

SOLAR AND STORAGE

MARKETPLACE REPORT

20TH EDITION | SPRING 2025



Executive perspective

We are excited to share the 20th edition of the EnergySage Intel: Solar & Storage Marketplace Report, covering the 12-month period from January to December 2024. Overall, last year was a difficult year for residential solar in the U.S. After years of rapid growth, the installed capacity of residential solar decreased by 31% from 2023 to 2024, according to Wood Mackenzie. Key drivers of this contraction were high interest rates, relatively stable energy prices, and California's Net Billing Tariff. But, despite persistent and new challenges in 2025, I am confident in the long-term outlook.

This report serves as a backdrop of industry health heading into 2025, with some early forecasts of how we anticipate shifts in the new political landscape. It delves into state and nationwide pricing trends, equipment preferences, manufacturer shares, and financing terms within the residential Solar and Storage Marketplace on EnergySage.

HERE ARE SOME OF THE TOP FINDINGS FROM OUR 20TH MARKETPLACE REPORT:

- **Residential solar and storage prices both reach new all-time lows**

Solar prices dropped for the third six-month period in a row, hitting \$2.50 per watt, the lowest median quoted price since we began tracking data in 2014. Quoted storage prices also fell, setting a new record low of \$999 per kilowatt-hour stored. In 2025, we are monitoring potential tariff impacts on solar and storage prices.

- **Tesla's Powerwall 3 disrupts the storage—and solar—market**

Tesla became the most quoted battery brand in H2 2024, occupying 63% of Marketplace share nationwide. Because the Powerwall 3 includes an integrated inverter, Tesla also became the second-most quoted inverter brand. With batteries increasingly being added to solar systems—the national battery attachment rate jumped to 45% in H2 2024, an all-time high—Tesla's growth was a key driver of the low storage and solar prices seen on EnergySage. In 2025, we are examining whether brand backlash and equipment shortages will affect Tesla's Marketplace share.

- **Rated solar panel output continues to climb**

Solar panels have continued to increase in power output due to larger sizes and higher efficiencies. In H2 2024, 33% of quotes included solar panels with rated outputs above 450 watts, up from just 1% in H2 2023. We are tracking tariff-related solar panel stockpiling to see if it hinders U.S. solar technology growth in 2025.

Our proprietary data across our Solar, Storage, and Heat Pump Marketplaces offers valuable insight into these rapidly evolving industries. Tariffs, consumer sentiment around Tesla, soaring electricity prices, and economic uncertainty will continue to challenge and push our industry in more ways throughout 2025. Through our increasing daily news coverage, EnergySage will provide real-time analyses of what we see on our Marketplace.

Sincerely,
Charlie Hadlow,



EnergySage | President and COO





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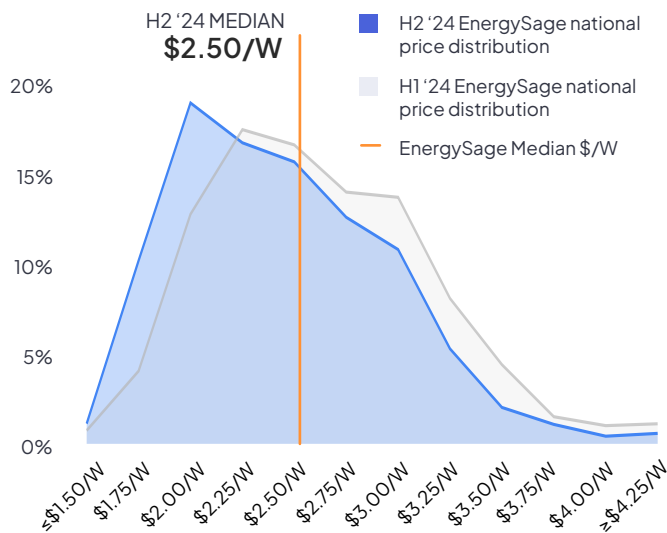
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National summary: Solar pricing trends

Quoted solar prices dropped to \$2.50 per watt, the lowest in history.

EnergySage is the leading online comparison-shopping marketplace for residential solar, providing personalized quotes to homeowners from local, vetted solar companies in all 50 states and Washington, D.C. We analyzed quotes that solar companies submitted to shoppers in the EnergySage Marketplace throughout the second half of 2024. For the third consecutive half-year, the median quoted solar price decreased, reaching **\$2.50 per watt (\$/W)**, the lowest six-month median recorded since we began tracking Marketplace data in 2014. For a system at the median size of 11.5 kW, that amounts to \$28,750 before incentives.

NATIONAL PRICE DISTRIBUTION



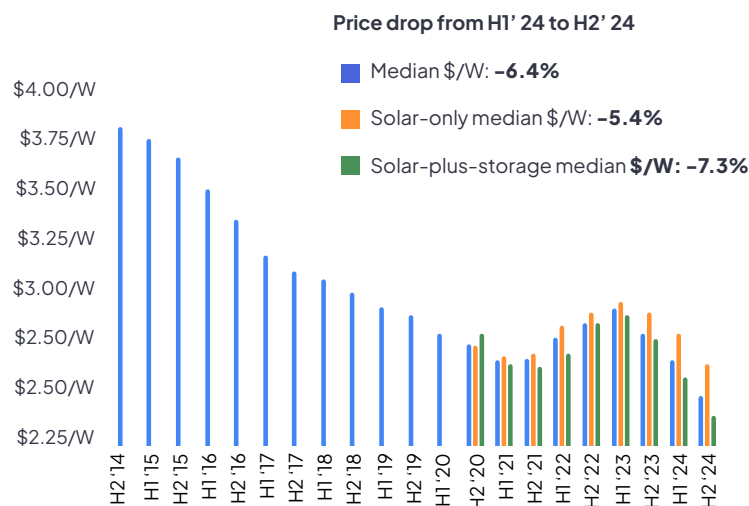
	PAYBACK PERIOD (YEARS)	SYSTEM SIZE (kW)
H1 '24	7.5	10.9
H2 '24	7.1	11.5

Prices reach an all-time low for both solar-only and solar-plus-storage quotes

The median price of solar in quotes that did not include storage was \$2.65/W in H2 2024, the lowest price seen on EnergySage, compared to \$2.80/W in H1 2024. Low equipment costs contributed to these low prices; the average residential solar panel price dropped 30% year-over-year in 2024, according to Wood Mackenzie. Prices also declined due to softening demand—driven by high interest rates, relatively stable residential electricity prices, and California's Net Billing Tariff—which induced installers to price more aggressively.

Quotes that included solar and storage fell even more, from \$2.59/W in H1 2024 to \$2.40/W in H2 2024. This drop is primarily due to the surge in demand for Tesla's Powerwall 3, which includes an integrated inverter. In solar-plus-storage quotes, its inverter price is reflected in the storage component (price per kilowatt-hour, \$/kWh) rather than the solar component (\$/W).

GROSS PRICE PER WATT, BY HALF YEAR



Note: EnergySage added storage to its Marketplace in H2 '20.



Price dispersion for EnergySage customers

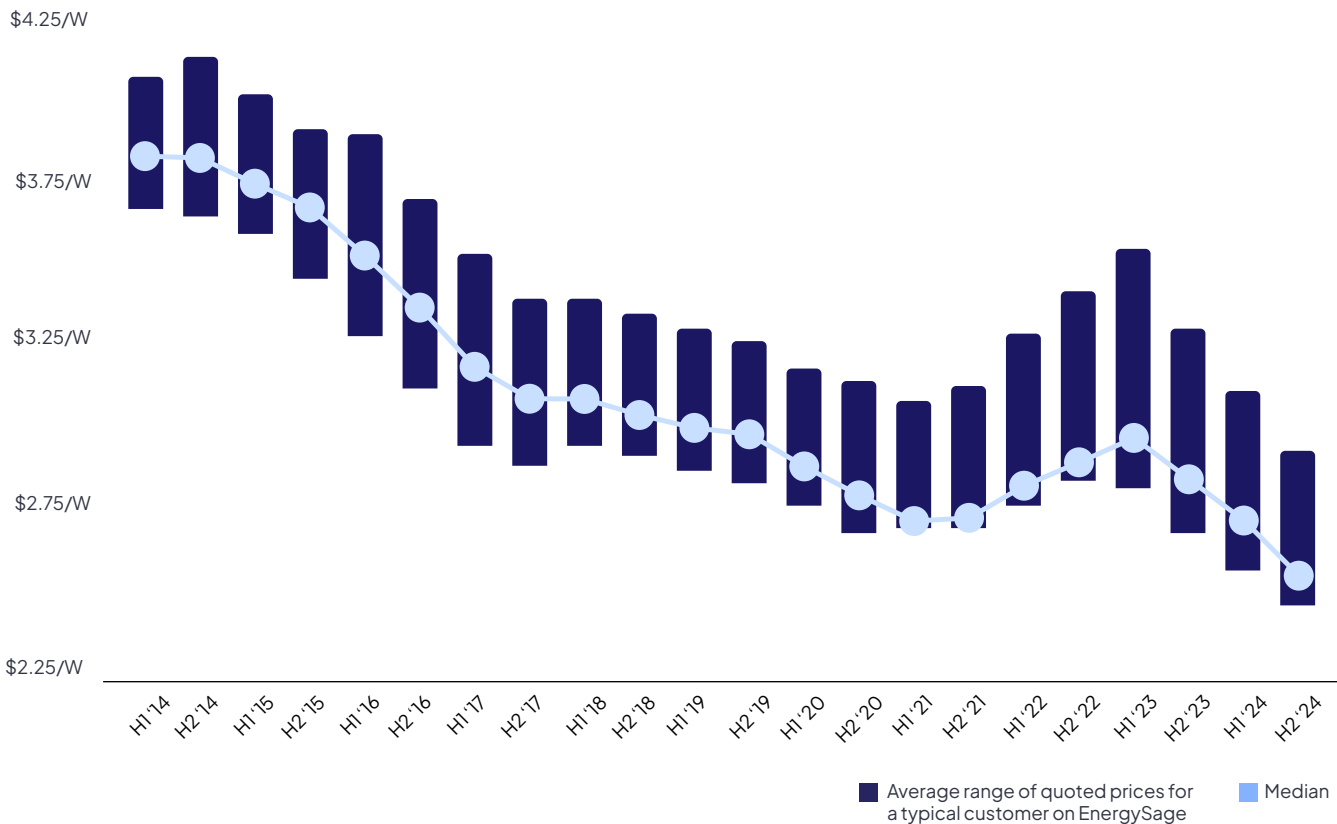
For the first time, the average highest quoted price per watt dropped below \$3.00 in H2 2024.

In EnergySage’s online Marketplace, solar shoppers compare personalized quotes from up to seven solar installers head-to-head. From the quality of solar equipment to the ratings and reviews of the installer, there are a variety of factors to consider when making a solar decision. Price is often not the leading decision-making factor: **In the second half of 2024, 68% of EnergySage shoppers did not select the lowest-priced quote they received.** To track how the range of quoted prices has changed over time, EnergySage analyzed the prices of the minimum, median, and maximum quotes that each shopper received.

The average spread between quotes decreases again to 20%

As with the median quoted price, the range between the minimum and maximum quoted prices for the average solar shopper on EnergySage dropped for the third consecutive six-month period. The average maximum quote declined almost twice as much as the average minimum quote; this signals that lower equipment prices and smaller installer margins are driving down high end prices, but low end prices have less room to drop. The average maximum dipped below \$3.00/W for the first time, reaching \$2.89/W. The average minimum also reached its lowest level since we began tracking prices over a decade ago at \$2.41/W. For a median system size of 11.5 kW, a typical EnergySage shopper would see a range of upfront costs of just under \$5,500 between their lowest- and highest-priced solar quotes.

RESIDENTIAL SOLAR PRICE DISPERSION OVER TIME





Price distribution in select states

The top three solar states all had median prices at least \$0.25/W below the national median and battery attachment rates of 45% or higher.

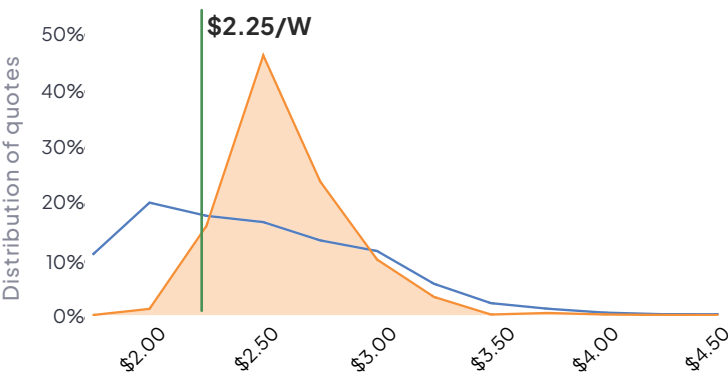
To provide a sense of market dynamics in different states and regions, EnergySage analyzed Marketplace quote data for the second half of 2024 for the 10 states with the most cumulative residential solar electric capacity installed across the same timeframe, based on data from Ohm Analytics.

States 1–3: Tesla batteries fuel low price curves in the top solar states

The top three solar states—California, Florida, and Texas—had similar price curves, with a median price per watt at least \$0.25/W below the national median. Notably, each state also had a battery attachment rate of at least 45%, likely due to the frequency of extreme weather events and grid instability in those markets, as well as reduced export rates in California and some parts of Texas. Tesla’s Powerwall 3 was the most quoted battery in all three states; its integrated hybrid inverter being excluded from the \$/W helped drive these low prices.

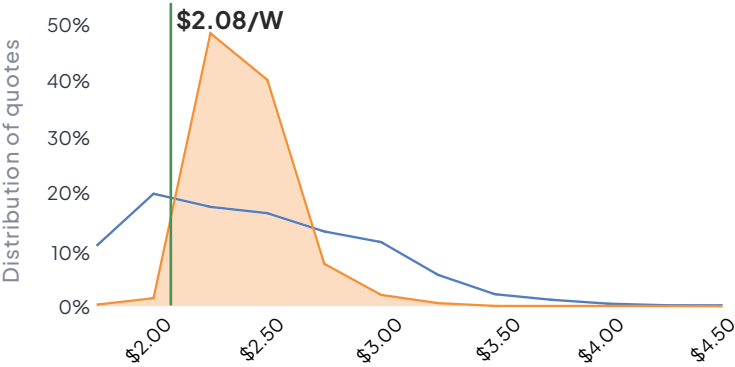
1. CALIFORNIA

NOTE: 79% Battery attachment rate



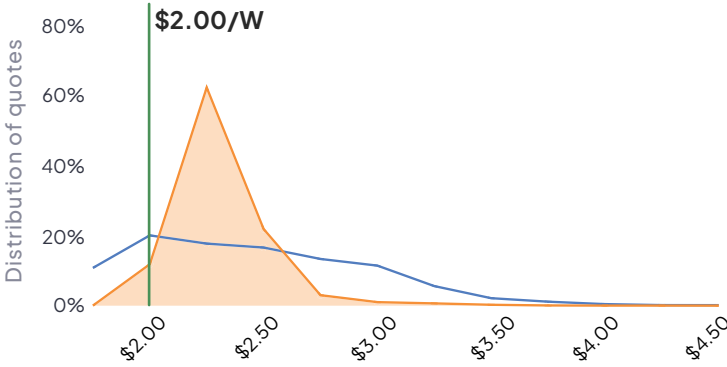
2. FLORIDA

NOTE: 45% Battery attachment rate



3. TEXAS

NOTE: 68% Battery attachment rate



EnergySage state pricing distribution EnergySage national pricing distribution EnergySage state median, \$/W

Price distribution in select states (continued)

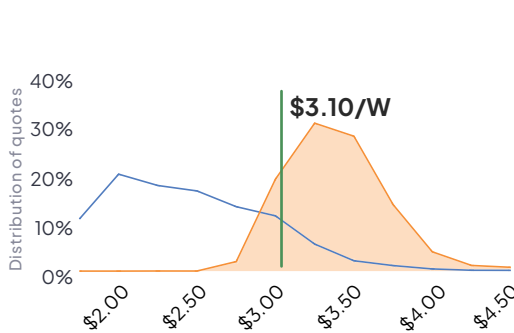
The median price spread across the top 10 states was greater than \$1/W.

States 4–10: Prices are a mixed bag

In H2 2024, there were no clear price curve trends in the seven states that round out Ohm Analytics' top 10 residential solar markets. Five states—Massachusetts, Illinois, New York, New Jersey, and Connecticut—had prices above the national median, while only two states—Nevada and Arizona—had prices below the national median. At the high end of the range, solar in Massachusetts cost \$1.11 more per watt than at the low end in Arizona. For an average system size, that's \$12,765 before incentives.

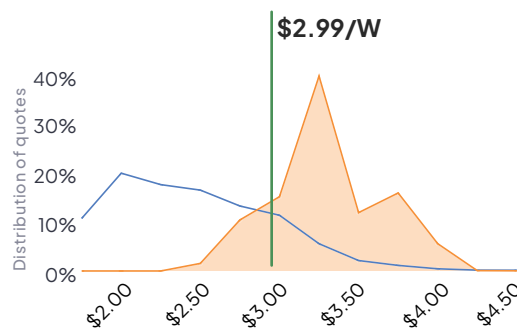
4. MASSACHUSETTS

NOTE: 15% Battery attachment rate



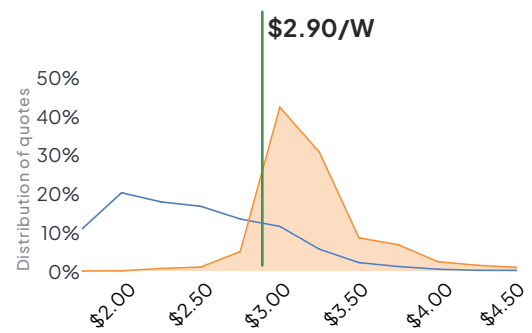
5. ILLINOIS

NOTE: 17% Battery attachment rate



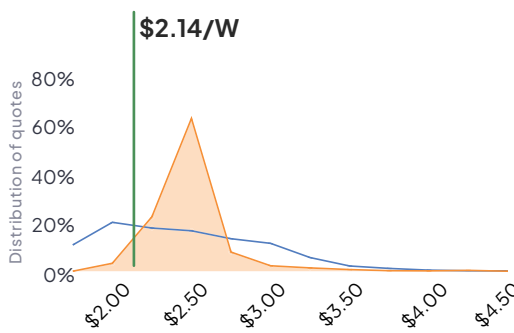
6. NEW YORK

NOTE: 22% Battery attachment rate



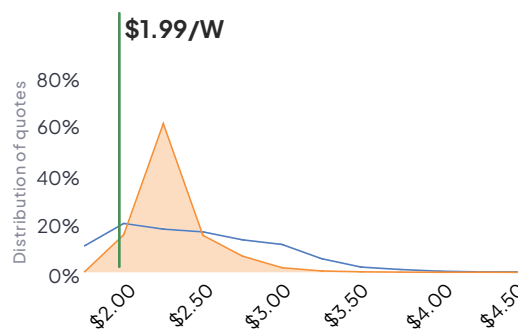
7. NEVADA

NOTE: 19% Battery attachment rate



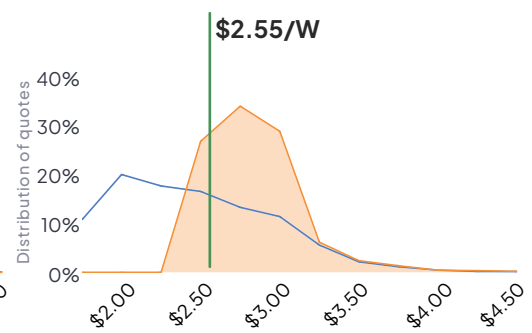
8. ARIZONA

NOTE: 41% Battery attachment rate



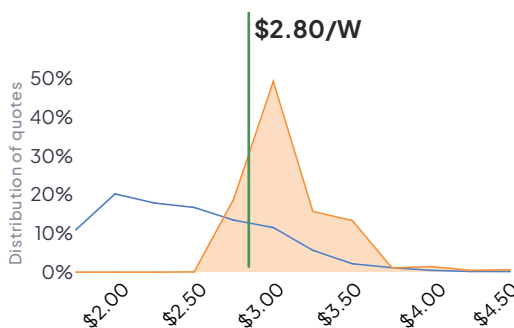
9. NEW JERSEY

NOTE: 17% Battery attachment rate



10. CONNECTICUT

NOTE: 19% Battery attachment rate



EnergySage state pricing distribution EnergySage national pricing distribution EnergySage state median, \$/W



Solar system characteristics in select states

Between H1 and H2 2024, quoted system prices decreased, and system sizes increased in all top 10 residential solar states.

Solar panel system characteristics on EnergySage vary by location based on multiple factors, including policies, incentives, electricity rates, electricity usage, and equipment preferences. However, the top 10 residential solar states demonstrated consistent trends from H1 to H2 2024: Median prices decreased (an average of 5%), and median system sizes increased (an average of 6.5%). These larger system sizes may have been encouraged by declining solar prices, more intense weather driving increased electricity usage, and electrification of major home systems like HVAC, EV chargers, and induction stoves.

High electricity rates, lucrative incentives, and low prices drive solar adoption

While the top 10 states all followed similar trends from H1 to H2 2024, median prices and system sizes still varied significantly by state. In general, system sizes were high in states with high electricity consumption.

Solar prices were more complicated: States with prices above the national median—Massachusetts, Illinois, New York, New Jersey, and Connecticut—all had high electricity rates and/or major state solar incentives like solar renewable energy credits (SRECs), rebates, or tax credits. States with solar prices below the national median—California, Florida, Texas, Nevada, and Arizona—all had relatively mediocre solar incentives and, except California, electricity prices below the national average, which may have pushed installers to price their quotes more competitively.

TOP RESIDENTIAL SOLAR STATES

TOP 10 STATES*	System size (kW)			Usage offset (%)	Median \$/W			Avg. monthly residential consumption (kWh)	Avg. residential elec. rate Jan. 2025 (¢/kWh)
	H1 '24	H2 '24	TREND	H2 '24	H1 '24	H2 '24	TREND		
CALIFORNIA	8.3	8.9	⬆️	107%	\$2.39	\$2.25	⬆️	551	30.22
FLORIDA	13.7	14.4	⬆️	101%	\$2.20	\$2.08	⬆️	1,052	14.43
TEXAS	12.8	14.0	⬆️	100%	\$2.10	\$2.00	⬆️	1,202	14.68
MASSACHUSETTS	9.9	10.5	⬆️	97%	\$3.25	\$3.10	⬆️	694	30.08
ILLINOIS	11.3	12.0	⬆️	95%	\$3.05	\$2.99	⬆️	834	15.81
NEW YORK	11.3	11.5	⬆️	93%	\$3.10	\$2.90	⬆️	679	25.31
NEVADA	12.4	12.9	⬆️	100%	\$2.18	\$2.14	⬆️	737	13.92
ARIZONA	12.4	13.6	⬆️	99%	\$2.10	\$1.99	⬆️	854	14.75
NEW JERSEY	11.3	12.5	⬆️	90%	\$2.75	\$2.55	⬆️	730	19.68
CONNECTICUT	10.7	11.1	⬆️	95%	\$3.00	\$2.80	⬆️	885	30.06

*Based on H2 '24 predicted installed residential solar capacity from Ohm Analytics.

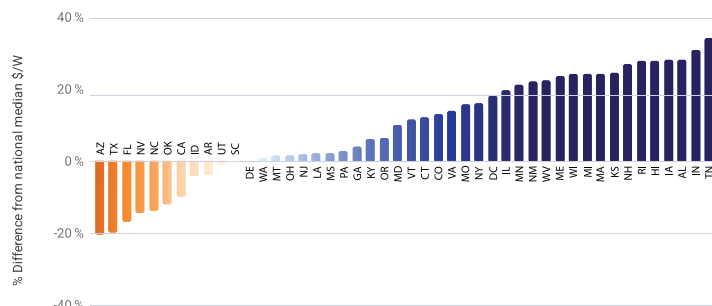


State price differential from the national median

An 11.5 kW solar panel system cost \$15,640 more in Tennessee, the highest-priced state, than in Arizona, the lowest-priced state.

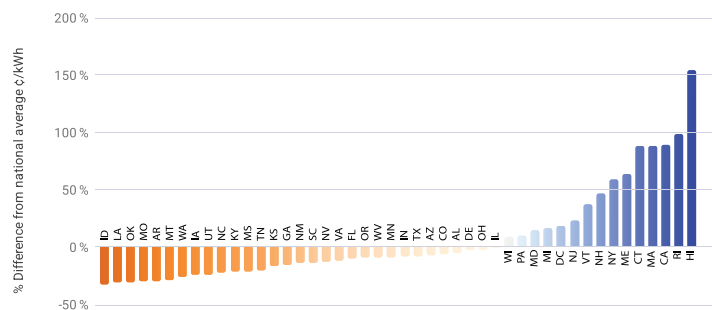
Arizona has had the lowest median quoted solar price on EnergySage for four straight years. In H2 2024, Arizona's median quoted price hit \$1.99/W, declining 5.2% from the previous half-year. Tennessee had the highest median solar cost on EnergySage in the second half of 2024 at \$3.35/W. The difference in price is likely due to competition and market maturity. Arizona has a strong solar market due to its abundant sunshine and past history of lucrative incentives. In contrast, Tennessee has historically lacked basic solar incentives like net metering, which has discouraged installers from entering the market, lowering competition. Notably, the spread between the highest- and lowest-priced states increased from \$1.20/W to \$1.36/W between H1 and H2 2024.

STATE SOLAR PRICE DIFFERENCE FROM NATIONAL MEDIAN



NOTE: EnergySage expanded into all 50 states in July 2024, but this report does not include every state due to limited data in some states.

STATE ELECTRICITY PRICE DIFFERENCE FROM NATIONAL AVERAGE

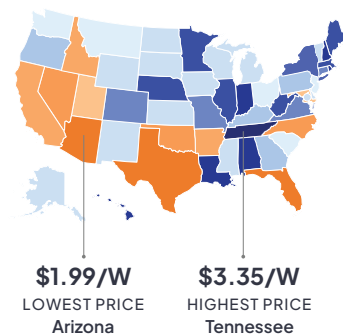


NOTE: Data are from the Energy Information Administration (EIA).

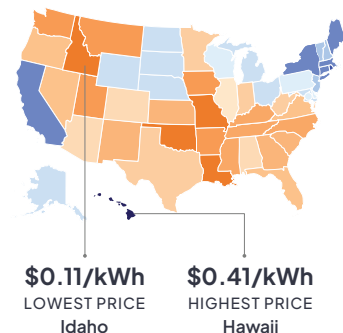
High electricity prices generally do not inflate solar prices

In the first half of 2024, while the Northeast showed a strong correlation between high solar installation prices and high electricity rates (both exceeding the national median and average, respectively), this relationship did not hold elsewhere. The Midwest consistently maintained solar prices above the national median despite having below-average electricity costs, likely reflecting less competitive markets. Southern states demonstrated consistently low electricity prices with variable solar installation costs across the region. The West exhibited substantial variation in both electricity and solar prices by state but without a significant correlation between the two metrics. This suggests that local market conditions and regional factors have a stronger influence on solar pricing than electricity rates. Even in the Northeast, high solar prices are more likely due to high labor prices than high electricity prices.

\$2.50/W
ENERGYSAGE
NATIONAL
MEDIAN



\$0.16/kWh
EIA NATIONAL
AVERAGE



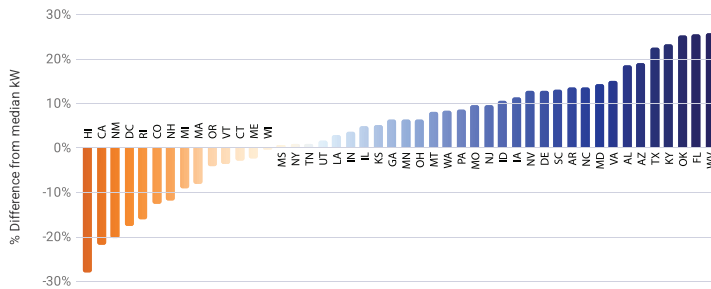


Solar system sizes: Difference from the national median

Solar panel system sizes and electricity usage were largest in the South and smallest in the Northeast.

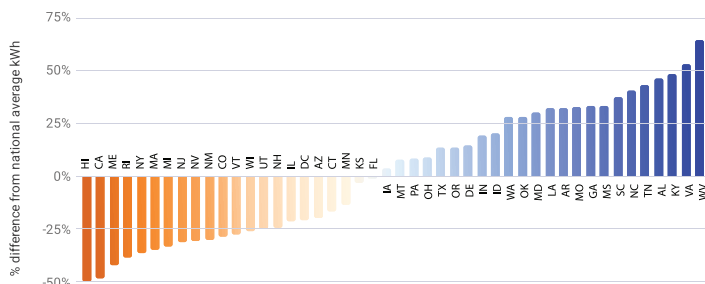
Across the country, median quoted system sizes ranged from a minimum of 8.2 kW in Hawaii to a maximum of 14.4 kW in West Virginia in H2 2024. Hawaii and West Virginia also saw the lowest and highest average monthly electricity consumption at 536 kWh and 1,742 kWh, respectively. Hawaii's low usage stems from high electricity prices, smaller homes, and consistent year-round temperatures. In contrast, West Virginia's high usage is due to relatively low electricity prices and cold winters paired with electric resistance heating.

STATE SYSTEM SIZE DIFFERENCE FROM ENERGYSAGE NATIONAL MEDIAN



NOTE: EnergySage expanded into all 50 states in July 2024, but this report does not include every state due to limited data in some states.

STATE ELECTRICITY USAGE DIFFERENCE FROM EIA NATIONAL AVERAGE

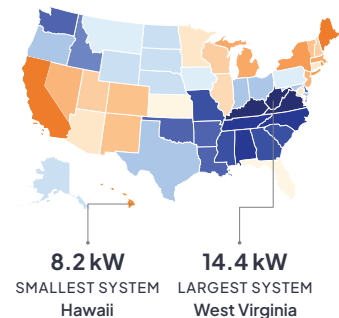


NOTE: Data are from the Energy Information Administration (EIA).

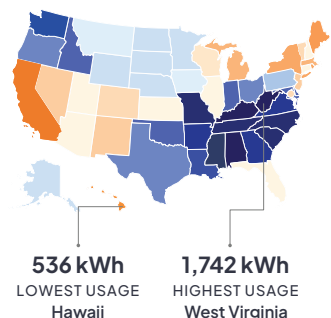
Solar system size and electricity usage show clear regional patterns

In the first half of 2024, solar system sizes showed a strong positive correlation with household electricity usage nationwide. Southern states had both the largest solar systems and the highest electricity consumption, reflecting the region's greater cooling needs and energy demands. In contrast, Northeastern states had the smallest systems and lowest electricity usage, likely due to slightly cooler summers, high adoption of energy efficiency initiatives, and high incidence of natural gas and oil, rather than electricity, for heating sources. The Midwest and West fell between these extremes, with the proportional relationship between system size and electricity usage remaining consistent. These regional differences highlight how solar adoption adapts to local energy needs, with system sizes generally scaling appropriately with household electricity consumption.

**11.5 kW
ENERGYSAGE
NATIONAL
MEDIAN**



**1,063 kWh
EIA NATIONAL
AVERAGE**





Solar equipment characteristics

In H2 2024, one-third of quotes included solar panels rated to over 450 watts, up from just 1% in the previous period.

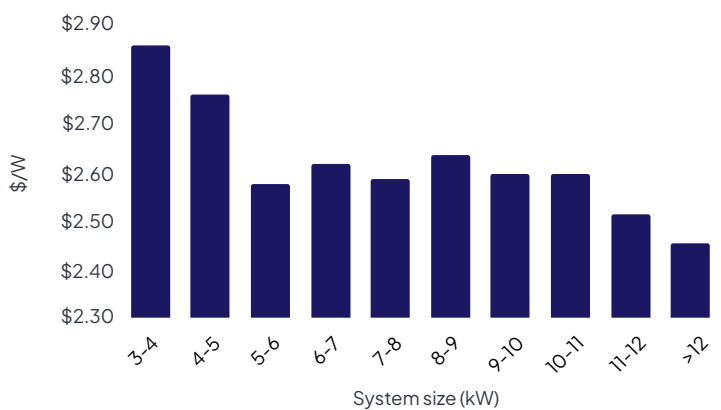
Pricing fluctuates for systems between 5 and 11 kW in size

Prior to 2024, we saw a clear relationship between increasing system sizes and decreasing price per watt. This relationship was less pronounced in the first half of 2024, a trend that continued into the second half of 2024. The price per watt was significantly higher for systems below 5 kW, and lower for systems above 11 kW. However, no clear trend existed for systems within the 5 to 11 kW range, likely due to regional variations in labor prices, installer competition, and permitting costs.

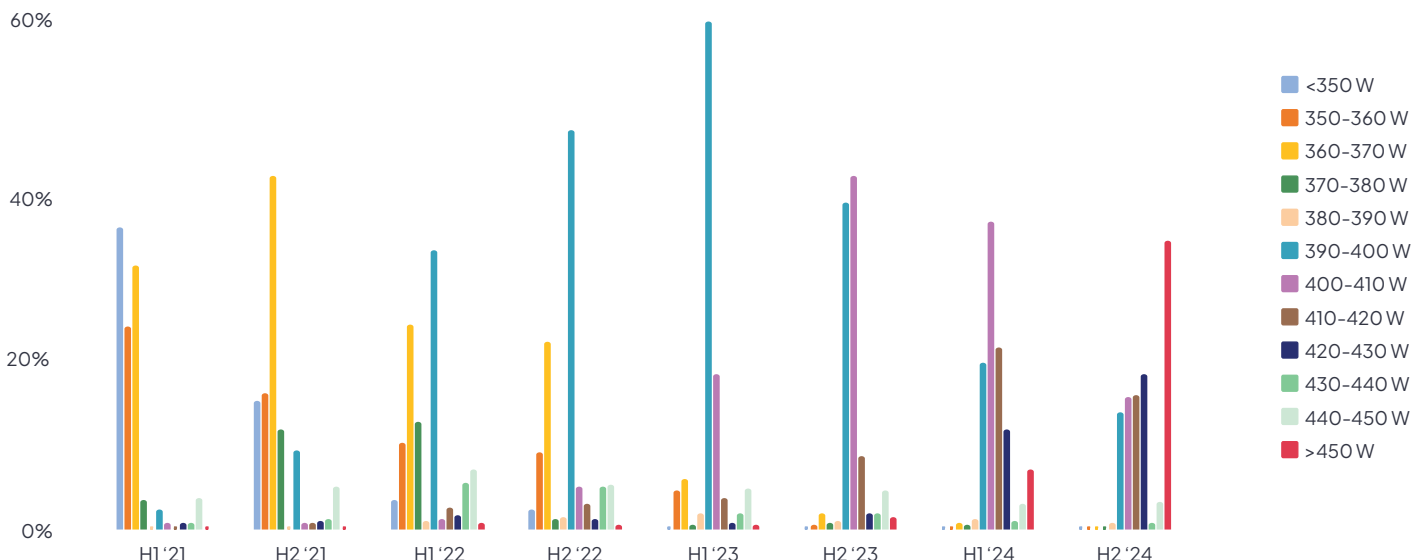
High-wattage solar panels continue to skyrocket

Low-output panels are being phased out quickly. In H2 2024, only 14% of quotes included solar panels with rated outputs below 400 watts. Just one year ago, in H2 2023, that percentage was 81%, showing a significant shift toward solar panels with higher outputs. This trend is due to solar panels increasing in size (larger panels are more cost-effective to manufacture and install) and/or increasing in efficiency (more efficient solar panels produce more power per square foot). Whether this trend continues into 2025 largely depends on how much tariffs disrupt the solar supply chain. In early April, *Bloomberg* reported the U.S. had stockpiled 40-50 gigawatts of solar panels as of the end of 2024, which may help insulate the solar industry from massive price hikes. However, the stockpiling may also limit the pace of U.S. solar panel technology growth.

MEDIAN SOLAR PRICE PER WATT BY SYSTEM SIZE



PERCENT OF QUOTES BY PANEL SIZE



Solar equipment brand share

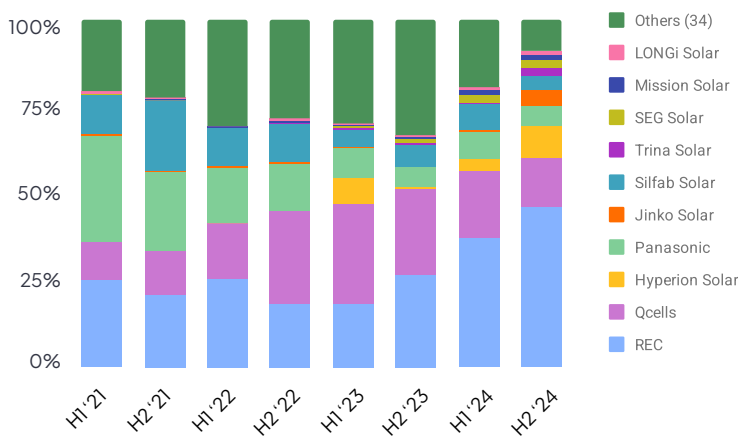
REC and Tesla both gained significant Marketplace share in H2 2024.

EnergySage Marketplace equipment share data comes from quotes provided by solar installers to homeowners. It is indicative of the sales behavior of small-to-midsize solar installers based primarily on equipment availability and installer preferences of which equipment to work with and service, with homeowner demand for specific equipment being a small factor.

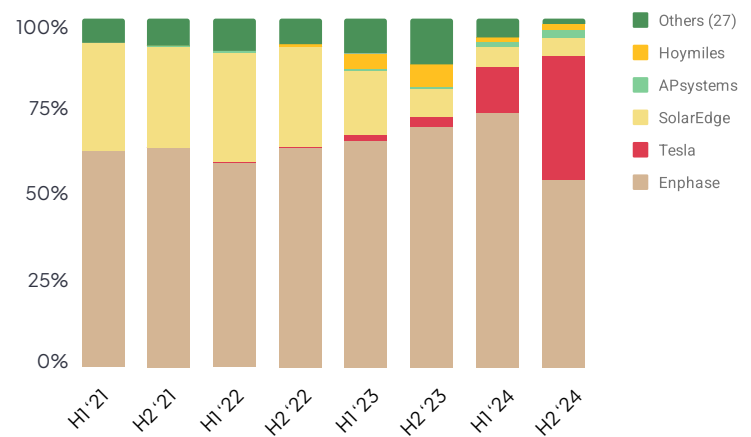
Despite significant Marketplace share gains, top brands remain the same

REC overtook Qcells as the top quoted solar panel brand in H2 2023 and has continued to grow share since; in H2 2024, REC panels were included in 46% of quotes, up from 37% in H1 2024 and 26% in H2 2023. However, the biggest Marketplace disruption came from Tesla, which grew its inverter share by 1100% year-over-year due to the popularity of the Powerwall 3. Notably, Tesla inverters are primarily included in quotes with batteries, which limits its Marketplace share opportunity. Still, Tesla was included in over one-third of all quotes in H2 2024. Meanwhile, Enphase lost inverter Marketplace share for the first time since H1 2022, dropping from 73% in H1 2024 to 53% in H2 2024.

SOLAR PANEL BRAND MARKETPLACE SHARE BY HALF-YEAR



INVERTER BRAND MARKETPLACE SHARE BY HALF-YEAR





Installer equipment offerings

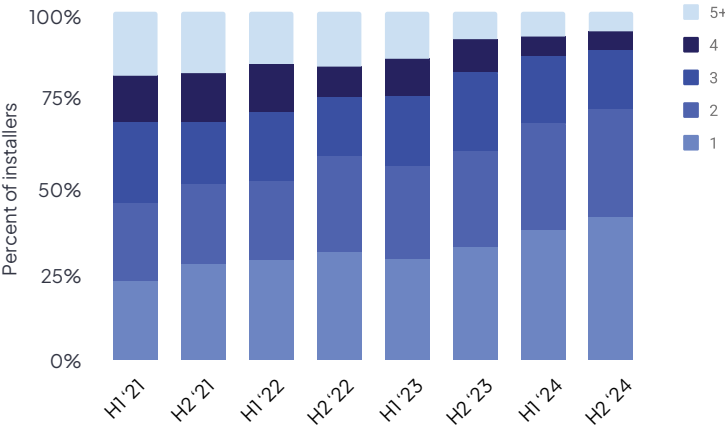
Installers offered more inverters and fewer solar panels in H2 2024.

Tracking installer equipment offerings over time provides insight into installer brand loyalty and supply chain availability. Since the pandemic-related solar panel shortage eased in 2023, installers have become increasingly brand-loyal. The percentage of installers quoting only one solar panel brand has steadily risen from 29% in the first half of 2023 to 41% in the second half of 2024. However, tariff-driven supply chain disruptions may shift this trend in 2025.

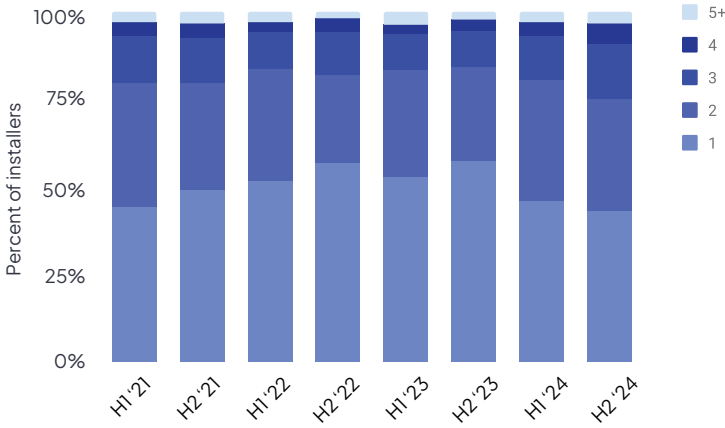
Enphase’s share loss signals a shift away from inverter brand loyalty

Throughout 2022 and 2023, installers remained inverter brand loyalists; at least half of installers included only a single inverter brand in their quotes. Brand loyalty slipped in 2024, dipping to 46% in the first half of the year and 43% in the second half. While most installers continued to quote Enphase inverters in solar-only quotes, many switched to Tesla for quotes that included batteries, opening up the inverter market.

NUMBER OF PANEL BRANDS OFFERED PER INSTALLER



NUMBER OF INVERTER BRANDS OFFERED PER INSTALLER





Installer equipment pairings & price

Packages with Tesla inverters and Hyperion solar panels were consistently the most affordable.

EnergySage analyzed the comparative cost differences across the 10 most frequently quoted panel and inverter pairings to Marketplace shoppers over the second half of 2024. While EnergySage does not track the component pricing of individual pieces of solar equipment, comparing the relative pricing of similar brands can highlight trends. The highest-priced pairing cost 31.3% more than the lowest-priced pairing in H2 2024.

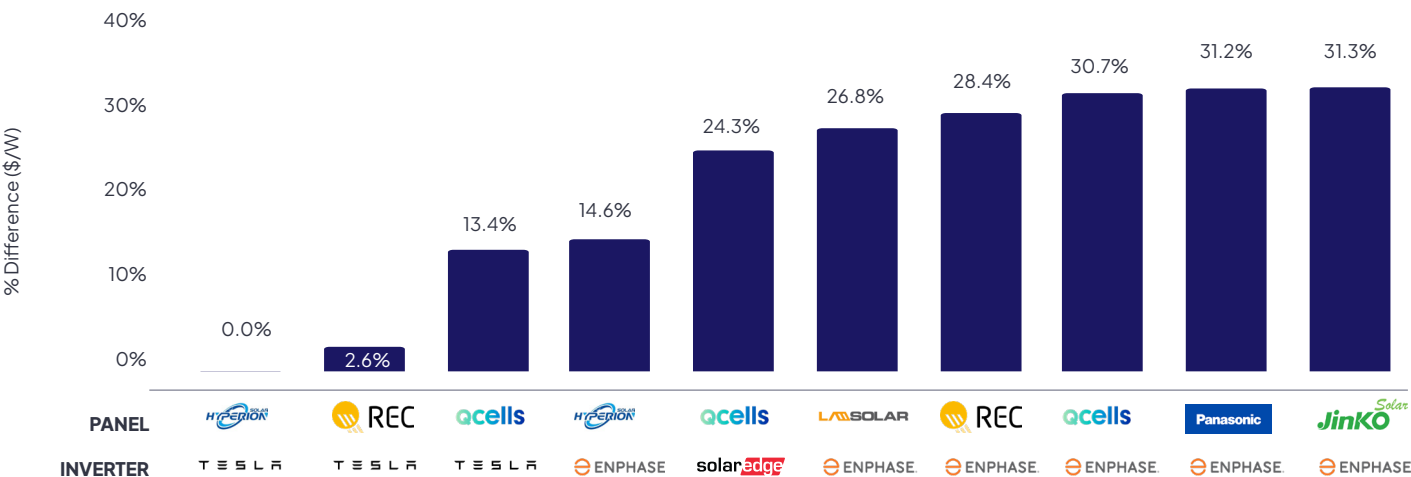
Packages with REC panels were cheaper than those with Qcells

Qcells solar panels have historically been less expensive than those from REC; however, in the second half of 2024, equipment packages with REC were consistently lower in price than those with Qcells when paired with the same inverters. This shift may be due to Qcells' investment in U.S. manufacturing facilities increasing production costs. Overall, packages with Hyperion solar panels were the cheapest, while those with Jinko Solar were the most expensive.

Tesla inverter packages offered the lowest quoted system prices

The three most affordable equipment combinations all featured Tesla inverters. Tesla's Powerwall 3 battery includes an integrated inverter; this means that for most quotes including a Tesla inverter, the inverter price is reflected in the storage component (\$/kWh), rather than the solar component (\$/W), helping explain why these prices are so low. In contrast, Enphase-based systems were the most expensive, while the one commonly-quoted package with SolarEdge was in the middle of the price range.

PRICE DIFFERENCE FROM LEAST EXPENSIVE EQUIPMENT PAIRING





Maps of equipment preferences by state

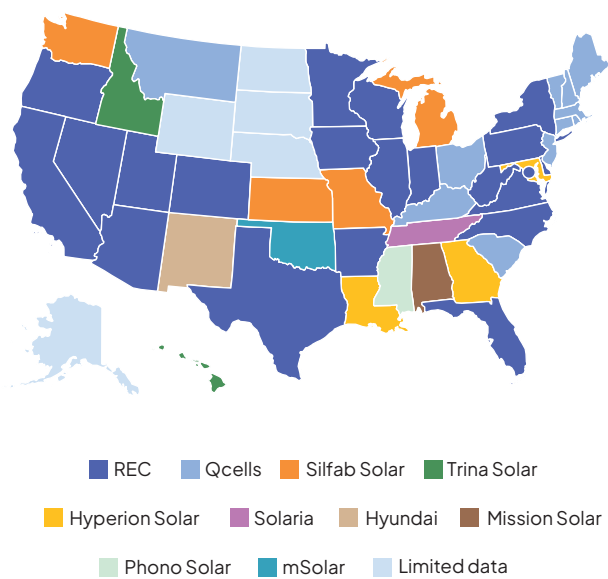
Enphase and REC remain the most quoted equipment nationwide and in the most states.

Tracking installer equipment offerings and pricing at the national level only tells one chapter of a much longer story. To better understand the regional and state dynamics of the residential solar market, EnergySage analyzed the most quoted equipment pairings at the state level. Like at the national level, REC and Enphase were the most popular in the most states: REC was the most quoted solar panel in 19 states, Enphase was the most quoted inverter in 30 states, and the REC/Enphase pairing was the most quoted in 16 states.

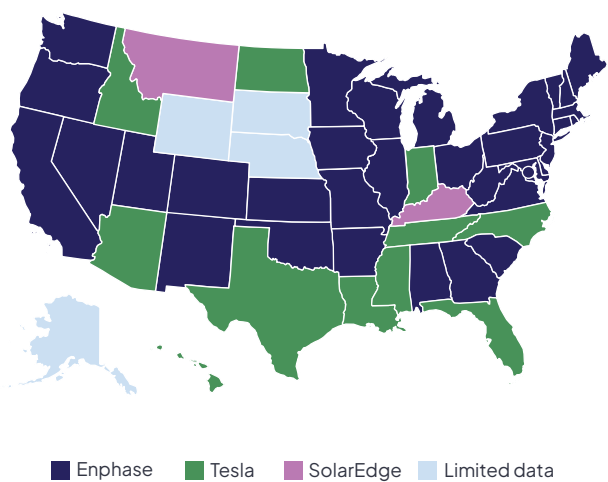
Tesla inverters are not popular in states with low battery attachment rates

Installers in different states quote different equipment, demonstrating the openness of the EnergySage Marketplace geographically. In H2 2024, 13 different panel-plus-inverter pairings were the most quoted option in at least one state. Within those pairings, 10 solar panel brands and three inverter brands were the most popular in at least one state. Tesla was rarely the most quoted inverter in states with battery attachment rates below 40% due to the Powerwall 3 being the biggest driver of its inverter growth. In contrast, Enphase’s popularity was not tied to attachment rate: It was the most quoted inverter in states with high and low battery attachment rates.

MOST FREQUENTLY QUOTED PANEL BRAND BY STATE



MOST FREQUENTLY QUOTED INVERTER BRAND BY STATE



National summary: Storage pricing trends

Storage prices dropped 12% from H1 to H2 2024, dipping just below \$1,000/kWh.

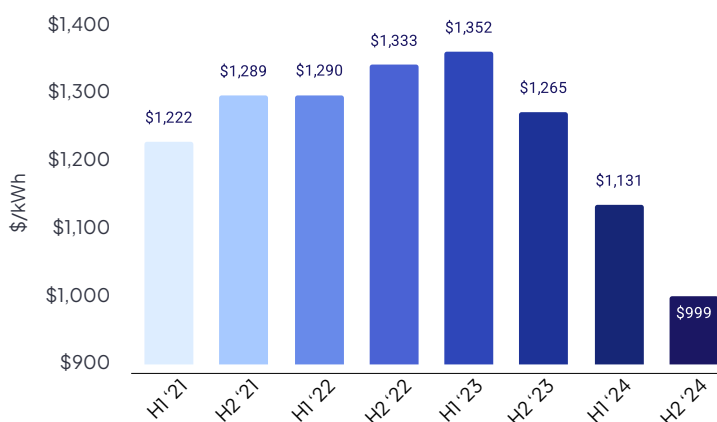
EnergySage provides homeowners the option to add energy storage to their solar quotes. During the first half of 2024, storage prices hit their all-time low for the second six-month period in a row at \$999/kWh, a 21% decline year-over-year. This trend is consistent with data from BloombergNEF, which saw a 20% decrease in lithium-ion battery pack prices from 2023 to 2024. However, according to reporting from *Energy Storage News*, the U.S. battery industry relies on China for about

90% of its supply chain where tariffs will hit the hardest, which may reverse this trend in 2025.

Tesla is the most quoted battery brand in all top 10 storage states

In the 10 states with the most cumulative residential storage capacity installed throughout 2024 (based on data from Ohm Analytics), Tesla was the most quoted battery brand. The median quoted system size increased in every state where Tesla overtook Enphase as the most popular battery. Meanwhile, battery prices dropped in every state except Hawaii where Tesla was already the most quoted battery in H1 2024.

MEDIAN STORAGE PRICING \$/KWH STORED



TOP RESIDENTIAL STORAGE MARKETS

TOP 10 STATES*	\$/kWh storage price			System size (kWh)			Top quoted battery brand		Battery attachment rate H2 '24
	H1 '24	H2 '24	TREND	H1 '24	H2 '24	TREND	H1 '24	H2 '24	H2 '24
CALIFORNIA	\$1,000	\$963	↓	10.0	13.5	↑	ENPHASE	TESLA	79%
TEXAS	\$1,000	\$889	↓	13.5	13.5	-	TESLA	TESLA	68%
HAWAII	\$741	\$926	↑	13.5	13.5	-	TESLA	TESLA	100%
ARIZONA	\$1,049	\$896	↓	10.1	13.5	↑	ENPHASE	TESLA	41%
FLORIDA	\$1,111	\$963	↓	13.5	13.5	-	TESLA	TESLA	45%
UTAH	\$1,546	\$1,026	↓	9.7	13.5	↑	ENPHASE	TESLA	26%
COLORADO	\$1,397	\$1,185	↓	13.5	13.5	-	TESLA	TESLA	40%
NEW YORK	\$1,158	\$1,111	↓	13.5	13.5	-	TESLA	TESLA	22%
NEVADA	\$1,185	\$999	↓	10.1	13.5	↑	ENPHASE	TESLA	19%
ILLINOIS	\$1,397	\$1,111	↓	10.1	13.5	↑	ENPHASE	TESLA	17%

*Based on 2024 installed residential storage capacity from Ohm Analytics.



Storage equipment brand share and pricing

In the second half of 2024, Tesla held the highest percentage of Marketplace share of any battery in EnergySage’s history.

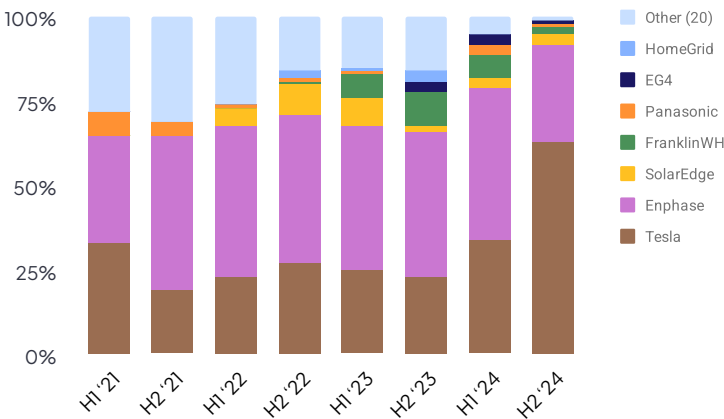
EnergySage added storage to its Solar Marketplace in 2020, and the storage market continues to mature. Enphase and Tesla have consistently been the top two quoted batteries on EnergySage. In H1 2024, the two brands occupied 79% of Marketplace share. In H2 2024, that percentage climbed even higher to a whopping 92%, with Tesla alone being included in 63% of solar-plus-storage quotes.

Tesla’s low price and integrated inverter drive its popularity

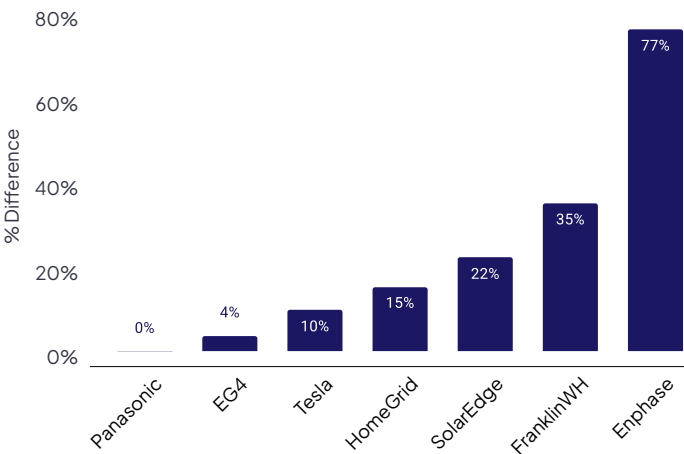
The Tesla Powerwall 3 was not the cheapest battery in H2 2024; Panasonic and EG4 batteries were both priced lower on a per kWh basis. However, at \$926/kWh, Tesla was priced below the national median, and the Powerwall 3 comes with an integrated hybrid inverter that works for both solar and storage, driving down the \$/W of solar quotes that include it.

In 2025, EnergySage has seen an uptick in homeowners specifically requesting non-Tesla equipment in their quotes amidst Tesla CEO Elon Musk’s political controversy. This negative brand backlash, coupled with Tesla battery supply shortages, could impact its share in our next Marketplace Report.

STORAGE MARKETPLACE SHARE BY HALF YEAR



PERCENT DIFFERENCE FROM LEAST EXPENSIVE OPTION





Consumer preference regarding storage

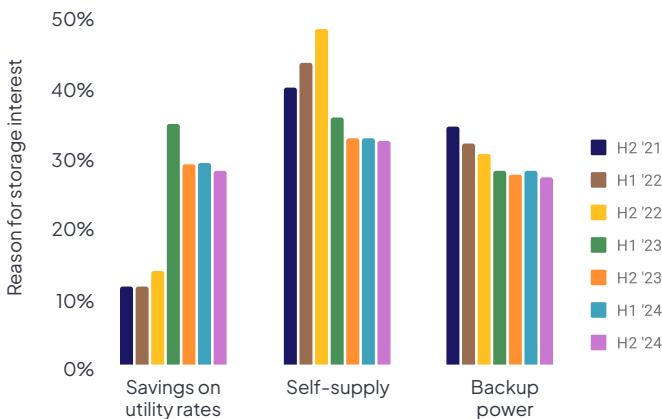
73% of homeowners indicated interest in storage; 45% moved forward with a purchase.

Consumer interest in residential energy storage rose slightly to 73% in the second half of 2024; expressed interest has exceeded 60% since EnergySage added battery storage in the Marketplace in 2020. The six states that showed the highest interest—Hawaii, Tennessee, Alabama, Indiana, Georgia, and California—all lack robust solar buyback programs, which aligns with consumer-reported storage motivation: Utility bill savings has consistently remained the most frequently cited driver of interest by Marketplace shoppers at 33% in H2 2024, followed by self-supply (28%) and backup power (27%).

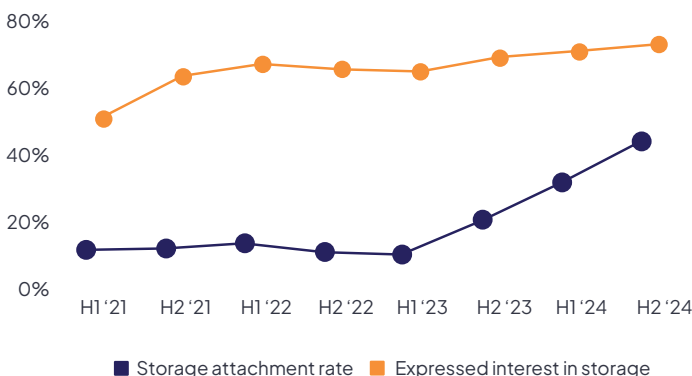
Nationwide storage attachment rate soars, beating previous record-high

The battery attachment rate among EnergySage customers jumped to 45% in H2 2024, more than doubling year-over-year. This spike is largely due to California, the top residential solar state in H2 2024 according to Ohm Analytics; its policies and trends significantly influence the national residential solar market. California's Net Billing Tariff, which went into effect in April 2023, has caused its battery attachment rate to reach 79%, up from just 7% in the first half of 2023. However, other states also saw an increase in battery attachment rates, from 20% in H1 2024 to 32% in H2 2024, likely due to shifting net metering policies, grid instability, and lower battery prices.

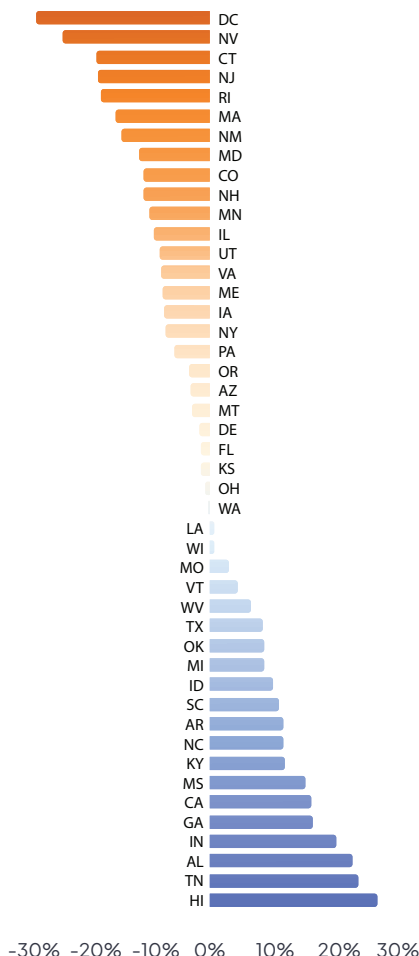
WHY ARE CONSUMERS INTERESTED IN STORAGE?



STORAGE ATTACHMENT RATE AND EXPRESSED INTEREST OVER TIME



PERCENT DIFFERENCE IN STORAGE INTEREST BY STATE FROM NATIONAL AVERAGE



Financing products

The trend toward low-fee loans continued, comprising 47% of all loans quoted on EnergySage in H2 2024.

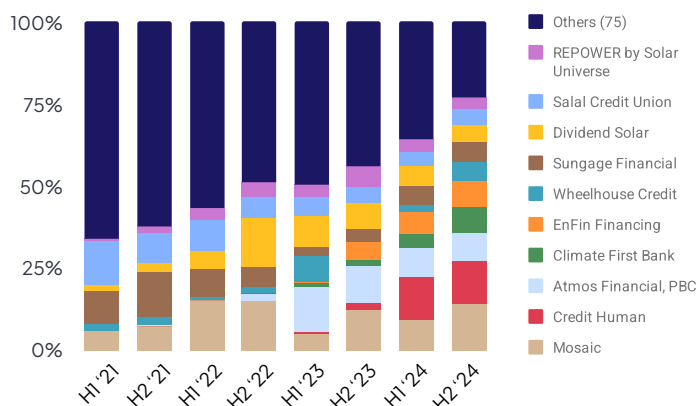
Many solar shoppers finance their systems with solar loans on EnergySage and across the broader solar market. However, persistently high interest rates have dampened demand for these products. According to Wood Mackenzie's most recent financing market share data, 39% of residential solar installations were purchased with a loan in H2 2024, down from 57% in 2023. Within quotes on EnergySage, the financing Marketplace remains fragmented; only two financing companies were included in more than 10% of quotes in H2 2024, Mosaic and Credit Human.

Low-fee loan offerings continue to gain popularity as the market matures

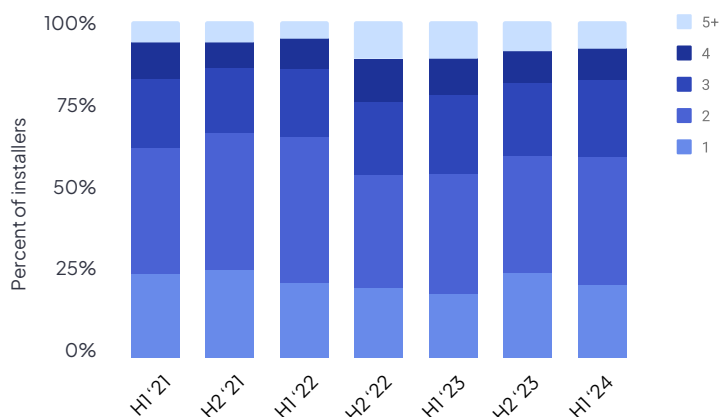
When homeowners select low-fee, higher-interest-rate loans, they often have the option to pay them off early or refinance to reduce the interest expense. By contrast, when they choose high-fee, low-interest-rate loans, the fees are a sunk cost. As solar financing matures, homeowners are better understanding the benefits and flexibility of low-fee, higher-interest-rate loans over previously common high-fee, lower-rate financing options. As such, more installers are quoting low-fee loans.

Three of the top four loan providers quoted in H2 2024—Climate First Bank, Credit Human, and Atmos Financial—offer loans with fees at or below 3% of the total loan. Low-fee loans (with fees of 3% or less) comprised 47% of quoted loan options in H2 2024, up from 40% in H1 2024. The average loan fee decreased slightly from 13% in H1 2024 to 12% in H2 2024. While a few higher-fee financing companies gained Marketplace share in the most recent period, their growth did not offset the overall share loss of high-fee products.

FINANCING PROVIDER
MARKETPLACE SHARE



NUMBER OF FINANCING PRODUCTS
OFFERED PER INSTALLER





Typical loan terms and offerings

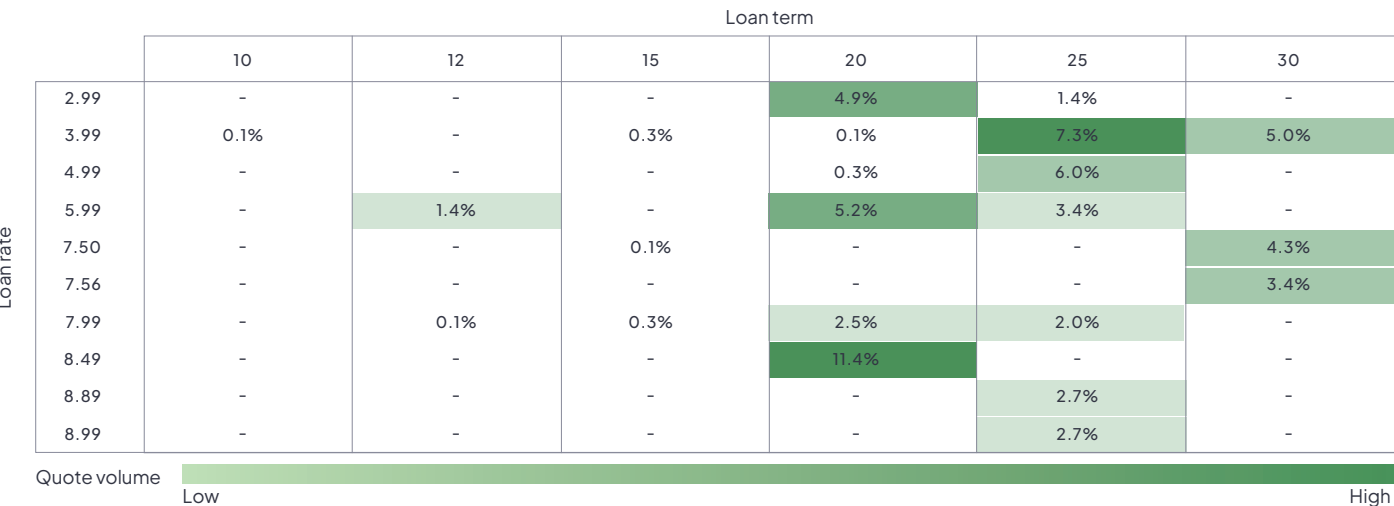
Higher-interest-rate loans with low fees remain more popular than low-interest-rate loans loaded with upfront fees.

Compared to solar leases, solar loans afford solar shoppers several advantages, including access to the federal solar tax credit and state and local incentives, greater long-term savings, and, most importantly, system ownership. Third-party-owned (TPO) systems are increasing in popularity outside of EnergySage due to the Inflation Reduction Act’s establishment of tax credit adders; according to Wood Mackenzie, the solar TPO market surpassed the solar loan market in 2024, climbing from 40% in H1 to 52% in H2. However, solar loans remain the preferred financing option among homeowners and installers on EnergySage.

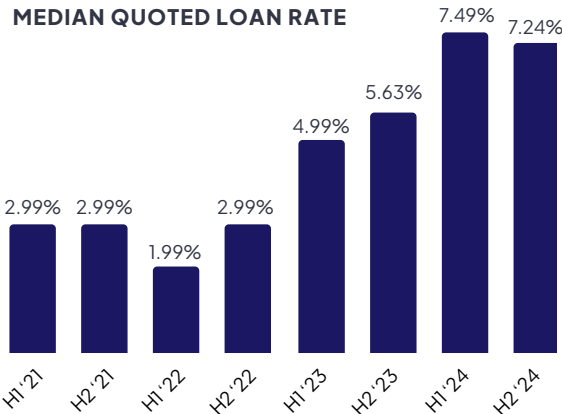
The most popular loan shifted to a 20-year, 8.49% product

In the second half of 2024, the median interest rate for loans quoted on EnergySage dropped slightly from 7.49% to 7.24%, while the median quoted loan term rose back to 25 years after dipping to 20 years during the first half of the year. However, high-interest-rate loans remain popular: The most-quoted loan product in H2 2024 had an interest rate of 8.49%, an increase from 7.99% in H1 despite a consistent 20-year loan term. In fact, loans with interest rates at 6% and above were included in 60% of loan quotes in the prior period, slightly up from 57% in H1 2024.

MOST FREQUENTLY QUOTED LOAN RATE AND TERMS



MEDIAN QUOTED LOAN RATE



MEDIAN QUOTED LOAN TERM (YEARS)



Heat Pump Marketplace data

Ductless systems cost less than ducted systems in states where ductwork is not standard.

Increasingly, solar is no longer a one-off purchase but rather one in a series of home electrification upgrades. Recognizing that many solar shoppers are considering—or actively shopping for—other home energy upgrades, EnergySage now operates a Heat Pump Marketplace in select states. Like solar, heat pumps are generally an unfamiliar technology for homeowners, requiring them to navigate new terminology, find reputable contractors, and compare products across unfamiliar metrics.

In the second half of 2024, the average cost of a ducted system was 8% higher than that of a ductless or a hybrid system. However, there are strong regional dynamics at play, and installer familiarity seems to be a major factor in pricing. In Massachusetts, where the housing stock is older and many houses were originally built without ductwork, ductless systems are both more common

and cost 7% less ton-for-ton. By contrast, in Colorado, where the housing stock is newer and ductwork is more standard, ducted systems are 6% less expensive ton-for-ton.

Costs rise quickly for heat pump systems above 5 tons in size

Prices jumped sharply for systems above 5 tons in size, which is typically the largest load that a single outdoor compressor can support. A 4-ton system cost about 34% more than a 3-ton system, consistent with its 33% increase in capacity. A 5-ton system cost only 14% more than a 4-ton system, while providing 25% more capacity. However, the average 6-ton system cost a whopping 64% more than the average 5-ton system despite providing only 20% more capacity, reflecting a significant increase in equipment and installation costs.

AVERAGE HEAT PUMP COST AFTER INCENTIVES BY STATE, H2 2024



CALIFORNIA
\$29,180

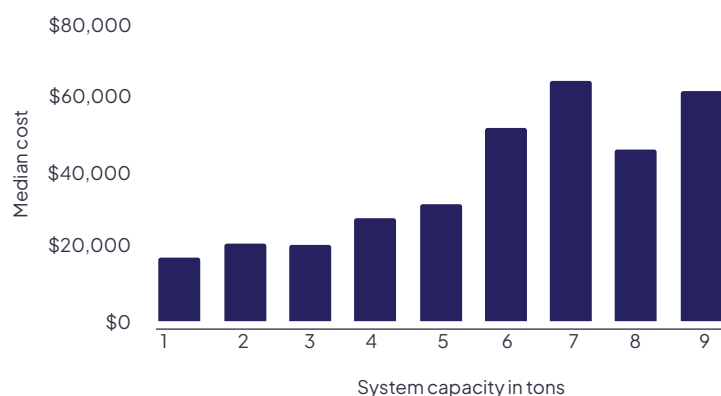


COLORADO
\$19,112



MASSACHUSETTS
\$25,152

HEAT PUMP INSTALLATION COST BY SYSTEM CAPACITY



About EnergySage Intel

EnergySage is the largest online marketplace for solar shopping in all 50 U.S. states, plus D.C.

- Our dataset is trusted by buy- and sell-side investment professionals, academic researchers, government agencies, equipment manufacturers, media outlets, financiers, and contractors nationwide.
- Our Marketplace provides real solar and storage quotes submitted by real contractors to real homeowners.

We offer a unique and timely dataset you can't get anywhere else.

- Our quote data indicate the market's direction three to six months before it appears in reported installation or permit data, and even further in advance of corporate earnings reports.
- There's no need to wait for permit records to be pulled: Quote data are ready to share the day after quotes are submitted.

Our dataset provides a leading indicator of trends on:

- Consumer demand for solar and storage
- Installer behavior, including equipment preferences and system sizes
- Solar and storage pricing
- Equipment brand market share
- Solar financing terms, loan rates, and financier marketplace share

If you're interested in EnergySage Intel data or want to speak with our team of experts, email us at intel@energysage.com.



Our experts

We are clean energy experts, technical writers, and journalists dedicated to helping homeowners explore clean energy solutions with deeply researched, accurate, and unbiased content. We provide unique insights to those in the solar and HVAC industries, as well as media and government agencies.

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Director of Analytics



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Business Intelligence Analyst



EnergySage is the simplest, most trusted way to comparison shop and save on high-quality clean energy and energy-saving solutions, including rooftop solar, energy storage, heat pumps, EV chargers, and community solar. As the trusted partner for hundreds of vetted and accredited solar, HVAC, and electrical installers, EnergySage enables shoppers to request multiple high-quality quotes in minutes. With in-depth resources and unbiased support, EnergySage makes the entire process simple, low-stress, and more affordable for consumers. It serves as the conduit for clean energy companies and providers in all 50 states and D.C. to grow their businesses, reduce costs, and simplify their operations.

For these reasons, leading organizations like National Grid, MassCEC, Sierra Club, Intuit, SEIA, and NCSU's DSI recommend EnergySage to their audiences to begin their clean energy transitions. [ns](#).

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In case you missed it

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Access unparalleled insight into the residential solar market in the U.S. through reports built from real quotes submitted by real installers to real homeowners through the EnergySage platform.

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19TH SOLAR & STORAGE MARKETPLACE REPORT

Data from H1 2024

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2024 ELECTRIFICATION CONTRACTOR SURVEY

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