ENERGYSAGE'S

Solar Installer Survey

2021 RESULTS

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NABCEP

Raising Standards. Promoting Confidence.

Executive summary

Thoughts from the CEO & Founder

Hello, and thank you for reading *EnergySage's 2021 Solar Installer Survey*. This year's survey was fielded and authored in partnership with the North American Board of Certified Energy Practitioners (NABCEP) and covers the full year of 2021.

Vikram Aggarwal

CEO & Founder, EnergySage

As the country's leading online comparison-shopping marketplace for rooftop solar, energy storage, project financing, and now community solar, EnergySage works closely with our network of over 500 pre-screened solar installation companies throughout the country. Our unique relationship with these solar installation professionals – as well as lenders, manufacturers, and distributors – affords us unparalleled insight into the trends shaping the U.S. solar industry.

For the fifth year in a row, we fielded the *Solar Installer Survey* with NABCEP, the most respected, well-established and widely recognized national certification organization for professionals in the field of renewable energy, expanding the reach of the Survey to as many solar installers as possible.

The *2021 Solar Installer Survey* features the responses from over 500 different solar companies of all sizes across 43 states, Washington DC and Puerto Rico. Major insights from the *2021 Solar Installer Survey* include:

- **Supply chain constraints hurt solar sales in 2021**
  Three out of five of respondents' businesses were harmed by supply chain disruptions in 2021. Supply chain constraints primarily manifested as freight delays, adversely impacting the availability of solar panels and batteries in particular.
- **A lack of trained labor is the biggest barrier to industry growth**
  For the first time, survey respondents stated that a lack of trained labor was the largest barrier to growing their business, exceeding both customer acquisition and the availability of equipment. At the same time, a third of installers say the biggest gap in training is in installation best practices.
- **A 10-year ITC extension would immediately create more jobs**
  Half of survey respondents say they will begin hiring more people if Congress extends the Investment Tax Credit (ITC) for 10 years. Seven out of ten installers say the introduction of a direct pay option for the ITC would result in greater consumer demand for solar.

We hope you enjoy reading this report, and let us know what you think. We welcome all feedback and new collaboration ideas—both large and small. Please reach out to our team directly at data@energysage.com to get the conversation started. We look forward to hearing from you.

Vikram Aggarwal

Vikram Aggarwal | CEO & Founder

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Thank you!

EnergySage and NABCEP would like to thank the following organizations for their support in fielding the *2021 Solar Installer Survey*. Reports like this would not be possible without your help.

WHO ARE THIS YEAR'S RESPONDENTS?

Methodology and overview

EnergySage fielded the 2021 Solar Installer Survey in collaboration with NABCEP during the first quarter of 2022. In addition to reaching EnergySage's nationwide network of over 500 solar installation companies and NABCEP's network of over 25,000 solar industry professionals, a number of large manufacturers, distributors, financiers, industry associations and publications also fielded the Installer Survey to their networks. Overall, 501 solar installers responded to this survey from 43 states, Washington DC and Puerto Rico.* Two-thirds of respondents to this year's Survey were the CEO, Founder or a high-level executive at their respective company.

Over 70% of respondents to the Installer Survey installed less than 1 MW of residential solar panel systems in 2021.

This year's respondents are

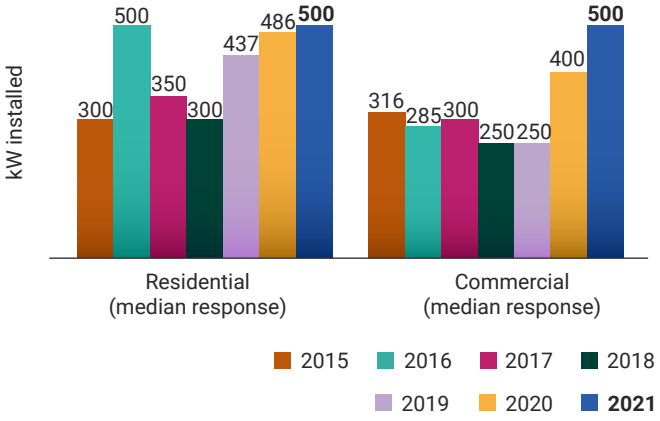
13% Residential only installers

3% C&I only installers

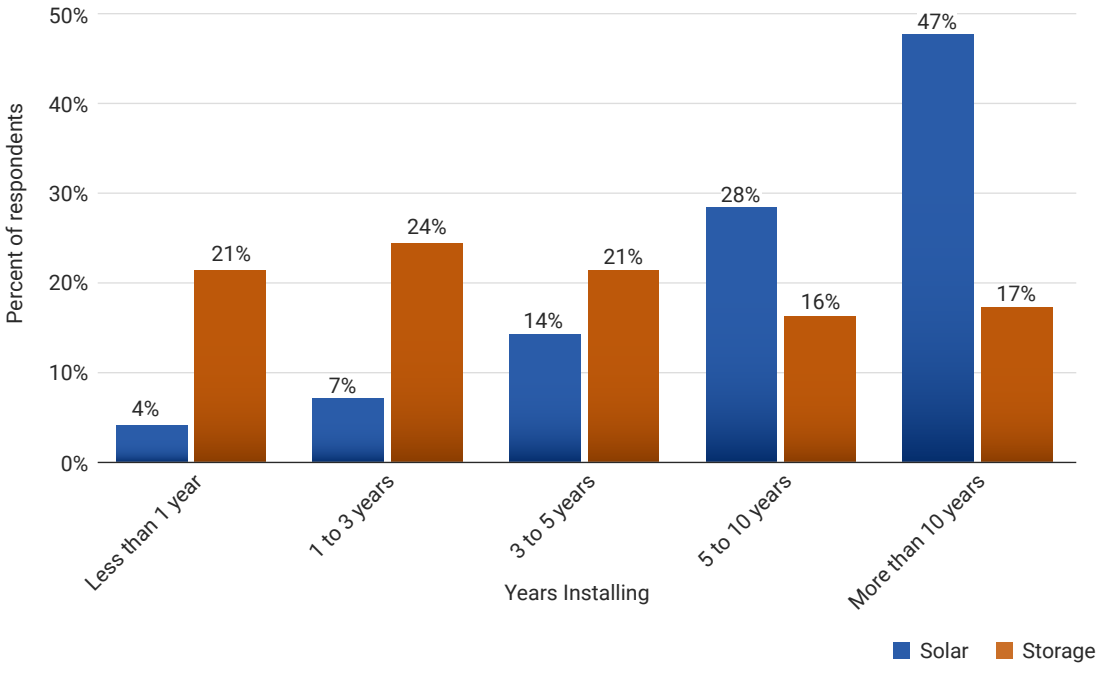
The voice of the long tail of solar installers

As in years past, the results in this report speak to the experience and mindset of the small-to-midsize and local-to-regional solar companies operating throughout the country: for the third year in a row, over 70% of respondents to the *Installer Survey* reported residential installation volume below 1 megawatt (MW), equivalent to installing two 10 kilowatt (kW) projects per week or three 6 kW projects per week. While larger solar companies often garner the most attention and headlines, the **top 75 solar installers in the US accounted for less than half of all residential solar installations in the country in 2021**, according to Wood Mackenzie, underscoring the importance of the long tail of solar installers to the overall health of the solar industry.

Median installed capacity, kW



Years of experience installing solar and storage



Installers more experienced with solar than storage

Given the pace of deployment of energy storage at all levels, it can be easy to forget that the industry is still relatively nascent; however, Installer Survey responses make that clear: about the same percentage of installers have more than a decade of experience installing solar (47%) as have under three years of experience installing storage (45%).

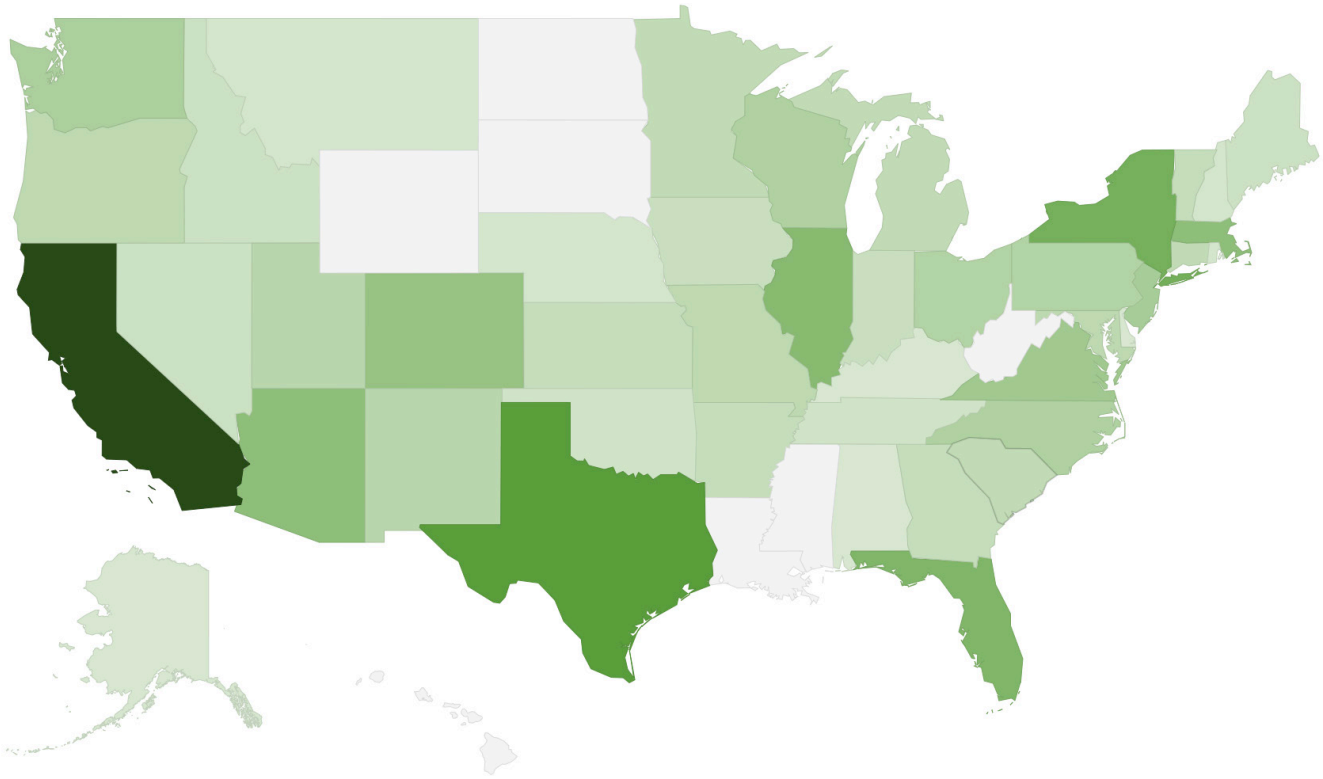
**In keeping with previous report methodologies, EnergySage removed duplicate responses from the same company, as well as responses from installers who do not operate in the US.*

WHO ARE THIS YEAR'S RESPONDENTS?

Where solar companies operate

The top solar markets in 2021 are well represented in this year's Survey responses.

The *2021 Installer Survey* asked solar companies in which state they complete the most solar installations. Respondents to the Survey represent 43 states, Washington DC and Puerto Rico. The solar industry continues to support many different companies–and many jobs–all throughout the country. More so than in years past, the distribution of responses to the Installer Survey mirrors the deployment of solar in 2021. In fact, the five states with the most responses to this year's Survey all were among the top ten states with the most solar installations in 2021, according to the Solar Energy Industries Association (SEIA).



Distribution of Responses

Fewer installer responses — More installer responses

WHO ARE THIS YEAR'S RESPONDENTS?

Installation history and future plans

As whole-home electrification takes off, solar installations frequently include more than just solar: more installers are offering solar-adjacent energy products and services than in past Surveys, and the percentage of installations that included roof upgrades or EV chargers each increased by more than 60% year over year.

The percentage of solar installations that also included a roof upgrade or an electric vehicle (EV) charger each increased by more than 60% from 2020 to 2021.

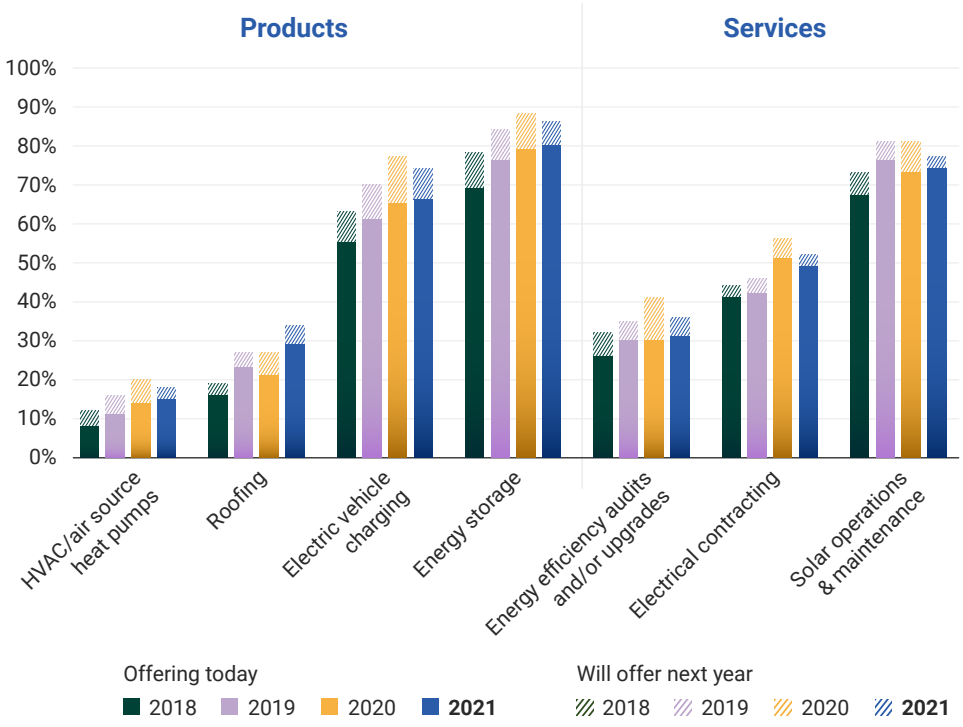
23% Percentage of installs including a roof upgrade

13% Percentage of installs including an EV charger

Other products & services offered

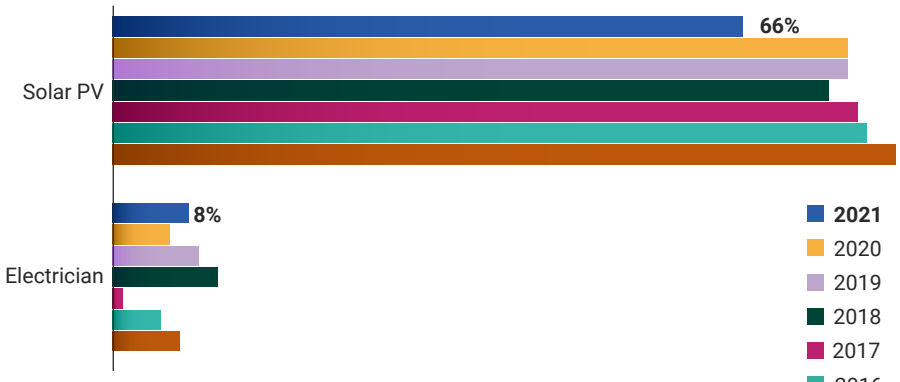
Installers could select all that applied

A higher percentage of this year's respondents are offering solar adjacent products–HVAC, roofing, EV charging and storage–than in any previous iteration of the solar Installer Survey. Meanwhile, the percentage of solar installers offering solar-adjacent services remained steady year-over-year.



Primary business

Not only do solar installations increasingly include solar-adjacent clean energy technologies, it seems that non-solar home energy services now also increasingly are paired with solar: while the majority of respondents continue to be solar installers first and foremost, more respondents than in any previous survey indicated that solar photovoltaics (PV) isn't their primary line of business.



Survey respondents also come from the following backgrounds: **6%** O&M services, **5%** consulting, **3%** solar hot water, **1%** each roofing, general contracting and HVAC, and the rest unspecified other categories.

SUPPLY CHAIN

How have supply chain issues impacted installers?

60% of respondents' businesses were harmed by supply chain disruptions in 2021, primarily as a result of freight delays.

While the story of the COVID-19 pandemic was the headline for every industry in 2020, in 2021, many industries had to contend with a separate, but related, issue of supply chain constraints. The solar industry was no different: from shipping delays and disruptions to a lack of supply in general, solar installers and their business were hit hard by supply chain issues in 2021.

Supply chain constraints hurt solar sales in 2021

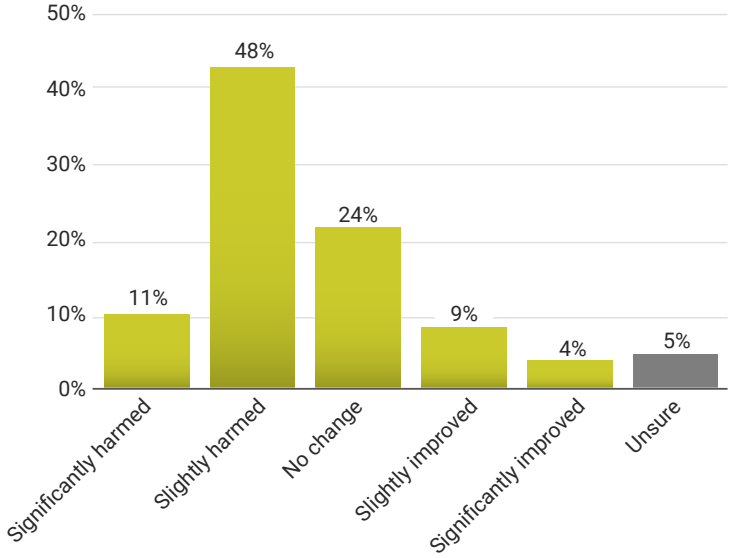
Overwhelmingly, solar installers report being impacted by supply chain constraints: three-fifths of installers reported that their sales were harmed in 2021 due to supply constraints, while a quarter indicated they were not impacted at all. This may have contributed to an increase in installers reporting that margins decreased in 2021 (page 15).

Freight delays the primary driver of supply chain disruptions in solar

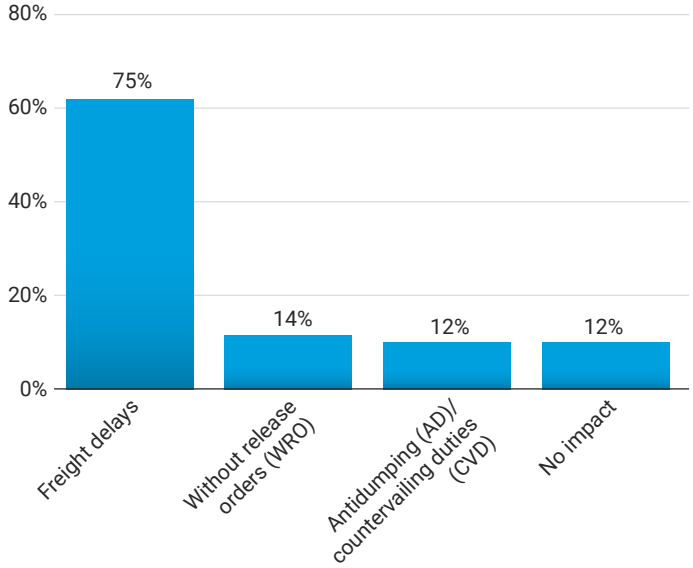
Installers could select all that applied

When asked which supply chain issues impacted their businesses, solar installers pointed to freight delays as the main source of disruption in 2021. In practice, this meant that it was more difficult to procure equipment in general, as well as to obtain companies' preferred equipment: 57% of installers found it more difficult to purchase and receive the panels, inverters and batteries they wanted to sell.

How have supply constraints impacted your company's year-over-year change in sales?



Which supply chain issues have impacted your business?



SUPPLY CHAIN

How has equipment availability changed?

Three out of five installers report that the availability of solar panels and batteries decreased in 2021.

To get a better sense of the specific ways in which solar equipment supply chains were impacted in 2021, this year's Installer Survey asked respondents how the availability of different components changed over the course of the year, as well as what percentage of equipment is sourced domestically. While respondents indicated that availability of all components decreased in 2021, the supply of panels and batteries was more heavily impacted than that of inverters.

Panels and batteries more impacted by supply constraints than inverters

About 30% of panels and batteries are sourced from the US, while only 15% of inverters are sourced domestically, according to Survey respondents. However, despite being the more likely to be sourced from the US, solar installers report that supply of panels and batteries was more significantly impacted by supply chain constraints in 2021: about 60% of installers report that the availability of panels and batteries decreased in 2021.

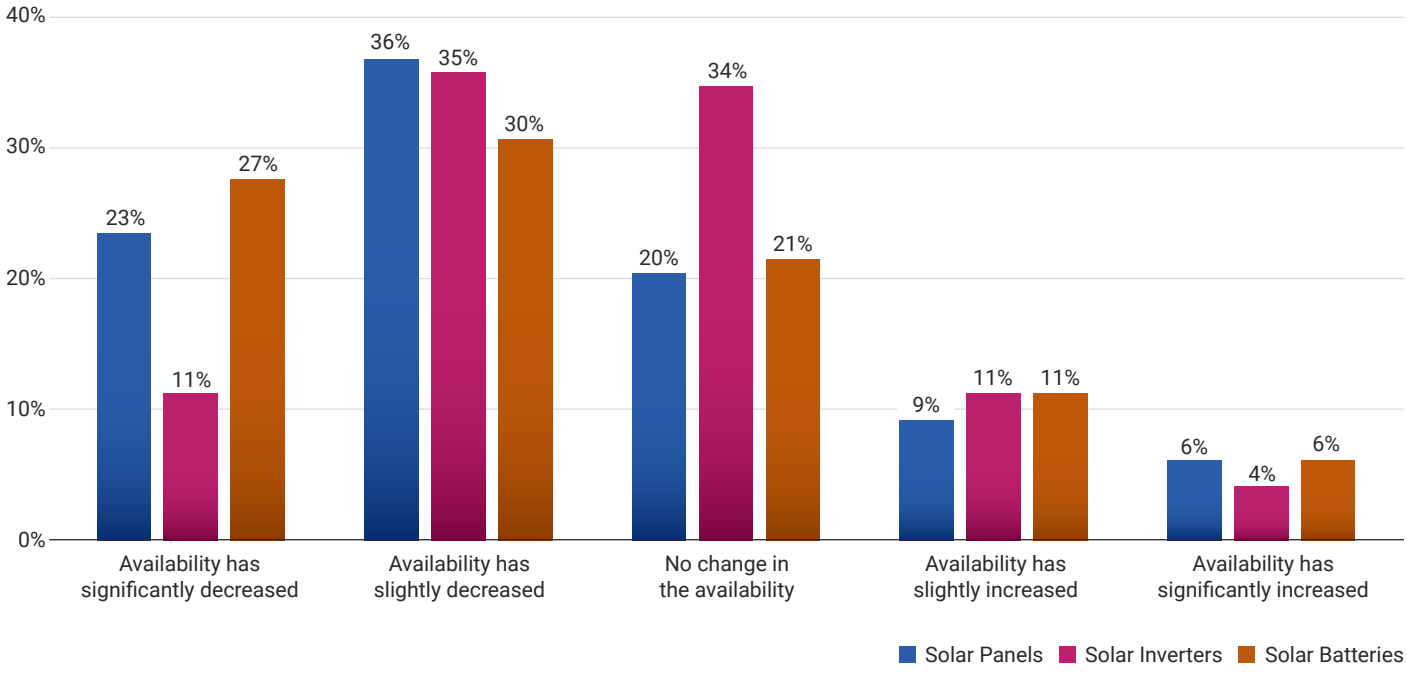
What percentage of your solar equipment is sourced from the United States? (i.e., American made or assembled)

28% panels

29% batteries

15% inverters

To what extent has the availability of equipment changed over the past year?



INSTALLER CONFIDENCE

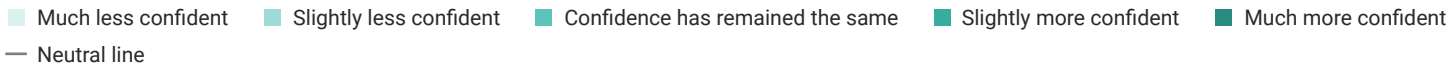
Installer confidence index

For the first time, installer confidence in the solar industry decreased nationally between 2020 to 2021.

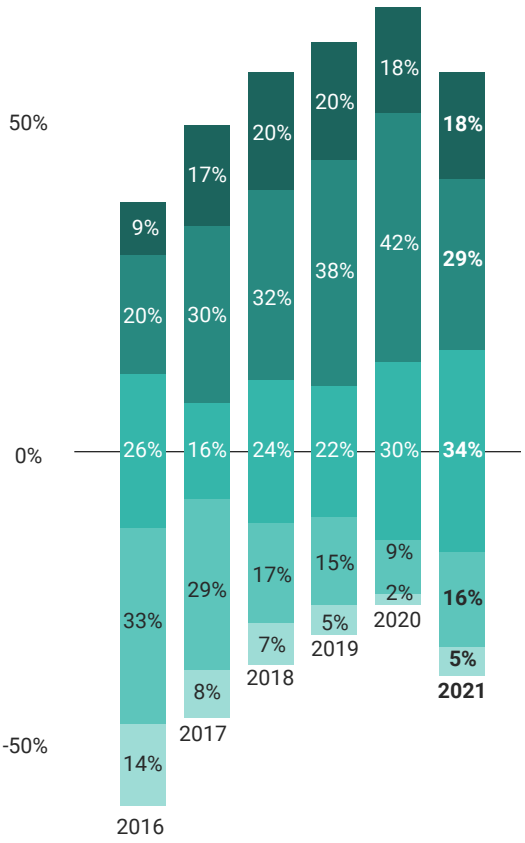
In a departure from previous iterations of the *Installer Survey*, solar installers expressed that their confidence in the solar industry decreased between 2020 and 2021. Although the national results are driven by states where legislation and proposals to reduce the value of net metering were passed or introduced, solar installers were less confident in the industry in 93% of states.

While installer confidence continued to rise in years past despite tariffs, the COVID-19 pandemic, and changing policies at the state and federal levels, the story shifted in 2021 as solar installers throughout the country dealt with the impact of supply chain constraints and net-metering reduction policies at the state level: 40% of installers in California are less confident in the industry than last year, as were a third of installers in Florida.

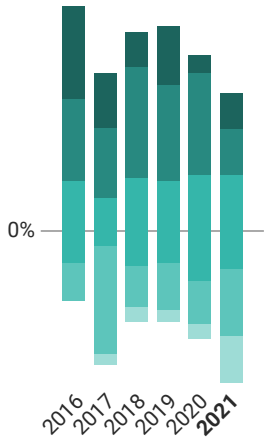
Installer Confidence by Top Markets



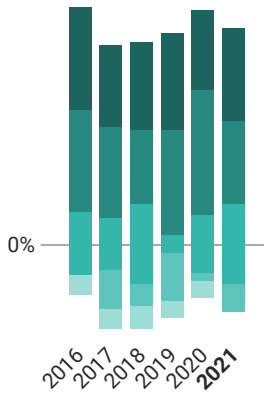
National



California



Texas



ENERGY STORAGE

Consumer demand

Storage attachment rates reached 28% in 2021, a 40% increase over 2020 and a 4X increase from 2017.

The growth of interest in energy storage continues to accelerate throughout the country. In fact, 55% of installers say they witnessed much higher interest in storage from residential customers in 2021. This is borne out in installation data: according to Wood Mackenzie, Q4 2021 set another record for residential storage deployments, overtaking Q1 2021 as the best quarter yet. In 2021, survey respondents indicated that storage interest, storage quotes and storage attachments increased for the fourth consecutive year.

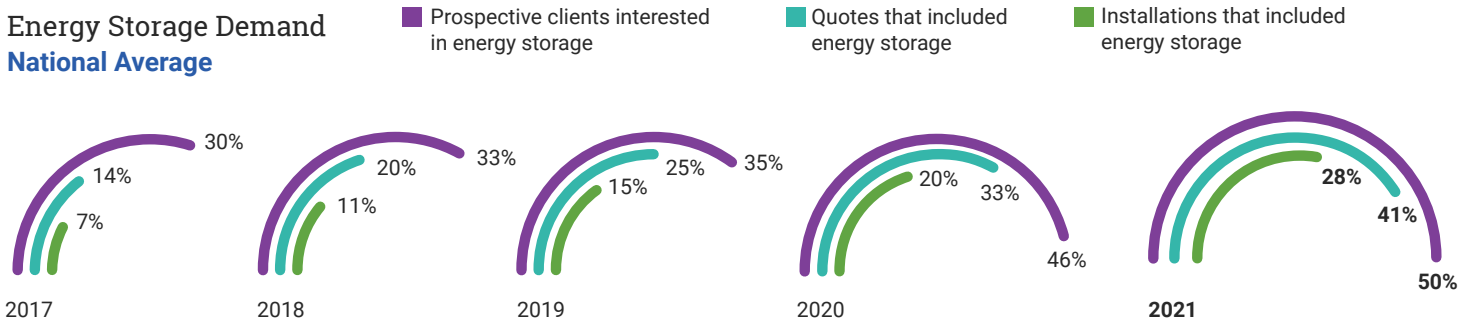
Storage interest continues to rise nationwide

Respondents to the *Installer Survey* report that 50% of all solar shoppers are interested in receiving storage quotes, mirroring a trend witnessed on EnergySage, where 70% of customers who register for an account request storage quotes. Interestingly, consumer interest in storage is high not only in traditional storage markets–such as Northeastern states and California–but also in non-traditional storage states, like Georgia and Washington.

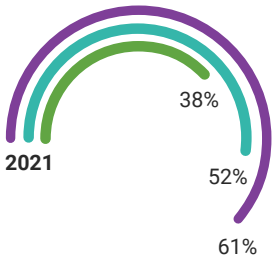
Storage attachment rate quadrupled since 2017

According to solar installers, storage attachment rates increased by 40% between 2020 and 2021, up to 28% of all solar installations. As a result, storage attachment rates have increased 4X since we first asked installers about their attachment rates in 2017. Notably, storage attachment rates reached 41% in Florida, 38% in California and 33% in Texas in 2021.

Energy Storage Demand
National Average



California



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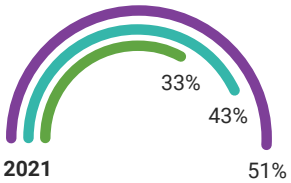
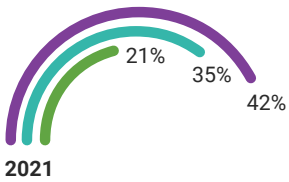
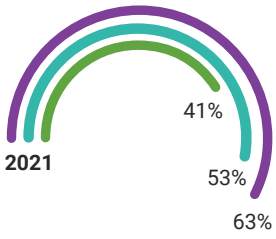


New York



Florida



ENERGY STORAGE:

Primary Drivers and Barriers to Storage Adoption

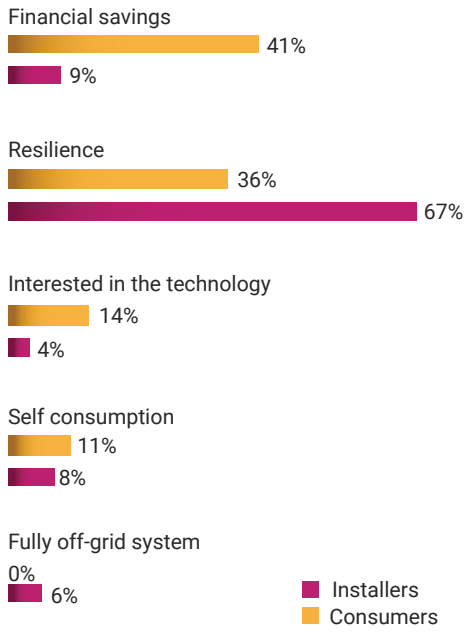
As energy storage adoption rates continue to increase nationwide, it's important to track the primary drivers and barriers to greater storage adoption. Interestingly, while solar shoppers on EnergySage indicate that financial savings are the primary driver of their interest in energy storage, installers report consumer interest is primarily due to a desire for emergency backup power.

The percentage of installers pointing to battery availability and supply issues as a primary barrier to selling storage nearly tripled between 2019 and 2021.

Mismatch between consumer and installer reasons for storage interest

For the second year in a row, two out of three respondents to the *Installer Survey* said emergency backup power is the primary driver of consumer interest in energy storage. However, according to consumer-preferences on EnergySage analyzed in our recent *Solar Marketplace Intel Report*, consumers now point to financial savings as the primary motivator for their interest in receiving storage quotes.

Why are consumers interested in energy storage? Consumer vs installer perspectives

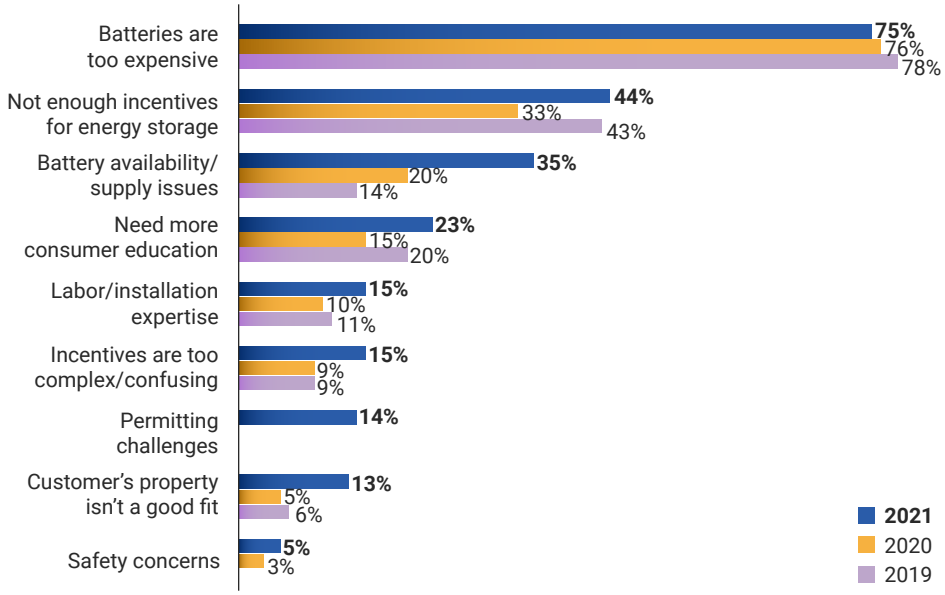


Availability of batteries became a bigger barrier to selling storage

Installers could select all that applied

While three-quarters of installers continue to report that the cost of batteries remains the primary barrier to selling storage systems, in 2021, 35% of Survey respondents pointed to the availability of batteries as a primary barrier to selling storage, a 75% increase from 2020 and a 150% increase from 2019.

What are the primary barriers to your company selling more storage systems?



ENERGY STORAGE

Storage brands requested, stocked and installed

Installers continue to prioritize performance and quality when deciding which battery brands to carry and quote.

To get a feel for the current market dynamics from an equipment perspective, EnergySage asked which batteries shoppers most frequently request and which batteries solar companies stock and quote, as well as what the most important factors are in deciding which brands to carry.

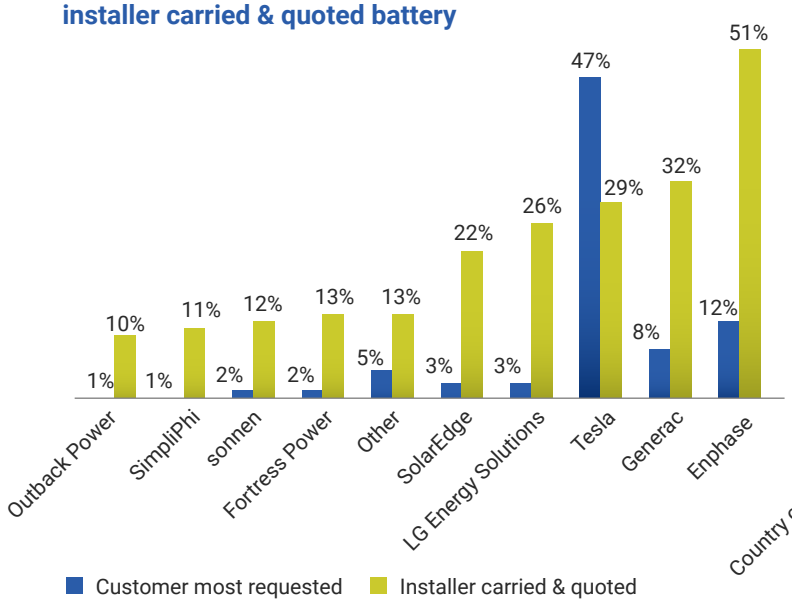
Tesla remains most requested battery brand, Enphase the most stocked

For the fourth year in a row, Tesla remained the most widely requested storage brand by consumers, with nearly half of installers reporting that Tesla is the most requested battery brand by their shoppers. Notably, over half of the respondents carry and quote Enphase batteries.

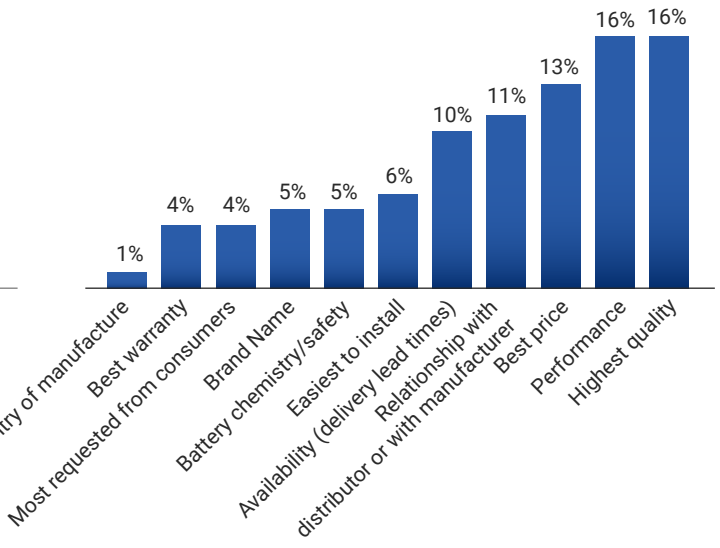
Installers decide which battery to carry based on performance

When asked what the most important factor is in deciding which brand to carry, installers point to two nearly identical factors: the batteries with the best performance and of the highest quality. Interestingly, **only one in twenty respondents select their battery based consumer preference.**

Customer requested battery vs. installer carried & quoted battery



Installer battery choices



CUSTOMER ACQUISITION

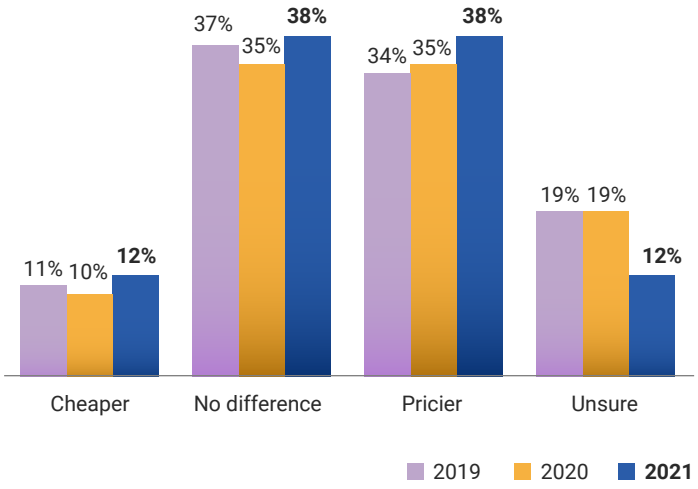
How has customer acquisition changed?

Installers are split on whether customer acquisition costs increased or stagnated in 2021.

While the cost of solar equipment continues to decline, the soft costs of solar remain high, with the cost–and difficulty–of customer acquisition playing an increasing role in the overall cost of solar. For the third year in a row, *Survey Respondents* report that customer acquisition became more expensive, though that it became easier in 2021.

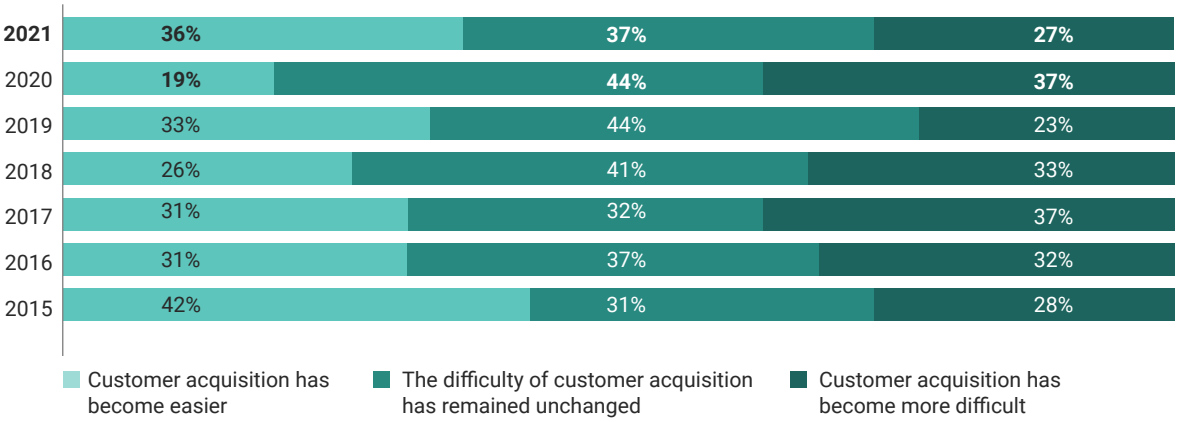
Customer acquisition costs show no signs of decreasing

In 2021, nearly two in five installers said that the cost of customer acquisition increased compared to 2020, with an average cost of just under $800 per customer. However, an equal percentage of respondents indicated that there was no difference in customer acquisition costs over the last couple of years.



Finding solar shoppers is easier than in recent years

Interestingly, despite all of the challenges facing solar installers in 2021, the difficulty of acquiring interested solar shoppers actually improved, according to Survey respondents. In fact, the percentage of Survey respondents saying customer acquisition became easier in 2021 reached the highest level since 2015, while the percentage responding that acquisition became more difficult hit the second lowest mark since 2015.



CUSTOMER ACQUISITION

Assessing acquisition channels

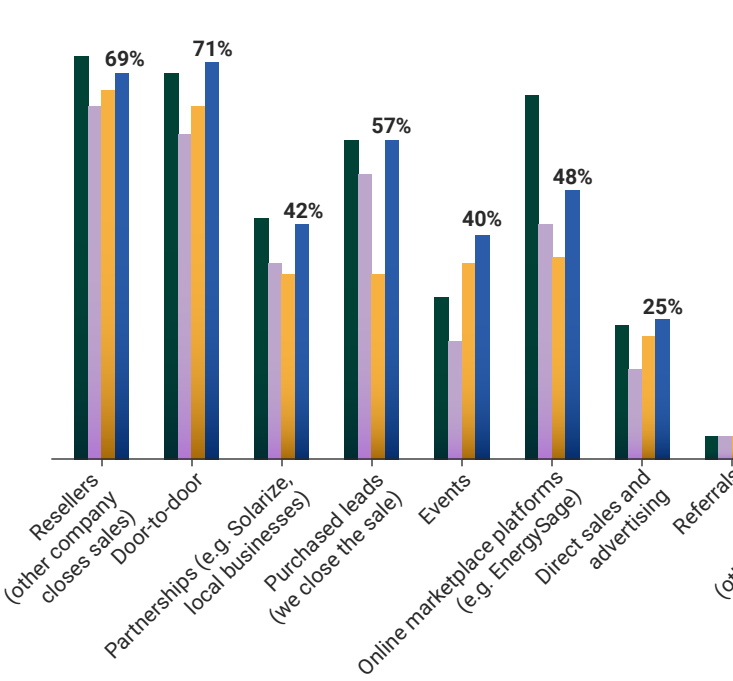
Installers are clear about what they are looking for in customer acquisition channels: the highest volume of sales at the lowest cost per sale.

While the COVID-19 pandemic forced all companies–including solar installers–to rethink the way they did business in 2020, in many ways, 2021 represented a rebound to pre-pandemic ways of doing business: with the notable exception of events, the percentage of solar installers frequently using different sales channels returned to–or stayed at–2018 or 2019 levels nearly across the board.

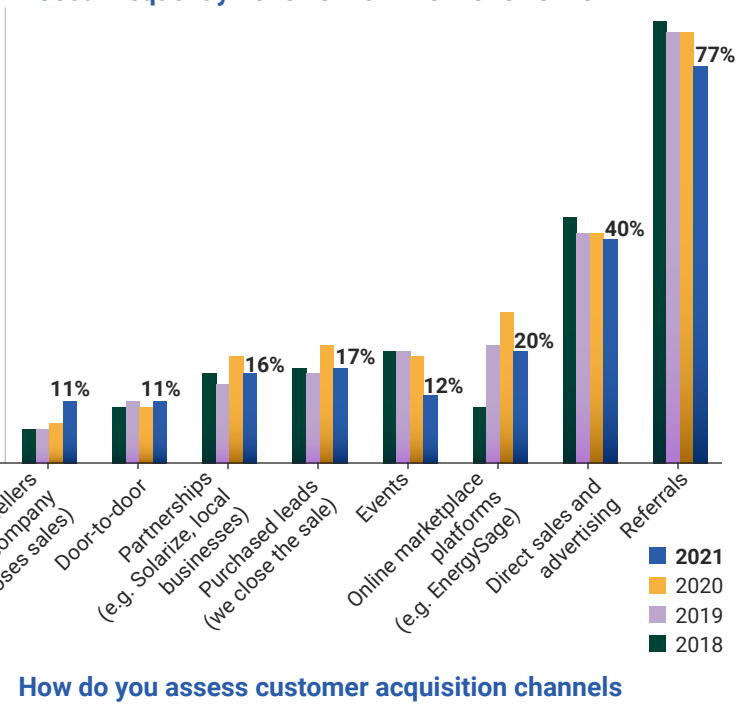
Solar installers continue to rely on referrals and direct sales

According to installers, only 12% of solar shoppers receive a single quote while shopping for solar (page 18). However, *Survey* respondents indicate that they primarily rely on channels where they are less likely to experience direct competition, with over 70% frequently using referrals and two-fifths using direct sales and advertising.

Did not use 2018 vs. 2019 vs. 2020 vs. 2021



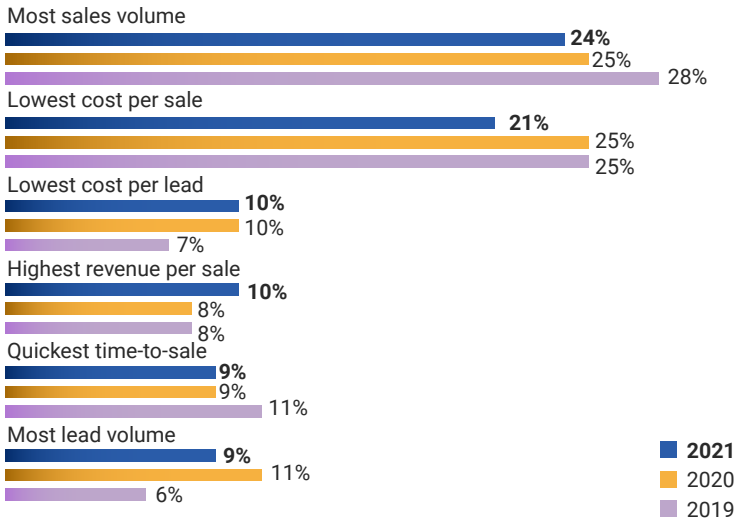
Used Frequently 2018 vs. 2019 vs. 2020 vs. 2021



Installers focus on high volume, low cost sales channels

When asked how they assess customer acquisition channels, nearly half of installers say they primarily focus on the channels that provide the highest sales volume at the lowest cost per sale. Interestingly, only half as many respondents focus on the lowest cost per lead or the most lead volume, instead placing greater emphasis on closed deals.

How do you assess customer acquisition channels



CUSTOMER ACQUISITION

Sales timeline by channel

Survey respondents reported an average customer acquisition cost of $792 in 2021.

Beyond how the costs of customer acquisition have changed and the channels installers used to find solar shoppers in 2021, for the first time, the *Installer Survey* asked respondents how much they spend on average on customer acquisition, as well as about the variation in the sales cycles for different channels.

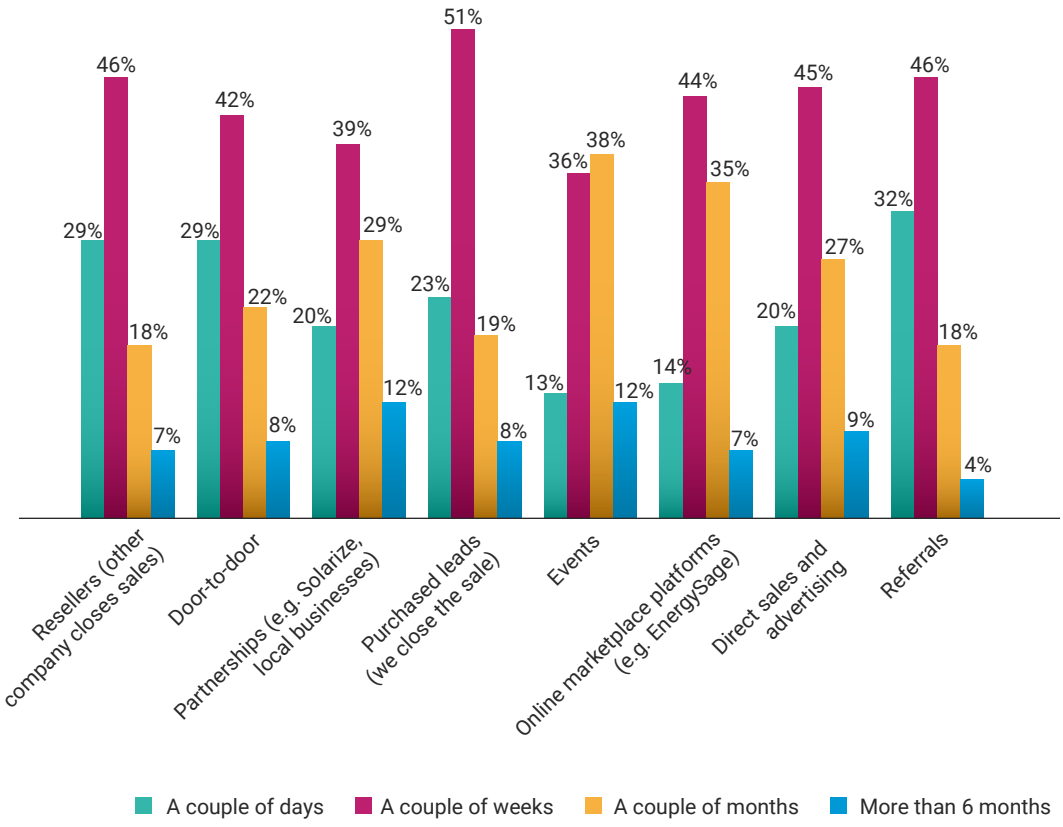
Installers' self-reported CAC well below industry benchmarks

Respondents to this year's *Survey* report an average customer acquisition cost of just under $800 per residential solar shopper in 2021. For the typical 7 kW solar installation, that amounts to about 11 cents per Watt (¢/W) in acquisition costs. Importantly, this value is well below NREL's forecasted CAC of 42-58 ¢/W and Wood Mackenzie's reported market average of 75 ¢/W.

Most solar leads take a couple of weeks to close deals

When asked how long typical leads take to close by channel, most installers said that most leads will move forward with their company within a couple of weeks: across eight different sales channels, *Survey* respondents indicated that over 40% of leads close in a couple of weeks in all but two channels. Overall, a very small percentage of leads take more than a couple of months to move forward with a solar installation.

Length to close by channel



$792

average cost of customer acquisition

CUSTOMER ACQUISITION

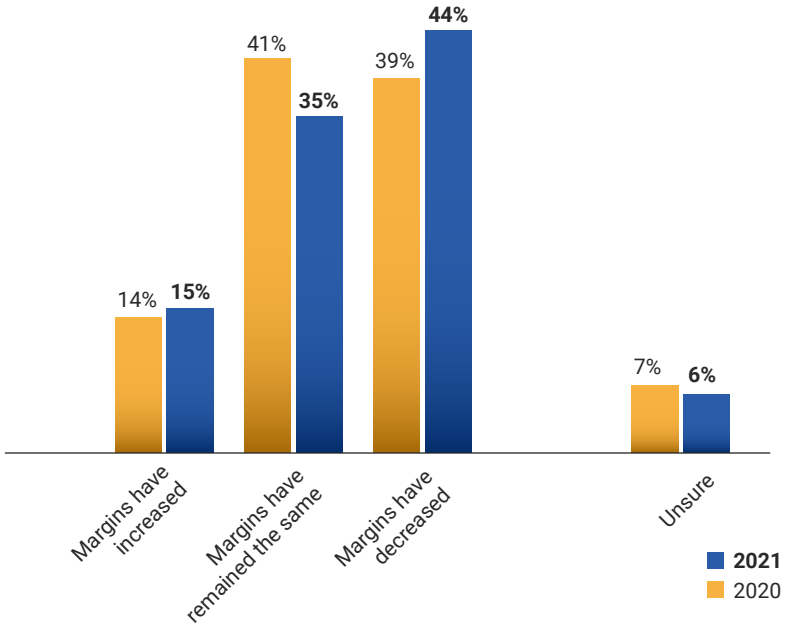
Cost breakdown & installer margins

For the second year in a row, solar installers report higher installation labor and lower customer acquisition spending than reported by NREL.

Given the persistently high soft costs of solar–permitting, inspection, interconnection, customer acquisition, overhead and margin–in this year's Installer Survey, we asked installers to break down the percentage of each solar install that goes towards different hard and soft costs. Additionally, we asked survey respondents how margins had changed over the last twelve months.

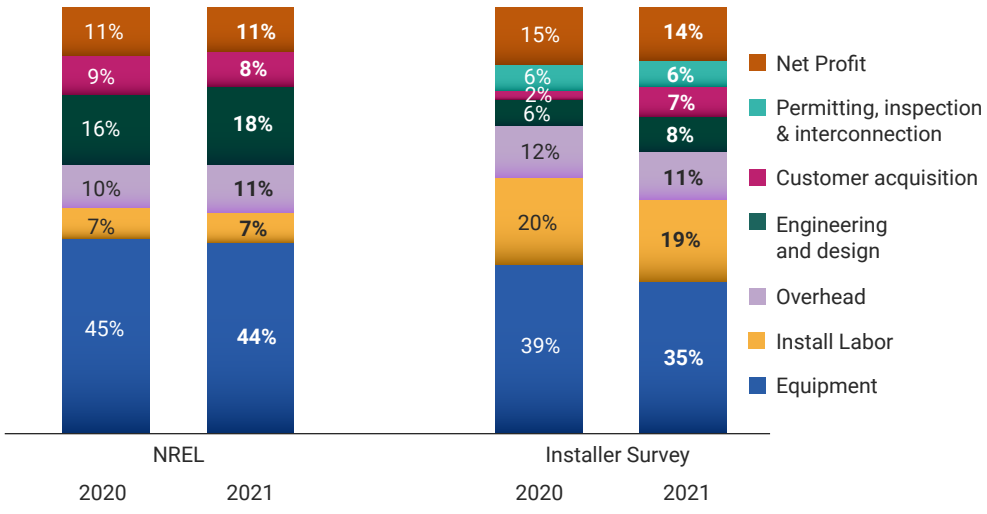
Margins show no signs of increasing

In 2021, installers reported average margins of 14% on solar installs nationwide, down slightly from 2020. When asked how margins had changed year-over-year, only 15% of installers say that margins increased, while a higher percentage of installers reported that margins decreased between 2020 and 2021.



Share of wallet: NREL to Installer Survey comparison

In their annually released solar cost benchmarking analysis, the National Renewable Energy Laboratory (NREL) reported on the typical costs associated with different components of a residential solar install, from equipment to install labor, and from customer acquisition to net profit. For the second year in a row, installers' reported share of spending by category mirrors NREL's report closely with two main exceptions: the percent spent on customer acquisition versus on installation labor. Interestingly, despite supply chain constraints, installers reported that a smaller share of their spending went to equipment in 2021 than in 2020.



COMPETITION

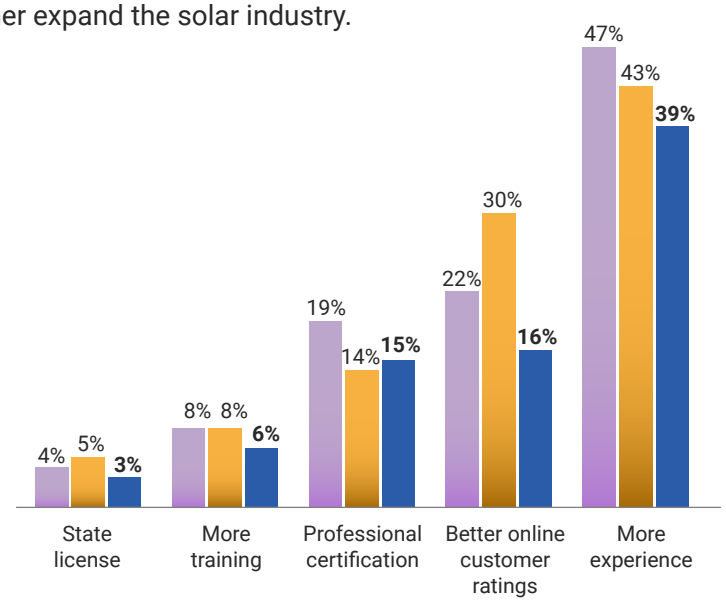
Primary differentiators and barriers to growth

A lack of trained labor overtook customer acquisition as the biggest barrier to growing solar installers' businesses in 2021.

In a crowded solar market, installers have a keen sense for what characteristics separate them from their peers, as well as what factors are holding them back from further growth. Comparing the results to these two questions–and the ways they changed from 2019 through 2021–provides insights for opportunities to further expand the solar industry.

Experience remains the primary differentiator for solar installers

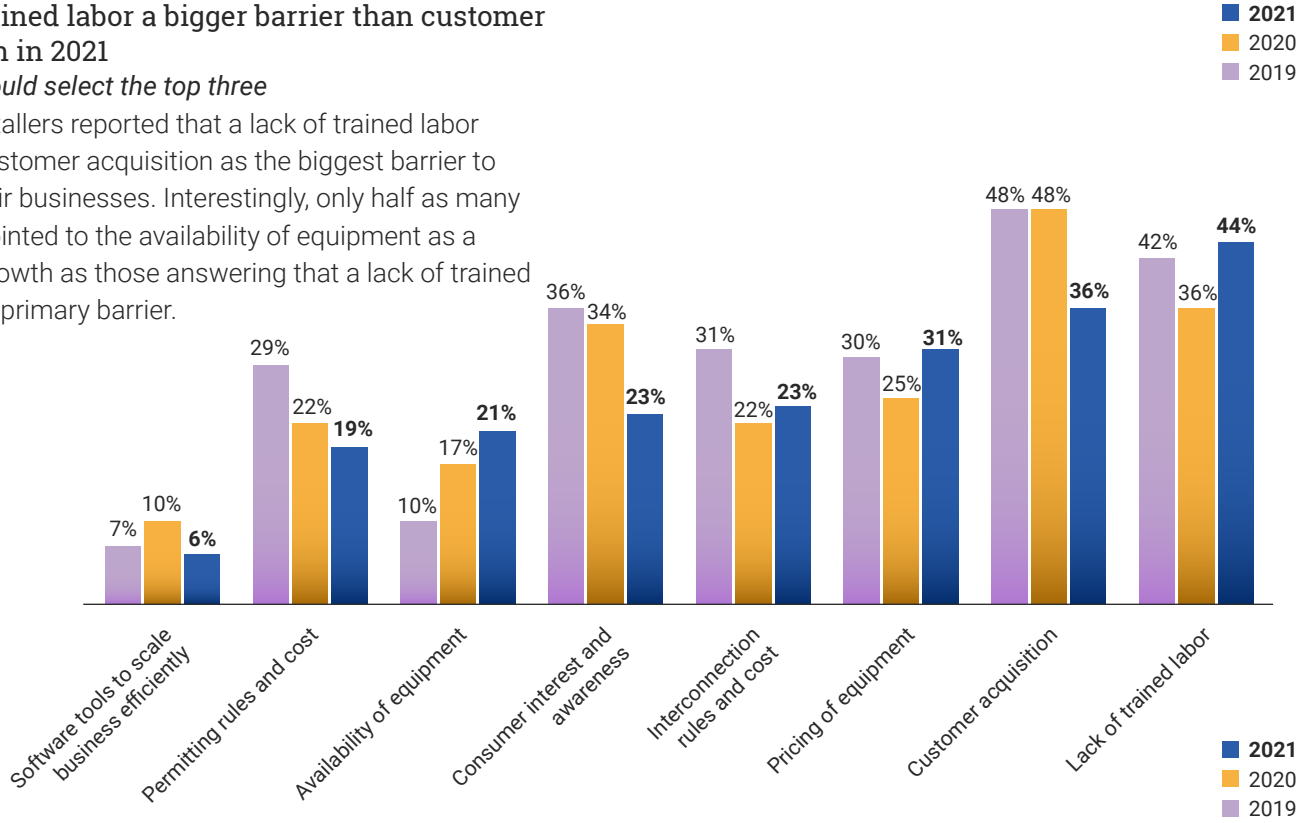
For the third year in a row, solar installers point to their experience in the industry as their primary differentiating factor from their competitors. When paired with the fact that 47% of solar installers have been in business for 10 years or more, this implies there's an opportunity for solar installers to find additional ways to differentiate themselves from competitors, beyond industry experience.



Lack of trained labor a bigger barrier than customer acquisition in 2021

Installers could select the top three

In 2021, installers reported that a lack of trained labor overtook customer acquisition as the biggest barrier to growing their businesses. Interestingly, only half as many installers pointed to the availability of equipment as a barrier to growth as those answering that a lack of trained labor was a primary barrier.



COMPETITION

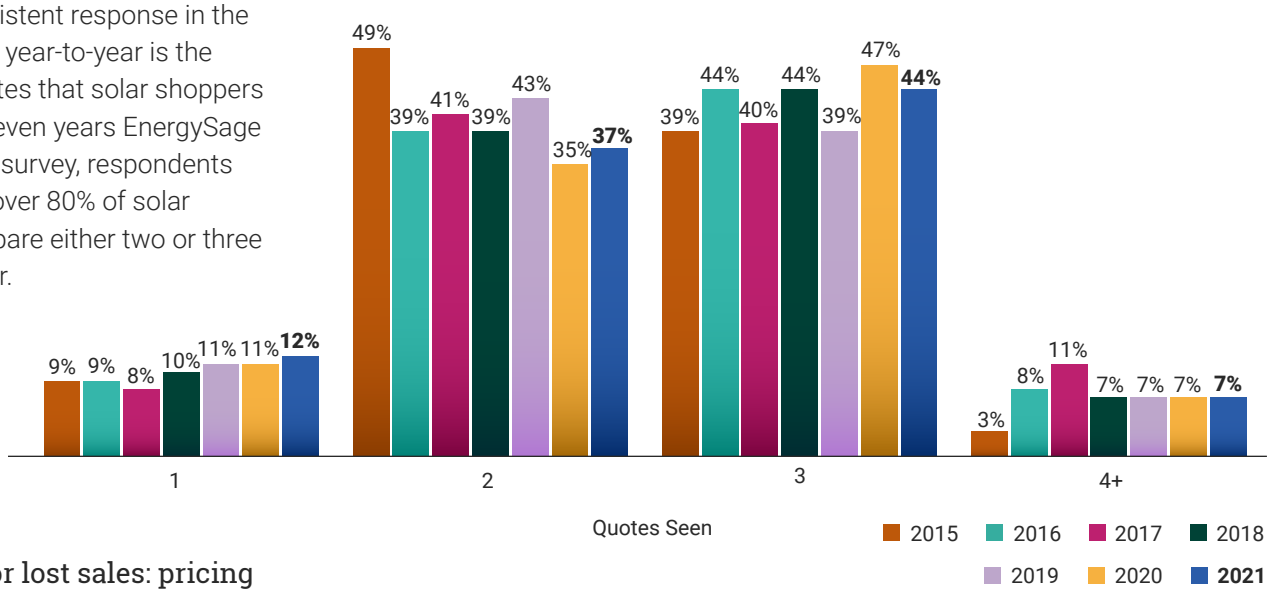
The competitive landscape: quotes and challenges to sales

For the seventh straight year, installers report that over 80% of customers compare two or three solar quotes.

Very few solar shoppers receive only a single quote for solar: in 2021, seven out of every eight solar shoppers receive multiple solar quotes. With that in mind, EnergySage asked installers which factor most frequently contributes to lost sales for the second year, as well as what customers value the most when purchasing a system for the first year.

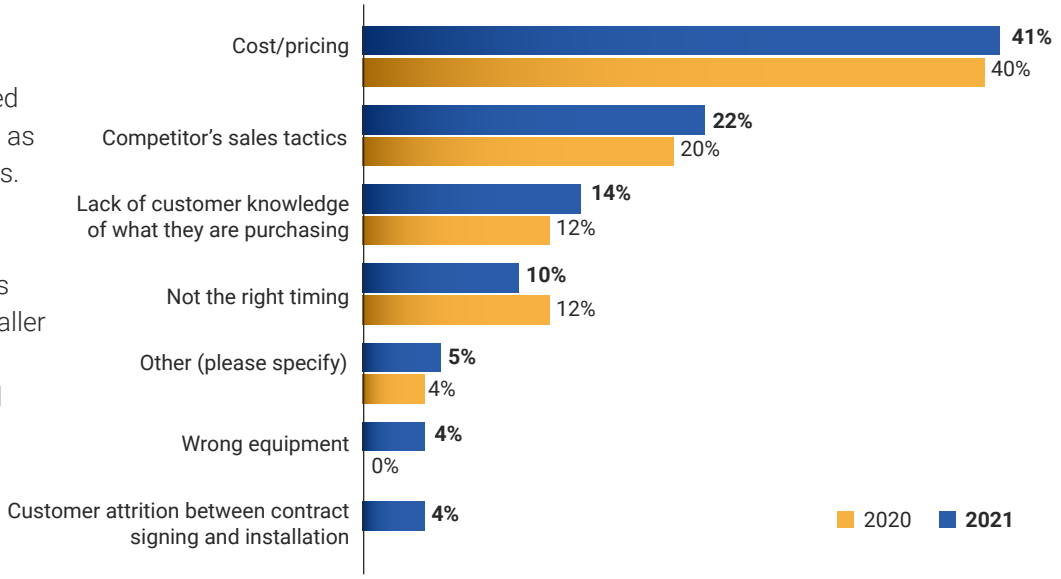
Nearly every solar shopper compares quotes

The most consistent response in the *Installer Survey* year-to-year is the number of quotes that solar shoppers receive: in all seven years EnergySage has fielded the survey, respondents indicated that over 80% of solar shoppers compare either two or three quotes for solar.



Top reason for lost sales: pricing

For the second year in a row, two-fifths of *Survey* respondents report that they most frequently lose their deals due to the cost or pricing they offered, while an additional fifth of installers pointed to their competitor's sales tactics as the primary reason they lose sales. Interestingly, when asked what customers value the most when they purchase a system, installers say 68% of consumers value installer traits more than anything else, including that the installer is local and provides after-sales support (36%) and that the installer has a positive track record and experience (32%).



EQUIPMENT

Installer equipment preference

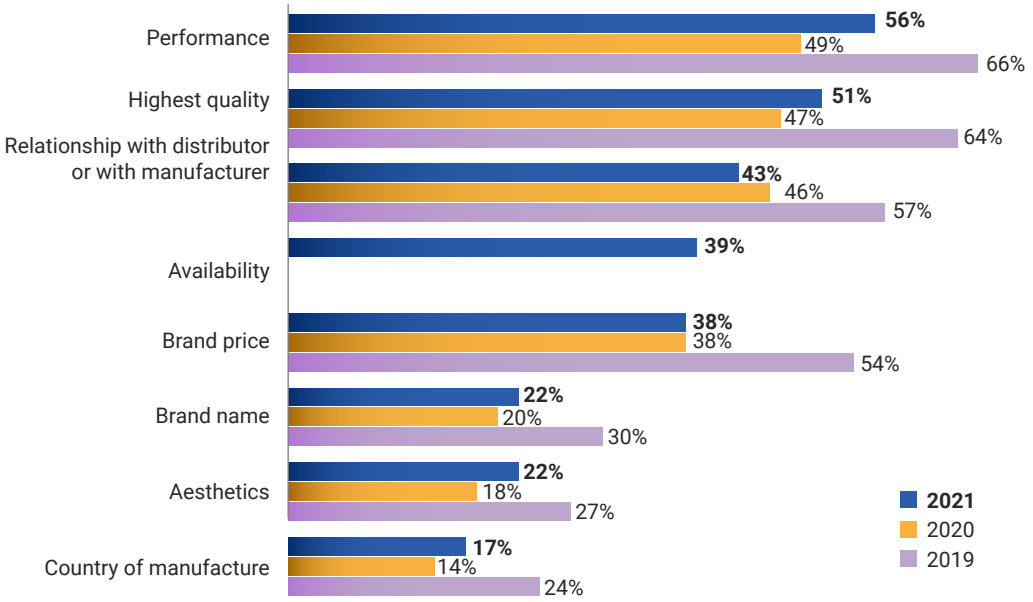
In 2021, the availability of solar equipment was as important of a factor as equipment price in installer equipment stocking preferences.

Before installers sell to solar shoppers, distributors and manufacturers must first sell to installers. To better understand what drives installer equipment choice, we asked which factors are most important when deciding which equipment to carry, quote and install, in addition to a question about the role that equipment brand name plays in installer success.

Equipment selection is driven by quality and performance

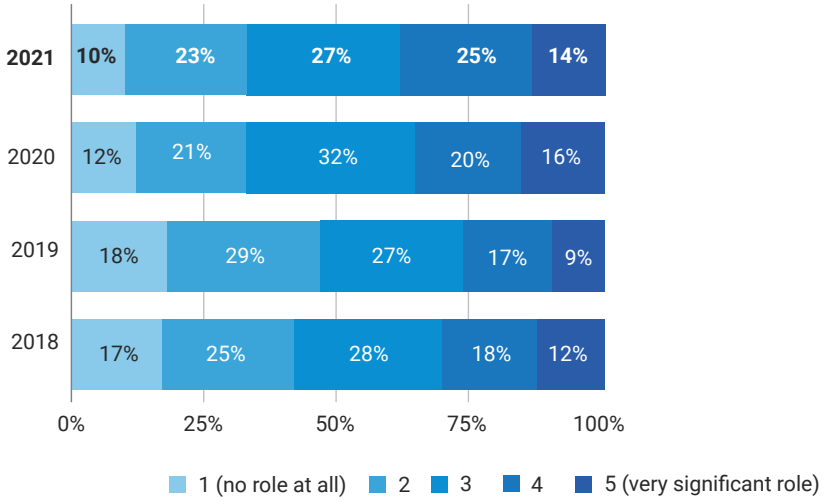
Installers could select all that applied

More than price or brand name, installers report that what they look for when purchasing equipment is high-quality and high-performance solar panels, inverters and racking systems. Interestingly, after adding "Availability" as an answer in 2021, installers were as likely to list the supply of equipment as they were to list price as a determining factor for which solar equipment to carry and quote.



Installers remain split on the role of equipment brand name in closing sales

For the second year in a row, solar installers were nearly evenly split on the influence of equipment brand name on closing sales, with a slightly higher percentage reporting that it plays a positive role in closing deals than those saying brand name plays little to no role. As a corollary, we asked how important manufacturer partnership programs are to growing business. Installers were split on this, too: 38% said they play little to no role while 37% stated they play some to a very significant role.



EQUIPMENT

Consumer equipment preference

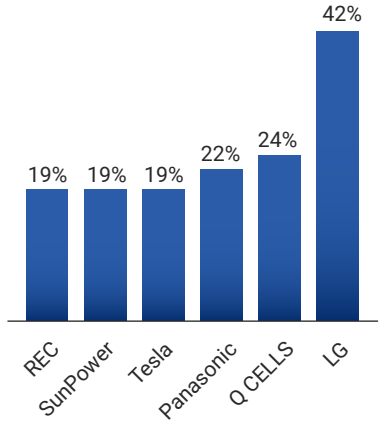
LG solar panels, Enphase inverters and Tesla batteries were the most commonly requested equipment brands for the second year in a row.

As solar and storage adoption increases throughout the country, solar and storage equipment manufacturers are beginning to become household names: in fact, installers say 28% of customers request a specific brand of solar or storage equipment.

Most requested solar panels: LG

Installers could select all that applied

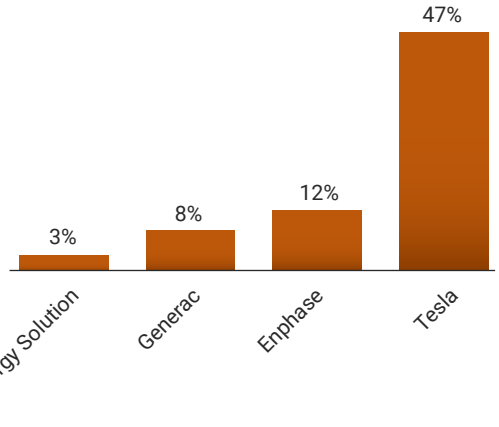
According to *2021 Installer Survey* respondents, LG remains the most requested solar panel brand, despite the company announcing their exit from the solar industry in 2021. Between one-fifth and one-quarter of shoppers were likely to request each of the other top-requested panel brands



Most requested batteries: Tesla

Installers could select all that applied

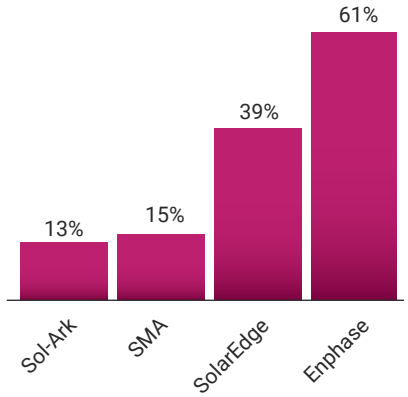
Tesla continues to be the most recognizable–and requested–residential energy storage brand by a good margin: as many customers request Tesla batteries as the rest of storage brands, combined.



Most requested inverters: Enphase and SolarEdge

Installers could select all that applied

The two inverter manufacturers with the largest market share in the US residential solar market are the two most commonly requested solar inverter brands: Enphase and SolarEdge.



FINANCIERS

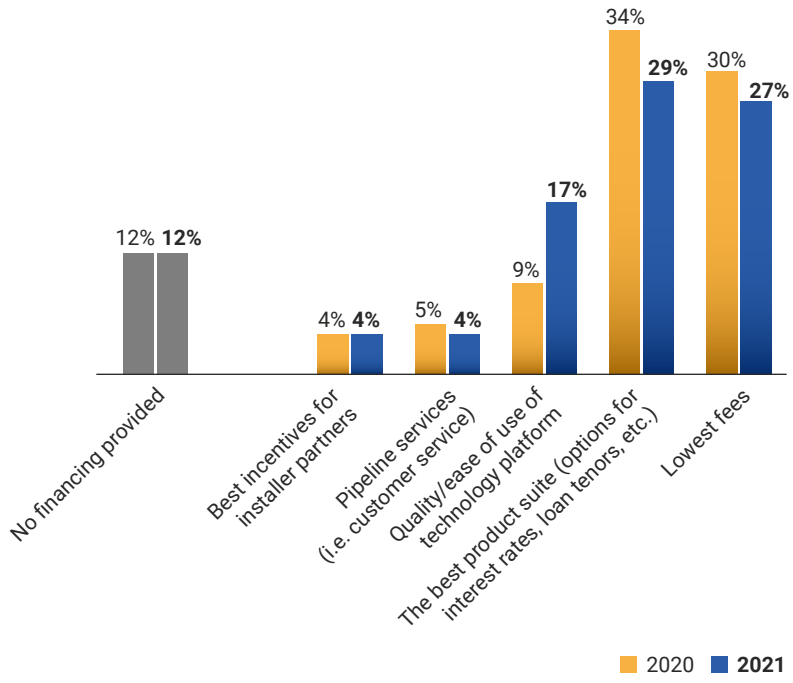
How to choose financing companies

Nearly two-fifths of installers receive little-to-no pre-installation funding from their financing partners.

Just as the creative financing solutions afforded by solar leases and PPAs helped drive the first wave of growth for the residential solar industry, no-money-down, low-interest-rate solar loans are contributing to the continued growth of the solar industry. To better understand the solar financing market, the *Installer Survey* asked respondents how they choose their financing partner, as well as what percentage of pre-install funding they receive from their financing partner.

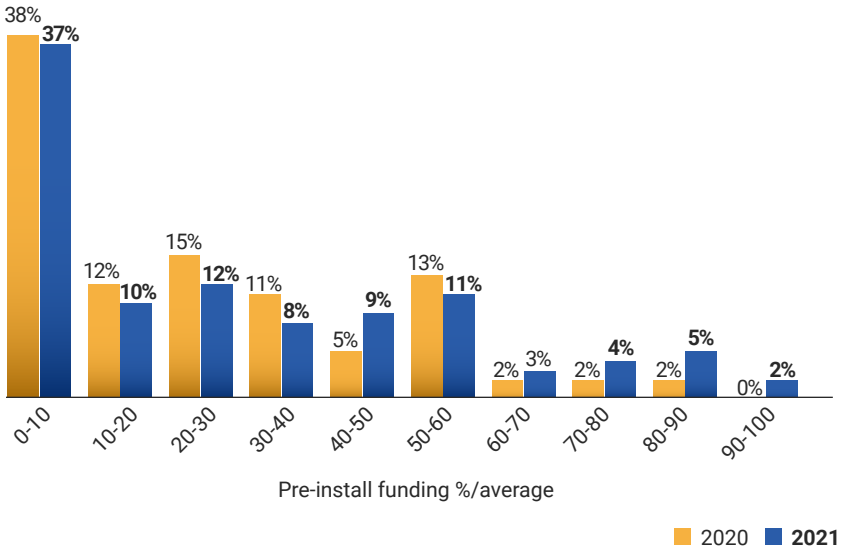
The best loan products work both for installers and consumers

For the second year in a row, nearly three out of five installers chose their financing partner based on two key factors: the best flexibility in consumer-facing products, and the best installer-facing fees. Additionally, in 2021, twice as many Survey respondents said the quality and ease of use of the technology platform is the biggest factor in selecting a financing partner.



Many installers receive little-to-no pre-install funding from financiers

Over the last two years, we asked installers how much funding they receive from financiers prior to installation as a percentage of the overall project costs. In both 2020 and 2021, two-fifths of installers report receiving 0% to 10% of the project cost prior to installation, while only 24% received 50% or more pre-install.



INTERCONNECTION

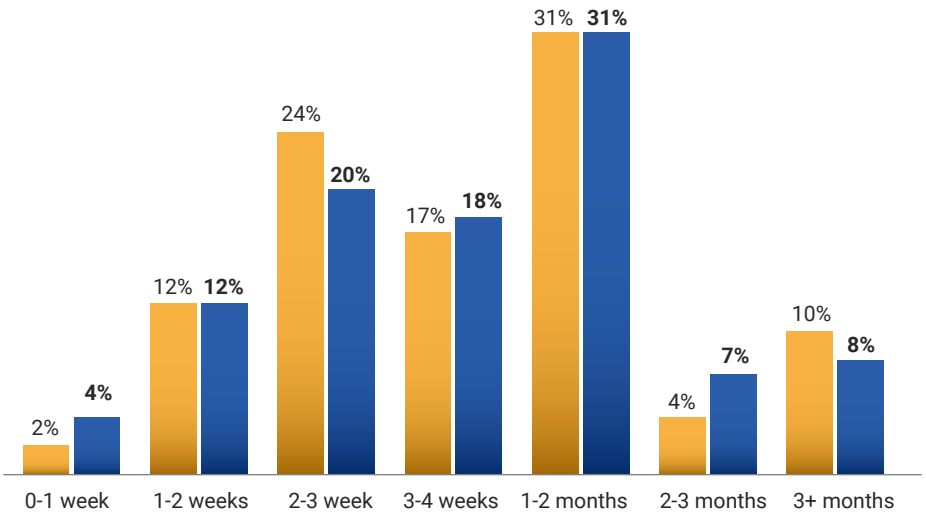
The time and cost to receive interconnection

70% of installers report that interconnection takes between two weeks and two months and costs less than $400.

Outside of the cost of customer acquisition, a major component of soft costs is the cost associated with interconnection. For the third year, the *Installer Survey* asked solar companies how long interconnection takes where they operate and at what cost.

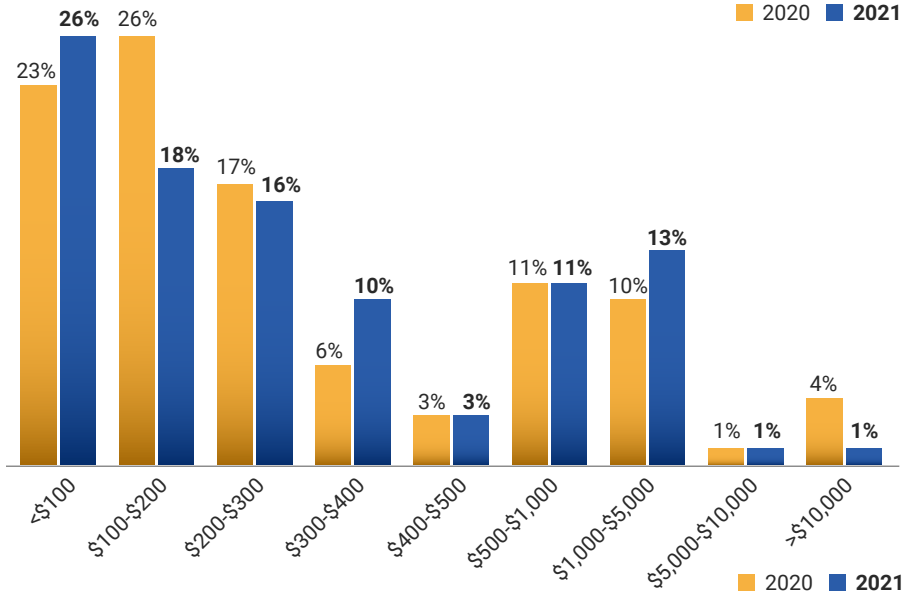
Interconnection timeline: two weeks to two months

Seven out of ten installers report that it takes between two weeks and two months to receive interconnection in the areas where they operate, down a few percentage points from the responses in 2020. Interestingly, the percent of installers for whom interconnection takes more than 3+ months dropped slightly, with a simultaneous increase in the percent for whom interconnection takes between two and three months.



Interconnection cost: less than $400, except for larger projects

Nationwide, the median reported interconnection cost for 2021 was $250, with 70% of installers responding that their interconnection costs are below $400, representing a slight increase in reported typical costs from 2020. A quarter of installers continue to report an average cost of interconnection between $500 to $5,000, perhaps representative of larger scale, non-residential projects.



PERMITTING

The time and cost to receive interconnection

The percentage of installers familiar with the SolarAPP+ doubled between 2020 and 2021.

Ånother aspect of persistent soft costs in the solar industry are associated with permitting. Given recent nationwide efforts to digitize the solar permitting process, the *Installer Survey* asked respondents about the impact of the permitting digital transformation on their businesses for the second year, from the percentage of permits issued digitally and within three days to familiarity and use of the SolarAPP+ and the impact of faster sales, permitting and interconnection timelines on the cost of solar.

The permitting digital transformation continues

For the second straight year, installers report that over 60% of their permits are issued digitally, while the percentage of permits issued within three days increased slightly to 28% in 2021. Importantly, the percentage of installers familiar with SolarAPP+ doubled between 2020 and 2021, though only 8% of Survey respondents say they use SolarAPP+ frequently.

Reducing sales and PII timelines reduces prices across the board

For the first year, we asked installers how their expenses would change if they were able to sell, install and interconnect their installations in one to three days. Across the board, installers say that faster sales and install timeline would reduce expenses by 8% to 12% in every category, from sales and marketing to overhead, and from margins to install costs.

Learn more about the SolarApp:
SolarApp is an NREL-led effort to improve the ease and decrease the cost of permitting for solar and storage installs in the US. To learn more about this instant, online permitting initiative, check out solarapp.nrel.gov.

Are you familiar with the SolarApp?

2021	2020
36%	17%

Permits issued electronically

2021	2020
63%	65%

Permits issued in three days

2021	2020
28%	23%

Percentage installers could lower expenses if they could sell install and interconnect in 1-3 days

10% ↓ Sales & marketing	12% ↓ Overhead (G&A)
8% ↓ Gross margins	10% ↓ Installation costs

COMPANY OPERATIONS

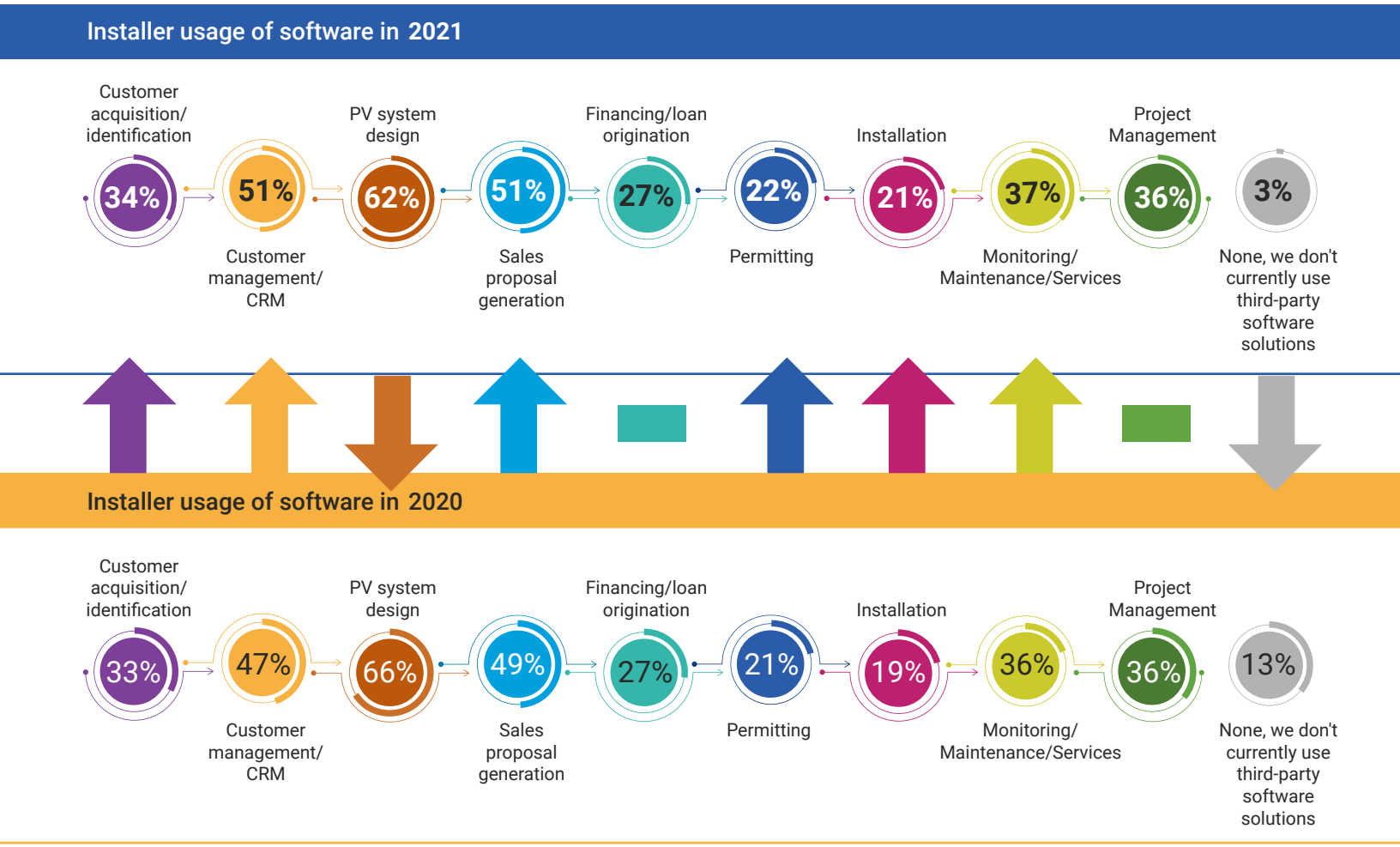
Software utilized

90% of solar installers used at least one third party software solution during the sales and install process in 2021.

The solar industry supports many different types of companies and segments within the industry beyond equipment manufacturing, distribution and installation. Over the last few years, software products have become indispensable to the solar industry, helping installers from the beginning to the end of consumer life cycles: in 2021, 90% of solar installers used at least one third-party software solution.

Software utilization remained consistent between 2020 and 2021

While 2020 forced many solar installers to use software during more stages of the sales and installation process, it appears the shift to using more software persisted into 2021. In fact, the percentage of installers using a third party software for each stage of the sales and install funnel remained constant or increased for everything except PV system design, which remains the most widely utilized type of third party software solution.



Increase year-over-year Decrease year-over-year

COMPANY OPERATIONS

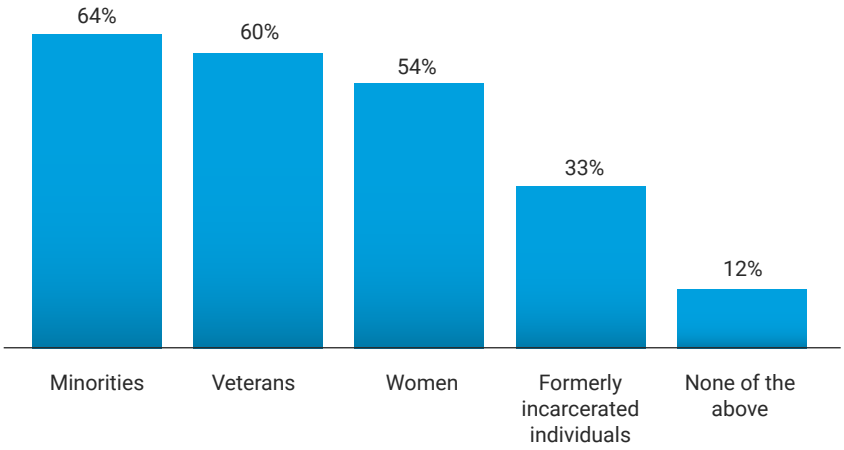
Diversity and inclusion

In 2021, 23% of solar companies tracked supplier diversity, a slight increase from 2020.

As the solar industry workforce continues to evolve and grow, a point of emphasis for the industry is ensuring diversity and inclusion is at the forefront of hiring and expansion plans. In fact, in 2021, the Solar Energy Industries Association launched a first-of-its-kind diversity, equity, inclusion and justice (DEIJ) certification to keep the momentum moving forward in the solar industry.

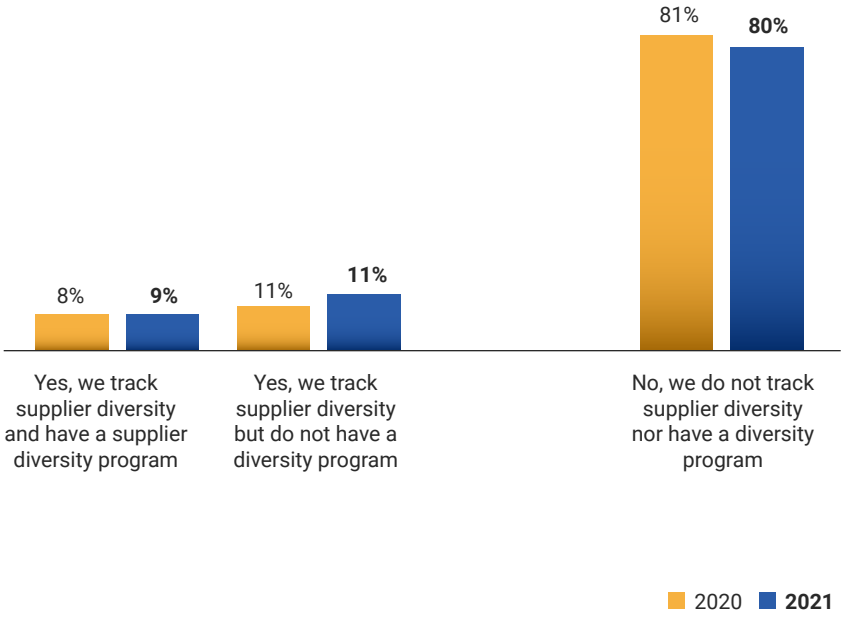
Slightly more companies tracking supplier diversity

For the third year, we asked installers if they track supplier diversity and, if so, how. In 2021, 23% of solar companies tracked supplier diversity, a slight uptick from 2020. Respondents are reasonably evenly split on how they track supplier diversity, with 29% saying they track it by professional service, 26% tracking by minority group, and 37% tracking by both.



Tracking hiring practices

For the first year, the *Installer Survey* asked respondents if they employ installers who are minorities, veterans, women or formerly incarcerated individuals. 88% of respondents employed solar installers from at least one of those categories of employees.



Get involved

To learn more about how you can track integrate DEIJ into your business's hiring and supplier diversity practices, check out SEIA's free Diversity and Inclusion resources and sign up for the first-of-its-kind DEIJ Certification at https://www.seia.org/initiatives/diversity-inclusion at https://www.seia.org/initiatives/diversity-inclusion.

POLICY IMPACT

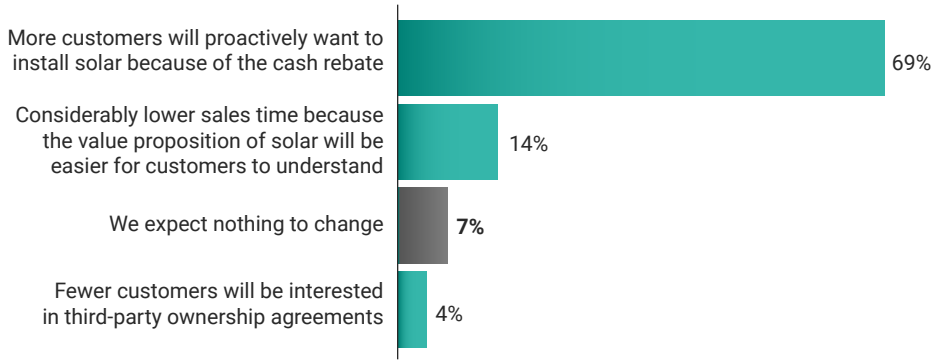
Impact of proposed changes to the ITC

Half of installers say they will begin hiring more people across teams if the ITC is extended for 10 years.

The success of the solar industry is closely tied to policy changes. Few policies have been as instrumental to the success of the solar industry in the US as the federal Investment Tax Credit (ITC). Though the ITC is currently slated to phase out over the next couple of years, there are a few policy proposals presently before Congress to tweak and extend the ITC. To gauge the impact of these legislative proposals, the Installer Survey asked how solar companies would react to the introduction of a direct pay option, to a 10 year extension, or to a complete phase out of the ITC.

The direct pay option

Overwhelmingly, installers are in agreement that a direct pay–or cash rebate–option for the ITC would drive more customers to proactively be interested in installing solar.

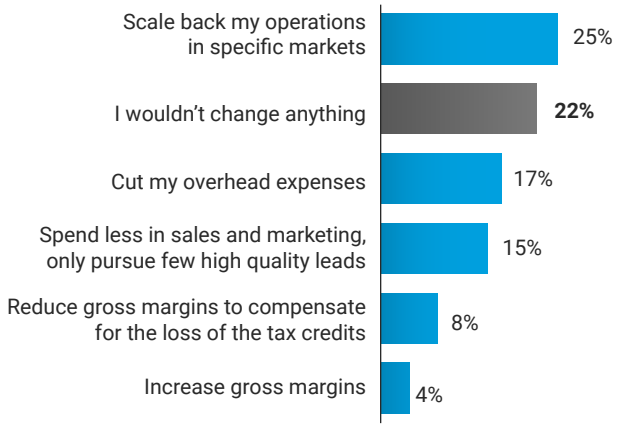


A 10 year extension

Half of installers say their first change after an ITC extension would be to hire more people across teams. Interestingly, nearly a third of installers say they wouldn't change anything in their business if tax extenders pass.

Phasing out the ITC

Conversely, a complete phase out of the ITC would lead most installers to scale back their businesses or business-related spending. About a quarter of installers say a phase out wouldn't change anything in their business.



TRAINING

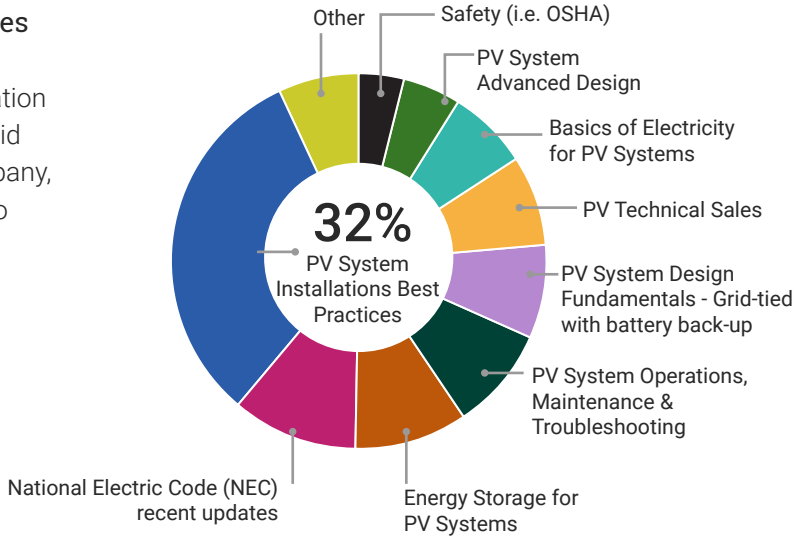
The role of training and education for today's solar employees

Solar installers would find additional training on solar installation best practices to be the most beneficial for their business.

For the first time, survey respondents indicated that a lack of trained labor was the largest barrier to growing their business, even ahead of customer acquisition (page 17). At the same time, installers pointed to their experience in the industry as their primary differentiator from competitors for the third straight year. With that in mind, NABCEP, the most widely recognized national certification organization for renewable energy professionals, asked installers about their training practices.

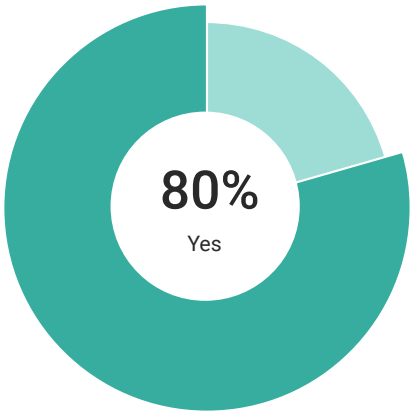
The biggest training need: installation best practices

When asked what type of solar training would be most beneficial, a third of Survey respondents said solar installation best practices. Interestingly, only one tenth of installers said training on storage would be most beneficial to their company, a similar percentage to those looking for recent updates to electrical code.



Most companies offer in-house training

This year, the *Installer Survey* asked whether solar companies offer in-house training for their employees: 80% of respondents say they did in 2021. For the 60% of solar companies that employ veterans, there are additional opportunities to offer training to their employees, as nearly half of installers agree that the GI Bill reimbursement benefits can further motivate their veteran employees to take solar training.



THREE YEAR PLANS

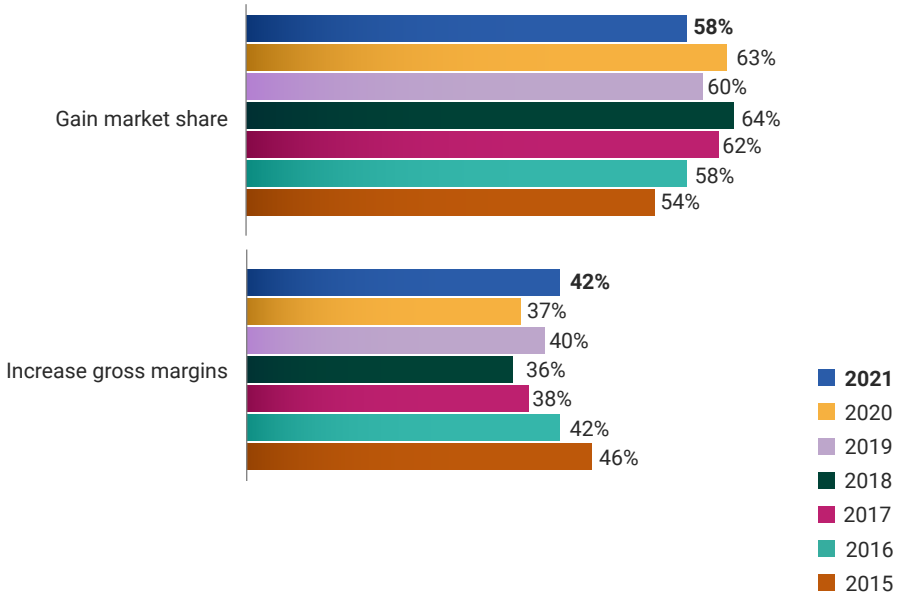
Gain market share or increase margins

Installers continue to prioritize gaining market share over increasing margins as the best way to grow in the next three years.

Each year, the *Installer Survey* asks installers about their three year plans for growth: will they seek to grow revenue through expanding their market share or by increasing their gross margins, and which activities will they undertake to reach those goals?

Market share vs. margins: which is more important?

For the seventh year in a row, a majority of installers indicated a preference for growing by gaining market share as opposed to increasing gross margins. A slightly lower percentage of installers favored gaining market share in 2021 than in 2020.



Top Strategies for Growth

The top strategies for growth among installers planning to gain market share focused on finding more consumers, while the top strategies for growth among those installers planning to increase margins were around finding consumers who they can charge a higher price for solar.

Top 5 strategies to gain market share

Installers ranked a total of nine options

1. Increase marketing and advertising spend to generate more leads
2. Leverage new marketing and sales channels
3. Increase geographic presence; enter new markets/ states
4. Install other complementary energy systems
5. Hire more installation crews

Top 5 strategies to increase gross margins

Installers ranked a total of ten options

1. Target customers with higher opportunity for profitability
2. Increase prices
3. Improve the efficiency of your sales processes
4. Use more cost-effective marketing and advertising strategies
5. Only offer additional services that increase gross margins

energysage

About EnergySage, Inc.

EnergySage is the leading online comparison-shopping marketplace for rooftop solar, solar financing, energy storage, and community solar. Supported by the U.S. Department of Energy, EnergySage is now trusted by over 10 million consumers across the country to help them make smarter energy decisions through simplicity, transparency, and choice. Unlike lead-generation websites, EnergySage empowers consumers to request and compare competing quotes online from a network of more than 500 pre-screened installation companies – a formula that is proven to result in a higher rate of adoption, 20 percent lower prices on average for consumers, and significantly lower costs for renewable energy providers. For these reasons, leading organizations like Intuit, Connecticut Green Bank, Duke University, Environment America, Kaiser Permanente, and National Grid refer their audiences to EnergySage.

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