

Eli Levine:

Hey welcome. Thanks everyone for joining us today. We're pretty excited about our webinar today, the Industrial Technology Validation pilot, so it's a new research. So we're excited to announce and we're pleased to have all of you with us today. Let's take about 30 more seconds just to let everyone get into the webinar and get settled, and then we'll get started.

All right. Great. Well thank you so much, and for those of you who have been with us through our other webinars, you largely know the drill but I'll go through a little bit of housekeeping before we get started. So Marisa, next slide please.

So this is Episode 14 in our Better Plans Online, or episode, sorry, so 13 in our Better Plants Online Learning series. We've been debuting these since the beginning of April or so, and it's been really great to see how many of you have come together to be a part of these.

We've tried to bring in some technical experts around some of the important topics that you're looking at, pressed air, water, pumps and fans, as well as some of our friends and colleagues across the federal family, the Environmental Protection Agency, the United States Department of Agriculture, the Department of Commerce, and then finding opportunities to feature you and to let you share best practices and where you've been doing some pretty amazing things at your plants through all of the tumult of this year.

So by now if you're just joining us for this one and haven't joined all, haven't joined the previous ones, or you weren't able to make all of them, we've recorded all of these. As you may have heard when we got started with this one, we are recording this one as well. So this will be something that we're able to share with interested parties moving forward in this webinar as well. So next slide please.

There we are. This is the team you have to talk about the Industrial Technology Validation pilot today. I'm Eli Levine, as you see. Speaking on this we have my colleague Paul Sheaffer at Lawrence Berkeley National Lab. You'll hear from Paul today.

And then we have Alex Fitzsimmons, which I'm really excited about as well. Alex is the Deputy Assistant Secretary for Energy Efficiency, so in his portfolio he oversees really everything energy efficiency. That includes advanced manufacturing, building technologies, federal energy management, low income

weatherization and all of our inner governmental partnerships as well.

So we were very excited when we could pluck Alex over from serving as the Chief of Staff for all things ERA and that. Now he's been our Deputy Assistant Secretary for, time flies, but it feels like it's been over a year now. So that's pretty fantastic. Next slide.

So before we get into this, and I guess Marisa we can turn back for a second and we'll just, I will, we just go back a slide Marisa. I will turn it over to Alex to kick us off and reflect on how this new pilot fits into everything he has been spearheading in his time as _____, and as part of the year.

So Alex, I'll turn this over to you now. Thanks so much for being part of us. Being part of being with us today.

Alex Fitzsimmons: All right. Well thank you for that introduction Eli, and thanks to all of you for joining and for your partnership in the Better Plants program. As Eli mentioned, it's been great to see all of the enthusiasm and the support, particularly during the pandemic, which I know has been a challenging time for all of us.

Especially the manufacturing community, although I've been so pleased to hear stories about manufacturers across the country stepping up to help with the COVID response and recovery. In a lot of ways working with some of our national laboratories to mass produce PPE and masks and ventilators.

One little aside here before I get into it is, which really reflects on the value that, and the capabilities the DOE has that not many people know about is right after the pandemic started to shut down activities across the country in March, one of our national labs who many of you know very well, Oak Ridge National Lab is a key partner, a key technical partner in the Better Plans program.

Actually brought out the inventor of the N 95 mask, brought him out of retirement and enlisted him to help at the manufacturing demonstration facility there at Oak Ridge National Laboratory to partner with manufacturers who were interested in adapting their supply line and their production lines rather to help produce PPE for local area hospitals.

And it's just been a tremendous partnership with our national labs and with many of you, and for those of you who know, our national labs, including Oak Ridge, LBNL who is here with us

today, and many others formed a consortia on behalf of DOE earlier this year to help with the COVID recovery, both from a high performance computing standpoint in terms of accelerating the pace of discovery of new therapeutics.

And also as I mentioned helping to manufacture PPE and other vital medical equipment like that we know has been so crucially needed in these past few months unfortunately.

But it just goes to show how much resources the national labs have at their disposal and anyone who has been involved in the Better Plants program knows that, and that's it's a big value proposition that we can offer you, is access to the technical experts at our labs, you know, at our labs like Berkeley, like Oak Ridge, and it's that partnership has just been tremendous.

But so I'm really pleased to be joining all of you today to talk about the Industrial Technology Validation pilot, which as Eli may have mentioned, was actually announced just today by our, Mark Menezes, who is the number two official here at DOE. He announced that this pilot up in Minnesota at one of our Better Plants partners facilities up there.

And it's just been tremendous to see all of the support internally for the Better Plants program, and we're really pleased that he went up to Minnesota to make this announcement. Because as you know, as many of you know, one of the top priorities for DOE and for the Trump Administration is strengthening American manufacturing.

We all know the industrial sector uses more than 30 percent of the nation's energy with an annual energy bill of \$200 billion per year. And so we know that technological innovation to reduce the industry's, to reduce that energy bill can help make a huge impact for the US economy.

And so it is for this reason that we understand that energy competitiveness is increasingly tied to manufacturing competitiveness. So that's what we're trying to advance here at DOE. And for years Better Plants partners have been leading the way in setting ambitious energy productivity goals, and then using technological innovation to make those goals a reality.

And so a great example of this is that three weeks ago we issued our annual report and we're proud to announce the Better Plants partners have saved nearly two quadrillion BTUs, which is more

than \$8 billion in energy costs since the Better Plants program started about a decade ago.

So I just want to congratulate all of you for achieving such substantial real-world savings, which it's one thing to save energy, but it's really about what you can do with those resources that you're saving. Right?

Particularly in an environment like this you can reinvest those energy savings in your company to create jobs and raise wages and expand operations. And improve quality of life for your workers and your community, which is what we're all about at the end of the day .

So this Industrial Technology Validation pilot that we're announcing today will further support all of your efforts to save energy. It's a new opportunity for us all to partner to demonstrate in real-world environments the positive impact of many of these advanced manufacturing technologies that you all are working on.

So the program we're launching today here is just the latest example of *DOE's* investment through our advanced manufacturing office in new industrial technologies, materials and processes that are designed to bolster US manufacturing competitiveness.

So this pilot is designed to help solve the key problem that manufacturers face, which is mitigating many of the risks that are involved in objectively in a data driven way validating emerging energy saving technology in real-world industrial environments, which we know that that field validation on the plant floor is a major barrier to see more of this technology come online.

I mean you can't afford to just stop your operation to try new things out. You have to have a reasonable amount of certainty that something is actually going to work. And so we see a role for this ITV pilot to help de-risk this technology and help you have the certainty that you need to actually scale the technology and use it at your facility.

So the ITV pilot is building off of the success of other field validation programs within DOE that involve many of our offices, including the *EERE's* building technologies office, our Federal Energy Management program, our weatherization program, and other agencies as well, including the General Services Administration and the Department of Defense.

So this pilot is open to all Better Plants' partners, and the goal is really to equip you with the expert resources from *DOE's* national laboratories, and you'll hear from one of those experts at LBNL today that can help lead on site testing and conduct energy performance analysis, and then ultimately draft reports to help validate the field performance of these emerging technologies in real-world environments.

And one of the other things that we appreciate so much about Better Plants and all of you who partner with us is that the results from this pilot will be shared broadly to help your companies, but also the entire US industry understand the benefits of new technology, while simultaneously offsetting many of the risks associated with being a first mover.

So at the end of the day this pilot program and everything we do at Better Plants and DOE for that matter is designed to strengthen the competitiveness of an American industry that provides jobs to more than 12 million people, and it is more critical now than perhaps it's been in the last 60 or 70 years.

I mean just to see the way the manufacturing sector has mobilized to respond to COVID is a degree of mobilization and service to our communities, not seen since really World War II I'd say. And it's just been tremendous to see US manufacturers, many of you stepping up in challenging times.

We know it's not over yet. The road ahead is long and challenging, and we are here to be partners with you, especially because we don't have, you know, we don't have profit and loss statements here in the federal government. We don't have to make payroll every year.

We have our own challenges, but we're relatively secure compared to the private sector and it's why it's important for us to do absolutely everything we can and we can think of within the resources and capabilities we have to help you be as successful as you can be. And so that's part of the reason why we're launching this new pilot program. We hope it's a valuable resource to you.

And so thank you Eli, for putting this together, for having the vision to create this pilot program. And thanks to all of our Better Plants partners who are continuing to make this country the greatest country on earth. So thanks Eli, for the opportunity to

speak, and thank to all of you. I look forward to continuing to partner with you. So thanks a lot. Back to you Eli.

Eli Levine:

Awesome. Thank you much Alex. I will say that this was something we've been talking about and working with your partners to try to design the program that would work best for them, but none of this would be a reality today – it's been very long in the making – without Alex really driving this and identifying this as a priority or something that could be really impactful for our partners.

And so I'm really grateful. I know that he, every once in a while when I pull back the curtain and have a slight glimpse into everything that he juggles on a daily basis, it's a little bewildering, but the amount that he cares about our program and believes in the impact that we're having and the potential for new pilots like this to even further that impact really has made a difference.

So I'll continue to thank Alex for everything he's done to support the programs that I've been involved with for the last many years.

So with that, I will turn to the next slide. I'd be remiss if I – many of you know this because you've joined us on previous webinars as well .We're going to use the Slido app or the Slido website to take questions from you, so that's www.S-L-I-D-O.com, and then when they prompt you for a hash tag it's hast tag D-O-E. And when you get in there or if you have the app downloaded just type in any questions you have.

We'll go through that towards the end of the presentation. You can also go in there because maybe somebody has a question and you really think that that's the most important question. There is the ability to give a thumbs up like they do on social media, and you can prioritize that question and really raise it to the top of the list. So that's slido.com and then hash tag D-O-E.

With that I'll get into a little bit more of our resources, a little bit more of what we're trying to do here with the ITV program, and then turn it over to Paul to take you through the nitty gritty and show how this could work with Better Plants partner.

So just as an overview many of you are familiar that Better Plants offers many different tools and resources to partners. This is our in plant training. It's where we've offered what, I think 120 since the beginning of the program training thousands and thousands of workers.

And our software tools, we're constantly iterating and making them better and designing new calculators to help you identify where the savings are in your plants. And better make the case to management about where how efficiency upgrades will generate important save cost and energy savings and relatively short paybacks.

Our diagnostic equipment program, which we're seeing more and more partners take advantage of, where these are physical tools that we will mail to you and show you how to use them and help you calculate savings that you don't have to pay for. Just mail, we'll send them to you free of charge.

And a lot of this between the software tools that the diagnostic equipment program is about helping to understand where your savings opportunities are, quantifying your energy savings opportunities.

And better being able to document them so that your all the more likely to be able to implement them and have management approval and generate the important savings and relatively short payback periods that we see from so many of our partners.

We have a financing navigator that's cater to our industrial sector. You're more and more in this economic climate, you know, identifying where the financing is going to come from and where the innovative different procedures are. You know, different ways to do financing are important. So we have case studies and different things in our financing navigator and I encourage you to check that out as well.

Our wonderful complimentary program so many of you are already taking advantage are our industrial assessment centers where our 50,000 one ready around energy management, or our combining power technical assistance resources, but by all means continue to take advantage of them.

Our technical account managers what to work with you to help you unlock everything the Department of Energy is doing and how it can help you. And then I mentioned our online learning series that we've been doing over the past many months, so please take advantage of that as well.

But when we fit into all of these and where we've tried to develop these resources, and even where in recent years as we've tried to

expand and help folks take advantage of our national labs, through our technology days and our website that breaks down all the lab capabilities and expertise, you know, one thing that we kept hearing is that so many of our partners have set these audacious energy, water, waste sustainability goals.

And they are thinking about how they're going to get there, and many of them are thinking maybe there really is, you know, leaning in on innovation and leveraging new technology will be the key to helping them unlock that.

So as Alex was saying, identifying the Department of Energy's role and how we can, we be aware of the challenges around new technologies and implementing them, and where the role of the Department of Energy can play. So next slide.

Why Field Validation? It brings together research and data to prove out technology claims that will help bring innovative technology out of RND and into the market. It can help you really understand, you know, it makes it from the abstract and the notion to how it's performing in real-world circumstances that can give you the clarity to understand that this technology is right or it is not right for your plants. Next slide.

So how this works is it's the performance of seeing where next-generation technologies perform in real-world operation settings compared to a bench scale setting, which can, you know, take a long way for its improving innovation, optimization, resiliency.

De-risking is something that we feel very strongly about with this role, that this program can support new testing, new technologies. You don't know what's snake oil. You don't what's real, and this can help you identify where the opportunities are. And more importantly enabling the broad integration of new technology into the industrial and manufacturing space.

And then we have just wonderful people at our national labs and on our RND and sourcing teams that are investing in research and development to generate, you know, to identify and push forward and move innovation forward. And the process of doing these field validation exercises in real-world circumstances can help inform their process of help them better understand where the opportunities are.

We view the ITV program as helping you meet your energy savings goal. So that's obviously something that's important to all of us in the Better Plants program, as well. Next slide.

So how this will work, we want to identify, install and monitor technology performance of real-world installations and communicate the results through case studies. Alex spoke about this a little bit.

But validating and verifying the potential and the performance, you know, projecting the cost savings and scalability, and then sharing that broadly so that every company doesn't have to feel like they are the guinea pig for every new technology, but maybe they can learn from what others have done and how this technology may have performed in one of our other Better Plants partner's plants. Next slide.

Alex touched on this as well, but we really wouldn't be here today if there wasn't not for the leadership of our colleagues across the federal family that have been doing this and doing this extraordinarily well over the years. There is the GSA program, the Proving Ground, previously the GSA program, the Proving Ground program.

But ESTCP program at the Department of Defense, and our colleagues in the Building Technology office that partner with GSA through their HIT program, the High Impact Technology collaborative program.

So where we are today is as a result of them being extraordinarily patient and collaborative and sharing best practices and lessons that they learned over many, many years of them running their programs. The ability, you know, if I can just call out a particular GSA program, to communicate the results and show, you know, put this in really easy to understand infographics.

Short reports and long reports very much sets the bar for what we're going to try to do through this program as well. So if you're interested in any of their technologies that they may have validated over the years, I'm happy to share those things or encourage you to go their websites.

Because the model for us of sharing these technologies more broadly is something that we've learned from following their great lead over the last several years. Next slide please.

So partner benefits, many of you, you know, a lot of us has come from workshops with you partners and talking with you over the years about what this might look like, but looking at we want to engage why join us. You can engage in a full scale pilot with MNV managed by our national lab experts.

And you'll hear from Paul and listen to his team talk about their MNV expertise that they bring to this and doing MNV. You'll receive independent insights regarding technology suitability for industrial processes, so taking away the vendors' claims and really seeing how it performs by lab experts who aren't trying to sell you something one way or the other.

In fact inform our public and private sector investment decisions who publically available and the findings, I emphasized that point quite a few times already today. And then hopefully increase the market acceptance of emerging technology.

So I'm selfish. You all know I'm a big champion of our Better Plants program and our Better Plants partners, and I'm doing this because I want to help you all achieve your goals and drive deep energy savings, but I do think that there is an important role that this pilot can play in working with the innovation community to start our community.

The folks developing new technologies and helping them access greater market acceptance and work with some of your plants and overcome some of the hurdles that they face and the various valleys of death that they face towards getting their products into market acceptance at many of your plants. Next slide please.

So how all of us will play into this, the Department of Energy will lead the pilot's direction, will engage with the innovation community. Will provide input to the labs and wherever we can help them setting this up and doing, you know, developing the reports.

And we will provide funding to the labs to provide this, but we're not directly funding the technology testing, and Paul can get into some more of the specifics of how that will work. Paul and the great Berkeley team, they've been really wonderful through all of this and helping design this.

And the experience they bring is just perfect for this, but evaluating candidate sites, recruiting and selecting technology for

the host sites, you know, conduct and developing the scope, conducting the MNV, delivering the public report.

And then many of you are here because of the relationship you have with your technical account manager, so they will help you with input, you know, with help with us on identifying which are the right applications and which are the ones that we will fund at various time.

And it's facilitating the project planning, bridging the gap between Berkeley and you guys, but also designing and engaging with the implementation and engagement for the duration of the various testing. My last slide speaking I believe is the, or I guess I have one more after this, but next slide please.

Is for you guys, for Better Plants partners you'll provide the host site for the testing. We set this up in the initial, for the initial cohort, and Paul will get into this of we want this to be technologies that you are comfortable with.

So for the initial site and the application we want you to come to us with technologies that you might be considering that you've been interested in for a while, but need the MNV to know for sure if it's the right investment for you.

So this will be something for the initial cohort that you will say come to us with what technologies you're interested in and we want this, we're not going to be pushing technologies on you. We want you to come to us with what technologies you'd like to see in this process.

You'll continue to engage with us through the duration of the study, and then provide the input to us on we want to be a collaborative process in designing the test bed and developing the project that we won't publish anything through the reports that you won't be comfortable with and you'll have the opportunity to sign off on all of this ahead of time. So we want this to be something that works for your plants as well.

My last slide is the next slide. It gives me an opportunity to showcase the wonderful team we have working on this. And then turn it over to Paul, who is our Senior Program Advisor for the ITV program, but all of us from Doctor Ernie to Prakash and Peter, many of you are familiar, Amy.

Many of you are familiar with their team, but they bring a wealth of experience of this like highlighting. You know, she came over to Berkeley Lab having worked on the GSA program, and that's been really valuable for us to have someone who has that experience of being involved in the previous program.

And then obviously, Tom and Sachin, not only do they bring enormous industrial efficiency expertise, but the connection to Oak Ridge National Lab and the great expertise and innovation that they have over there, and also their deep relationships within the Better Plants program and everything that they bring.

So I feel really great about our team, and I think this team will, you know, will really be valuable towards making sure this program is a success. And so with that I get the opportunity to stop talking and turn this over to Paul, who will take it from here and run through a lot of the details of how this program will work.

So by all means, if you have any questions as we're going through with slido.com and we'll have time at the end to answer any and all of your questions. So thanks all of you for the opportunity to listen to me talk and now I'll turn this over to Paul.

Paul Sheaffer:

Okay. Thanks Eli. Yeah, I will be principle investigator on this program for Berkeley Lab, and you can see we put together a great team of Berkeley Lab staff and Oak Ridge staff to work on this led by Eli at AMO.

In my previous job I was actually one of the original Better Plants TAMs, so I kind of understand the Better Plants program fairly well, and yeah we're really excited about launching this pilot. Next slide please.

So Process and Onboarding. So the RFT that Eli mentioned for this is now live, and you can almost think of it more like an application and say fillable Microsoft Word document that we're going to go over in more detail later. So Better Plants partners should work with technology vendors to complete the application.

And any details on the technology or the site in the application will be considered privileged and confidential. There is a deadline for this first phase of the pilot for submitting a proposal. It's end of March, 2021. But the proposals will be reviewed in the order they are received, and if an application passes a minimum scoring threshold, then it will be accepted into the pilot. So it's kind of a first come, first serve to some degree.

In terms of the life cycle of one of these projects, between 12 and 24 months. Five major steps in it, Berkeley will develop in the D plan along with the vendor and the site for the technology. Then we will be taking baseline measurements of the current system. Then the technology will be installed at the Better Plant site.

Then we'll take measurements of the new system, and then develop a report. It will be a publically available report, but like Eli said, both the Better Plants site and the technology vendor will have a chance to review the report and we can remove any proprietary information that's in the report. And we'll go into more detail on that later as well.

Funding, as Eli mentioned DOE is not paying for the technology or the installation of the technology, but we are, DOE is providing funding for all of the costs and equipment that are associated with the measurement and verification process, and also producing the report on the technology. Next slide.

This is kind of a pictorial view of the timeline and it's really going to vary quite a bit, and it's very project specific. Part of it depends on how long it will take to install the innovative technology and part of it will depend on how long we need to develop an accurate baseline.

And then measure the performance improvement from the new technology. So it'll probably be quite a range from the one that has the least amount of time to the one that has the most amount of time. Next slide.

So back to the Request for Proposal. Yeah, please work with your chosen technology vendor. Please work with your TAM on this. The TAMs are fully up to speed on how this program works and can definitely help you complete the application. And you can even submit an application if it's going to take a few months for you to install the chosen technology after you've been notified it's been accepted.

There is quite a bit of work that needs to get done in terms of reviewing the applications, and then developing a robust measurement and verification plan. Yeah, and you really will need input from the technology vendor to complete the application. We try to make it as painless as possible.

So like I said the application is a fillable Word template. We've limiting it to a maximum of ten pages plus supporting documentation. And everyone on the team is available to help you answer any questions at any time while you're contemplating whether or not you want to be part of this pilot effort. Next slide please.

So we're going to take a sort of a deep dive into the request for proposal and application. First we're going to go over terms, many of which we've already used. That's always important. Then we'll go over sort of AMO priorities, what we're looking for out of this. Then the types of technology that can be accepted. And then we will go over how we're going to score, score the proposals that come in.

And then the second piece of this, of the Request for Proposal is the questions we're asking regarding the technology. And we'll go into that in a few slides, but basically it's I think 16 or 17 questions that are part of the proposals. Next slide.

So what do we mean by technology? I don't know if you know Rube Goldberg was an American cartoonist that kind of depicted these strange machines that were intentionally designed to perform a really simple task, but they were really super complicated. That's not what we're looking for here.

The way we're defining technology is, it's very broad. It has to be some combination of equipment, hardware, software, but importantly it has to be retrofit into an existing system, and it has to improve the performance of that system at either a manufacturing site or a waste water treatment plant.

And the system that it's involved with should, well it needs to be some part of some type of manufacturing process or some step in the waste water treatment process. Next slide.

So next term that's part of the RFP, performance improvement. Key words here are measured improvements of the application of the technology. And you can almost think about performance improvement in terms of intensity. You're making the same amount of product using less energy, or you're making more product using the same amount of energy.

And all of this is in comparison to the existing system situation circumstance at your plant right now. And we're primarily focusing on improving energy performance, and that could even include

things like fuel switching, which adds a layer of complexity onto it.

We're also looking at improving water performance. Could be using reducing your water intensity. It could be creating less waste water, or creating cleaner waste water. And the third item we're looking for is waste. So sort of from a sustainability standpoint less waste going to landfills. The waste being less toxic or shifting from something that's hazardous to nonhazardous.

And another thing we're looking for on the application is we want to consider the non energy benefits that are associated with developing the technology as well, and that too is part of the scoring criteria. Next slide.

So how does the RFP define vendor? I've certainly seen plenty of snake oil over the last 30 years in the investor sector. So yeah, we want you to work with a vendor, and we define a vendor again pretty broadly. It can be inventor. It could be an incubator type organization. It could be a national lab. It could be an equipment distributor or it could be an equipment manufacturer.

And we also will consider internally developed technologies if there are plans to use the technology at other sites and locations and it has _____ across the United States. Next slide.

So the last thing to kind of define in terms of terms is the Technology Development Stage Considered. So key words here are probably emerging, innovative, technologies on the cusp of being commercialized. And the third vote here is important too, where it also accepting new applications of technologies that haven't been used in a given sector or process, but are commercialized in other sectors or processes.

And another thing to consider here and it's part of the scoring criteria is, that for that technology that you would be submitting the energy performance, or water performance, or waste performance improvements must have been demonstrated at least in a lab environment, because otherwise we won't know if it's worthwhile to accept, and that's part of the application as well. Next slide.

Yeah, again to highlight one of the most important things and one of the reasons AMO is doing this pilot is to identify technologies that have widespread performance impact. Technologies that can

be replicated at other sites in other sectors would even be better, or implemented throughout a given sector.

And really one of the things that we're going to try and estimate from the application is how much energy could the technology save if it was deployed across the US in every applicable sector that it could be used at.

So I'm going to use this slide to go through some of the other, or just highlight some of the other questions that are in the request for a proposal, just to give you a flavor for some of the stuff that we're looking for. I mean obviously we're asking you to describe the technology and to describe the application where you're proposing testing the technology.

You know, what kind of assembly line it might be, what kind of process it's going to be used for. We asked about the project team, asked to describe the performance to improvement benefits from the technology. We asked if there is any laboratory or validated performance data on the technology. If there is any technical risks. Things like that.

Also how long it would take to install the technology at the site, and we leave it pretty open. A number of the questions say that as part of the answering the question you can provide supporting documents.

So we limit the application to ten pages, but the amount of supporting documents, whether they be cut sheets, case studies, published findings or reports, lab reports. As much as that can be included as you want. Next slide.

Scoring Criteria. So the things on this slide are kind of must have traits. So the technology needs to improve energy, water, waste performance. Technology has to be emerging innovative as we just defined it. And the technology has to have wide scale applicability. Next slide.

Now this is out of the RFP, this table and really goes into detail on each of the scoring criteria. So I'm just going to through these row by row real quickly. So based on sound engineering principles, that's kind of the snake oil test, does it meet our definition of being an emerging technology.

Can you show that it improves performance? Where else can a technology be used? Sort of the conditions under which you're

proposing it be evaluated. Whether you see any technical risks associated with adopting the technology. Any complication reports, demonstrations you can provide that demonstrate the technology's performance.

Listing any non-energy benefits associated with the doc in the technology. And so far these savings calculations, sound and reasonable, and just the, it's the baseline assumption based on those as well. Okay .Next slide.

So the M&V process. So we will be engaging a subcontractor to provide the M&V equipment and hook it up for us, things like that. We will be managing the entire process. We will be leading the effort to develop the M&V plan along with the subcontractor. Also with obviously input from the vendor and the site.

I think we're all be willing to sign NDAs if we need to, to be able to do this at the site. We're really hoping to monitor most of this remotely, but it may need periodic time from the internal staff at the Better Plant site. We don't see it as anything major, but just occasionally checking up on things in terms of the M&V equipment that's installed.

And in terms of the process after we develop the M&V plan, which will include a way to sort of isolate the system where the technology is being retrofit into. We will first establish a baseline of the performance of that isolated system. And then once that's been established the technology will be installed.

And then the M&V equipment will, if any changes to the M&V equipment from the technology need to be done, they'll be done at that point, but hopefully we'll be able to use what we had used to establish the baseline. Then we'll take more measurements of the new equipment.

And when we're done with it we may need to use regression analysis to normalize data if things are somehow different between when we did the baseline and when we did the measurements for the actual equipment. But we've got an expert team put together to do this, and once we bring our subcontractor onboard they will have considerable expertise as well. Next slide.

So the M&V Report, these will be LBNL technical reports. If you want a real flavor for what they look like go to the GSA Proving Ground website. They have been doing this for years. So it'll be a

very detailed technical report going through the entire M&V process and showing the results of the performance improvement.

They'll be obviously completely unbiased. They won't be impacted by the vendor. We're not just trying to match what the vendor might claim about. Is we don't really care that much about that. We're trying to determine the actual performance improvement from this technology.

And we'll also have lessons learned and tips and guidelines for other organizations that might want to adopt the technologies. Next slide.

So not only will we be doing this sort of full scale M&V report. We're also going to be doing some like a four page, you can almost think of it as a case study, and then also some single page type infographics on it. And we're kind of moderately after what GSA has done, so again you can go to their website. They probably done it for 50 plus technologies now over the years.

And like Eli said, any reports, or case studies, or infographics, or whatever go to the Better Plant site and the technology vendor will have a chance to review them and provide comment and input on them. Next slide.

So yeah, closing. So yeah today is the official launch of this pilot. We're all super excited. Please work with your TAM on this, and yeah download a copy of the RFP and take a look through it. So yeah, thanks for your time and we're always available to answer any questions you have.

Eli Levine:

Wonderful, thanks so much Paul. We have some time now for question and answer, so if you are, I know we threw a lot of information at you there. Sorry, I appreciate Paul you go into the details there, but if you have any questions see it at the bottom there. it's www.slido.com/dae.

So Paul, we've gotten a few questions already. I'll fire them at you and if there is any that you would prefer me answer that's fine as well. Some of them we may have already presented during the presentation and they asked ahead of time, but I will, I'll just, I'll share them.

So the first question we got was where can we download the RFP to join up? Everyone can see. So Paul, where can we download the

Request for Proposals to join? And as I wait for Paul, just because I am impatient.

Paul Sheaffer: Hi.

Eli Levine: That's all right. You thought you were off the hook and done talking. Where do you want to point to, I guess we can point everyone back to we have a new dedicated website for this.

So if you go to the Better Plants website on the Better Building Solution site there in our scroll down feed we have the Industrial Technology Validation pilot, and that has a flier and all the RMP for downloading. So I encourage everyone to check that out. You can also just Google Better Plants ITV and it should come right up.

Paul, next question for you, who is the best point of contact regarding the metering equipment program? Is that their TAM?

Paul Sheaffer: Yes, I would say the first point of contact is the TAM. I think the, you know, the relationship between the TAM and the Better Plants partner, the TAM should always take the lead on that I think, and if it's something that the TAM can't answer, and certainly bring in staff from Berkeley lab to help out.

Eli Levine: Perfect, thanks so much, and certainly for everyone else if you have additional questions send them in now, but otherwise I know that this is a lot of information that we're dropping on you all at once. So we will be around and here to answer your questions, and certainly your TAMs will as well over time.

So any questions you have later or anything you want to work just please work with your TAM and you all have my contact information as well. Last question we have here is the program requirements include making sure the technology is based on sound engineering principles. Is the screening for this required part of the program review? This will eliminate time and resources testing snake oil.

I think the answer to this is just a very concise yes, but I will, Paul, I'll give you any opportunity to expand on this.

Paul Sheaffer: Yeah. No that's actually a really good question. Yes, so that that was the first row on the scoring criteria I read, and it's a binary yes/no, and if you get a no you don't have to, we won't review the rest of the proposal.

And if you would like us to do a preliminary evaluation of a technology prior to you completely filling out the proposal, if you want to first review of the technology we can certainly do that, if it's there is one that you think is somewhat questionable, or you just want us to say yes or no upfront before you spend too much time on it. We can certainly do that.

Eli Levine:

Thanks Paul. The next question we got I'm really happy that they ask, it's an important question, are there any DOE lists of emerging technologies that could be tested in this type of initiative? We struggle to identify new technologies.

So I do think that the vision for this program moving, this pilot moving forward as we expand is to over, for the second cohort and over time to allow us to engage directly with the innovation community and review different technologies that are out there and then present a smaller list of these are the ones that we're really interested in testing. Who is willing to host them?

Partial, you know, I would say main reason for how we structure this for the initial pilot phase is that we wanted to make sure that the technologies that are being tested right away are ones that companies are comfortable with and familiar with, and something that they would be willing to open up their doors for.

Now what you're saying is a really valid question and something that we at the Department of Energy are oftentimes speak with folks who are developing new technologies and they would love to connect with you. And we've typically, you know, we don't want to be in a position at DOE where we're going to our partners and saying hey, invest in this one technology. That's not necessarily the role of government.

But certainly we, what we have done is shared with them the public list of who our Better Plants partners were, and if they were particularly interested in – all right, we'll just pick on General Mills. I could then go to General Mills and say hey, we talked to this one company. Would you be interested in hearing more about this? And then leaving that decision up to partners.

So certainly if there is an area that you're interested in if you said hey, we're very interested in new compressed air type technologies and new HVAC technologies, we'd be happy to connect you with the researchers at our national labs who are working on that field or indicate, or as we talk to the folks in that area if there are

venders that are, we'd be happy to try to make those types of connections.

But we're wary for the first time, for the first pilot of this of appearing to force new technologies on you. We want the pilot phase to be stuff that our partners are comfortable with. But over time, we will be reviewing for later rounds of this pilot we'll be reviewing emerging technologies and identifying which ones we think are the most promising, and then sharing that with our partners to see who is willing to host them.

So certainly if or I know for Slido these questions are anonymous, but if you want to connect with me or your TAM afterwards we can find a way to work together on this. Thank you, and Paul as we pause there for any other questions to come in, Paul, anything you want to add on that topic?

Paul Sheaffer:

No.

Eli Levine:

Okay. So I'll give this one more minute for any additional questions until the clock strikes 2:00, and then we'll move to the next slide and wrap up and go from there. So let's see if there is any additional questions. All right. The clock has struck 2:00 on my tablet here, so Marisa, could we move to the following slides? Great. Next slide.

So in case you're not familiar we want to use this chance to plug the Better Building Solution Center where our website is held. There you see the magical mouse navigating down and on this drop down moving forward there will be a industrial or there is now an industrial technology validation page so you can read more about this.

This animation is promoting our technology focus area page where you can find all of our case studies and technical tools and resources and fit sheets on that specific topic on our technology focus area page.

So it's a wonderful resource, our Solution Center, and I encourage you to get lost in it and spend more time really exploring all of the different technical resources and case studies that we've developed over the many years in the program. Next slide.

As we said, these are our most recent Online Learning Series. They're all available online This was the second cohort of them. We did the first one from May until June or so. By all means feel

free to go back and review and watch any of these, watch them again. Send us any feedback of new topics that you'd like to see us cover in the future. Next slide please.

And this is our fiscal year '20, fiscal year '21 Better Buildings Webinar Series, so I encourage you to sign up and register for all of these as well today. They're the...Marissa and the Better Buildings team just do a great job putting all of these together, and there is a lot of interesting cool topics there.

And you can in the bottom right hand corner subscribe to our e-mail list to get Better Buildings' information, you get better clients' information. It's a great way to keep up on everything that we have going on. Next slide.

And then that is my information and Paul's information. By all means feel free to follow us, send us information, reach out to us. We also have a dedicated ITV e-mail to work with you on this program, and so feel free to contact that. Myself and the Berkeley Lab team will be monitoring that closely to see if there is any questions you have and to work with you directly.

I don't, Marisa, do we have any final slide after this, or is this the final slide?

Marissa: No, this is it.

Eli Levine: Wonderful, so that is it for me. Thank you so much for being here. Alex, if you're still a part of us today I would welcome you to make any closing remarks, but if not we will thank you all for being here. Alex, anything on your end? I'll give you the chance to have the last word. All right.

Well if not, that is great. Thank you so much. We're super excited to kick this off. The Industrial Technology Validation pilot is now live. By all means apply, and we look forward to working you on these important MMV testings. So thank you so much and let's go ITV. Bye everyone.

[End of Audio]