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Emerson Gomes ordered his solar panels from China. They were delivered to his Austin, Texas, home on an 18-wheel truck. EMERSON GOMES

DIY Approach to Solar Power Catches On With Homeowners

BY H. CLAIRE BROWN

Fed up with high price quotes from solar companies, some homeowners are DIYing their transition to solar power. That can include buying their own components and, in some cases, even working as a one-person importer, ordering panels and other equipment from China and greeting the shipments at U.S. ports.

After soliciting quotes from solar companies for a panel system at his upstate New York home, Nachshon Peleg grew frustrated with prices he thought were too high. That is how he found himself renting a 20-foot U-Haul truck and driving to a port in Elizabeth, N.J., to receive a 5,500-pound shipment of solar-panel trackers directly from a seller in China.

The equipment had been loaded into a shipping container, hauled across the ocean and unloaded into a warehouse by a logistics company. After completing some customs paperwork including tariff payments, Peleg waited while a forklift loaded the trackers—which move to orient solar panels toward the sun—onto his truck, then drove them the last hundredplus miles to his home.

“They stick the container in the back of your truck, and off you go—that’s it. That’s the process,” Peleg said.

A few weeks later, when his solar panels arrived from another manufacturer based in China, Peleg opted to pay for home delivery. When they were delivered to his driveway, the tall wooden crate weighed 2,298 pounds, just 2 pounds shy of his tractor’s 2,300-pound capacity. He plans to do the installation himself.

A recent study by financial advisory firm Lazard found that rooftop residential solar power is more expensive than any other renewable energy source in the U.S., as measured by the Levelized Cost of Energy, a common means of comparing costs of various energy sources. At the high end, rooftop solar can be even more expensive than nuclear power when measured per unit of electricity.

(1)

Nationally, residential solar installations declined by 26% in 2024, according to research from energy analyst Wood Mackenzie. It attributed the downtick to customer uncertainty and higher interest rates, among other factors.

Emerson Gomes, a systems engineer in Texas, experienced sticker shock firsthand when he solicited quotes from ten different companies for a rooftop solar installation earlier this year. The estimates ranged from \$55,000 to \$90,000.

“I decided to do some investigating because I had my parents living abroad, and they had solar installed at a fraction of the price,” he said.

After some research, he found some promising prices on the e-commerce platform Alibaba. He began messaging with sellers, trying to find someone willing to handle shipping and customs issues like tariffs.

Eventually, he found a seller based in China who had access to a warehouse in the U.S. The seller shipped a container full of pallets to the warehouse, and the panels arrived at his home in Austin, Texas on an 18-wheel truck. He shared a picture of the shrink-wrapped pallet and said the panels arrived in “pristine” condition.

Finding an installer willing to work with him was another matter. “The moment you say, hey, I have my own equipment, they hang up on you and that’s it,” Gomes recalled.

He eventually connected with Jeremie Branton, a local installer who was willing to help out. In mid-October, Gomes was waiting on a final inspection so he could connect his setup to the grid.

Gomes estimates the DIY approach dramatically shrank the amount of time it would take for the solar system to pay for itself. According to his calculations, he will recoup his costs in energy savings in five to six years. Had he gone with the quotes he received from installers, it would have taken 10 or 11.

Branton, the installer who worked with Gomes, says about 20% to 30% of the prospective customers who reach out to him have purchased or thought about purchasing their own equipment.

But equipment costs aren’t the only reason solar installations can seem overpriced.

According to the Energy Department, about 65% of the cost of going solar lies in “soft costs,” which include labor, taxes and overhead. The DOE estimates that nearly 20% of the sticker price of solar is eaten up by sales and marketing.

The real hidden costs, Branton says, come from financing companies that partner with solar installers to offer loans.

“These finance companies charge solar companies 30% to write the loan. As a contractor selling solar, you’re not supposed to give the customer a break if they pay cash—you’re not even supposed to tell them what you’re being charged to offer these financing options,” Branton said.

The end result, he added, is that installers offer quotes that include hidden markups for financing costs, regardless of whether the customer is able to pay cash. Minnesota Attorney General Keith Ellison recently sued four solar lending companies for deceptive lending practices that allegedly inflated costs by 15% to 30%. The Consumer Financial Protection Bureau also has issued a consumer advisory about “costly and complex loans” for solar energy installation.

While it isn’t clear whether DIY solar projects pose any real threat to existing installation businesses, analyst Wood Mackenzie projects that the rooftop solar industry will undergo a turnaround led by a different business model: Third-party ownership structures, in which homeowners don’t buy or own the panels on their roofs. This model is on the rise in part due to tax benefits in the Inflation Reduction Act. *

Meanwhile, for those who can avoid some of the soft costs, the savings can add up.

Yujun Zhang purchased much of his own equipment on Facebook Marketplace. After researching prices, he was able to buy much of his equipment from a distributor going out of business.

Zhang called in professional installation help after crawling up to his roof twice. “I can’t even stand on the rooftop,” he said.

All in, he spent \$21,000 on a solar system that included a Tesla car charger and a battery. Based on the quotes he solicited, he estimates he saved at least \$10,000 on the project.

Before installing solar, Zhang said his monthly electricity bills averaged close to \$300 in the summer.

After the project was complete, his costs fell from about \$50 per week to \$10 or \$20.

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