SunShot Incubator Virtual Company Showcase Webinar — Text Version

Below is the text version of the SunShot Incubator Virtual Company Showcase webinar, presented in March 2015.

*Monica Andrews:*
Good afternoon and welcome to the SunShot Incubator Awardee Showcase, where you'll hear one-minute quick pitches from 35 solar companies today. My name is Monica Andrews, and with me is Garrett Nilsen. We're representing the U.S. Department of Energy SunShot Initiative, and we'll be kicking off the virtual showcase today. I'm glad that you all could join us. Before we begin, I have a few logistical announcements. If you're giving a pitch today, I'm going to ask that you raise your hand on the right side of your webinar box. And the reason we're doing this is because there's a large number of people giving pitches today, and in order to find you quickly and give you speaker's rights, please use that raise-hand feature in your box over there. If you're not presenting today, you don't need to do anything but listen and watch, as we muted all attendees during this webinar. And in the interest of time, we won't be taking any live questions. But of course, you're more than welcome to enter questions in the chat box, or email **sunshot.incubator@ee.doe.gov** for more information. So here's an agenda of what we'll covering during today's showcase. First, we'll give a very brief overview of the SunShot Initiative and the Incubator Program. Then we'll hear one-minute presentations from 35 companies that have received SunShot awards and are working to develop and grow their solar technologies and businesses. One purpose of putting on this showcase is to facilitate communication between what these awardee companies are doing and the larger industry. So if you're interested in learning more about these companies after the showcase, feel free to reach out. With that, I'm going to hand this presentation over to Garrett Nilsen to give some background on the SunShot Initiative.

*Garrett Nilsen:*
Thank-you, Monica. I'm Garrett Nilsen. I'm a technical monitor here at the Solar Technologies Office. The SunShot Initiative is a collaborative national effort to reduce the total cost of solar by 75 percent so it can be cost- competitive with other sources of energy by 2020. DOE supported several programs that worked toward this aggressive goal, along the entire cost spectrum. Among these, the Incubator Program is unique because it addresses all of the targeted reduction areas needed to achieve cost parity. I'm not going to go through each of these slides individually. These are just simply to illustrate that a lot of great progress has been done since the SunShot Initiative was launched in 2010, as you can see here by the numbers achieved in 2013. But there's still a lot of work left to be done to reach the 2020 goals of the SunShot Initiative. Here, you can see where savings have been found, or future savings was needed in the CSP space. This is the similar graph for the PV utility space. You can see that despite the great reduction of costs in modules over the past few years, there is still a lot of work to be done in other areas. Here is the same for the commercial space. And finally, here is for the residential space, and of particular note here is the balance of system soft costs, which are starting to become a very big cost driver in this area. But I advise you to take a closer look at these slides in your free time once we've posted this webinar online.

*Monica Andrews:*
SunShot works to decrease cost barriers in many areas, and we still have room to help swing the needle in lowering costs, by funding work to streamline grid integration, make storage more affordable, increase access to financing, solar workforce training, and domestic manufacturing. The Tech to Market Program funds projects to develop high-value tools and components across the solar value chain. The Incubator Program includes companies that are working on products from proof-of-concept to prototype to product refinement and first commercial sale. In this figure here, which depicts the process of taking an idea to full market adoption, the Incubator Program includes the teal path toward the beginning of the product cycle, with the hope of bringing high-impact ideas to the market more rapidly.

*Garrett Nilsen:*
So the goal of our funding is to rigorously de-risk technologies and business solutions. We do this to set up companies for commercial success and make them more attractive to private capital sources. While we do this, we must ensure we are good stewards of taxpayer dollars, which we do through deliverables. I will discuss these further on a coming slide. So we often get asked, how do we define failure of our projects? We do this in two ways. One is creating a product to specification on time and on budget that the market does not want or need. Or, bringing a product to market that is certainly needed by industry players but is viewed as having potential showstopping risks. So we rigorously and aggressively negotiate these awards to help de-risk these projects and not fail in the manners stated here. So we do this through effective project management. We engage in monthly phone calls and require quantifiable third-party verified deliverables. The monthly calls are used to discuss commercial and technical challenges. The deliverables, which are delivered to us on a quarterly basis, contain both technical and business metrics that must be met in their entirety in order for the awardee to move on to the next deliverable. If not met, DOE has the option to discontinue an award. Finally, DOE engages with the national labs to help awardees overcome technical challenges and make resources available to aid in product development.

*Monica Andrews:*
Since 2007, the Incubator Program has been run as a yearly funding opportunity. And SunShot plans on continuing this funding program on an annual basis, pending appropriations, of course. In addition to this virtual showcase, we're organizing an in-person showcase to take place this summer, and we'll be sure to include you on the details soon. With that, let's move on to the main show. You'll notice when you hear these pitches that you're hearing many different solutions for addressing the challenges in the solar market that we've touched upon, whether it's as soft costs, CSP, photovoltaics, energy storage, power electronics, or balances of some hardware projects. But these projects all have one thing in common. They're all companies that are looking to solve major problems in the industry. Here's a list of the 35 companies and presenters that will be giving their quick pitches today. So let's get started. I'm going to hand off to the first presenter, which is Sam Adeyemo at Aurora Solar.

*Sam Adeyemo:*
Aurora is a web-based platform that increases the closing rate for solar installers, improves the accuracy of their designs, and automates aspects of their operations. Next slide, please. Aurora increases closing rates by generating beautiful 3D models directly in the application. This gives customers a very realistic rendition of their house with solar panels on it. Aurora improves accuracy by performing a high-resolution remote shading analysis, and it also generates single line drawings for use in permit sets, saving installers time and money. The market has responded enthusiastically to Aurora. We only launched commercially in late January, and already over 3,500 PV installations have been designed in our software. With the proceeds of the SunShot grant, we are now developing an optimization engine. An optimization engine will automatically retrieve HJ requirements, shading information, and other rules, and will come up with the best installation for a given site. One that no human can improve upon in most cases. Thank-you.

*Garrett Nilsen:*
We'll be passing it off to ... sorry, one second ... to Tom Hunt of the Clean Energy Collective. Tom, you should be unmuted. Go ahead.

*Tom Hunt:*
Alright, thank-you. Our project is Community Solar Hub. Clean Energy Collective was founded about six years ago in western Colorado, doing a project with our local utility. We're now in our third community solar project with that utility, Holy Cross Energy, showing just how successful community solar can be if done right. We're serving thousands of customers at 18 different utilities across the nation and have the only community solar solutions that have been proven to work across policy environments, geography, and utility types. There is immense interest in community solar right now and making solar available to 100 percent of customers. However, the tools necessary to make community solar successful across the nation are what are holding people back. It's difficult and expensive to figure out how to make community solar financially feasible and legally compliant. Community Solar Hub is going to take the proven tools that CEC has developed and make them accessible to license to anybody wanting to do projects. We're going to offer building sim integrations, security compliance, and informational tools and customer engagement to people doing community solar projects for EPCs and utilities. That's going to make solar available to 100 percent of consumers at a much lower cost than currently is on the market. Thank-you.

*Garrett Nilsen:*
Thank-you, Tom. Next I will be unmuting Robbie Adler of Faraday. Robbie, you should be unmuted.

*Robbie Adler:*
Hi, everyone. Thanks for having me. Faraday is the world's first data management platform for companies selling things that matter, such as rooftop solar, to families that care. We wrap over a terabyte of data on 100 million U.S. households in a fun, map-driven interface that helps our users reduce their customer acquisition costs through better targeting. Next slide, please. The core of our platform is a database of pretty much every residential property in the country. Customers can undertake five distinct activity segments across population households, based on dozens of criteria related to financial wherewithal, site-to-graphic, demographic, and property details. We refine this segmentation, leveraging a class of technology known as machine learning, in which we predict the likelihood someone will invest in outcomes such as solar. And from there, they can launch multichannel marketing campaigns to reach these customers, all of which are tracked to allow us to improve results over time, through the collection of broader data sets. Thank-you so much.

*Garrett Nilsen:*
Great; thanks, Robbie. One second. Alright, muting Robbie, and up next we're going to be hearing from Michael Carmody of Intrinsiq Materials. Michael, are you there?

*Michael Carmody:*
Yes, I am. Intrinsiq Materials is a materials company located in Rochester, New York. We're a start-up. We make screen-print paste and inkjet inks for printing and electronics applications. Right now our first products are copper, based on a proprietary nano-copper technology. Our goal in the SunShot project is to replace the silver of grid lines and electrodes that are on the top of the solar cell with printed nickel silicide and copper grids. The reason we're doing this is to save the industry money. Silver is very expensive, and its prices were double. Secondly, the pastes that are used are called fired through pastes. They're heated to high temperatures. They etch their way through the arc layer of the solar cell. In order to do that, the paste must have lead containing glass (inaudible). We intend to remove the lead from the process. So cheaper, greener. Next slide, please. The way that we're going to do this is to at least in the initial embodiment is to take the solar cell, etch our way through the arc layer, either photonically or with a laser, to non-contact, print, nickel silicide nanoparticulate ink into the channels that will etch with the laser and meet all that, print copper ink on top of that, and meet all that, and produce an electrode system which is at least equal to the silver paste and grid line resistivity, TLM, and the lifetime of the solar cell. An additional benefit of this is that this process is entirely non-contact, which will also enable use of a much thinner solar cell. So the goal: Cheaper, greener, thinner. Thanks.

*Garrett Nilsen:*
Great; thanks, Michael. Next we will be unmuting Colin Walsh of Mosaic. Give me a second here, Colin. Alright. Colin, you should be unmuted.

*Colin Walsh:*
Hi, everyone. Mosaic's mission as a company is to empower millions of people to prosper from clean energy. We're doing that and making a lot of progress using the SunShot grant by removing the financial barriers for U.S. homeowners to go solar. What we've built is a marketplace lending platform which matches homeowners to investors. Next slide, please. Our software provides low-cost, no-money-down solar financing to residential solar customers at lower cost than a balance-sheet lending model. And then installers are able to grow their businesses with our software and reduce the cost of customer acquisition. From the homeowner side, they begin saving money the day their solar system is installed and begin on the path toward owning their own system. Thank-you.

*Monica Andrews:*
Thanks, Colin. And next we have Norwich Technologies with Joel Stettenheim. Joel, you should be unmuted.

*Joel Stettenheim:*
Yes, I am. Thank-you, I'd like to thank the SunShot team for their continuing support and for hosting this event. Norwich Technologies has developed a fully redesigned solar receiver for trough CSP projects. This market is currently monopolized by a receiver design that is technologically intensive and incorporating a demanding vacuum that must be maintained for decades. These receivers are expensive, prone to degradation and failure, and not optimized for different operating temperature ranges. They also do not permit efficient operation above 400 to 500 degrees Celsius. Our SunShot receiver solves all of these problems. We have designed a radically simple receiver that eliminates the vacuum and incorporates an air-filled cavity. In its place, we substitute state-of-the-art micro-course insulation that is cheaper up-front, that has virtually no longer-term associated O and M costs. With rigorous modeling validated by extensive prototype testing, our receiver has demonstrated to permit much more efficient operation well above 500 degrees Celsius. In doing so, we enable trough CSP systems to operate at higher temperatures as an important element in reaching the SunShot goal of electricity at an LCOE of 5 to 6 cents a kilowatt hour. We'd love the opportunity to tell you more about how the SunShot receiver is poised to revolutionize trough CSP. Thank-you.

*Monica Andrews:*
Great. Thank-you, Joel. Next on the list we have Zachary McNish with SafeConnect.

*Garrett Nilsen:*
Sorry, Zach, we're testing real-quick (multiple voices) ...

*Zachary McNish:*
Good afternoon, everyone. The way solar systems are purchased and installed has changed little in the last decade. Custom design systems are sold by specialty solar companies and installed by specialty solar contractors, using specialized, high-cost labor. This is costly for customers and it's costly for businesses. There are many great efforts under way to attack the manifestations of these high customer acquisition, permitting, and interconnection costs. But the root cause of these costs is the permitting authorities have legitimate public safety and worker safety concerns about the installation of residential photovoltaic solar systems. SafeConnect Solar's patent-pending product addresses these underlying safety concerns so that far less specialized labor is required to install a PV system. Specifically, once the SafeConnect SmartBox is installed on a house, the rest of the system can be installed by a handyman or other nonspecialized laborer. This will allow solar contractors to cut installation costs dramatically. More importantly, it opens the door for big-box retail stores to sell true plug-and- play PV systems the way that they currently sell kitchen cabinets and appliances. Thank-you.

*Monica Andrews:*
Thanks, Zach. OK, next on the list we have Sighten with Conlan O'Leary.

*Garrett Nilsen:*
One second, Conlan. I'm finding you.

*Monica Andrews:*
There we go. OK, Conlan, you're unmuted.

*Conlan O'Leary:*
Hey, guys. Good afternoon. So Sighten was conceived when the cofounders of the company were working at Clean Power Finance running the financing product appraising desk there and became frustrated at the lack of good solar-specific software, and a heavy reliance on tools like Salesforce and Excel. That obviously resulted in significant inefficiencies, errors in the financing process, and ultimately costs across the value chain. Sighten has built the first turnkey solar operating system to manage assets from lead through to decommission. You can think of our platform in these three buckets that we've outlined here. An origination in sales, including an operations workflow. Pricing and project finance. And financing product management, as well as a back-office consisting of reporting and analytics tools. The platform is highly flexible, modular, and API-able, and can integrate with best-in-class tools across the value chain. Thank-you.

*Monica Andrews:*
Great. Thanks, Conlan. Now we have Daniel Dobbs with Solar Grid Storage.

*Daniel Dobbs:*
Yes. I'm here; thank-you. Good afternoon. Solar Grid Storage develops, finances, and operates grid-tied energy storage systems, co-located with PV installations. We're developing the Solar Storage Operations Center, the SSOC, to be a cost-effective and scalable network operation center to operate individual assets ranging in size from residential units up through multi-megawatt utility scale systems. The SSOC architecture is unique in that it's designed with the fundamental understanding that energy flows will be intermittent solar generation, coupled with bi-drectional flows to and from batteries. And this is unique from the understanding of other NOCs, which were primarily developed for large multi-megawatt generators with one-way flows. The SSOC will have the capability to dynamically aggregate multiple assets to provide grid support services at various levels, such as the ISORTO level, local distribution companies, and then down to the feeder level. And Solar Grid Storage is really excited about the capabilities we're developing together with the DOE. We believe that the SSOC will be a key enabler to accelerating the deployment of PV-plus storage, to make the grid more stable with every system installed. Thank-you.

*Garrett Nilsen:*
Great; thanks, Dan. Next up will be Margaret Hodes of Stem. Margaret, give me .... Alright, Margaret, you should be ready to be able to talk.

*Margaret Hodes:*
OK. Hi, everyone. Good afternoon. Stem combines powerful software with advanced energy storage systems. We are a leading distributed storage provider, with over $100 million in project finance for our C and I customers. Next slide, please. Next slide, whenever you're ready. So with the support of SunShot, we're developing two products that can add value to distributed solar by combining it with storage. First, we're developing SolarScope, a web-based tool for solar developers. It will allow developers to quickly and accurately create solar-plus storage proposals for their site. We are also creating a product for utilities called SolarController, which is a software platform for distributed storage. SolarController can automatically regulate voltage fluctuations on a distribution circuit that has high PV penetration. This will mitigate voltage issues caused by high PV levels. Thanks, everyone, for your time.

*Garrett Nilsen:*
Great; thank-you, Margaret. I'm going to mute you. And then next up is Randy Gee of Sundog. Randy, give me one second. Alright, Randy, you should be unmuted.

*Randy Gee:*
Good afternoon. Sundog Solar Technology is a start-up specializing in solar reflectors that concentrate sunlight. Most sunlight concentration is done with current glass reflectors, the most expensive part of concentrating systems. We're focused on cutting reflector costs in half while reducing reflectance. We're using materials that stay cleaner outdoors and won't break like glass reflectors can. The key advancement is front surface reflection, a technology long pursued by the concentrating solar industry. With the help of our technology partner, Red Spot Paint and Varnish, we're using new UV-curable coatings that enable high reflectance from surface reflectors. The technology is suited for high-volume manufacturing and fully scalable. Plus, we're incorporating nanotechnology into the process, so reflectors stay cleaner. Sundog Solar is based in Colorado. Please contact us for further info.

*Garrett Nilsen:*
Great; thanks a lot, Randy. One second. Next up, we're going to have Sylvain Mansier from Sungage Financial. Give me one second. Sylvain, are you on? It doesn't look like your audio is connected at the moment. Alright. We will circle back to Sungage Financial. So moving on, we will now have Anne Wright and Robbie Lemos from Sunlayar. So one second; let me get you up there, Robbie. Alright, one second. Sorry about that. Alright. It looks like the people from Sunlayar are not on at the moment, so we'll just kind of hop over them real quick. And Matthew Rankin —

*Speaker:*
With SunShot, we are creating a new kind of (inaudible) platform broadens solutions. *(voice cutting in — audio missing)*

*Garrett Nilsen:*
... Village Power Finance. Give me one second here, Ty. I don't hear you at the moment.

*Ty Jagerson:*
Hi. I'm here.

*Garrett Nilsen:*
There you go.

*Ty Jagerson:*
... schools, churches, clubs, universities. Historically in this space, it managed the lifecycle of the project from project inception through the asset management process. We're serving the solar customers and the investors from their communities, and investors from outside their communities. And we really focus on empowering those local people and local communities who are driving these projects, who are really the heart and soul of projects in this sector. Next slide, please.

*Garrett Nilsen:*
Sorry, one second. Here you go.

*Ty Jagerson:*
Here's a live — not live, but a recent shot of our browse-projects page. So we've got over 70 projects in development on the project page. And through this platform, we help people rally their community around these projects, and develop them through that critical and complicated stage when it's getting ready for the community consumption. Next slide, please. And here's a sample slide of one of those project pages for one of our community organizations. One of the things that we're proud about for this platform is that it allows us to take both tax equity and nontax equity investors in on the same structure. It allows us to have a whole lot of different types of people work on these projects into the same work environment. Helping move them through that development approval cycle. Thank-you very much.

*Garrett Nilsen:*
Great; thank-you, Ty. Next up we will have Bram Britcher of Brittmore. One second, Bram. Alright, Bram, you should be unmuted.

*Bram Britcher:*
... is the cost of large-scale PV projects by applying automation to the construction process. Our turnkey structural balances system solution includes especially well-suited for frameless modules, which can provide 3 to 7 cents per watt additional savings. Cost and long-term reliability, and the robots address the issues of workers handling heavy-glass glass modules. This year, we are seeking to raise $1.5 million in Series 8 funding to drive these initiatives and expand our reach beyond the western U.S. We welcome your large-scale project and investment inquiries. Thanks.

*Garrett Nilsen:*
Great; thank-you, Bram. *(Part of audio missing)*

*Mark Liffman:*
Great; thanks, Garrett and Monica. Since 1998, Clean Power Research has been helping businesses and consumers interested in solar make intelligent energy decisions with web-based software services. Working with virtually every major utility in the country, to date we've performed more than 30 million solar estimations and processed more than 300,000 distributed generation applications with our power products. With the support of SunShot, we've developed two integrated software products, PowerClerk Interconnect and WattPlan. PowerClerk Interconnect is a web-based tool for utilities that allows utilities to cost-effectively automate their interconnection application processes. The utility administrators configure their own interconnection process workflow, forms, communications, and more, and install service, without any need for IT involvement. PowerClerk Interconnect's web interface streamlines application submission for industry applicants and review for utilities, reducing overhead and processing times for everyone. Using PowerClerk Interconnect's standard based API, the solar industry can integrate and automate the application process even further. And utilities can integrate with external systems such as utility billing and customer information systems. Data collected during the application process becomes a powerful asset for utilities that enables downstream management of behind-the-meter distributor resources, including distribution planning and operational forecasting and customer engagement solutions such as WattPlan. Next slide, please. WattPlan is a self-service online tool that utilities make available to their customers through their online portal. Configurable by the utility and hosted by CPR, WattPlan provides instant results to customers that are asking themselves, is solar right for me? WattPlan provides a personalized solar estimate using the customer's address, their integral data, electric rate, and a remote rooftop assessment. Resulting analysis includes an optimized system configuration and rate plan and long-term energy and financial modeling. WattPlan allows customers to explore their financing options, showing in-depth thoughts and comparisons. Finally, WattPlan gives customers a call to action, guiding their next steps with pure comparisons, installer contract information, and best practices for obtaining solar bids. Utility interest in WattPlan and Power Cord is very strong, with six top U.S. solar utilities already launched and dozens of implementations expected in 2015. Thank-you.

*Garrett Nilsen:*
Great; thank-you, Mark. With that, we'll be moving on to Vikram from Energy Sage. Vikram, give me a quick second to unmute you. Alright, Vikram, you're unmuted.

*Vikram Aggarwal:*
Great. Thank-you. Hello, everyone. I am Vikram Aggarwal, founder and chief executive of Energy Sage. Energy Sage has been called the Expedia or Kayak of solar. And just like Expedia and Kayak, we make it very easy and quick for consumers to research and shop for solar and related financing options. Consumers get quotes from three to five prescreened solar installers. We present these quotes in a standardized, apples-to-apples format, so consumers can easily and quickly compare their options and select the one that offers them the best value. The platform provides consumers with unprecedented simplicity, choice, and transparency. Consumers can save up to 20 percent over average market prices by shopping on Energy Sage. Our close rates are typically three times higher, and our cycle times are 70 percent shorter than industry averages. Several leading nonprofits, businesses, municipalities are now recommending Energy Sage to their members, employees, customers, and residents as a way to research and shop for solar. Thank-you.

*Monica Andrews:*
Thank-you, Vikram. Next we have Paul Grana from Folsom Labs. You're unmuted, Paul.

*Paul Grana:*
OK. Thanks, everyone. So I'm Paul from Folsom Labs. And we develop HelioScope. HelioScope is the industry-leading design and engineering software. We do both system layout / system design and performance modeling for projects that range from 5 kilowatts to 5 megawatts. The most important thing that our users love about it is that it's fast and it's very easy to use. Now, under the SunShot project — next slide, please — the main SunShot work that we've done is to automate design engineering. So a lot of the value engineering that engineers do is actually automated through the plant. What you're looking at are two screenshots of the five different optimization modules that we've developed under the program. So on the top left is looking at the different — the tradeoffs for row spacing on a commercial rooftop. On the right side you're seeing the transfer shading analysis and doing essentially module design choices based on that. So this project wraps up at the end of the month. And then final slide, please. And so as we're getting ready to launch, the customer feedback has been incredibly positive. If anything, we've just had to tamper down the excitement to get it launched sooner than we're ready for. So excited to fully include this in HelioScope and have it off to the market.

*Monica Andrews:*
Wonderful. Thanks, Paul. Next we have Genability with Eric Danziger. Eric, you are unmuted, ready to go.

*Eric Danziger:*
Great. Thanks, Monica. Hey, everybody, this is Eric Danziger from Genability. Genability is an energy software and data analytics company. We've been around for about four years. And primarily focused on energy costs and savings. Most people know us as having a database of electricity rates and a rate engine to calculate energy costs and savings. So we work with 10 of the top 15 solar installers and developers, primarily focused on lead to close and proposal generation. As part of our SunShot project, we are upgrading our savings calculations and tools to have more automation, around zero-touch analyses, but also around verified savings. So our SunShot project is called Verified by Genability, and it's taking our data and our calculations and making a third-party independent assessment around potential and actual solar savings. Thank-you.

*Monica Andrews:*
Thank-you. OK. Now we have Geostellar and I believe David Levine is on the line?

*Mike Rhodes:*
No, it should be Mike Rhodes.

*Monica Andrews:*
OK, great, Mike Rhodes.

*Mike Rhodes:*
Can you hear me OK?

*Monica Andrews:*
Yea.

*Mike Rhodes:*
OK. Geostellar is focused on reducing the soft costs of going solar by allowing access to our patent-pending data algorithms and rooftop modeling systems, via an API, for the entire solar market. To date, Geostellar has processed over 750 solar-friendly zip codes across the U.S.A., covering more than 70 million properties, down to 1 meter resolution, to create what we call a Solar Project Record beneath the property. Next slide. The DOE grant has allowed us to increase the data elements in our Solar Project Record up to 50 data fields, and to make the Solar Project Record available to the entire marketplace, including AHJs, finance companies, solar installers, and homeowners. Solar Project Record should allow for the increased adoption of both residential and commercial solar by improving system designs, reducing costs for an acquisition, and permitting costs. Next slide. Today, our API is currently in use by several large companies, including Cisco, 3M, Kimberly-Clark, and Johnson and Johnson. On March 31, or at the end of this month, we will be releasing our full API developer kit to the market, making this data available to everybody. Thank-you.

*Monica Andrews:*
Great; thank-you, Mike. Next we have Whit Fulton from ConnectDER.

*Whit Fulton:*
Monica, Garrett, thank-you guys so much for having us today. Yea, my name is Whit. I work for a company called ConnectDER, and the face of all these beautiful software design companies. We make a basic brute force thing that helps bring down some soft costs here. It's a meter collar that really is meant to be a bridge between the solar industry and the utility industry. At the end of the day, the ConnectDER is a universal power and data interface for the grid. For installers, it lowers the cost of installation between 500 and $3,000 per install. And for utilities, we provide a fast interface as metering, communications, and a direct tie to inverters and back to (inaudible) for the grid fit. We're finishing our pilots right now and launching large-scale deployments this summer. The product is UL listed and patent-pending, and we'd love to talk to anyone about it. Thanks a lot.

*Garrett Nilsen:*
Great. Sorry, thanks, Whit. Next up will be Jason Kaminsky from kWh Analytics. Jason, you are unmuted.

*Jason Kaminsky:*
Great. Thanks for having us today. My name is Jason, and I'm with kWh Analytics, and we are a data management and data analytics firm focused on the solar business. With the support of SunShot, we've been able to build the largest independent database of solar data, and we're building tools to better evaluate risk. Sometimes I like to use the analogy of Core Logic. When we look at other industries and ones that have prospered as they grow, there are typically third-party firms that collect, aggregate, and analyze data that would otherwise by siloed throughout the industry. So Core Logic is a firm that has data on 99 percent of mortgages in America. They provide services to mortgage originators and investors to assess and monitor portfolio risks, identify industry trends and benchmarking, and establish an independent view of industry performance. We see companies like this in almost every other established investment class, such as commercial mortgages, student loans, and even peer-to-peer lending. So we are that firm in the solar industry. We work with solar developer, then solar investors, to aggregate, analyze, and monitor their portfolios and put that within the context of the industry at large. We currently have over 40,000 systems in our database, and we are growing that with strategic relationships. Our software-to-service platform provides business intelligence and risk management tools for existing players and objective data sets for new entrants trying to better understand the solar asset class. Thank-you.

*Garrett Nilsen:*
Great; thank-you, Jason. Next up we will have Rick West from Renewable Power Conversion. Alright, Rick. You're unmuted.

*Rick West:*
Thanks, Garrett. RPC has developed and is now commercializing the next generation of PV inverter. Compared on average to other PV inverters, the Macro/Micro has twice the usable lifetime at 20-plus years, is half the weight, is one-quarter the size, is highly sealed — it can actually work under water. It is cooled without a fan. It is lower cost and it has higher power conversion efficiency. So to put things in perspective a little bit as you look at this piece of hardware on the slide here, that is a 20 kilowatt model. It weighs in at 50 pounds, and it measures about 36 inches across. So the Macro/Micro name is somewhat of an allegorical reference to micro-inverters for multi-megawatt applications. So when you use this inverter for a 1 megawatt system, you'd use 50 inverters instead of one large central inverter, which has been typical in the recent past. That's it. Thank-you very much.

*Garrett Nilsen:*
Great; thank-you, Rick. Next up, I'm going to have Douglas Hutchings from Picasolar. Douglas, you're unmuted.

*Douglas Hutchings:*
Thanks, Garrett. Hi, everyone. I'm Douglas Hutchings from Picasolar, and thank-you for the opportunity to be here today to introduce you to our technology. Next slide, please. Last year, over 4 billion solar cells were made that all suffer from the same problem. They lose 15 percent of their efficiency due to electronic imperfections in the top layer of the cell. Now with $32 billion of these devices sold last year, solving this problem is worth $5 billion. And that's exactly what we do. We've developed a technology that uses atomic hydrogen to passivate these electronic imperfections. If we go to the last slide, we'll see that working with the SunShot Incubator, we've already demonstrated unprecedented efficiency improvements in the lab. Over the course of this project, we'll be demonstrating the technology working in a full module, and then rolling it out to our partners. Thank-you very much for your time. Feel free to get in touch with me with any questions or comments.

*Monica Andrews:*
Thank-you, Doug. Next we have Brian Henderson at Simply Civic.

*Brian Henderson:*
Hello, everybody. Greetings from the balmy western United States. Simply Civic has built an online application that makes it faster and easier for governments, companies, and nonprofits to process solar soft cost transactions. So our app is especially suited for transactions that require collaborative review or approval by multiple departments or organizations. I'm sure you've felt the pain of slow and inefficient processes that feel like they were designed in the Stone Age, whether in solar or elsewhere. Well, we are replacing these Rube Goldberg processes in the solar space. Our app can handle all kinds of processes for solar soft costs, including financing, environmental, and pace-related transactions, to name a few. For example, we've got one beta partner who has used our app to accept over 1,100 solar soft cost requests from nearly 100 applicants, and then worked with 14 different outside lending institutions to simplify the review and tracking of required documents and approvals. So if you know of anyone who's still stuck in the Stone Age, we'd love to help bring them into the 21st century. Go ahead and email us at **info@simplycivic.com**. Thank-you.

*Monica Andrews:*
Wonderful; thanks, Brian.

*Garrett Nilsen:*
Next up is Shiba Bhowmik from SineWatts. Shiba, give me one second to unmute you. Alright. Shiba, you should be ready to go.

*Shiba Bhowmik:*
Alright, guys, can you hear me?

*Garrett Nilsen:*
Yup.

*Shiba Bhowmik:*
Hello, everyone. Good afternoon. Thank-you, Monica. Thank-you, Garrett. So SineWatts' inverter molecule solution allows utilities to dispatch PV power plants like conventional generation units. Each molecule is copacted with its PV panel and has the footprint of a business card. And it also provides smarter functionalities for advanced grid integration. The patent-pending technology credits and guarantees capacity availability throughout the day, giving unprecedented visibility into the power plant — into the PV power plant, that is. This is a paradigm shift for PV power plants. We serve inverter molecules to PV module manufacturers and our proprietary plant operating systems and grid operators and utilities. We are based out of Charlotte, North Carolina. And feel free to reach out to me if you have any questions. And thank-you for your time.

*Garrett Nilsen:*
Great. Thank-you, Shiba. Next up we're going to have Troy Tyler from Smash Solar. Troy, you're unmuted.

*Troy Tyler:*
Great; thank-you, Garrett. Can you hear me?

*Garrett Nilsen:*
Yea, we can hear you fine.

*Troy Tyler:*
Thank-you. Thanks, again, Garrett, and all the DOE staff for this support for all these great companies' innovations. Smash is developing an award-winning, simple, snap-together solar mounting system that installs twice as fast as conventional solar with less than an hour of training. Today, 64 percent of residential systems' costs are balance of systems as many of us know, and we are cutting that balance of system cost by simplifying installation and reducing time on the roof by 42 percent, according to NREL. Our value proposition to large and regional installers are faster installations, reduced hour count, lower training requirements, and improved aethetics. With the SunShot funding, we are optimizing our design. We'll complete certification and install pilot projects by the end of the year. Our call to action for those that are interested is we're seeking strategic partners and investors to commercialize our product. We look forward to taking any interested (inaudible).

*Garrett Nilsen:*
Alright; thank-you, Troy. Next up is Solar Census and it's Aaron Woro. I believe I've unmuted you, Aaron. Are you there? ...

*Aaron Woro:*
OK, cool. Hey, everyone. I'm Aaron Woro, founder and CEO of Solar Census. We're a geospatial software company specializing in hyper-accurate 3D and solar mapping. With the support from the DOE, we built the highest quality 3D mapping database ever produced. Over these maps, we run our patented shade algorithms to determine exact solar potential. In this image, you can see a 3D model with a value displayed at every three square inches. Last year, NREL found that point by point our shade values were equivalent to the Solmetric SunEye. With the SunEye no longer available in the market, our goal is to help the industry transition to remote surveys. Our services are available in the San Francisco Bay area and New York State with more areas coming very soon. Thanks.

*Monica Andrews:*
Great; thank-you, Aaron. Next we have SolarNexus with Michael Palmquist. Michael, you're ready to go.

*Michael Palmquist:*
OK, great. Thanks, Monica. So we all know the solar market is growing rapidly, but scalability and cost reductions are a key to continuing that growth. Independent solar businesses everywhere are hitting a plateau and struggling to profitably scale. SolarNexus' software solution acts as a solar contractor's operations hub. It centrally manages their processes and people, while reducing the number of software applications and redundant data entry. It enables companies to essentially scale effectively. Next slide, please. This slide shows our SunShot project. We're essentially teaching multiple software applications to talk to each other, using the industry standard IEP data model. We're also launching the PV Permit Design application to automate electrical design and creation of electrical schematics needed for permitting. Thank-you.

*Monica Andrews:*
Thanks, Michael. Next we have Sun Number with David Hermann, and David, you're ready to go.

*David Hermann:*
Thank-you. Sun Number is lowering the cost of customer acquisition for solar installers by millions of dollars with solutions based on our proprietary data. We build lead generation solutions that identify consumers motivated to adopt solar. We qualify properties so that mail and door-to-door campaigns are only targeted at buildings that are suitable for solar. We shorten sales cycles by instantly analyzing a rooftop and estimating the size of the system that would fit on the building. Our Sun Number scoring process engages consumers with easy-to-understand information about their homes' solar potential. To learn more about these and other Sun Number solutions and how they can save you money, please visit our website or contact David Hermann. Thank-you.

*Monica Andrews:*
Thank-you, David. So now we're rounding out the corner here. We have Sunrun with Gary Wayne. Gary Wayne, you're ready to go.

*Gary Wayne:*
Hi there. Thank-you. Sunrun's Bright Path platform is an end-to-end solution that goes from lead all the way to project management. The system is expected to lower costs by around 50 cents per watt by middle of 2016. The heart of the system is a design automation project that automatically generates optimized and engineered designs, and generates proposals, conducts electronic signature for transactions, and with the help of DOE, we will — I think before the end of the year — release a single-click permit-generation tool for the industry. Thank-you.

*Monica Andrews:*
Thanks, Gary. Now we have Brian Fitzsimons from Qado.

*Garrett Nilsen:*
Alright, Brian, you're unmuted.

*Brian Fitzsimons:*
That's the wrong slide, but that's OK. Good afternoon, everyone. I'm Brian Fitzsimons. I'm the CEO of Qado Energy, and I thank you for your time today. Qado Energy is a software company that provides a high-performance, cloud-based, advanced-grid analytics platform called Grid Unity. We are now serving a number of utilities and consulting firms who are using Grid Unity to automate the customer interconnection process. This covers online interconnection application management, as well as the automation of the technical screening and system impact analysis conducted by utility engineers today. Using Grid Unity, an interconnection applicant of any size or type could be fulfilled by a utility within a day instead of weeks or months. This dramatically reduces the time and cost for all stakeholders in the process. If you're interested in learning more, please go to our website, qadoenergy.com, and you can reach me by **brian.fitzsimons@qadoenergy.com**. Thank-you for your time.

*Monica Andrews:*
Thanks, Brian. And we'll be sure to put your correct slide on the website after this showcase. So before we move to Solaflect, I just want to let everyone know that we're going to move to Sungage and Sunlayar right after Solaflect, and that will round out the whole group. So with that, let's go to Bill Bender at Solaflect.

*Bill Bender:*
My name is Bill Bender, president of Solaflect Energy. Solaflect models a heliostat after a suspension bridge, using steel cables to suspend mirror panels. This reduces steel usage by 50 percent to 80 percent compared to alternative designs and thereby directly reduces costs. It is fast and easy to install and is highly accurate in tracking. It can be utilized with mirrors, as the heliostat with PV modules as a PV tracker, or with CPV modules as a CPV tracker. This machine was commercialized in 2013, and we've had an excellent customer reception. As part of the SunShot project, we're continuing to improve the design for volume manufacturing and high-speed installation. For more information, please email me at **bbender@solaflect.com**. Thanks for your time.

*Garrett Nilsen:*
Great; thanks, Bill. One second. We're just going to pull up the slide of Sungage Financial. One moment please. Alright, one second. We're going to unmute Sylvain. One second ... Alright, Sylvain, you should be unmuted.

*Sylvain Mansier:*
Thank-you. Sungage Financial developed and operates a consumer credit platform that delivers retail finance solutions for the residential solar sector. We offer financing products that are tailored to a residential solar purchase, such as the country's first asset-based solar loan. New financing products allow owners to purchase solar energy for no money down and to realize immediate utility bill savings from their purchase. One of our transaction platforms makes it easy for solar companies to integrate financing into their sales process, resulting in increased closing rates. Lastly, we utilize a marketplace approach that stores funds from third parties, which allows us to secure low-cost capital and to scale quickly, all while reliably meeting the demand for solar loans. Thanks.

*Garrett Nilsen:*
Great; thanks, Sylvain. And for our last but certainly not least is Sunlayar and you are unmuted.

*Robbie Lemos:*
Thanks, Garrett. I'm Robbie Lemos. I lead product and strategy for Sunlayar, and I'm joined by Anne Wright, who leads business development. Next slide. The vast majority of residential solar work orders, as seen here, are done manually, which leads to mistakes, delays, and increased soft costs, which are a major chokepoint. Sunlayar's cloud-based platform solves this and many other chokepoints along the sales, design, and installation cycle, by allowing solar companies to operate in real time. Next slide. With Sunlayar, sales reps, engineers, and installers can do everything in real time on one platform, from showing customers a live preview of an ideal array via augmented reality, to making cloud sim design modifications on the fly.

*Anne Wright:*
Now for the numbers. Sunlayar reduces soft costs by more than 30 percent. We estimate labor savings at 15 hours per job, or approximately $500. Later this year, Sunlayar AR Edition, pictured here, will be released. It will reduce costs up to an additional 31 cents per watt. Thank-you very much.

*Garrett Nilsen:*
Great: thank-you, Anne and Robbie. One moment. So, as you can see here, the Incubator Program is funding a wide variety of projects that will be impacting the solar marketing place both tomorrow and for years to come. We're very excited about these group of awardees and of course, you know, our future. If you have any questions for any of these awardees, please feel free to reach out to us at **sunshot.incubator@ee.doe.gov**. And we thank you again for attending. Monica, I'll let you take it out.

*Monica Andrews:*
Sure. Thanks, Garrett. This concludes the SunShot Incubator Virtual Showcase. I just want to thank you on behalf of SunShot for attending, and especially to our presenters today. Again, you can contact us through these various methods on the screen here or even in the chat box. So thanks again for attending, and we hope you'll continue to be engaged with SunShot and our program. Thanks, everyone.