing pallet and panel waste problem.



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 **Tel: +46 35 102480**  
 **info@ip-group.com**  
 **www.ip-group.com**

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