SOLAR & STORAGE

MARKETPLACE REPORT

19TH EDITION | OCTOBER 2024

energysage Intel

Executive perspective

We are excited to share the 19th edition of the *EnergySage Intel: Solar & Storage Marketplace Report*, covering the six-month period from January through June 2024. While 2023 was a challenging year for the residential solar industry in the U.S., I believe we've reached a turning point. Solar and storage prices are dropping, equipment quality is improving, interest rates are coming down, and more homeowners are seeing the benefits of integrated whole-home energy solutions. To that end, this report delves into pricing trends, equipment preferences, consumer survey insights, equipment manufacturer quote shares, and financing terms within the residential Solar and Storage Marketplace on EnergySage.

HERE ARE SOME OF OUR TOP FINDINGS FROM OUR 19TH MARKETPLACE REPORT:

- **Residential solar prices near all-time low, and storage prices reach new all-time lows**
  Solar prices fell for the second six-month period in a row, reaching $2.69 per watt and nearing the all-time lowest quoted prices EnergySage has seen since we began tracking data in 2014. Quoted storage prices also dropped, setting a record low of $1,133 per kilowatt-hour stored.

- **Battery storage attachment rate skyrockets nationwide**
  The percentage of homeowners nationwide purchasing a battery with their solar panels on EnergySage climbed to 34% in the first half of 2024. California was a key driver, with an attachment rate of 70% following the implementation of the Net Billing Tariff in April 2024. However, the attachment rate outside California also rose steeply to 22%. Lower pricing, the introduction of the Tesla Powerwall 3, policy changes, and attractive incentives are driving this higher adoption of batteries nationwide.

- **Installers are quoting higher-interest rate, lower-cost loan products**
  From H2 2023 to H1 2024, the median interest rate in quotes increased from 5.5% to 7.49%, while the average loan fee dropped from 47% to 40%, respectively. The most-quoted loan product in H1 2024 was a 7.99%, 20-year loan with no fees, driving the spike in the median interest rate and drop in average loan fee.

Consumer demand for residential solar energy remains strong on EnergySage, and more homeowners are adding batteries to their systems than ever before. The home electrification sector continues to evolve—characterized by dynamic pricing, advancements in equipment, and shifts in consumer preferences. As always, we are thrilled to provide this report as an invaluable resource for those seeking deeper insights into these rapidly evolving (and critically important) industries.

Sincerely,
Charlie Hadlow,

EnergySage | *President and* COO

Intel

CONTENTS

National summary: Solar pricing trends

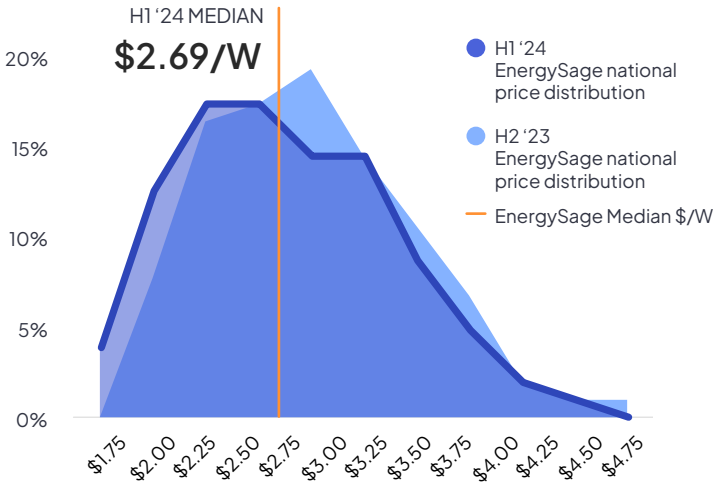
Key takeaway: Quoted solar prices dropped to $2.69 per watt, 1% above the all-time low.

EnergySage is the leading online comparison-shopping marketplace for solar, providing custom quotes to shoppers from local, vetted solar companies in all 50 states and Washington D.C.* We analyzed quotes that solar companies submitted to shoppers on the EnergySage Marketplace throughout the first half of 2024. For the second consecutive half-year, the median quoted solar price decreased, reaching **$2.69 per watt ($/W),** which is the third lowest six-month median price recorded since we began tracking Marketplace data in 2014.

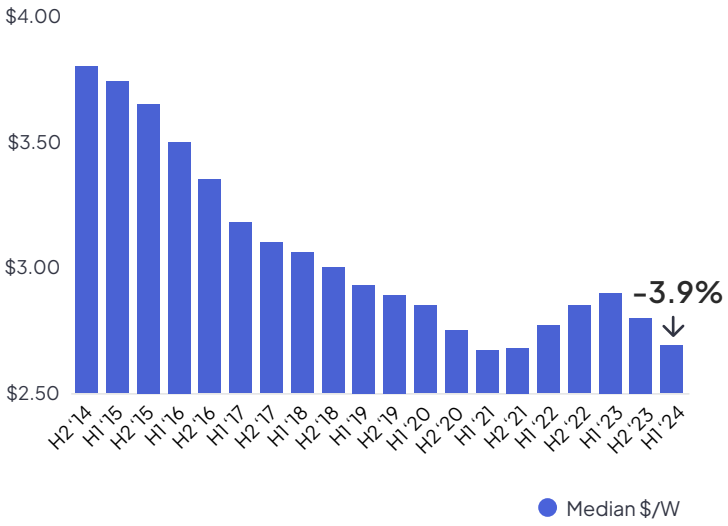
Solar prices near all-time low

The median quoted price of solar reached an all-time low of $2.67/W three years ago in H1 2021. Solar prices then rose steadily for 2.5 years amid pandemic-related supply chain constraints until finally dropping in H2 2023. Prices now stand at $2.69/W, or just $0.02/W more than the record low on EnergySage. Steady supply and cooling demand, stemming from policy changes like California's Net Billing Tariff and high interest rates, are the likely drivers of the most recent price cuts. The solar payback period also dropped considerably, from 8.1 years in H2 2023 to 7.5 years in H1 2024.

ENERGYSAGE MARKETPLACE NATIONAL PRICE DISTRIBUTION, H1 '24



GROSS PRICE PER WATT, BY HALF YEAR



	PAYBACK PERIOD (YEARS)	SYSTEM SIZE (kW)
H2 '23	8.1	11.3
H1 '24	7.5	10.9

*Note: EnergySage expanded into all 50 states in July of this year, so not every state is included in this report.

Price dispersion for EnergySage customers

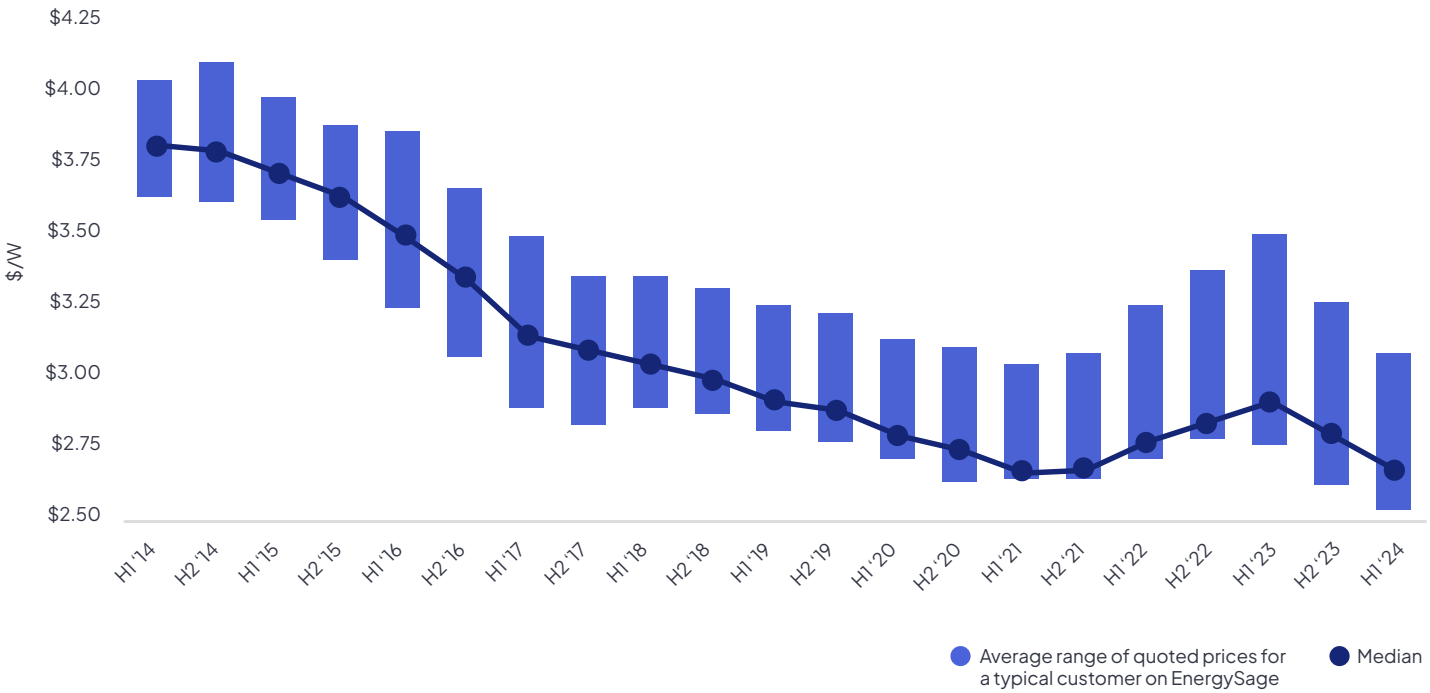
Key takeaway: The average lowest price quoted in H1 2024 dropped to $2.54/W, the lowest level we have ever seen.

In EnergySage's online Marketplace, solar shoppers compare custom 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 first half of 2024, 60% 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 decreased again to 22% in H1 2024

In line with the median quoted price dropping for the second straight six-month period on EnergySage, the range between the minimum and maximum quoted prices for the average solar shopper on EnergySage moved lower. The average maximum quote dropped to $3.08/W, the lowest level since 2021, and the average minimum quote dropped to $2.54/W, its lowest level since we began tracking prices over a decade ago. For an average system size of 10.9 kW, a typical EnergySage shopper would see a range of upfront costs of just under $6,000 between their lowest-and highest-priced solar quotes.

RESIDENTIAL SOLAR PRICE DISPERSION OVER TIME



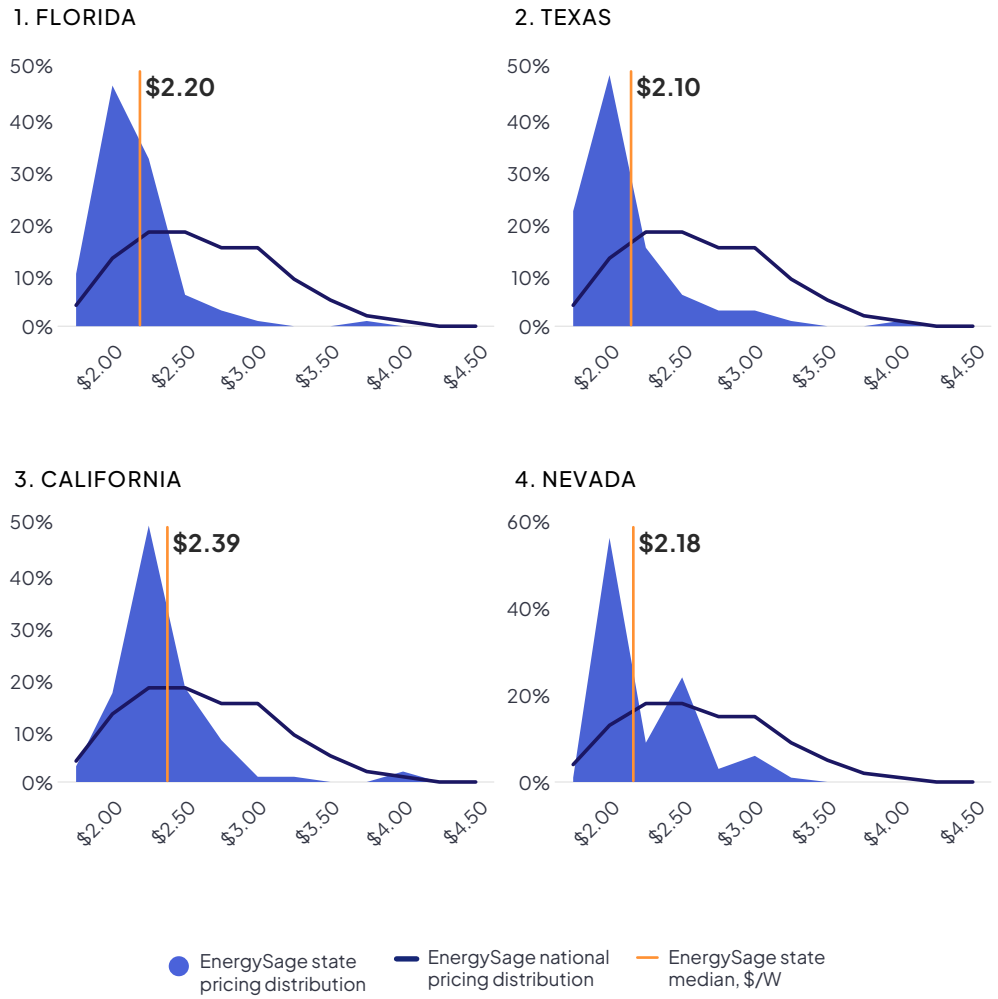
Price distribution in select states (page 1 of 2)

Key takeaway: Median prices in the top four solar states are at least $0.30/W lower than the national median.

To provide a sense of market dynamics in different states and regions, EnergySage analyzed Marketplace quote data for the first half of 2024 for the 10 states with the most solar electric capacity installed in Q1 2024, based on data from the Solar Energy Industries Association (SEIA) and WoodMackenzie.

The top four solar states have similar (and low) price curves

The top four solar states—Florida, Texas, California, and Nevada—all had median quoted prices below the national median price. Notably, at least three-quarters of solar quotes on EnergySage were priced below $2.50/W in all four of these top states, with median prices at least $0.30/W lower than the national median. In the top two states, at least half of solar quotes were below $2.25/W.

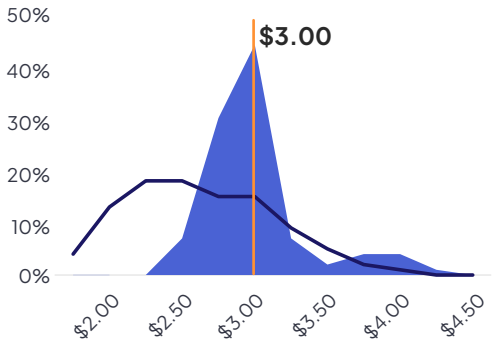


Price distribution in select states (page 2 of 2)

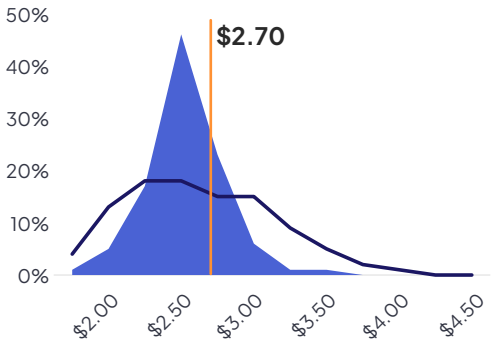
Key takeaway: Prices are above the national median in states 5-10.

Rounding out the top 10 solar states, New Mexico, Ohio, Utah, New York, Arkansas, and Pennsylvania all saw prices at least slightly above the national median, meaning low pricing is likely not a major driver of residential solar adoption in these states.

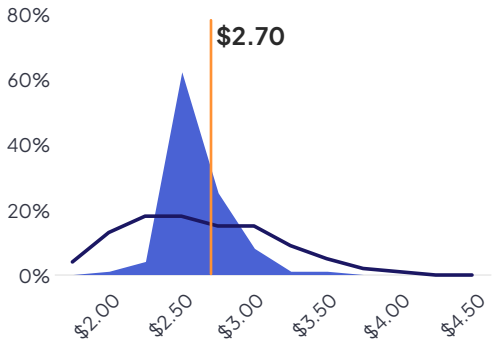
5. NEW MEXICO



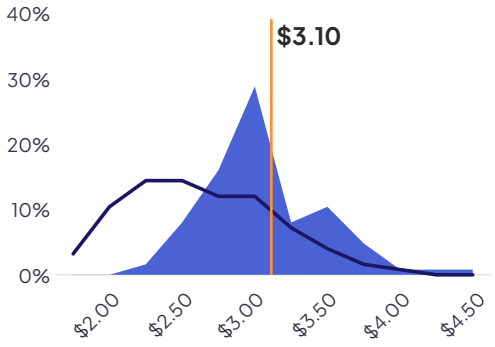
6. OHIO



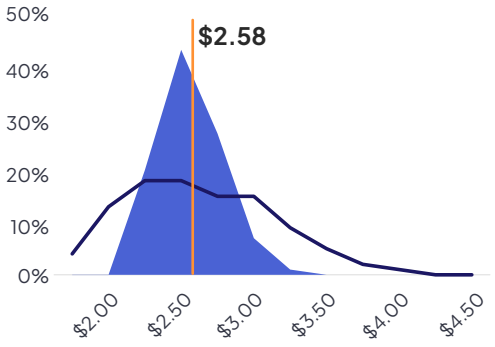
7. UTAH



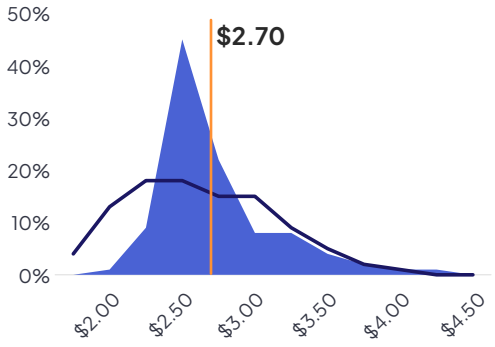
8. NEW YORK



9. ARKANSAS



10. PENNSYLVANIA



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

State price differential from the national average

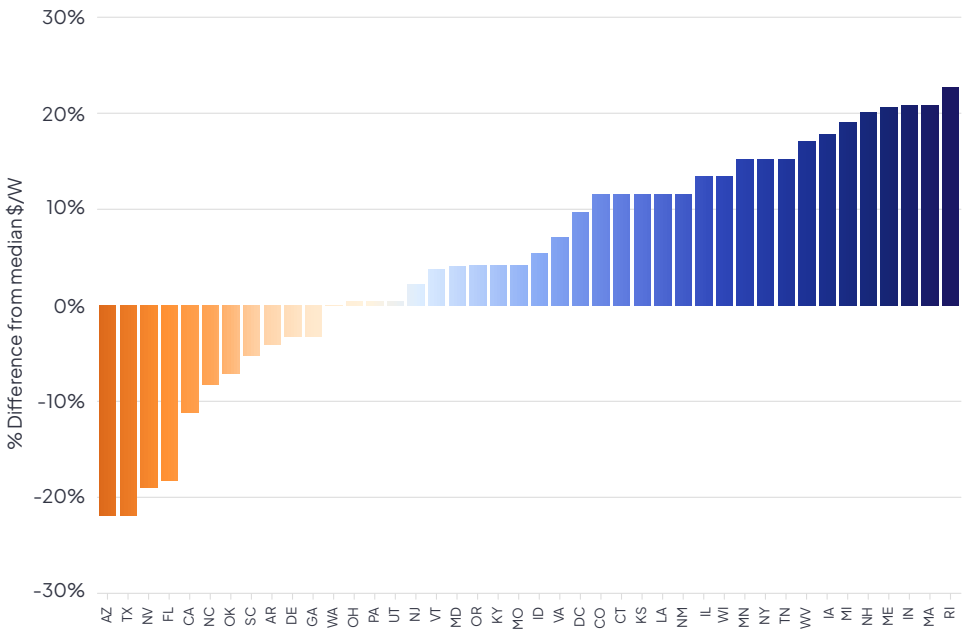
Key takeaway: Arizona and Texas have the lowest quoted solar prices on EnergySage, while Rhode Island has the highest.

For three and a half years, the lowest median quoted solar costs on EnergySage have remained in Arizona, where solar prices declined 8.7% between H2 2023 and H1 2024. In H1 2024, Texas tied Arizona for the lowest prices at $2.10/W, dropping 10.6% from the previous half-year. Rhode Island had the highest median solar cost on EnergySage in the first half of 2024 at $3.30/W. Notably, Rhode Island's H1 2024 solar price was $0.35/W lower than the highest-priced state in H2 2023, Tennessee.

Solar costs remain highest in New England and lowest in the West

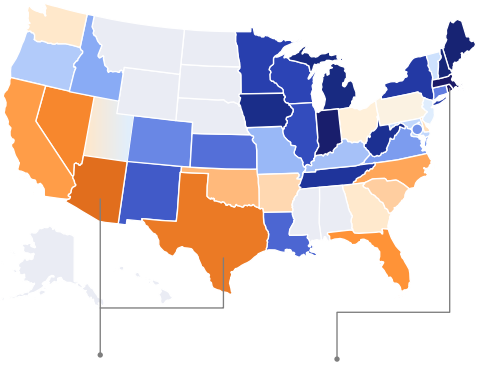
In the first half of 2024, four of the six New England states (Rhode Island, Massachusetts, Maine, and New Hampshire) were in the top five highest-priced solar markets on EnergySage; all six were above the national median. Similarly, western states (Arizona, Texas, Nevada, and California) occupied four of the top five lowest-priced solar markets.

STATE SYSTEM SIZE DIFFERENCE FROM ENERGYSAGE NATIONAL AVERAGE



$2.69/W

ENERGYSAGE NATIONAL MEDIAN



$2.10/W

LOWEST PRICE

Arizona, Texas

$3.30/W

HIGHEST PRICE

Rhode Island

Solar system characteristics in select states

Key takeaway: Between H2 2023 and H1 2024, quoted solar prices decreased or remained flat on EnergySage in nine of SEIA's top 10 solar states.

Solar panel system characteristics on EnergySage vary from quote to quote based on various factors, from location to homeowner electricity consumption to brand preferences. In H2 2023, the average quoted system size increased in seven of SEIA's top 10 solar states. This trend reversed in H1 2024, with the average quoted system size instead decreasing in six of the top 10 states by an average of 0.4 kilowatts (kW).

Only two of the top 10 solar states have significantly higher electricity prices than the national median

In the second half of 2023, state-level solar pricing dropped or remained flat in nine of the top 10 solar markets, continuing the H2 2023 trend when all 10 top states saw flat or lower prices. Historically, when solar was still considered an early adoption product, higher-than-average electricity prices signaled that a state would have a robust residential solar market. Now, the progression toward lower solar pricing in top states suggests that solar is becoming more mainstream.

States	Cumulative solar capacity rank	System size (kW)			Usage offset (%)	Median $/W			Average monthly consumption (kWh)	Avg elec rate May 2024 (¢/kWh)
		H2 '23	H1 '24	Delta	H1 '24	H2 '23	H1 '24	Delta		
Florida	SEIA #1	14.3	13.7	↓	100%	$2.35	$2.20	↓	1,173	13.63
Texas	SEIA #2	13.7	12.8	↓	99%	$2.35	$2.10	↓	1,016	14.74
California	SEIA #3	8.1	8.3	↑	107%	$2.70	$2.39	↓	368	34.31
Nevada	SEIA #4	12.6	12.4	↓	99%	$2.55	$2.18	↓	821	16.18
New Mexico	SEIA #5	9.0	9.0	–	105%	$2.99	$3.00	↑	567	13.84
Ohio	SEIA #6	11.6	11.7	↑	88%	$2.75	$2.70	↓	714	16.65
Utah	SEIA #7	10.3	10.0	↓	99%	$2.70	$2.70	–	628	11.01
New York	SEIA #8	11.0	11.3	↑	94%	$3.25	$3.10	↓	455	23.60
Arkansas	SEIA #9	14.1	13.6	↓	92%	$2.76	$2.58	↓	835	12.27
Pennsylvania	SEIA #10	12.3	12.1	↓	92%	$2.81	$2.70	↓	665	18.10

Solar system sizes:
Difference from the national average

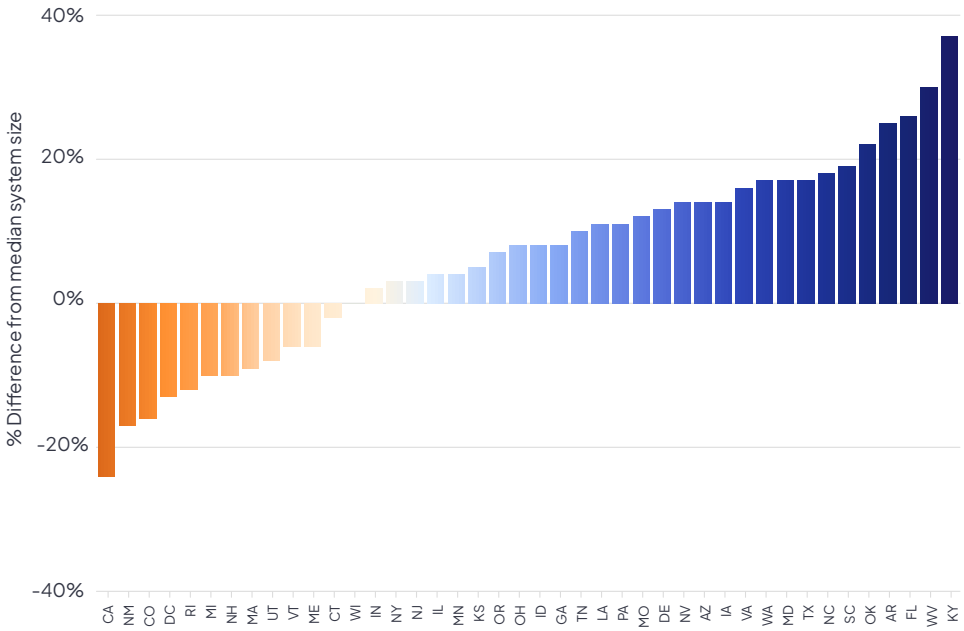
Key takeaway: California and Kentucky again have the smallest and largest median systems sizes, respectively.

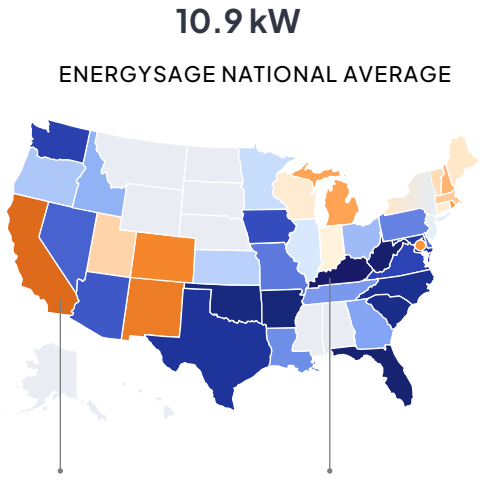
Across the country, average quoted system sizes ranged from a minimum of 8.3 kW in California to a maximum of 14.9 kW in Kentucky in H1 2024. Both states have held these spots previously: California has had the smallest system sizes for five half-years in a row, while Kentucky had the largest in H2 2023. In general, southern states see the largest system sizes, where high temperatures mean high electricity bills due to air conditioning.

California's system size increases

California's Net Billing Tariff makes exporting to the grid, and thus oversizing solar panel systems, less lucrative to new solar owners. However, since the tariff's implementation, California's median system size has increased by 0.25 kW, while its average electricity offset has remained at 107%. These findings, coupled with California's high battery attachment rate, suggest Californians are increasing their systems to cover higher electricity usage and are planning to capture excess electricity in batteries instead of exporting it to the grid.

STATE SYSTEM SIZE DIFFERENCE FROM ENERGYSAGE NATIONAL AVERAGE





Solar equipment characteristics

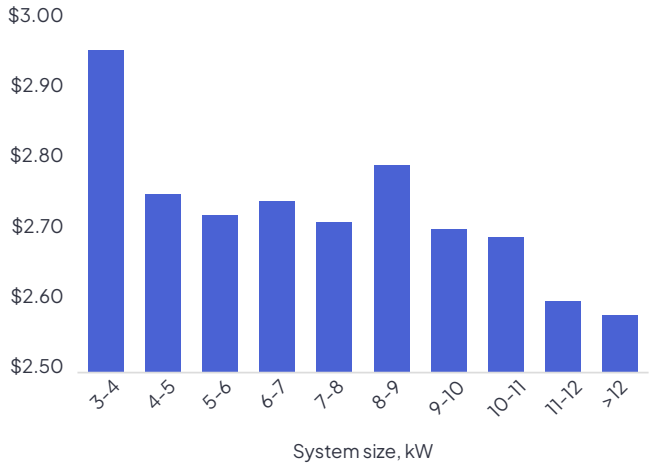
Key takeaway: In H1 2024, four out of five quotes on EnergySage included solar panels rated to over 400 Watts.

EnergySage analyzed the quoted cost per watt by system size in H1 2024, as well as the wattage of panels quoted over the last several years. Quotes on EnergySage continue to demonstrate economies of scale in pricing as system sizes increase, though less so in H1 2024 compared to previous Marketplace Reports. At the same time, higher-wattage solar panels continue to skyrocket in popularity on EnergySage.

Larger system sizes drive lower prices, but only above a certain threshold

Solar installations include fixed and variable costs based on the size of the system, from permitting or sales and marketing (fixed) to equipment costs (variable). In years past, we have seen a clear relationship between increasing system sizes and decreasing solar costs. This relationship was less pronounced in the first half of 2024, with larger system sizes only driving lower pricing on a dollar-per-watt basis after reaching 10 kW, right below EnergySage's median quoted system size of 10.9 kW.

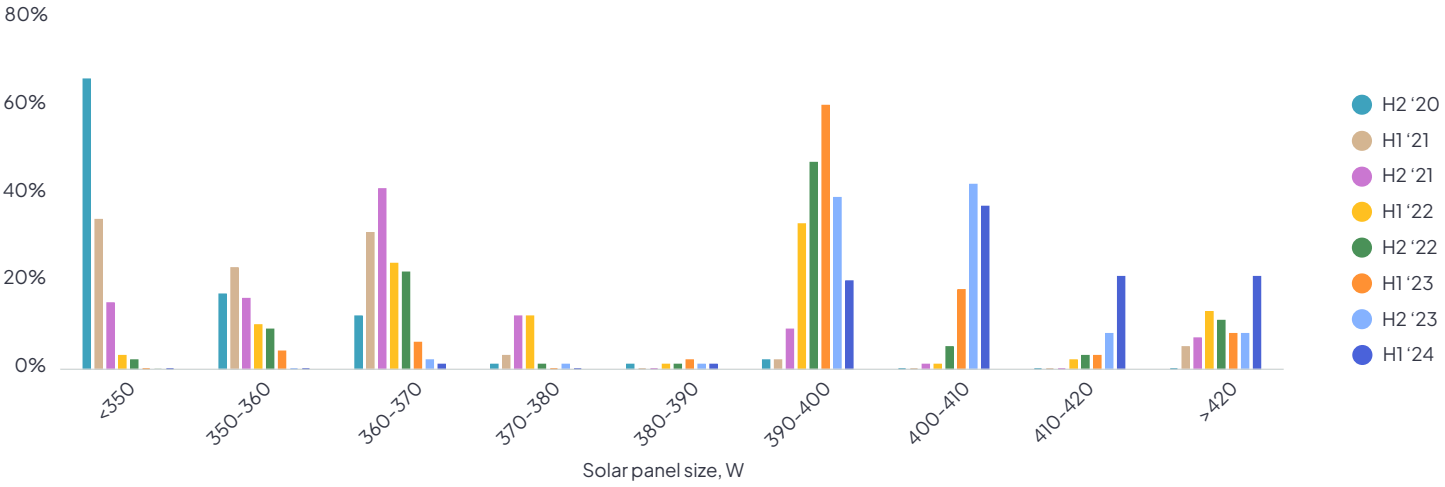
SOLAR PRICE PER WATT ($/W) BY SYSTEM SIZE (KW)



High wattage solar panels are now the norm

In 2020, 98% of all quotes on EnergySage included solar panels rated to provide less than 400 watts of power, and 340-watt panels were typical. During the first half of 2024, 97% of all quotes included solar panels rated to 400 watts or more. The trend looks set to continue: Four out of five quotes included panels larger than 400 watts in H1 2024, with a median size of 410 watts. In other words, homeowners now see 20% more power per panel than just four years ago.

PERCENT OF QUOTES BY PANEL SIZE



Marketplace share: Equipment

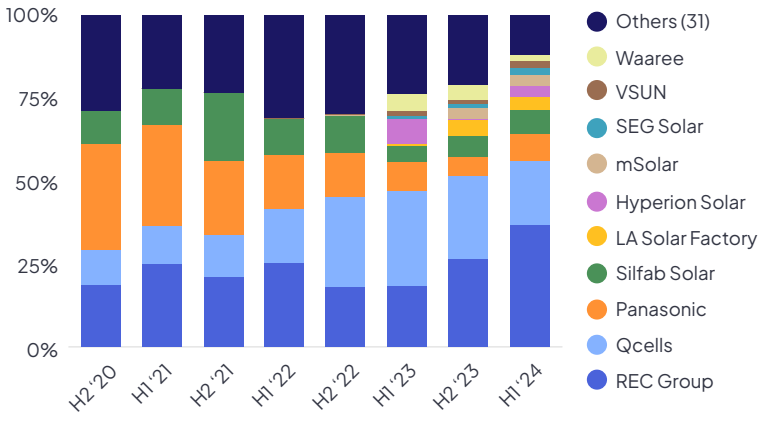
Key takeaway: Over the last year, REC and Enphase were the most quoted solar and inverter brands on EnergySage, respectively.

EnergySage Marketplace equipment share data come from quotes provided by solar installers to consumers on the EnergySage online platform. As a result, Marketplace share is indicative of consumer preference and the resultant sales behavior of small-to-midsize solar installers; it is also an indicator of equipment availability in light of supply chain constraints.

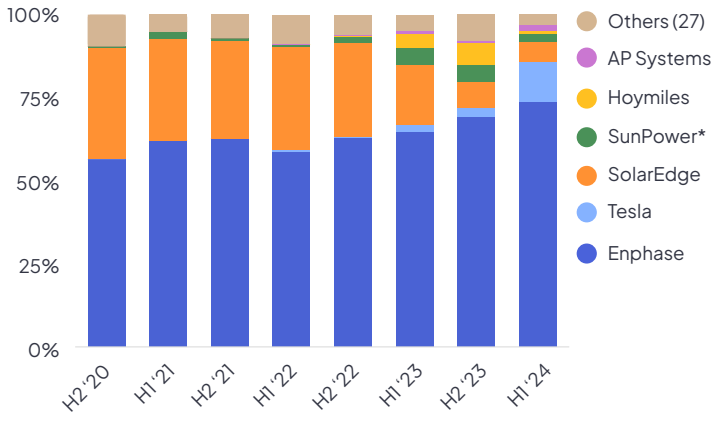
Tesla gained the most share of quotes of any panel or inverter brand in H1 2023

During the first half of 2023, much of the equipment quote share story remains the same on EnergySage. REC and Qcells were the two most-quoted solar panel brands, cumulatively included in nearly three of five quotes. Meanwhile, Enphase remained the most-quoted inverter brand. Enphase gained Marketplace share, in part driven by SunPower's white-labeled Enphase inverters losing share. The biggest mover in EnergySage Marketplace share, however, was the Tesla-branded inverter, growing from 2% of quotes in H1 2023 to 12% in H1 2024—a 500% jump year-over-year.

SOLAR PANEL BRAND MARKETPLACE SHARE BY HALF-YEAR



INVERTER BRAND MARKETPLACE SHARE BY HALF-YEAR



**SunPower filed for bankruptcy on August 5, 2024, so we expect this to be the last report including its products.*

Installer equipment offerings

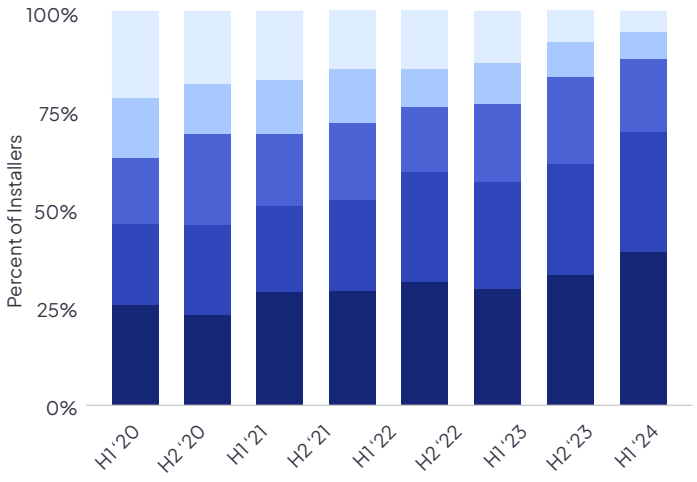
Key takeaway: For the first time since 2021, more than half of installers on EnergySage offered more than just one brand of inverters in the first half of 2024.

Tracking installer equipment offerings over time is useful for analyzing consumer choice, installer brand loyalty, and supply chain availability. In H1 2024, the percentage of installers quoting three or more solar panel brands reached its lowest percentage, dropping from 39% in H2 2023 to just 31%. While this finding suggests that installers are becoming more loyal to solar panel brands, the same trend does not hold true for inverters.

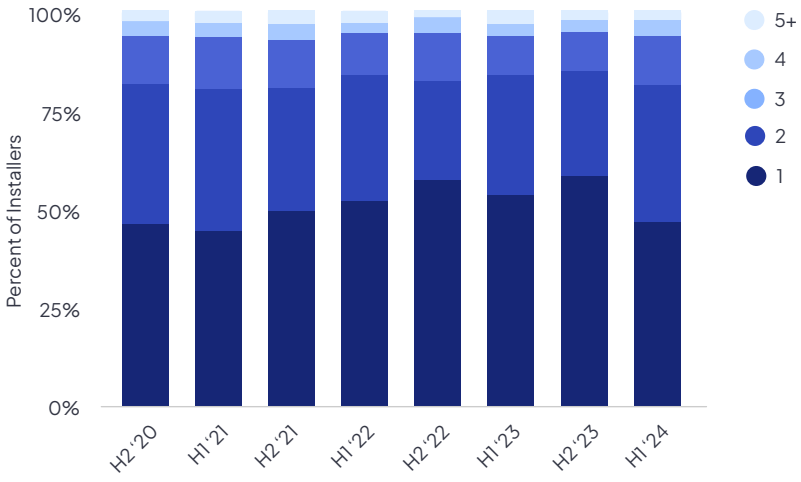
Enphase dominates inverter quotes, but installers are looking for new options

Over the last two years, over half of installers on EnergySage have offered only a single inverter brand in their quotes. In the first half of 2024, that trend began to reverse: The percentage of installers offering just one brand of inverters in quotes dropped from 58% to 47% between H2 2023 and H1 2024.

NUMBER OF PANEL BRANDS OFFERED PER INSTALLER



NUMBER OF INVERTER BRANDS OFFERED PER INSTALLER



Installer equipment pairings & price

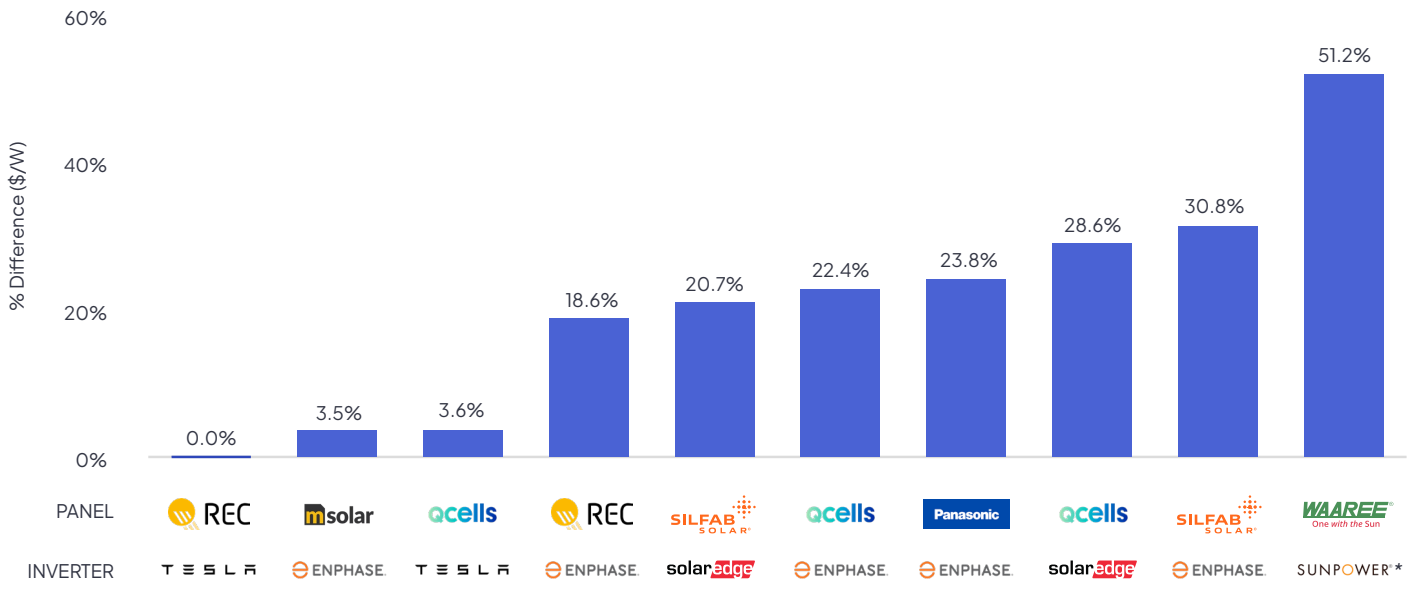
Key takeaway: Quoted prices for panel and inverter brands varied widely on EnergySage in H1 2024, with Tesla inverter packages at the lowest prices and SunPower inverter packages at the highest prices.

EnergySage analyzed the comparative cost differences across the most frequently quoted panel and inverter pairings to Marketplace shoppers over the first 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 and differences in equipment pricing. The pricing spread for equipment quoted on EnergySage increased to over 30% in H1 2024.

Tesla inverter packages reduced quoted prices by about 15%

As Tesla inverters increased in availability and popularity in the first half of the year, they drove down quoted prices of equipment packages on EnergySage. In fact, solar panels paired with Tesla inverters were quoted over 15% lower than all but one of the remaining eight most quoted equipment packages on EnergySage in H1 2024. In every Marketplace report we have published, packages with SunPower components have been quoted at the highest price. This remained the case in H1 2024, which is likely the last iteration of the Marketplace report to include SunPower-branded equipment in quotes.

PRICE DIFFERENCE FROM LEAST EXPENSIVE EQUIPMENT PAIRING



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Maps of equipment preferences by state

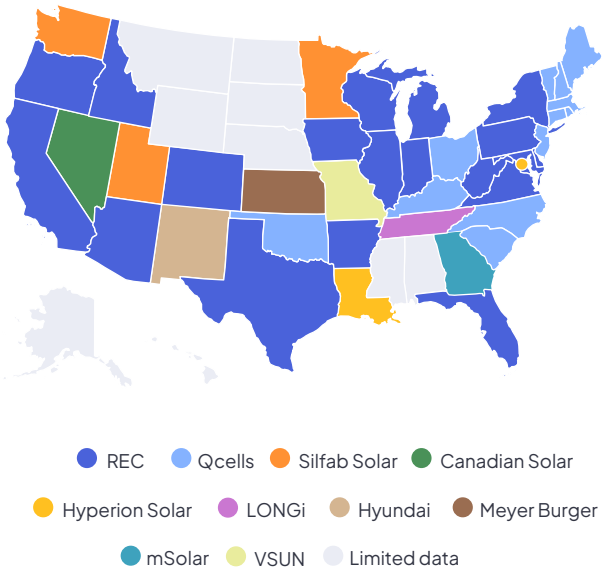
Key takeaway: In H1 2024, Enphase was the most-quoted inverter brand in 36 states; REC was the most-quoted solar brand in 19 states.

The solar market varies significantly from state to state due to multiple factors, including costs, consumer preferences, and installer offerings. 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 36 states, and the REC/Enphase pairing was the most quoted in 17 states.

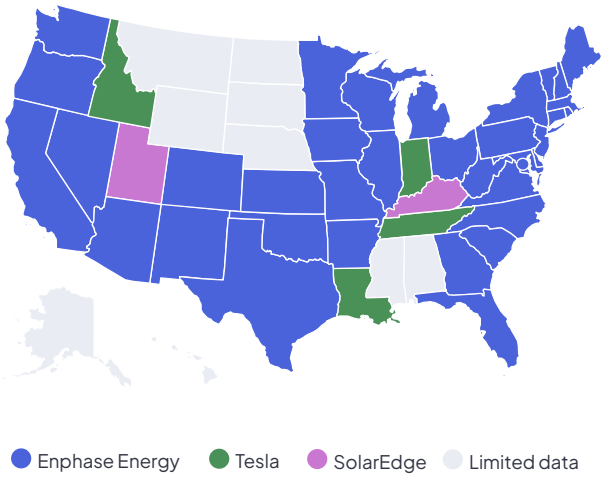
The most frequently quoted equipment varies by state

Installers in different states quote different equipment, demonstrating the openness of the EnergySage Marketplace geographically. Like in our last Marketplace report, 14 different panel-plus-inverter pairings were the most quoted option in at least one state H1 2024. Within those pairings, 11 different solar panel brands and three different inverter brands were the most popular in at least one state. As of July, EnergySage now operates in all 50 states, so we will be closely tracking how state-level solar market dynamics evolve with our expansion.

MOST FREQUENTLY QUOTED PANEL BRAND BY STATE



MOST FREQUENTLY QUOTED INVERTER BRAND BY STATE



National summary: Storage pricing trends

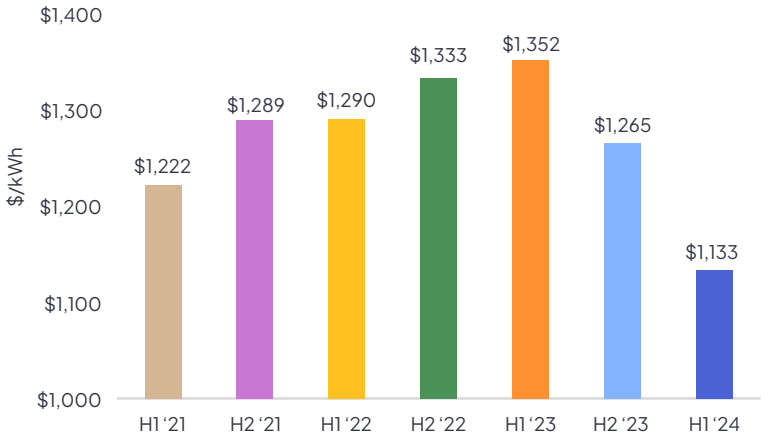
Key takeaway: At $1,133 per kilowatt-hour, storage prices are the lowest since EnergySage started tracking them in July 2020.

EnergySage provides homeowners the option to add energy storage to their solar quotes. As with solar, we capture data about quoted storage solutions, including reasons behind interest, battery brand market share, and pricing information. During the first half of 2024, storage prices hit their all-time low of $1,133 per kilowatt-hour ($/kWh) stored, a 16% drop year over year.

Storage prices reach an all-time low

The second half of 2023 was the first time we saw the median quoted battery price drop since EnergySage began tracking storage pricing in July 2020. The continuing price decline in H1 2024 is not due to any one state in particular; rather, battery prices have generally decreased or stayed relatively flat across the United States, with a few exceptions like Illinois. According to reporting by *pv magazine* in the spring of 2024, lithium cell pricing declined by about 50% compared to summer 2023, likely driving the drop in nationwide battery pricing.

MEDIAN STORAGE PRICING BY HALF YEAR, $/KWH STORED



TOP STORAGE MARKETS

Top storage markets	$/kWh storage pricing			System sizing (kWh)		
	H2 '23	H1 '24	Delta	H2 '23	H1 '24	Delta
California	$1,090	$1,075	↓	10.1	10.0	↓
Texas	$1,103	$1,136	↑	13.5	11.4	↓
Massachusetts	$1,488	$1,488	–	10.1	10.1	–
Florida	$1,290	$1,299	↑	13.0	10.0	↓
Pennsylvania	$1,406	$1,190	↓	10.1	10.1	–
Arizona	$1,206	$1,132	↓	10.1	10.0	–
Virginia	$1,397	$1,103	↓	13.5	13.5	–
New York	$1,304	$1,304	–	13.0	13.5	↑
Illinois	$1,438	$1,703	↑	10.1	10.0	↓
North Carolina	$1,252	$1,111	↓	13.5	13.5	–

Storage pricing by brand and Marketplace share

Key takeaway: With the launch of the Powerwall 3, Tesla is quickly capturing Marketplace share.

The U.S. home battery storage market only started gaining popularity within the past five years and is constantly evolving. During the last two six-month periods (H1 and H2 2023), the market began to open up, allowing lesser-known battery brands like FranklinWH and HomeGrid to gain Marketplace share. However, in the first half of 2024, two major players regained Marketplace shares they had previously lost: Enphase and Tesla.

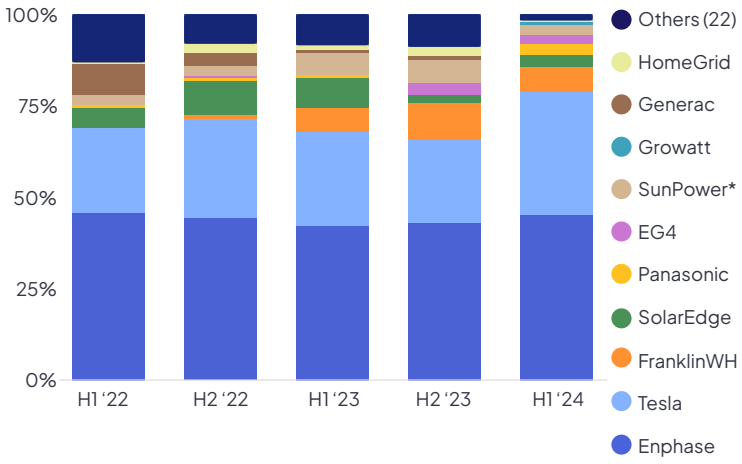
Enphase remains the most quoted, but Tesla is catching up

Enphase and Tesla have long been the two most-quoted battery brands on EnergySage, consistently appearing in over 50% of storage quotes. However, their combined Marketplace share exceeded 75% for the first time in H1 2024, primarily due to Tesla, which grew from 22.5% of quotes in H2 2023 to 33.5% in H1 2024.

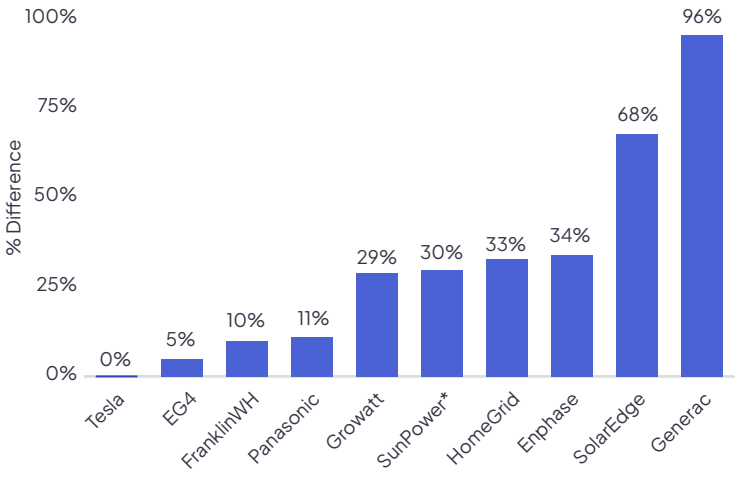
Tesla's low price point drives its popularity

Tesla's new Powerwall 3 started quickly increasing in quotes in Q2 and surpassed the Powerwall 2's monthly Marketplace share in April 2024. The Powerwall 3 is easier and cheaper for solar contractors to install, which, combined with low lithium prices, has resulted in Tesla's affordable price point of $1,000/kWh. It is almost half the cost of Generac, the 10th most-quoted battery brand on EnergySage. Tesla is quoted at almost half the cost of Generac, the 10th most-quoted battery brand on EnergySage. Meanwhile, Enphase, the top-quoted battery brand, is quoted at a 34% higher price than Tesla batteries.

STORAGE MARKETPLACE SHARE BY HALF YEAR



PERCENT DIFFERENCE FROM LEAST EXPENSIVE OPTION



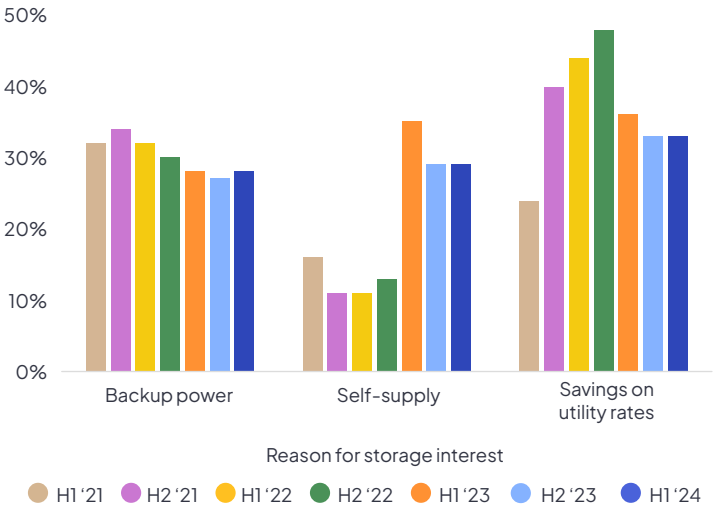
**SunPower filed for bankruptcy on August 5, 2024, so we expect this to be the last report including its products.*

Consumer preference regarding storage

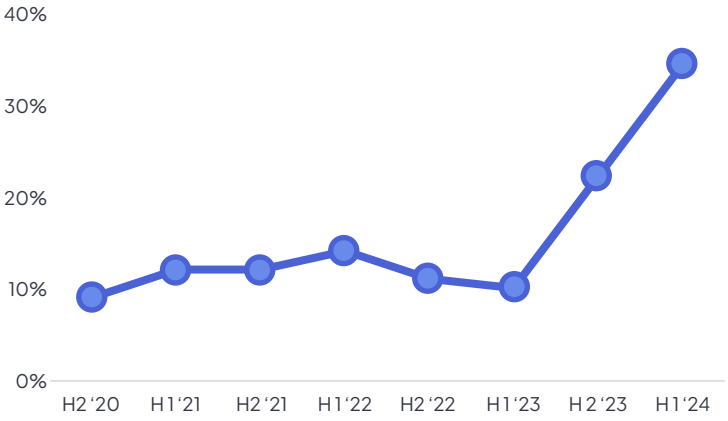
Key takeaway: Storage interest remains high but relatively flat; however, attachment rate is skyrocketing.

Consumer interest in residential energy storage reached a record high (72%) in the first half of 2024, but it has remained consistently high (above 60%) since we added batteries to the EnergySage Marketplace in 2020. The three states with the highest storage interest (Tennessee, California, and Georgia) all lack robust net metering policies, which aligns with consumer-reported storage motivation: Utility bill savings was the most frequently cited driver of interest by Marketplace shoppers at 33%, followed by self-supply (29%) and backup power (28%).

WHY ARE CONSUMERS INTERESTED IN STORAGE?



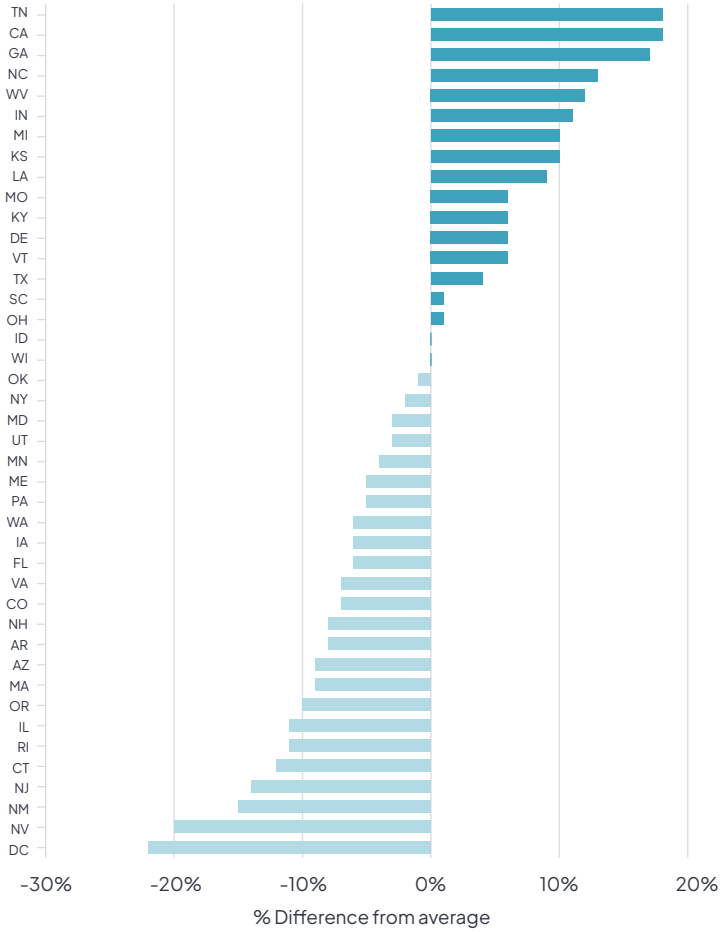
STORAGE ATTACHMENT RATE OVER TIME



Storage attachment rate reaches all-time high

The battery attachment rate among EnergySage customers more than tripled year over year, reaching its highest percentage at 34% in the first half of 2024. California's Net Billing Tariff is a significant driver of this jump, with 70% of CA's homeowners purchasing batteries with their solar panels. However, the average attachment rate in non-CA states also rose to a record 22%. In our most recent Contractor Survey, run in late 2023, over three-quarters of installers blamed high battery costs as the leading driver of lost sales, which could suggest that current record-low battery prices are contributing to the nationwide spike in attachment rate.

PERCENT DIFFERENCE IN STORAGE INTEREST BY STATE FROM NATIONAL AVERAGE



Resiliency survey highlights:
Battery setup and consumer satisfaction

Key takeaway: Consumers want to feel comfortable and safe during outages; many also want more battery storage.

Over the summer of 2024, EnergySage asked homeowners who had purchased a battery through our Marketplace about their battery setup and experiences with power outages, both before and after owning a battery. About 70 people spanning 17 states participated in the survey.

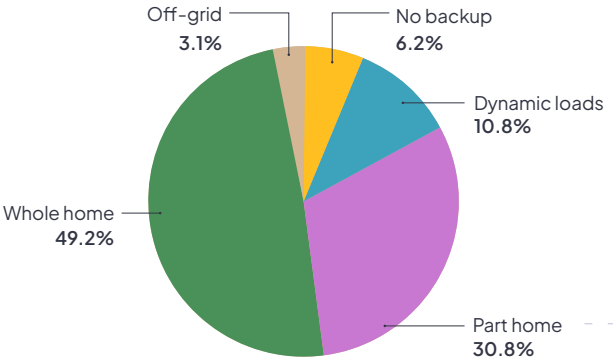
Whole home backup is popular; partial backups prioritize safety, comfort

Nearly 50% of respondents reported that their batteries back up their entire homes, suggesting homeowners prioritize resiliency when choosing a battery setup. Among the 42% of respondents who indicated their batteries back up part of their homes or that they use an energy management system to dynamically select which loads their batteries back up, 40% said they use their battery to back up their AC or heating, while 15% back up their sump pump. These appliances are power-hungry, indicating that many homeowners opt for large battery systems to provide comfort and safety during power outages.

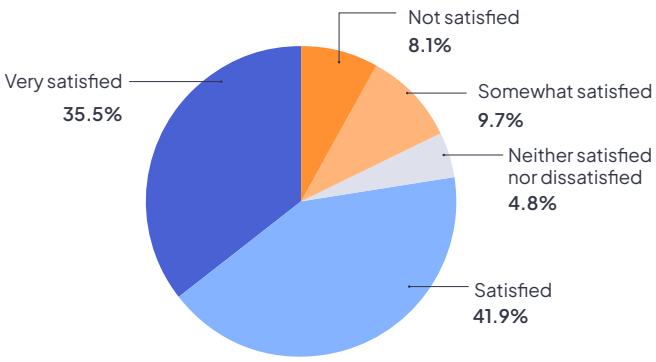
Homeowners are satisfied with their batteries and want more

Over half of respondents stated they are currently (18%) or are possibly (37%) considering adding more batteries to increase their backup power supply. In part, this may be attributed to high satisfaction with current batteries: About three-quarters of respondents said they were satisfied or very satisfied with their batteries. Notably, almost 90% of survey respondents said they have never run out of battery power during an outage, with some adding notes that they feel less stressed during outages now.

HOW IS YOUR BATTERY SET UP TO SUPPORT YOUR HOME DURING POWER OUTAGES?



HOW SATISFIED ARE YOU WITH YOUR BATTERY?



WHAT TYPE OF DEVICES DO YOU POWER WITH YOUR BATTERY?

Home electrification survey highlights: Consumer interest and adoption timeline

Key takeaway: 74% of consumers plan to buy batteries; only 42% intend to do so within the next few years.

In a separate survey run during the summer of 2024, EnergySage asked consumers who used our Marketplace to shop for or purchase products about their interest in future home electrification products. Over 900 people participated in the survey.

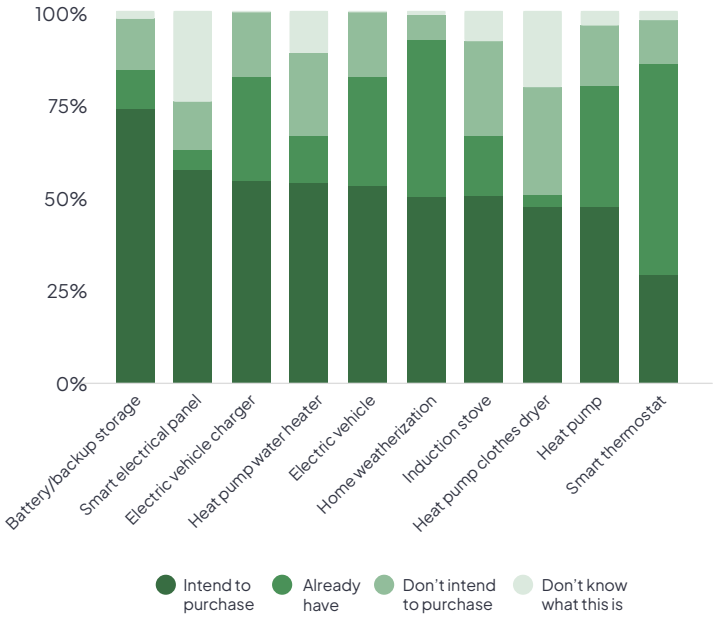
Batteries are the highest intent-to-purchase product

Only 10% of respondents own batteries, but almost three-quarters intend to purchase them in the future. Installers are already anticipating this growth: In our most recent contractor survey, over 90% of installers expected their annual battery installations to increase over the next three years, anticipating an average of 44% growth. Purchase intent was high among most products, except smart thermostats, which most respondents (57%) already owned. Respondents were most confused by smart electrical panels (24% did not know what they were), though they were the second highest intent-to-purchase product behind batteries.

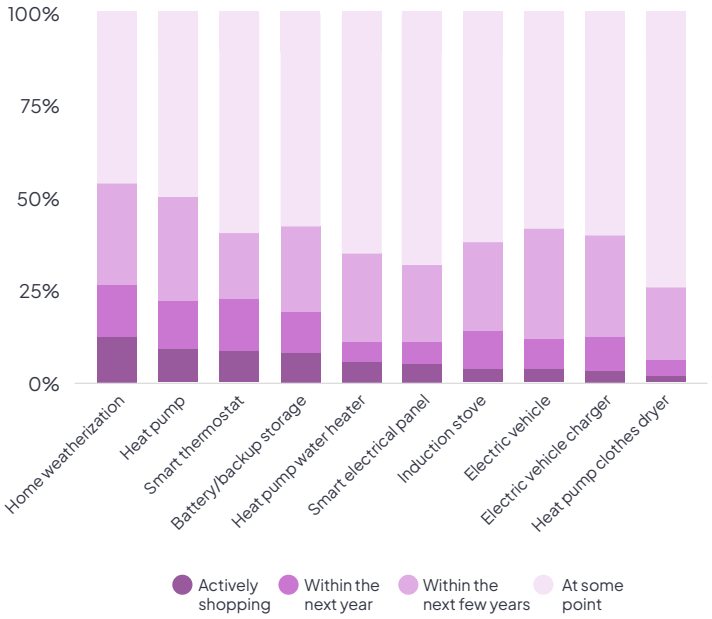
Most consumers are noncommittal about when they will purchase products

Of the 74% of respondents planning to purchase batteries, only 42% intend to do so within the next few years. Home weatherization and heat pumps had the firmest adoption timelines among respondents intending to purchase them, with 54% and 50% planning to do so within the next few years, respectively. Respondents planning to buy heat pump clothes dryers, smart electrical panels, and heat pump water heaters were the most noncommittal: 74%, 68%, and 65%, respectively, said they would purchase them "at some point."

PRODUCT INTEREST BY TYPE



TIMELINE TO ADOPTION



Financing products

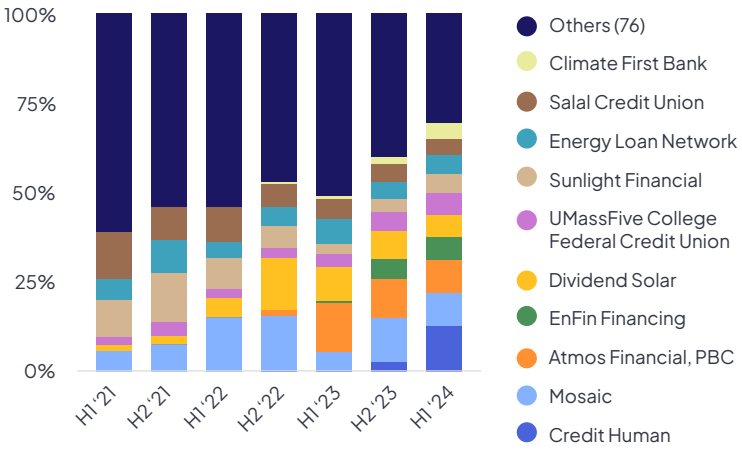
Key takeaway: Installers moved towards lower fee loans, with Credit Human loans increasing from 2.5% of quotes on EnergySage in H2 2023 to 13% in H1 2024.

Many solar shoppers finance their systems with solar loans on EnergySage and across the broader solar market. According to WoodMackenzie's most recent financing market share data covering 2023, 57% of residential solar installations are still purchased with a loan. Within quotes on EnergySage, the financing Marketplace remains fragmented: Only one financing company was included in more than 10% of quotes in H1 2024.

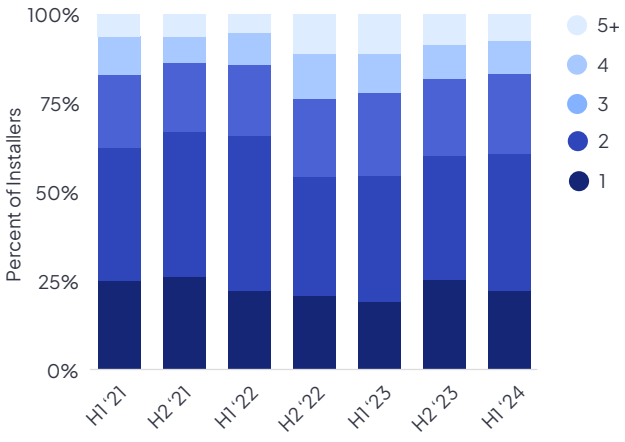
Credit Human becomes the most quoted loan offering in H1 2024

During the first half of 2024, financing options from Credit Human were the most frequently quoted on EnergySage for the first time, growing from a 2.5% quoted share in late 2023 to nearly 13% in H1 2024. Broadly speaking, this marks a shift towards lower-cost solar financing on EnergySage: 40% of loans quoted on EnergySage in H1 2024 were zero-fee loans, which Credit Human specializes in.

FINANCING PROVIDER MARKETPLACE SHARE



NUMBER OF FINANCING PRODUCTS OFFERED PER INSTALLER



Typical loan terms and offerings

Key takeaway: The median interest rate for loans on EnergySage increased again, from 5.5% in H2 2023 to 7.49% in H1 2024.

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. While third-party-owned systems are increasing in popularity outside of EnergySage due to the Inflation Reduction Act's establishment of tax credit adders, solar loans remain the preferred financing option among homeowners and installers on EnergySage.

The most popular loan shifted to a 20-year, 7.99% product in H1 2024

The median interest rate in loans quoted on EnergySage grew to 7.49%, as a higher-interest rate, shorter-term loan just barely overtook a 25-year, 3.99% loan as the most quoted loan product to start the year. Notably, the 7.99%, 20-year loan products on EnergySage were zero-fee loans, compared to 3.99% loan products, which were accompanied by higher prices.

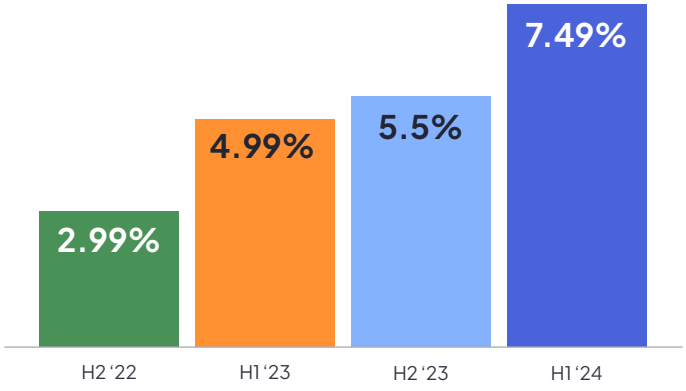
MOST FREQUENTLY QUOTED LOAN RATE AND TERMS, H2 '23

Loan rate \ Loan term	10	12	15	20	25	30
2.99	-	0.1%	0.6%	3.9%	2.4%	-
3.99	0.3%	0.4%	0.1%	1.8%	16.7%	3.3%
4.49	-	-	-	-	7.6%	-
4.99	0.2%	1.7%	0.1%	0.4%	3.4%	-
5.50	0.3%	-	2.5%	-	-	-
6.99	-	-	0.3%	3.3%	2.3%	-
7.99	-	-	0.5%	3.8%	1.4%	-
8.65	-	-	-	-	2.9%	-
9.99	-	-	-	2.3%	0.5%	-
10.09	-	-	-	-	4.5%	-

MOST FREQUENTLY QUOTED LOAN RATE AND TERMS, H1 '24

Loan rate \ Loan term	10	12	15	20	25	30
2.99	-	-	0.2%	4.6%	0.3%	-
3.99	0.2%	-	0.2%	0.7%	10.7%	4.7%
4.49	-	-	-	-	3.1%	-
4.99	-	0.4%	-	1.0%	3.5%	-
5.99	-	-	-	7.1%	1.3%	-
7.99	-	-	0.9%	11.0%	1.4%	-
8.49	-	-	0.1%	4.5%	0.2%	-
9.13	-	-	2.1%	-	-	-
9.90	-	-	-	-	2.5%	-
10.70	-	-	-	-	2.0%	-

MEDIAN QUOTED LOAN RATE



Heat pump marketplace data

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 launched a Heat Pump Marketplace in select states in late 2022. Like solar, heat pumps are generally a novel technology for homeowners, requiring shoppers to navigate new terminology, find reputable contractors, and compare products across unfamiliar metrics.

MEDIAN HEAT PUMP COST AFTER INCENTIVES BY STATE, H1 2024

California
$21,960

Colorado
$21,000

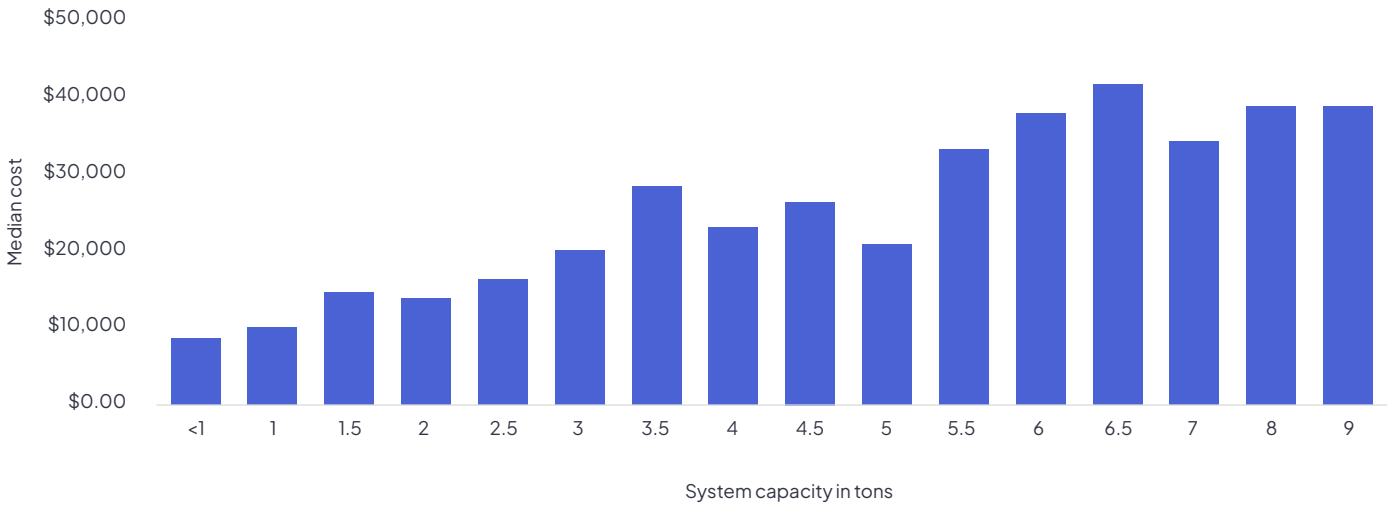
Massachusetts
$27,336

Virginia
$13,737

Massachusetts highlight: More complex systems are more expensive

As EnergySage continues to expand the Heat Pump Marketplace throughout the country, it is instructive to review trends in individual states as indicative or representative of trends elsewhere in the country. Looking at Massachusetts in particular, where we first launched our Heat Pump Marketplace two years ago, projects with more complexity are quoted at higher prices: The median quoted price for ducted systems is 10% lower than the median price of ductless systems, which in turn is 19% lower than the cost of hybrid systems. Early trends in Colorado appear to buck this trend, so it will be interesting to track whether this type of quoting behavior emerges in other state-level heat pump markets.

HEAT PUMP INSTALLATION COST BY SYSTEM CAPACITY



Why 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 organizations, academic researchers, government agencies, equipment manufacturers, 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 indicates the market's direction three to six months before it appears in reported installation or permit data.
- 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 marketplace share.
- Solar financing terms, loan rates, and financier marketplace share.

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