

Jenny Heeter:

Hi everyone. Thanks for joining us. This is Jenny Heeter at the National Renewable Energy Lab and I want to get started with our webinar today on community shared solar, or shared solar.

Before we get started I have a few introductory remarks to make just about housekeeping issues. So we have a number of things just to go over about how to use the webinar platform and things like that.

The first is that – if you could go to the next slide, actually – everybody today has joined in listen-only mode, so when you do have a question please submit that through the Q&A panel. We will be taking questions after both of our speakers have presented today, but feel free to enter those questions in whenever they come up for you.

And then lastly we are recording the webinar, and we will post the slide deck as well to the green power network. The direct link is there below, but if you could just go to GreenPower.energy.gov you can find a link there as well.

Next slide.

Just a bit of background about our speakers today; I won't bother introducing myself but I'm Jenny Heeter with National Renewable Energy Lab and the other speakers today are David Feldman and Adam Capage. So their bios are both shown there but some brief introductions.

David is a senior financial analyst at NREL and helps the organization plan and carry out a wide range of analytical activities related to financial policy and market developments in the solar industry specifically. And so he has done a recent report focusing on community-shared solar and the market for shared solar going forward, and we'll focus on that in his presentation today.

And then Adam is a vice president of utility partnerships at 3Degrees. He oversees the firm's utility green power partnerships. He was a member of the 3Degrees founding team back in 2007. And under his leadership 3Degrees' utility partnership business has grown substantially and 3Degrees' utility partners programs have received the U.S. Department of Energy's Green Power Program of the Year four separate times. So Adam will be talking more about some of the implementation issues for community shared solar.

Next slide.

So before our presenters get started I wanted to provide a basic background on community shared solar so that everyone knows what we're talking about and has a common definition throughout the presentation.

So when we talk about shared solar we are talking about projects that are all customers that maybe don't have sufficient solar resource, customers who rent their homes or for a number of other reasons, maybe unwilling or unable to install solar on their rooftop, whether it's residential or commercial. So a lot of those customers should buy or lease a portion of the shared solar system.

And one of the key components of this is that when that customer buys a share of a project they get credited on their electricity bill, just so that the solar system located on their residential rooftop or commercial rooftop. So that's our definition of shared solar; there are a number of different ways these programs can be structured and I'll get into some of that later but when we talk about share solar this is what we're focused on.

So I also wanted to set the stage by highlighting the different markets that shared solar can participate in. So commonly we break out renewables markets into the voluntary market and the compliance or RPS renewable portfolio standard market. And in each of those markets there are different value propositions for shared solar. So when shared solar is participating in the voluntary market we see that this subscriber or the customer is keeping the renewable energy certificates. And that's what allows the customer to say that they have renewable energy.

So the subscriber, maybe it's a small business that wants to have some marketing benefits by participating in shared solar that small business could say, "My business is solar powered." So that's an overview of the voluntary side. Some shared solar projects are participating in the compliance or RPS market, and under that structure the utility is keeping the RECs for use in the renewable portfolio standard or perhaps another internal goal that the utility may have for renewable energy. And in that case the subscriber can say something like, "I'm getting lower cost of electricity and helping the utility meet its renewable obligation. But the subscriber cannot say that it is solar powered. So that distinction is pretty important and has an impact on the financial proposition for each of these types of programs.

And just one last note on that. Some state shared solar policies like the Colorado Solar Guidance Law prescribe REC treatment. So in some cases there is less flexibility in how that transaction is taken care of.

And just for comparison's sake this figure shows an estimate of both voluntary and compliance markets for renewables. So you'll see the compliance in yellow and then the light blue. We distinguish between compliance that is met with existing renewables and compliance that has been met with new renewables. And then the voluntary market is in the dark blue on the top.

But when you look at shared solar it's basically not even on this chart yet. So it's really small and David will provide more details about that actual size and how this market has been growing over time. But just to say in relative size to these other markets it's pretty small, although it has been growing fast.

So with that overview I will turn it over to David who'll talk about some of the work that he's done recently on community share solar. So go ahead, David.

David Feldman:

Thanks a lot, Jenny. I appreciate the opportunity and thank you all for listening in. We recently completed a report with support and co-authoring from the Department of Energy in which we describe some of the current market, the market potential and some of the issues with community share solar as Jenny has just described it. But as she said, there's a few different definitions but we're sort of – we just focused on that particular definition.

Next slide.

There are many potential benefits of shared solar and I'm going to briefly discuss them right now. First of all there's the market expansion opportunity with shared solar versus traditional onsite solar systems. Shared solar provides access to solar for the other 50 percent of the population who can't put solar on their own property for whatever reason and cannot participate without the help of this new market opportunity. Share solar also lowers the barrier to entry from a financial and a technical perspective as well. So there are most likely smaller, minimum buy-ins for someone to participate so they can participate in a smaller share and they might have had to if they had hosted their system. The group effort is often more easy and more engaging than buying a system by yourself.

It also enables participation by usually new market segments that couldn't participate themselves for whatever reason. So for example in Colorado there's a mandate for low income customers to – a certain percentage must participate for a community shared solar program to work. So this sort of bringing in another market segment sort of opens up the market to more people.

It's also a lot more easy and engaging from the perspective of it's potentially a lot more easy to transfer ownership than on an onsite system. So if you have it on your roof and you don't want to have the system anymore that's very problematic for a lot of reasons. Besides, contractually you'd have to get someone there and take it off and move it somewhere else or sell it. If you want to transfer your ownership for a shared solar system there's a lot more opportunity so you can just – if you're moving you could just transfer it with you to your new place or you could potentially sell it to someone else who could participate in the program. So it's a lot easier from that perspective.

There are also a lot of economies of scale to the shared solar, so there's potential for lower soft costs because the costs are spread over a larger project. There's more siting flexibility; it's not limited to where you are in the grid. You can work with the utility to optimally site the solar system and can really encourage potentially local economic development and put it in places closer to load centers that work much better for a utility and add potentially more value to the utility and to the community.

There's also potential for increased visibility, so you can really – the community can be aware of all the solar that's happening in their community and so there's more feeling of just engagement and knowledge of what's going on. And utilities potentially have the opportunity to more easily monitor these systems and operate more effectively.

There's also the opportunities for innovation. So this, because this business model is a lot more flexible there's potentially a lot more opportunities for different types of business models to participate, also to bring in different sectors to work together for residential and commercial, municipal customers to work together to put up a system and to own a system, participate in the system. And it really just brings communities together, it has the potential to have, as opposed to potentially an adversarial relationship for everyone for the communities to sort of work together for something that potentially everyone can benefit from throughout the community,

including the utility. So there's a lot of benefits there that potentially the traditional solar system might not be able to offer.

Next slide.

We can see on this map that as of 2015 there were nine states with shared solar legislation, and I believe actually that number has gone up to ten at least because Maryland just passed shared solar legislation. But these state policies related to shared solar typically come in three forms. There is a group or virtual net metering, which Jenny briefly discussed before which basically enables the allocation of the benefits from the electricity generated to the customers participating. So you basically can – when the solar system generates electricity it's allocated to different customers' meters based off of their participation.

There's also more broadly statewide shared solar energy programs which establish a more comprehensive shared solar renewable energy program in that state. So it often includes virtual net metering but it also could include other things, and it's really to encourage more – it's more encouraging than this offering, the opportunity. There's also, including that there's states that offer incentives, which provide additional financial incentives for shared renewable energy programs. So a lot of different ways they can do that and that's happening in several states throughout the U.S.

Next slide.

We can see that although legislation that sets statewide rules is helpful it's not always necessary, so SEPA and IREC, those two organizations have tracked, as of September of last year, 41 different utilities offered shared solar programs, and of those 41, 23 are located in states that have community solar legislation, meaning the remainder of the 18 are in places where there's no legislation but where utilities are offering this anyway for various reasons.

Next slide.

This increase in program offerings has resulted obviously in increased shared solar deployment, so cumulative shared solar installations have grown by over 25 times since 2010 according to recently-released numbers from GTM and CEA. Now this cumulative 65-70 gigawatts – or sorry, 65-70 megawatts, really as Jenny mentioned, it pales in comparison to the 20 gigawatts or so of onsite solar – or actually I should say probably more like 9

gigawatts of onsite solar and another 9 gigawatts or 10 or 11 gigawatts of utility scale.

But the point is is that it's a small market right now but it's growing very fast and it has a lot of potential in the future.

Next slide.

There is a lot of potential but we should also think about the challenges and the challenges that need to be overcome for it to reach its full -- this market to reach its full market potential.

So the first is the customer adoption aspect. Currently because it's so new there's a lack of uniformity and standardization of the customer contract, so it's going to take time for developers to develop these contracts, to put in standard practices, to get everyone who sort of is involved with setting these things up and financing these things to sort of get on the same page and be comfortable with the documents and the standards for putting these things forward.

There's also the marketing costs. So solar in general is new; this is a new market of a new market and so just the newness of the shared solar means just more education and more customer acquisition costs to getting people signed up for this.

There's also a rate design aspect. So there is virtual net metering, or some sort of bill credit mechanism offered in many places, but it's not offered in every jurisdiction. So there's a lot of places where people just can't participate because there's no framework setup yet. There's also the fact that there's unquantified benefits for solar in general. So these -- you know, there's -- because it's -- the system is onsite, not necessarily onsite, there's potentially costs for transmitting and distributing the energy, and just sort of the cost and the benefits of solar energy onto the grid for the utility is still has not been quantified everywhere and there's still some sort of lack of consensus for what that value is.

So with that, because there's no lack of consensus sort of what people are offered and the value that they might get from participating in the program is not yet known everywhere. So that's an issue that needs to be overcome.

There's also this issue, and we discuss it a bit in the report we just put out, there's increased discussion around the uncertainty for shared solar market participation around the applicability of federal

and state securities requirements for the registration and disclosure of shared solar projects. So that was a mouthful. But basically there are common enterprises and they're offering shares of the thing and the question is does that fall under the purview of state or federal securities guidelines. And I'll spend the next slide talking a little bit about that.

There's also uncertainty as far as tax credits. So there are several tax credits offered for ownership of solar, one of them being the 25D credit, which is for residents who personally own solar to receive a 30 percent tax credit. There's a little bit of gray area around whether they could get that credit if it's in the shared solar. So there's -- not that they can't, now that they can, there's just some gray area.

But even beyond that there are additional challenges just in having something that's offsite. And those should not be ignored as well. So there's potentially more infrastructure necessary for an offsite system versus an onsite system. It's also potentially harder for customers to manage that supply and demand, so if you have an onsite you potentially can have load management practices where you're really not putting anything onto the grid. It's obviously a lot harder to do or to manage with a bunch of customers and one system.

There's also just inherently more complexity with structuring a group program and an individual bilateral contract, and finally the site cost may be higher for an offsite system than an onsite system if you [audio glitch] roof, you weren't using your roof you're not going to charge yourself for putting it on your roof, it's not being used. But if you have to go out and rent land or lease something or buy something that is just inherently more cost. So that's some things to consider.

Next slide.

Just to focus a bit on these issues of securities regulations affecting shared solar, it's a lot more detail in the report but just to quickly go over it. So the SEC, the federal agencies functions to increase information, disclosures surrounding the issuance and trading of securities. So if you have a security you have to register it and it has the potential to add complexity and cost to the thing you're registering.

The question is what is a security. Courts ultimately decide these questions. The Supreme Court said in their *Howard* case that an

investment contract which is a type of security has the following criteria: it's an investment of money, it's in a common enterprise, it's based solely on the efforts of a promoter or a third party -- kind of sounds like leasing, kind of sounds like a shared solar project potentially. Also the fourth: for which there is an expectation of profit.

So several shared solar programs have attempted to avoid this classification by avoiding one of these criteria. Community Sun, a shared solar developer, successfully argued that the ownership in a solar condo, or the share of their shared solar system, was for personal consumption and use, not profit. So the fourth criteria is expectation of profit; they're arguing that while this is really -- it's about offsetting electricity, not making money. And they were successfully able to argue that and the SEC agreed.

Even if you're not able to do that or if a shared solar program is not able to do that, and they are classified as a security they still may avoid securities regulations by qualifying for a federal exemption, so that that might be -- there's several exemptions, one of which is the interstate exemption. So if you only offer a security in one particular state, or if you're only offering it to a certain type of investors like credit investors there's a few different types of exemptions. With that said these things still may be subject to state securities laws. So that's important to keep in mind.

But even without an exemption shared solar offerings that are classified as securities can still be offered and sold, they just have to be registered with the SEC. So a little bit of highlights around securities, particular federal, as it relates to shared solar.

Next slide.

Also in this report we spent a bit of time trying to estimate the market potential of shared solar. So we spent a little time thinking about and trying to determine the additional deployment levels that can be achieved through expanding the available PV system customer base. So what does that mean? So you know, right now a certain amount of customers can go solar because they can host a system, right residential or non-residential. What happens if we make solar available to all the people who can't put solar on their property?

We estimated the percent of customers unable to host an onsite system -- we looked at renters for residential space, we looked at those without access to roof space, so people in malls, businesses

in malls, people in multitenant buildings, people in high rises. And then just those living in buildings with insufficient roof space with good solar exposure. So we actually -- there's this really great work being done at NREL looking at LIDAR data, which is aerial data across all sorts of building roofs across the United States. We examined all of the different roofs out there to determine well how many of them could actually -- are facing the right direction, have enough space that could actually put a solar system on it.

It was pretty interesting stuff, and based on that criteria we estimated that about 49 percent, about half of U.S. households and businesses are currently unable to host a PV system. So about half of them, as you can see sort of down below the charts, you know, they're either there's unsuitable [audio glitch] face or they're living in buildings with high rises or too many businesses and buildings, stuff like that.

We went further because, okay, there's people who -- and businesses who now move through this shared solar can now have access to solar, but it's going to take a while for this market to develop. It needs time, for all the reasons I mentioned in the previous slide. There's also state level constraints, so there were just certain caps to solar expanding too fast within the United States. So we took all of that under consideration.

Next slide.

We estimate that between 2015 and 2020 the cumulative shared solar installations could constitute between 5-1/2 and 11 gigawatts of PV for both residential and non-residential customers. This could represent an additional \$8.2 to \$16.3 billion of cumulative investment in the United States. That's a lot of money and it's a lot of PV out there through this expansion to the shared solar marketplace.

Next slide.

Just to conclude or wrap things up, hand it over to Adam, some of the main conclusions from the report and what we've just talked about: about half the households and businesses are currently unable to host a PV system. Shared solar could really expand that PV deployment in the United States. There are also unquantified factors which could make these numbers even higher than I just mentioned. So the easier and less restrictive participation, the potential for better value proposition, the ability to service a much higher share of the customer load all means that sort of the

estimates we just had could be low, and in fact it could be even more than we estimate.

There's also, as we discussed, shared solar offerings with regards to securities issues. Shared solar offerings are less likely to be considered security if they're structured in a way where it's about reducing customers' retail electricity bills, and it's about sort of not generating profit but it's about sort of offering, you know, the use of the solar.

Even so, even if a shared solar program were to be considered a security they still may avoid federal securities regulations by qualifying for an exemption, though they still may be subject to state securities laws. However, even with an exemption shared solar offerings classified as securities can still be offered and sold, so long as they are registered with the SEC.

With that I will wrap things up and hand this over to Adam. Thanks all for your attention.

Jenny Heeter:

Thanks, David. And just a reminder to everyone we will be posting the slides on the Green Power Network, so you can feel free to just listen and not take a bunch of notes while you're participating today. And I have had a number of questions roll in already but feel free to keep sending those in. If we don't have time to enter them all you can also contact me for follow-up later.

So with those couple notes I will turn it back over to Adam.

Adam Capage:

All right. Well thank you, Jenny, and good morning, or good afternoon to you all, depending on where you are. I've got a really straightforward agenda today: three intro slides and then I'm going to jump into a discussion of key questions and answers that 3Degrees is talking about with utilities around the country. So let's get started.

Next slide.

For those of you not familiar with 3Degrees one of our key business lines is to partner with utilities to help them operate voluntary green power programs. And that means supplying program RECs and implementing marketing campaigns, not consulting but actually implementing marketing in partnership with and under the utility brand.

So over the past two years we've always started to help and implement -- help plan and implement shared solar programs as well. And it's this work that led Jenny to ask me to share some of the lessons we've learned.

Next slide.

I want to frame up today's conversation. I think it's really important to keep hitting on this definition of the type of shared solar we're talking about today because within the two major categories that Jenny outlined there are different flavors of program implementation. So for this conversation today I'm talking about programs that utilities have made a strategic decision to offer. So in other words not only is the customer participation voluntary, which is pretty typical, but so too is the utility's decision to offer it. It's not, you know, mandated.

So the bulleted list I've put on this slide here are typical program design points and reasons that *[audio glitch]* do this. What I want to call attention to, the most important thing to note is that in this model that I'm talking about all the costs associated with offering solar are being borne by program participants. In other words these programs are not built around solar generators receiving retail prices for electricity. So very utility-centric model.

Next slide.

When 3Degrees is out talking to utilities about these programs there's a host of recurring questions just some of which I've listed here. While there's too many for us to cover today I thought it would be useful to highlight questions that we're hearing from utility management time and again because there's that theme to the questions that we're hearing from those folks. So on the next slide here are these five key questions.

So with that, and without windup, we'll just spend the balance of the time here talking about, talking through the questions. And I'll say that if you're a program manager at a utility out there, starting to think about shared solar these are great questions to hone in on. So let's tick through them, starting with the first one.

No surprise for those of you at utilities, no surprise. This is easily the top question, even if it isn't always worded this way. And let's look at the answer: how are we managing risk? Those three top options that I see -- now to be clear, the risk that's going to be asked about is that there's an above market asset, or PPA, that the

utilities made arrangements for that will not be fully covered by program participant. That's the risk. Either because there aren't enough of them or because participants drop out or something like that.

The number one question program managers need to think about is whether they have a belt and suspenders approach for this possibility because that's what will be asked about.

The first bulleted answer surely seems pretty obvious to me -- offer a simple and appealing product. But when you're deep in risk mitigation mode it can get lost in the conversation. I've seen it. Don't let it. You want to be selling something that people want. You want something with a fundamental value proposition at a good price that's easy to understand. And the corollary there and the bullet below is to allow for the time and money to make sure people here the message about your appealing product and that they hear it repeatedly.

The next bullet is specifically about utilizing excess supply if you have it. So you could build informal plans with regulators to allow any unsold program RECs to be used to meet the state RPI. That's what's happening in California. Or alternatively for those with voluntary green power programs you could try and make sure that you have an allowance for unsold, fully-valued RECs from your shared solar facility to be rolled into the green power program. Either one of these options is going to take a ton of pressure off the risk of having unsold supply.

And finally, you could set up systems to build up and then closely manage wait lists so that people on those lists remain fresh and are receiving regular communications. You could make sure that marketing and supply are in a dialog about demand. So even though supply is always going to be a little lumpy as you build it in chunks, and even though demand is always going to be a little less guaranteed that you'd like good communication is going to reduce the risk of extra supply or extra-long wait lists.

What you don't want to do is just rely on contracts or penalties to mitigate this risk.

Next slide.

So this table highlights that using terms and conditions, which seems like a way to reduce risk, can actually lead to introducing new and different risks. So to put this table together we thought

about the likely impact of requiring a signature on a two-page contract, and a \$100 fee per block of shared solar that customers sign up for, versus a very friendly, "Sign up for solar now. Sign up when you want, leave when you want. We just want to make this easy and appealing."

So the two columns compare various statistics for the offer with fees and contracts on the left versus the right, where it's just a simple program. So no surprise, drop rates are going to be higher without the fees or contractors looking people in. But here's the key: each person purchases more, on average, because there are those fees, and it's not as scary to sign up.

And when they purchase more fewer participants are needed to sell out the supply. So even though attrition is higher -- as we talked about with the drop rates -- the average cost to acquire each new customer is significantly lower because it's an easier sale. And the bottom line is that the total cost to sell out the system and keep it sold out is less without contracts. And so that risk is less. So hitting on the moral of the story again: by adding fees and contracts to make the lawyers or the engineers happy in that risk mitigation mode you very well might be increasing your risk of not selling out the product.

Next question: Will the proposed pricing hold non-participants harmless? So in other words we know that regulators are going to be saying, "Fine, you can do this program as long as other rates aren't at all impacted." So the question is can you keep program costs completely separate from the rate base. So looking at the answer: I think yes. But only if you're modeling carefully and implementing correctly. It takes some time and work up front in modeling to understand how moving one of these inputs around can impact the others.

So every utility that we talk to, for example, is spending time thinking about that supply cost, quite a bit of time. They're both thinking about how much the solar cost and how to back out the existing supply cost that customers are paying.

Jumping down to that third bullet: also what we're seeing is spending a lot of time thinking about the net cost of T&D, that is how we'll -- a local solar project for this program reduce T&D cost by how much? But few are paying attention to that marketing and administration input, especially the part about how a higher premium for supply means more, not less, needs to be spent on marketing.

Also that the amount you spend on marketing will impact how quickly you sell out the program, which feeds into that last bullet on projected sales. You've got to take into account the fact that the facility won't be sold out from day one. So the program failed and all the assumed revenue has to be based on projections that include a slow sellout. And you can mitigate that to some extent by getting a customer base in place before you build. But you can't wait too long for that. You need to be building as you're marketing.

Next slide.

"Can we own the asset?" This question is almost certainly going to be asked by management at IOUs. So let's look at the answer. This one isn't a totally satisfying answer. Maybe is the best I can say at this point. There's an obvious appeal. Most regulated utilities earn a rate of return on assets owned, so seeking that is appealing.

But regulators and stakeholders are going to have questions, and they're good questions, such as can you legitimately and accurately define and segment the above market value of providing fixed price renewable energy, and have participants in the program pay for receiving those values in their special rate, while all other ratepayers cover the remaining cost of solar generation? That's the question that's unknown whether regulators are going to get comfortable with it. It's complicated and I know that a lot of regulators in states around the country are starting to grapple with it right now.

Next slide.

This is an easier question, again, management will ask at some point: should we keep the RECs for this voluntary program? Again, no matter how the program's originally designed or thought about this question will come up. So I would say on the next slide the answer is probably not, you shouldn't be keeping the REC. And the reason is that the Federal Trade Commission cares about this and their main point, the question they're asking is does a reasonable person think they're buying solar power. And if so then that's what they ought to be getting. And if you've kept the REC, or sold it separately, then that's not what they're getting.

So you can tell customers the truth and make sure they understand it. Jenny pointed out that option at the beginning of her presentation, saying something like, "I'm receiving lower cost

energy or fixed price energy," or something like that, "and helping the utility meet its renewable application," or possibly selling the renewable energy attributes to other users. But you've got to make sure that customers are really clear about that. And if you're not meeting a clear solar carve out, or if legislation hasn't dictated how the REC is going to be treated then the question you have to ask is why go through the different messaging instead of just retiring the REC on behalf of the customer?

Next slide.

There's a little bit more information here, language pulled from FTC Green Guide, Federal Trade Commission Green Guides, where they're thinking about this question. I'm not going to run through all this but I do want to highlight that Green-E is in the game now -- the folks at Center for Resource Solutions, that certify green power programs. They're now certifying community-shared solar programs, and their certification requires that you retire the REC on behalf of the customer.

Also note that California programs that are getting fired up, all three IOUs will be doing shared solar programs and they're all structured this way, where the REC will be retired on behalf of customers.

So final slide, final question, and let's look at the answer. Yeah, that one was pretty easy, and really true. Now I actually clarify: once you have commission approval then yes, you can launch in this timeframe. Wouldn't be easy, and I wouldn't really recommend it unless you laid a lot of groundwork, but it could be done.

What you can't do is have all of the internal conversations we've been talking about here and then run down to the commission real quick and expecting to be able to get doing. When you start talking to the commission stakeholders will have comments. It will be contentious, and the program design points and questions that I've been talking about, pricing questions, implementation requirements on the utility, all of that's going to necessitate a lot of internal conversation. So give yourself time and plan to be busy during that time. It'll be a process, but a good one if run right, and I think a good program can come out the other side.

Next slide.

The final thing I'll just say, let folks know is that we're pulling together a white paper with this and other information, and so if you're interested in receiving a copy of that when it's done just shoot me an email and we'll get you on the list. So thanks a lot, and back to you, Jenny.

Jenny Heeter:

Thanks Adam, that's really interesting. I actually learned quite a bit. So thanks.

Have a number of questions that have come in, so I will do my best to get to all of them. I have about 13 minutes. First we've had a couple folks ask where do I get more information about how many programs there are and about the policies that can enable shared solar. So I wanted to just mention a few resources off the bat.

SharedRenewables.org is a website that has policy maps, like David showed, and you can click on each state and get more information about the policies that have been enacted and the policies that are proposed. So that's a great resource. It's SharedRenewables.org.

And then for folks who are interested in where do these programs exist around the country there are two different resources I know of. One is the Community Solar Hub, which CommunitySolarHub.com. That's a new resource that has been funded by the Department of Energy and it has a list of projects and projects by state and some details about those projects. The other one is a list maintained by IREC that's on their site. I don't have the URL offhand but that's a good list as well. So those are come resources for folks interested in more detail here.

David, I'll go back to you, I guess, to start with. There was a question about you presented pie charts of rooftop availability by residential and commercial crosses; do you have that data by state so that we could see in one state is there a lot more rooftop available percent-wise than another state, or is there state-specific data that you guys have?

David Feldman:

That's a great question. So there's sort of two parts to that. So there's just the LIDAR data, the sort of information about roof availability, having nothing to do with the customer, and how many buildings within that sector or within that segment are solar ready and sort of we actually have that also not only by building but by sort of by building size; we segment them by sort of small, medium and large buildings. And we have that for about 23 percent -- I'm trying to remember -- a very large percent of the

U.S. population throughout the U.S. in several states, not necessarily every region. And that information is -- I'm not sure whether it's been published yet but it's definitely coming in an NREL report. If you send me -- whoever was interested if you send me an email at David.Feldman@NREL.gov I can send that information to you if it's available, or I'll get it to you when it becomes available.

Jenny Heeter:

Great. Thanks, David. And I have somebody from IREC who is listening on the webinar, Erica McDonald. She let me know that the program catalog is on IREC's website which is IRECUSA.org, or I-R-E-C-U-S-A dot-org. And that also has IREC's model rules for shared solar programs. So check out that website as well.

Adam I will switch over to you next. There's a question -- so you noted that there should be both bill credits and charges to cover the cost of the system. Can you speak to that?

Adam Capage:

Yes. So this is often -- seems like a confusing conversation just because of how people are thinking about this in their own head. But the basic idea of shared solar is you're buying solar power, and then if you're buying the solar power you don't need to buy that same amount of regular energy from the utility. So the question that comes up, then, for -- and that impacts T&D charges as well.

So the question that then comes up is: "How do you want to convey that on the bill? Do you want to show a new solar cost and a credit for energy in T&D -- charges that aren't relevant anymore?" Or do you just want to net it all out behind the scenes and say, "Here's your charge for participating in community solar"?

That answer is probably best going to be done just by the utility's billing system, you know, the folks that are thinking about how the bill's conveyed. And it's one of those internal conversations that takes some time.

Jenny Heeter:

Great. Thanks. I have a number of questions about the securities topic, and one actually is more of a comment. Looks like Oregon passed Senate Bill 1520 last year that provides an exemption to securities registration. I'm assuming that's just at the state level, but -- so like things like food costs and other co-ops are exempt, so just so folks are aware of that. And then David I have a question about securities. Could you talk about the major implications of registering as a security, what obstacles does it create in offering a

good product, or is it just adding administrative time and expense in reporting?

David Feldman: Yeah, I think it's really the latter. Yeah, obviously you can't lie to customers but you can do it anyway. So it's really more about, you know, if you're classified as a security either at the federal or state levels or just certain requirements for filing that sort of involve time and money and bringing in lawyers and having forms and all that other stuff. So it's really more about sort of the additional headaches and paperwork and what-not, not so much as let's say restricting what you can do.

The restrictions really come in the lines of if you are trying to get out of making certain filings in that way, so wanted to avoid some of these state or federal rules there are ways of going – sort of still abiding by the rules but sort of not having to go through the complications. But that would involve sort of having to potentially adjust the way that you either advertise who you go out to or whether it's, you know, the type of customer, both where they're located or sort of their network or what-not.

Jenny Heeter: Great. Thanks. Some questions have come in about what type of entities can offer a shared solar program and what sort of models we're seeing for shared solar in the states that don't have specific shared solar legislation. So one question was could a municipal utility offer shared solar, and another question is more broad about what can you tell us about the 18 shared solar programs that are in states without shared solar legislation. So how are those programs structured? And I'm not sure, one or both of you could speak to those questions.

David Feldman: Well I can take a shot at the first and then Adam can correct all my mistakes and play cleanup, which I don't envy his position.

So the states can make things available, sort of laws that would allow these programs to be enacted, but it's really a lot of these things, although not all, are about having the right billed credit mechanism and the right way for the customer to be in a position to benefit from a solar system that's located on the grid. And that's really about the relationship they have with the utility.

As I mentioned before there are a lot of reasons why a utility might like having shared solar on their grid a lot more than maybe an onsite system because they potentially have much more control of it, they potentially can participate a lot more in where it's sited and the revenues. So they could potentially get the T&D charges, so

it's not a pure net metering relationship where they're offsetting full retail credit rates. So it's potentially areas where utilities are actively wanting to have these programs, individual utilities, and that also includes municipal utilities. So there's actually a lot of good reasons why a municipal utility would want to do this because they certainly – you know, it's about utilities offer by nature about the community, so it sort of fits really well with the community shared solar. So I'll say that – let Adam correct all my mistakes.

Adam Capage:

I think the only thing I'd just summarize, you know, focusing on that question of how are these done in the states without mandates. And the answer is lots of different ways. Sometimes they're charging money upfront. Sometimes they're putting it into a monthly bill. Sometimes they're retiring the REC on behalf of the customer and sometimes they aren't. Sometimes it's a fixed price and sometimes it isn't. Lots of variation. And that's where 3Degrees is focused in talking with utilities about those options.

Jenny Heeter:

Great. Thanks both of you guys. I think we have time for just one more question. And this one is specific to Minnesota, which does have a shared solar legislation in place. But the question is about XL's solar rewards Kenny Newby program. The questioner is wondering if either of you have a sense of how the Minnesota commission will rule on the size limitation. So will they allow solar developers to place one megawatt solar gardens next to each other. I don't know if either of you have been following that situation in Minnesota or can speak more broadly about size limitations for shared solar.

Adam Capage:

David, any thoughts about that?

David Feldman:

Well I mean I definitely – I don't think I could comment on sort of the future decisions particularly as it relates to policy or stuff like that. I would say that sort of this is an issue where, you know, share solar programs are trying to achieve these economies of scale by sort of having a bunch of shared solar programs in the same place to lower their interconnection costs and other costs. And that's not necessarily what – doesn't necessarily follow the – potentially doesn't follow the spirit of the legislation, though I don't know what sort of some people think, let's just put it that way.

So I'm not sure how it will end up. I know that certain developers have not had an issue with that because they sort of have – sort of been more conservative in the way that they've cited shared solar

programs since this is only affecting some of the shared solar programs, not all of them.

Jenny Heeter: Great. Adam, any thoughts on that?

Adam Capage: I'd just say that I think a lot of solar developers would love to know the answer to that question, and I too am not sure how it's going to work out. But it's an example of when a state legislation mandate's directives are guiding a market as opposed to, you know, program design voluntarily.

Jenny Heeter: Exactly. Okay, well we are at the end of our hour here, so I do want to thank our presenters again and also remind everyone that the slides and recording will be posted to the Green Power Network, GreenPower.energy.gov. So take a look there. And with that we'll just wish everyone a good afternoon and say thanks again to Adam and David.

David Feldman: Thanks, Jenny.

Adam Capage: Thank you.

Jenny Heeter: All right, by everyone.

[End of Audio]