

*Courtney Kendall:* Good afternoon. My name is Courtney Kendall from the National Renewable Energy Laboratory, and I'd like to welcome you to today's webinar. We're excited to have you with us today. We'll give folks a few more minutes to call in and log on, and while we wait, I will go over some housekeeping items and then we'll get going with today's webinar.

I want to mention that this webinar will be recorded, and everyone today is on listen only mode. You have two options for how you can hear today's webinar. Select either use telephone or use mic and speakers. If you select use telephone, use the telephone number listed when you log in, or is it in the box with the specific audio PIN you should use to dial in.

We will have a question and answer session at the end of the presentation. You can participate by submitting your questions electronically during the webinar. Please do this by going to the questions pane in the box showing on your screen and type in any question that you may have. Our speakers will address as many questions as time allows after the presentation.

Before we get started with the presentation, I'd like to introduce the speakers. Our first speaker is Ben Sigrin. Ben is an energy analyst at the National Renewable Energy Strategic Energy Analysis Center. He is the principal investigator of a multi-year grant from the Department of Energy studying residential adoption of distributed solar. His research focuses on policy, modeling, and market analysis of distributed energy resources.

Our second speaker is James Tong. James is the CEO of Advanced Grid Consulting, and brings expert knowledge of the soft costs of solar. Previously, he was VP of strategy at Clean Power Finance, where he designed and led three projects that were awarded a total of \$4.5 million from the Department of Energy's SunShot Initiative.

Also with us today is Alison Mickey. Alison is senior director of corporate communications at Spruce, a consumer finance company serving the US residential solar and home efficiency markets. She has also served as chair of the Solar Energy Industry's Association's PR committee, where she helped lead industry-wide public relations and communication efforts.

Now let's go ahead and get started with today's presentation. Ben?

*Ben Sigrin:*

Thanks, Courtney. Good morning. Again, my name is Ben Sigrin, and I'm the principal investigator for the NREL-led SEEDS project, funded by the US Department of Energy. Today, we'll present some of the data and analysis completed over this three-year project. The talk today, "Why Do People Go Solar Or Not, And What Makes Them Advocates?" is the second part in a three-part webinar series. Our third and final webinar will be on June 29th, titled, "Solar Aspirations and Disinclinations: Learning from 3,600 Households." You can find recorded audio, slides, and much more content on our website, [www.NREL.gov/SEEDS](http://www.NREL.gov/SEEDS).

As the project wraps up, we'll be posting additional content as it becomes available, including the survey data presented today, which will be released later this summer.

The talk today will center – yeah, please – the talk today will center around two ways that we analyze the data. First, what distinguishes solar considers and adopters, and then second, what distinguishes solar promoters and detractors.

First, let's give a brief overview of the SEEDS project. The SEEDS project was a comprehensive three-year project funded by the Department of Energy's SunShot program to understand the drivers and barriers of customer adoption of rooftop solar. Our research team included NREL, Spruce Finance, and several other academic experts in psychological and behavioral theory.

Though the residential solar market is vibrant and growing, and installed costs have steadily decreased over time, cost of acquiring customer remains a stubborn and large component of overall system price. So that was one of our main research questions, how to improve lead generation and conversion, and particularly when thinking about how the market could transition from a niche to a mainstream product.

Also, I want you to know that today's webinar focuses on findings that are more applicable to and actionable for solar companies, though the results here represent a portion of our overall work, which will be documented in other webinars, as I mentioned, and also other research papers. Next slide, please.

Before we get into the results, a word about the data. To better understand the drivers of solar adoption, we surveyed three key groups. First, we surveyed 1,300 individuals from the general

population that hadn't adopted or considered solar for their homes, and we filtered on characteristics that would make these individuals more likely to become potential customers, things like home ownership and other sociodemographic factors.

We also surveyed 600 solar considerers or home owners that had interacted – had previously interacted with a solar installer at some point, but hadn't yet adopted. And then finally, we surveyed 1,700 individuals that had adopted solar for their homes.

So by comparing these three groups, we can better understand the factors that predict why someone would first become interested in considering solar, and then the factors that might predict why they eventually adopt. Within the adopter population, we further analyzed people that were very happy with their decision to have gone solar, or promoters, as well as their counterparts, people that were dissatisfied with their adoption decision.

The first part of this webinar will focus on comparing considerers and adopters, and the second part to promoters and non-promoters, though I should note that there are many potential comparisons which could be completed, and these will be the subject of some of our future work.

So now I'd like to hand over the microphone to my friend and colleague James Tong from Spruce Finance. James, please proceed.

*James Tong:*

Thanks, Ben. So in the first part of this presentation I'm covering, we're going to talk about considerers versus adopters, and what are the differences. Next slide, please.

Before we talk about the differences, I want to ground everybody on how we looked at it, and make sure we have a common understanding of the solar sales process. As you can see, solar is – there's a two-step process. First, you have to get a prospect interested in solar, and they become a considerer. This corresponds to what many companies in the solar industry call lead generation. They become a lead.

And then once they become a lead, they have to then become an adopter, and this is where sales conversion comes into play. Now what we found is – and I'm sure – and a lot of people could testify to this, but the concerns around consideration versus adopting are different, and what we see is that the less familiar your customer is,

the more basic concerns.

For example, you see common barriers between general – \_\_\_\_\_ from the general population to interest. The common barriers are wide misperceptions about the cost of solar, concerns about whether solar is suitable for someone's home, and skepticism of the benefits.

Now when you get to the consider phase, when customers are already interested in solar, they tend to focus on second order concerns, like do they have enough money to go solar, or can they find a trustworthy installer, or trying to get everybody agreed in the household to go solar.

And what we've found is that you really do need to target customer concerns sequentially. You can't talk about, for example, solar financing options, if people are skeptical of the benefits of solar. Next slide, please.

So in this slide we talk about the two step process, and how competition can affect that. Now what we see is that when people see more installations or hear more people talking about solar, this actually increases their familiarity with solar, and in fact, you can see that considerers and adopters are – have a higher tendency to know or have seen solar on other people's roofs. Keep in mind, though, when they see other people's solar, they don't necessarily know who installed it. It could be yours or it could be your competitor. So the fact that they've seen solar will increase the familiarity. That in essence lowers the bar for – lowers the barriers from getting someone who doesn't know about solar to somebody who is considering solar. So that's the first step. It lowers the bar for the first step.

Now this is where competition can help, because it's in the sense expanding the number of customers who are interested in solar. Now many of you may object and say, well, competition also hurts because it siphons away sales and depresses prices, and that is true, and competition can affect the second step, the barriers for removing from considerer to adopter. But as you see in the next slide, the losses to competitors are piling to comparison to losses to uncertainty and lack of interest. Next slide, please.

Wait. Okay. So consider that – this is the slide. Okay. And so what we did is that we analyzed the considers to see whether they are still interested in solar or not, and what we found, first of all, that

there are ten times more people considering solar than adopting solar. That means that more people are stuck or are stalled at the consideration phase. So when you're losing sales to another solar company, you're likely losing a lot more to customers that – who have not pulled the trigger on solar.

The good news for solar installers is that most people who are stuck in the consideration phase are still potential customers. You can see that 85 percent of them are still considering. Of those 85 percent, 61 percent is considering or undecided, and 24 percent have decided by haven't signed, and that's often because they face some late rising issue, like finding the right installer or coming up with some money.

Now 11 percent have dropped altogether, and 4 percent are unknown, but that leaves a big group of potential customers out there that are – that solar installers have contacted, and that are still interested in solar. So there's a wealth of opportunity here.

So what makes a considerer different from an adopter? And this goes into the next slide, please. So we looked at the considerers versus adopters on a demographic variable, and we looked at different demographic characteristics, and for the most part, they look the same. You can see the political stance, whether they're conservative or liberal, conservatives – considerers and adopters are evenly split among the political spectrum. Education, they're also pretty much distributed evenly around education. And in terms of financial, this is a question where we asked if they could – whether they could meet the basic expenses or live comfortably, and you can see most considers and adopters tend to be on the more financially comfortable side. So there's not a lot of differences here. So next slide, please.

So we looked at motivations and concerns. On the motivation, again, there's not a lot of differences here. As we all know, lowering your electricity cost seems to be the most important motive for going – for considering or going solar. In fact, a lot of the things that score high are economic reasons, like getting a return on your investment, a protection from rising electricity prices, and adding to your home's market value.

What was surprising, though, is that if you look at being able to use renewable energy, which is on the top right chart, the fifth line down, considerers and adopters are – rank that both very highly, and we almost saw no significant – it says they saw no significant

difference. For the record, anything that's listed in red notes statistically significant differences.

This is surprising for us, too, that the renewable energy ranked so high among both considerers and adopters, but this is not to say that using renewable energy alone is the primary drive. What we found is economics is a primary driver. Being able to use renewable energy is an added benefit, but if you don't have the economics, typically, being able to reuse – use renewable energy isn't enough to get a person to adopt solar.

Now let's go down to concerns. You can see *[audio glitch]* one thing I'd like to point out is that taking on debt or signing lease, for considerers, they are somewhat more concerned about taking on a debt or signing a lease, and this gets into what the differences are, which we'll speak to on the next slide. Next slide, please.

The biggest difference is really financial resources. Considerers simply had more difficulties. As you can see on the chart on the lower left hand corner, considerers had more modest incomes than adopters, and then we asked a question, while considering solar, how much difficulty do you have with the following, and not surprisingly, the considerers had more difficulty across the board on different variables there. The biggest one that was most notable was coming up with the money to go solar. And if you reference that to the previous slide, where we talked about considerers are more concerned about taking on lease or debt, you can see that financial concern in general is a bigger concern for considerers.

Now it should be noted, though, that on the slide on the right hand – lower right hand side, it's not that considerers had a lot more difficulty. It's that the adopters had very little difficulty, because for the most part, considerers had some difficulties. So what you're seeing is that while financial consideration is a primary barrier to adoption, it's likely a confluence of different challenges that's preventing them to go solar, and finances is probably the top of the list of challenges.

And the good news here is that because most of the considerers are still considering solar, this suggests that a lot of these challenges are not necessarily insurmountable. Next slide, please.

Now all this tracks well with – in the academic literature, what they call diffusion of innovation theory. This is how technology or innovation spreads from one customer segment to another, and it's

– this slide – the graphic is taken from a famous book called *Crossing the Chasm*. It kind of builds – which builds upon diffusion of innovation theory.

In general, for new technologies, the innovators and early adopters are often trendsetters and less risk averse. Those who come later are more driven by practical considerations. They need more proof of benefits. So the early adopters may be more willing to take on an unproven technology. This doesn't necessarily mean that they're completely impractical. It just means that they're willing to – they're less restricted by practical considerations, whereas the later adopters, they like to see more people going solar or using a technology as a proof point that, hey, this is – this technology is good for me. So they're waiting for other people to adopt.

And I think the data that we've come across in comparing considerers to adopters supports this, because you see that considerers are more restrained by practical consideration related to money. Next slide, please.

So to sum it all up, here are some key takeaways from considerers versus adopters. Considerers and adopters are very similar, except on financial resources. Considerers, concerns vary depending on customers' familiarity with solar. Those less familiar with solar tend to have very basic questions and concerns. And those who are more familiar with solar tend to have second order concerns, like finding the right reseller. And competition can be a good thing by expanding the pie of customers who are interested in solar. Now competition can be bad because eventually you're going to have to divide the pie among the competitors. But because solar is such a young industry and there's so many opportunities out there, the effect of expanding the pie is likely to be much larger than the negative impact of having to divide the pie among competitors.

Now there's a potentially large opportunity among old leads. We saw that 85 percent of them are still considering solar. Now the hard part is trying to break through the clutter and get to them. We've found that a lot of these considerers were not very responsive to the surveys. And finally, the findings are very consistent with diffusion of innovation theory. Early adopters tend to be more about making a statement, while later adopters tend to be about choosing things for practical considerations. So next slide, please.

So in this next section, we want to explore those customers who

are adopters, what makes them more satisfied, more willing to refer other customers? We know that referrals are the best source, at least the most cost effective source, of getting new leads. So here, we look at the adopters and compare promoters versus non-promoters. Next slide, please.

Before we get into the details of this, I want to give everyone an overview of what we call the net promoter score, which is a common measure of customer satisfaction using one question. The question typically revolves around asking a customer how likely are you from a scale to 1 to 10 to recommend a certain product, a certain business, a certain company, etcetera? And those who score 9 to 10 are considered promoters. They're extremely happy. And those who score 8 to 7 are considered neutral, and those who are scored below that are considered detractors.

And the net promoters score is determined by subtracting the percentage of detractors from promoters. So in theory, the top score that one can get is 100, where you get all people who are promoters, and the lowest score that one could get is a negative 100, where everybody is a detractor.

Now in our SEEDS survey, we asked really two questions. One is how likely are you to recommend solar panels to a friend or neighbor, and how likely are you to recommend your solar installer? So we want to distinguish whether customers were happy with solar in general, and whether they were happy with their solar installer.

So how did the solar industry do? Let's look at the next slide. Solar customers are extremely satisfied. For the solar installers listening to us, you can congratulate yourself. The NPS for solar panels is 63, or the net promoter score for solar panels is 63. Net promoter score for installers is 62. And the chart below that shows you the spread of the answers. So the average is – you can see for the solar industry, it's the average of 63, but the graph shows the range of the different – where the answers lie.

Now you can see also that the solar panels scored higher than solar installers, so that means that people – people were – there are a significant number of people who are happy with their panels, but weren't necessarily happy with their installer, and we'll explain – get into some of the reasons why a little bit later, but for now, let's compare the solar industry with other industries, and this is taken by Satmetrix, which is a company known to do net promoter scores

by different industries.

As you can see, most companies score well below 50. In fact, 50 is considered an excellent score, and so the solar industry is doing very well.

On top of that, most solar customers are making referrals. Eighty percent of respondents refer their customers to an average of three other people, so customers are extremely happy.

So what makes a promoter different from someone who is a non-promoter? Next slide, please.

So promoters and non-promoters are very similar demographically as well. You see their financial situations are very similar and their political stance is very similar. The education is very similar. Now to – for those who are more statistically oriented, there are two things I have to clarify. We collapsed – usually in the NPS there's promoters, neutral, and detractors, but we collapsed neutral and detractors simply because those groups were significantly smaller and to have meaningful comparison required us to have – to collapse the two groups.

And number two, there were a number of people who didn't – had no response. So the – so the distribution doesn't necessarily add up to 100 percent, and that's the – that's the discrepancy that you may be seeing. Next slide, please.

So we looked at motivations, and what we see is that promoters care much more about environmental benefits. Again, we – again, the most important thing – excuse me – is lowering your total electricity cost, and then there are other factors, like getting a return on your investment, which didn't score as well, but scored nevertheless pretty high.

But if you go down to being able to use renewable energy, you see that promoter score significantly higher, as that being very important. The non-promoters scored it as more closer to moderately important. And on the – the charts on the right hand side are callouts to show you explicitly – more explicitly the distribution, and you can see how important was being able to use renewable energy. The promoters overwhelmingly put that as extremely important.

So you can see that potentially – what this data suggests is that

potentially the promoters were more excited about green causes, and this suggests, doesn't necessarily prove, but it does suggest that perhaps the – being able to go green gave the promoters additional satisfaction that made them into promoters, whereas the people who were not promoters didn't care about that so much. So they were more intent on the economic benefits. And this is important as we go through the next two slides. Next slide, please.

So we see that promoters, not surprisingly, had a better experience overall with their installation. We asked the question if the installation went smoothly, installation was prompt, and promoters were on the strongly agree side of things.

It's important to note, though, that while non-promoters didn't agree as much, they did generally agree that these things weren't much of an issue, and that installation was – like the installation did go smoothly, even for non-promoters. What we found was the biggest difference is – in a separate question, where we asked them how – their actual bill savings compared to what was estimated to them, and as you can see, the promoters were far more likely to meet their actual – their estimated bill savings or exceed their actual bill savings, whereas it was almost the opposite for non-promoters.

So this to us was the smoking gun on what drives satisfaction and dissatisfaction, and in fact, it corresponds a lot with academic literature on customer satisfaction. It's not necessarily about absolute performance, but it's performance relative to expectations. Next slide, please.

And this goes – and building on what I just said about expectations, the slide is consistent with that. What we see is that, again, customers who are considered promoters actually had more difficulties during the process. Now most of the difficulties were generally small and not – didn't happen, and the differences were small, but you can see that the – in general, promoters did have more difficulties. Now this seems paradoxical, because you would think that somebody who had more difficulties would more likely rank solar panels as being lower, and we had some possible explanations for this.

One, promoters, recognize the difficulties that – these difficulties are outside the installer's control, and perhaps may have seen the installer as going above and beyond in resolving these difficulties. Another possibility is that promoters are more willing to overlook

problems. We saw that they were more motivated by green causes, so that perhaps this extra motivation allowed them to overlook the hiccups of the installation.

And finally, a third hypothesis is perhaps installers were just better at setting expectations for promoters. If you set the expectations correctly about difficulties, customers are more willing to accept the difficulties. And this dovetails into the next slide. Next slide, please.

So if you take this – if you take all the data as a whole, what the data suggests, it doesn't necessarily prove, but it does suggest that a lot of what drives dissatisfaction is just over-promising. As I stated before, satisfaction depends on not absolute performance, but performance relative to expectations. As we saw, a lot of the customers who were considered non-promoters didn't get the savings they had expected. In fact, we saw that 8.5 percent of adopters expressed regret about going solar, but however, the mitigating news is that 35 of them are still solar promoters, so they were – that just means that they didn't necessarily like their solar experience, but they still liked having solar, and would consider – would recommend it to other people.

Now common reasons for regret, and these are taken from the written responses from the respondents, and a common one that came up was not realizing anticipated savings, again, corroborating what we saw with the survey question. Another one was leasing the system instead of buying. And another one was didn't shop around for a better installer.

An interesting statistic we came around was that non-promoters were 30 percent more likely to have reported their interest in solar was prompted by a seller approaching them. Now if you – this taken alone may not mean a lot, but when you look at the other contextual evidence out there, it's possible that these non-promoters were sold – were approached by a solar seller and then promised different savings or different aspects, and then did not realize that – those aspects. Oftentimes, when you're approached by customers, they did not necessarily do as much research on solar.

And again, another corroborating data point is that promoters were 15 percent more likely to have shopped around. Net promoters were more likely to look at at least more than one installer to go solar.

Now again, I want to clarify that that doesn't mean that the promoters necessarily got a better deal. It does – it could be the fact that by shopping around, the promoters felt that they got the deal that was most fair, whereas somebody who didn't shop around may have gotten a good deal, but because they weren't able to compare, they may more likely have buyer's remorse. Next slide, please.

So to sum it up, these are the key takeaways from promoters versus non-promoters. If you get more solar promoters, you're going to get more solar considerers and adopters, and hopefully, if you get – make them become more promoters, you create this virtual cycle of creating more solar considerers and adopters. The net promoter score for the solar industry is stellar, and I think the solar industry should be proud about that.

Secondly, promoters and non-promoters are demographically very similar. Where they differ is oftentimes around the motivations. The promoters had a lot more non-economic motivations, a lot more concerns about the environment. And what we see is that delivering on expected savings was the biggest difference between promoters versus non-promoters.

Again, finally, I want to emphasize that customer satisfaction depends not necessarily on absolute performance, but performance against expectations. Next slide, please.

So I'm going to hand this off to Alison, who will talk about what this means for the installers and the industry.

*Alison Mickey:*

Thanks so much, James. So as Ben said at the beginning, one of the study's goals was to provide actionable takeaways from companies in the industry, so that's what this section is about. The first thing we'll start with is implications for solar installers and recommendations for their business based on the data that we found.

So the first one is don't give up on old leads, right? As James pointed out, the vast majority of people who considered solar but didn't adopt are still willing to \_\_\_\_\_. You've already done the hard work of getting the initial interest, so don't throw that away. You can keep track of old leads using CRM tools as customer relationship management tools, like Salesforce, and you can set reminders to check in with people periodically.

Second is understand specific concerns. Again, as James explained, solar is a two-step process. You sell someone on solar, and then you sell them on going solar. The general population and considerers have different concerns, and it's important to understand what those are, so you can tailor your pitch appropriately. For instance, people need to buy into the benefits of solar before you can start selling them on why you're the best installer, or why a loan is better than a lease, which we hear a lot about.

This is also actually best practice from a marketing perspective in general. A key part of sales and marketing, as most people on this call probably know, if not academically, at least from experience, is personalization, making potential customers feel that you understand them and can address their needs and their concerns, so taking time to understand what hurdles, either real or perceived, may be holding people up, definitely pays off.

Number three is incorporate more consultative sales tactics. So increasingly, consumers will want you to be more of a partner than just a salesperson trying to seal the deal, and this is a tricky one. We know it's hard, and that solar companies are under enormous pressure to deliver sales. But the high pressure, one close – or sorry, one call close tactics, may not work as well on people who are less familiar with solar, who have more doubts about its benefits, or who achieve more modest savings, and these are customers installers will increasingly encounter as the solar industry matures and the low hanging fruit, so to speak, of people with high electricity bills gets picked.

Going solar is a big decision. People are either making big financial commitments if they buy the system outright or take out a loan, or they're signing a long term contract with a lease or a PPA, and all of these options require some sort of long term commitment, and you can't sell or return a system like you do with other goods.

So for many people, the idea of making that kind of decision based on one home visit or a phone call is frankly unthinkable. Solar is relatively expensive. It's bolted onto your most expensive possession, for most people. And there's often a decent alternative that people may never even seriously have thought about, namely, electricity from the grid.

So the outcome and the takeaway, then, is put more sales tactics in your toolkit and use a more consultative approach. Be a trusted subject matter expert for people who want to shop around. And get comfortable with people shopping around, because that's probably going to happen more and more.

The next one is get third party validation. So the global PR firm Edelman does an annual survey called the Trust Barometer in which they survey thousands of people from dozens of countries to determine levels of trust in various businesses and industries, and they've found that people trust academic and technical experts and, quote, people like me, more than industry analysts, company employees, CEOs, or government officials. Frankly, we don't need the Edelman study to tell us this, right? The popularity of sites like Yelp or Trip Advisor is evidence that external validation by average people, people like me, can meaningfully impact people's willingness to trust a company. And solar professionals especially know that referrals from people like me are a crucial sales tool.

So that takes us to the next recommendation, which is check in with your existing customers. They can be an incredibly powerful sales and marketing tool, especially since, as James noted, 80 percent refer their installer to several other people.

Cultivate an ongoing relationship with customers, even after you've closed the sale. Ask them if they're happy, and if not, ask what you can do to help. If customers are happy, you can ask them to write positive reviews or provide testimonials for your website or serve as references for new customers, and this allows you to use their satisfaction as a proof point for more people than they might talk to directly, right? Because most people refer to people they know. Bottom line, checking in with customers can make a huge difference to your brand and your sales.

The next one is set appropriate expectations. As James explained, customers' expectations, especially around savings, are key determinants of their consumption experiences and satisfaction. There's a Harvard study that suggests that loyalty and satisfaction have a lot more to do with how well companies deliver on their sort of fundamental, no frills promises, than on how dazzling the sales or service experience might be.

And we see that, for instance, in Southwest Airlines, versus the, you know, big three air carriers, Delta, US Air, etcetera. Southwest, very basic service, consistently ranks tops in customer

satisfaction surveys. They're the epitome of a no-frills company, but they deliver on that consistently, and that makes people happy. So your promises don't have to be extravagant. You just have to meet them consistently.

And James also mentioned potentially setting appropriate expectations about potential difficulties can make customers more sympathetic and potentially willing to forgive than if they encounter surprise hurdles. Nobody likes surprises, especially if it's something that's, you know, getting put on their house. For instance, if you're in a jurisdiction with particularly onerous permitting requirements, give customers a heads up about possible delays. Just prepare them.

And then setting appropriate expectations for savings and delivering on them is not only frankly a serious consumer protection issue, but is also, based on the data, the best way to ensure customer satisfaction.

The next one is find new points of differentiation. So in a crowded market, one of your best options is to differentiate yourself, sort of marketing 101. That could involve promoting the fact that all of your installation crews are NABCEP certified, if you're pursued that, or it could be something specific to a certain locale, such as donating a percentage of each sale to a charity, maybe in a district or neighborhood.

The next one is don't just sell on price. This point is critically important. As we move towards mass adoption, people tend to evaluate the economics of solar more carefully than did early adopters, again, as James pointed out. Where most of the industry goes wrong, however, is conflating the cost of solar with the price of solar, and thinking that all that matters to a consumer is bottom line price, kilowatt per hour or the monthly lease payment.

In reality, price is just an explicit cost of going solar, and there are also significant implicit costs in going solar, such as the risk of new technology. We take a risk if we use a new technology, or policy uncertainty. But those are rarely if ever included in solar companies' calculations.

But implicit costs have enormous influence on adoption rates. For instance, I was talking with James a few days ago, and he said his sister could save a lot of money by going solar, but she hasn't, because she's worried the installation will damage her roof. So the

price could be really low, but if risk and uncertainty are high, and those implicit costs are high, people won't adopt.

Further complicating the situation is that these implicit costs vary by customer. Each person perceives risk and uncertainty differently. Not only that, but the bar to overcome those implicit cost concerns will be higher for later adopters, and who, as James again pointed out, tend to be more practical minded and require more proof points.

So perceptions matter when we calculate value and cost, which is why differentiation, setting appropriate expectations, and cultivating happy customers, can be key elements of success.

And this brings us to the last point, grow your business for the long term, not the immediate sale. All of the above points essentially come down to this, right? We need to operate our businesses as if you're going – we're going to be around for years. Yes, everyone wants volume, and everyone wants the sale today, and people have sales quotas, but a business's longevity depends on more than its ability to close sales today.

Unfortunately, many companies grappling for sales risk not spending time on things that seem of secondary importance, but are actually quite impactful, like checking in with existing customers, circling back with old leads, earning a NABCEP certification, or trying a consultative, softer sale tactic.

Equally important, companies focused on the immediate sale may be tempted to cut corners or over-promise, and this puts not only their businesses at risk, but damages the credibility of the entire industry.

So a lot of these recommendations are about mitigating uncertainty for your customers and your business, but there's only so much installers can do individually, especially smaller companies. A good way to minimize uncertainty is to leverage the power of the industry. So next slide, please.

So for the industry, one of the top things we can do is create recognizable standards. The standards are both business standards, financial contract, equipment warranties, etcetera, and technical standards, like interconnection standards or interoperability of components. And the industry can help provide credible information to and set appropriate expectations for a public that is

still largely unfamiliar with solar. This requires cooperation among the industry to provide credible information. We can't get to adoption without consideration, and both consideration and adoption are stymied by perceived uncertainty and risk. So anything we can do as an industry to minimize that uncertainty will help all of our businesses. And frankly, if someone's hearing from an industry, they're less likely to think that the information that they're being given is sort of self-serving.

SIA is doing great work on this from a consumer protection and residential solar contract standpoint. They've standardized and formalized best practices and templates so consumers know what to look for and what to expect, and they've also developed a solar business code that members must adhere to, and the point of which is to let customers know that they can trust – you know, trust this company, because it signed onto this code.

Competitive FUD can hurt everyone. When you sell solar, you may feel like you're selling against other companies, and in some cases, you definitely are, but mostly, because market penetration even in major solar markets is still so small, you're selling against consumer unfamiliarity with or uncertainty about solar. You're really selling against the grid, electricity from the grid. So as James noted, more solar installations will likely increase familiarity with solar and lower barriers for consideration. But for a product that's not well-known or established, FUD nearly exacerbates the implicit costs in consumers' minds, and by spreading FUD about competitors, you might be amplifying existing confusion among the target market, thereby making it less likely they'll adopt either from competitors or from you.

And then lastly, stable rate design and NEM policies, NEM, net energy metering. As in the previous point, uncertainty about solar or solar products hurts everyone in the solar industry, and this is especially true of policy uncertainty. The reason we have this on the industry slide is that most companies are too small to have a dedicated policy team, and the best way to sort of fight for the policies that will support solar and mass adoption is to work on an industry level.

So the risk involved in going solar obviously increases exponentially if a utility might change their rate design in the future because it calls into question savings assumptions for customers. We're not going to take a position on NEM or rate design, but it's undeniable that the savings people are promised are

affected by it. So if policies change, you change outcomes versus expectations, which we've shown represents a major source of dissatisfaction amongst solar customers. So the takeaway from that is these matter, and the best way to handle them is to work at an industry level, sort of cooperation, if you will.

So I'll turn it back over to Courtney, I think.

*Courtney Kendall:* Thank you, Alison. I'd like to thank Ben, James, and Alison for their great presentation. Now we have a few moments, and we'll take the time to get started with our question and answer session. And we will get to as many questions as time allows. And if you do still have a question, please feel free to enter it into the questions pane on the toolbar, and we'll go ahead and get started with that.

Okay. What is the meaning if they are aligned or different? I believe that question came during James's presentation.

*James Tong:* Can you respond – can the person asking the question clarify what they're referring to?

*Courtney Kendall:* Referring to? Yeah. So I'll move on to the next one.

*James Tong:* Oh, that's okay.

*Courtney Kendall:* Okay. Is it possible to see the actual survey and data set of responses?

*Ben Sigrin:* Yeah. I'll take that one. This is Ben Sigrin. So as I noted at the beginning, we are planning to release both the survey forms, the instruments, as well as the data. Those don't have a definitive plan yet, but our expectation is that those will be available later this summer, so a month or two. From our side, the challenge is that the data could contain identifiable information, so we want to first make sure that no one's anonymity is compromised before we share it publicly. But that's definitely our point, is to get this data out there, so that other industry, other researchers can analyze the data, because what we presented today is just a small snapshot of what's available in the data set that we collected.

*Courtney Kendall:* Okay. Based on these recommendations, what can we do to help solar installers develop their soft skills – let me see – the business acumen needed to run a profitable installation company?

*Ben Sigrin:* James, do you want to address that one?

*James Tong:* Yeah. Alison, go ahead.

*Alison Mickey:* Oh, I was just going to say, I also defer to James, but one thing that just popped to mind, since we're sort of heading into conference season, is for conferences like InterSolar or SPI or the more regional conferences, Solar Power East, etcetera, to offer classes on that, or educational sessions. I think SIA frankly could also do webinars and things to try and up the entire industry's acumen. James?

*James Tong:* Yeah. I'll answer that. I think there's no obviously silver bullet to this. I think there are things that you could increase the odds. I think the most important thing, especially when you \_\_\_\_\_ customers who are less engaged and less familiar with solar, and who are less – who are more pragmatic, I think the most important thing is just understand their concerns and needs. What I see is a lot of customers – sorry, a lot of solar companies out there that don't even ask the questions, like what makes you interested in solar?

And then once you understand those, that informs how you want to approach solar. Another question is do you know people who have gone solar? Right? If they know people who've gone solar, they're likely more familiar with solar. If they don't know anything about solar, then you'll probably have to start with a very basic solar 101 before you can talk about the different options.

I think the most important thing is understanding where the customers' needs are and what their knowledge is, and then tailor your message accordingly, and there is no one size fit all, and it is one that requires a lot of practice. I think there are certain salespeople out there that are really good and are naturals. For most people, including myself, it's one that requires practice and it's one that you have to do what feels right for you.

*Courtney Kendall:* Okay. We've had a few questions here on can we get these slides, and yes, these will be posted. After the webinar, the presentation files will be posted on the link on your screen, so you can go there and we'll have that posted [*audio glitch*].

And back to that first question that I was asking you, James, we got some clarification. So this person \_\_\_\_\_ there was an element on the slide before \_\_\_\_\_ biggest difference, financial \_\_\_\_\_ were

statistically different. What does it mean when they are similar or different for each of those?

*James Tong:*

Okay, that's – okay, I understand the question now. So when we asked these questions, we compared two different groups. Let's say how important is it to you to lower your electric bills? When we say significant – when there's no statistical significance, that just means that one group, say considerers, see the importance of lowering electric bills as evenly as the adopters. But when there is statistical significance, it just merely means that there is a – something going on there that one group is seeing is much more important than the other. Now that doesn't necessarily mean that this – a statistical significance doesn't necessarily mean that this is what's driving the overall picture. So what I'm saying there is that if something is statistically significant, that doesn't mean that is the driver of why somebody's going solar. It just means that these customer groups that we're comparing view that particular question differently.

*Courtney Kendall:*

Great. Thank you. What are solar marketing messages you – what are the solar marketing messages you see a lot that are actually not effective? What should we stay away from?

*James Tong:*

That's a good question. That's something we are testing right now with an experiment, and we don't have the results yet, but I think – I don't want to definitively say what is effective or what is not effective, but what I can say is that there are certain things that come up a lot, which is that solar saves money now, like the zero down that comes up a lot. I think it could be effective from driving interest, but it could also put you in a hole of, okay, when people find out that it's a solar lease, they get disappointed.

I think more than anything else, the – I think what customers are really confused about is just the cost of solar. So we've been testing ads a little bit, and people just want to know what is the cost. That's what comes up with it. So the more clarity you can provide on cost – and you're not maybe – you may not be able to discuss that in an ad, but what you can do is refer people to a resource, ideally that's hosted on your website, that discusses the cost of solar.

Again, to get to lead generation, it's almost like you have to create interest, but in an honest way, in a more \_\_\_\_\_ way. It will work. Don't get me wrong. It will wrong on a lot of people. But when

you move on to more pragmatic customers, you'll get more skepticism about those type of ads.

*Courtney Kendall:* Great. Thank you. Is there any way to know how important premium panels are versus conventional panels produced overseas?

*James Tong:* I can't answer that.

*Courtney Kendall:* That's fine. Are your programs extended to the Caribbean and internationally?

*James Tong:* Yeah, we focus on the United States here, just for purposes of getting meaningful data constraints. By doing a broader research, we would mix in a lot of other variables that could confound the findings.

*Courtney Kendall:* Okay. What do the trends are seeing and moving to prosumer models mean based on this study with regard to crossing the chasm to the mainstream market?

*James Tong:* I'm sorry. Can you repeat the question?

*Courtney Kendall:* Certainly. What do the trends we are seeing in moving to prosumer models mean based on this study with regard to crossing the chasm to the mainstream market?

*James Tong:* So I don't want to get into too much details about crossing the chasm, but it goes back to getting the right reference points, right? And what the theory post – what the book postulates is that to get across the chasm, you have to reach to the late – sorry, the early majority. And the early majority are practical people, and like Alison said, people like to get references from people like them.

The challenge with the early majority is that they don't necessarily see the early adopters as people like them. So this is why there's a chasm, because you have a bunch of early adopters who are adopting, but then as you get to the early majority, you need to get into – you have to sell solar to more practical people, and then use them as a reference. But that presents a chicken and egg problem, because if the early majority will only buy when other early majority will buy, who will be the first early majority to buy?

I think what the book recommends or what the theory recommends with this is that you pick a certain segment within the early

majority and just dominate that segment. \_\_\_\_\_ demographics \_\_\_\_\_, like senior citizens, or it could be a geographical segment, like a community in a certain location. You dominate the segment, and then you spread out from there.

Now our data doesn't really provide much recommendations on that, because we've got to keep in mind, a lot of the people we survey are considered early adopters. Even the considerers may exhibit some of the early majority characteristics. They are in the grand scheme of things early in considering solar. So to really understand the question, it's like we would have to take another snapshot later in time.

*Courtney Kendall:* Okay. Great. So we have time for probably one or two more questions. So any plans to do similar studies for the commercial market?

*Ben Sigrin:* This is Ben. So no, the short answer is no, we don't have any current plans to do that kind of study, although I would personally love to be able to do that, because I think that is a big missing piece in this line of research, to understand commercial decision making and how firms make those decisions or not. So I would say no, we're not currently funded to do that study, although there is the possibility of partnering with an interested organization, if they are interested in studying that question further.

*Courtney Kendall:* Right. Okay. The last question. Are there plans for more installer customer surveys, and is there opportunity to participate in the research?

*Ben Sigrin:* Let me take that one, too. So in short, no, unfortunately. So this was a three year project. The project ends next month. So there aren't any ways to participate in the research going forward, although we did propose some additional research for the next year to the Department of Energy. Our future line of research will look at adoption in low and moderate income households, and we're also trying to understand the option of community solar and other shared solar kind of business models.

So apologize for that, but we will plan to, as I mentioned, to release the data and the surveys that we did, and so you should be able to use those to survey your own customers, if there's a question that you're interested in answering yourself. Courtney?

*Courtney Kendall:* Yeah. Thank you very much. And with that, that is all the time we have today. I do want to mention that we do have another webinar in the SEEDS webinar series on Wednesday, June 29th, and I have the presentation link up there, if you'd like to go ahead and register. And I want to thank your speakers for today, Ben Sigrin, James Tong, and Alison Mickey, for their time today. And thank you all for joining us. So that concludes today's webinar. Thank you for attending, and goodbye.

*[End of Audio]*