

*Eli Levine:*

All right. Well, welcome, everyone. I know folks are still trickling in, but we have a really great crowd to start off with. So welcome, everyone to the 2020 Better Buildings Better Plants Summit, the virtual leadership symposium. This is the Industrial and Manufacturing Sector. Next slide.

Yes. So as we said, thank you for being with us. We have a wonderful session prepared. Before we dive in, let me just go through a few quick housekeeping notes. I'm sure we're all used to this by everything's virtual these days, anyway. Please note today's session is going to be recorded and archived on the Better Buildings Solution Center. We'll follow-up with today's recording and slides will be made available.

Next, attendees, you'll have the option to share your video, as well as unmute yourself. That said, we ask that you keep yourself muted when you're not speaking to avoid any background noise. If you experience any audio or visual issues through today's session, just send a message through the chat feature at the bottom of the Zoom panel, and we'll work on addressing any of your issues. So, next slide.

I'll introduce myself. There I am. Maybe you can see me through Zoom, as well. But I'm Eli Levine. I'm the program manager who leads the Better Plants program here at the Department of Energy. So, next slide.

Let's go through the agenda for today. We want to do, we've gotten through the welcome to the Industrial Meet-Up and housekeeping. I'm going to use some time now to provide a quick update on the program, share some new resources that we've been developing and what we've been up to. And then we'll do some virtual recognition for the goal achievers and the Better Project and Practice Award winners, which I'm pretty excited about. We want to get everyone participating, so as a bit of an icebreaker, we're going to break everyone into groups for some trivia networking and then discussion. And then we'll reconvene to do some key takeaways that we've learned from all of this. And some group discussion takeaways. So, next slide.

So you might have seen this if you logged into the keynote this morning. I do want to take a moment on this because I'm pretty excited. We have – it was a long and hard battle. *[Laughter]* I'm joking. But, we had our own dedicated to the Better Plants program Twitter and LinkedIn feeds. So I want to encourage

everyone take a moment now, pull out your phone, follow us on social media. Follow us on LinkedIn. We really want to use these feeds to better tell our partner's story and shine a light on all of the great work that our partners are doing. And the only way you and your companies are going to know about this is if you're following us. So please just follow Better Buildings, too. They do great stuff, as well. But please take a moment and follow us on social media. Next slide. And interact with us.

Many of you probably participated in the Slido in the morning plenary, where you got to use Slido this morning. But I just want to take a moment and explain this. We're announcing that we're using an interactive platform called Slido for Q and A and polling. So please go to [www.Slido.com](http://www.Slido.com) using your mobile device or by opening a new window on your Internet browser. The code for today's event is #BBSummit.

Once you enter the code for this event, then you have to go down and select the Industrial Meet-Up. If you have any questions that you want to have for discussion questions – not technical support questions, not I can't hear hear anyone, or no one can see me, but actual discussion questions – please use the feature there in the discussion questions for the phone.

So let's give everyone a moment here to do that because we're going to break the ice with a few initial Slido questions. So take out your phones, take out your web browser. Go to [www.Slido.com](http://www.Slido.com). So I see two folks who've already chimed in with Q and A and thank you for your kinds words so far. All right. I'll give everyone one more minute because we, using Slido is somewhat new to all of us. So we just want to take a moment to make sure everyone is ready for this. Okay. Everybody good?

Let's go to our first poll. We want feedback from you. So first question, sort of an easy icebreaker, but an interesting one. When we talk about the different reasons that folks join the program, everyone has their different reasons. Some may be the technical assistance we offer. Some may be the peer-to-peer learning. Some may be the recognition. Some may be workforce development, connections to the DOE labs an innovation, or other. Maybe you just like talking to us. So, let's see the results come in. Sort of interesting to see.

It's sort of cool how it moves in real time. And peer-to-peer learning is growing. It's gaining on technical assistance there. All

right. I'll give everyone – get your last votes in. Technical assistance has widened the margin. All right.

So we will turn to the next question now. Which is the one are you wish Better Plants would step up and do a better job with? Where can we improve? Is there a specific area? Maybe we're good at technical assistance, but we don't do great in workforce development or we, we're – oh. Let's see. Mm-hmm. Lot of interesting votes. So this is super helpful for us. Thank you, guys. Don't be shy with "I'm happy with everything the program does." [Laughter] Joking. All right. Let's give it a second. Let everyone turn in their votes. All right. Let's turn to the next slide, the next poll. I think we have one more poll.

So this is something we've debated, and I'm just curious for your temperature. Right now, who you're paired up with as your technical account manager is very much based on the bandwidth of our technical account managers, and who's ready for a new partner as new partners join.

But we've been thinking about is there a more strategic way to have you work with your technical account manager? Whether that's having a technical account manager develop a certain expertise with a certain sector, or if that's helping, letting partners who are similar parts of their journey, or if they're small companies working with a certain technical account manager.

So maybe you all are happy with your TAMs. Maybe you're not happy with your technical account manager. Or maybe you like your technical account manager, but having to move to someone else on the team wouldn't be too disruptive. Let us know your thoughts here, and chime in if you can. But this would just help us inform where we're going.

And can people vote here? Everyone's too shy to turn it in? Someone should vote.

*Tom Wenning:* Eli, they're voting. It's just not showing up.

*Eli Levine:* Oh, this is private. I'm so sorry. Yes, thank you.

*Tom Wenning:* [Laughter]

*Eli Levine:* We specifically asked that this was private because we have all the TAMs there and we don't want everyone to be clicking the "I've

been hoping to break up my TAM" option. *[Laughter]* Excuse me, there. So, thank you. So, with that, and hopefully everyone's turning their votes in, we are now going to turn – I think those are our three polls for the moment, and now we're going to turn back to the PowerPoint presentation. Yes. So, I'm going to do a little program update here in partner recognition. First, next slide. Next slide, if we could. There we go.

So first off – and I included this when I spoke in the beginning of our webinar series – I really hope you all are staying safe and taking care of yourself. So one of the things that's really been remarkable, as the voice, we represent the industrial sector for this broader Better Buildings Initiative. And it's been just incredible to see the manufacturers step up and help respond to the pandemic, pivot their manufacturing to make things that they had never made before.

And these were nine headlines. But honestly, we probably could have done 75. It's been something we've been tracking, and it's pretty incredible to see how all of you are doing this. I want to thank you. It's important. When we talk about powering the recovery and helping to respond to these challenges that, frankly, most of us have never seen before, it's just been remarkable to see all of you step up. So, continue – hope you're staying safe, and thank you for everything your companies have been doing. Next slide.

You may have noticed – hopefully you did, because the turnout was really great – we launched an online learning series during this pandemic, where we covered a lot of the fundamental topics to help you take advantage of maybe you're in an alternate working situation and you have a little more time, or you just have folks on your team that could benefit from this.

So Tom Wenning and our team of TAMs have led a number of these webinar topics. We were really grateful to have Al Hildreth from General Motors kick off the first one, talking about how General Motors was able to respond to COVID and work and address a lot of the challenges that we were seeing. And then we had our colleagues in the federal family from the Department of Agriculture and the Department of Commerce talk about the great resources that they had been offering.

So the great thing about these, if you missed them, is that we've recorded all of them. You can watch them at any time. And then

we've taken a break for the last two, three weeks or so because we wanted to get ready for this Better Buildings Better Plants Summit. But we're really excited to go back and watch more of these. And if we want the new topics that we're talking about adding to be informed by what you guys want us to talk about. So definitely share. We'll have that as a poll later on. But definitely share if there's new topics or other areas where we can really help address a lot of the challenges and just provide more resources for you. Next slide.

Welcoming new partners. This is always a really exciting part of this. This is only over the last couple of months. I was tempted to do over the full year, but it just becomes hard to fit all the partners on the screen. We're just so blessed to have a program that's constantly growing and seeing new companies step up. What I particularly like on the challenge part of the screen, the right hand part of the screen, a couple of those companies, Lineage Logistics, Alexandra Renew are companies that have already been part of the program, but stepped up to the challenge level providing a little bit more transparency, sharing solutions.

It's something that if your company's on the program level and you're thinking about this, there's really a lot of resources that we can offer if you're part of the challenge level, as well. I'll note in here, as well, and just want to take a moment to recognize Johnson Controls, who has doubled down and set a new goal. With the number of partners that we see who are achieving their goal and then turning back to us and saying, "We want to do more. How can we do more?" That's really great. That's how we're going to really power the program forward for years to come. Next slide.

So, this is the schedule for today. We've made it to the Industrial Meet-Up here. And beyond this, we have the Fireside Chat later today. We have the Pecha Kucha session on industrial energy management, which should be really interesting hearing partners talk about just a new way of presenting, showcasing what they're doing. The best of the Betters, which is on Wednesday. This is all of the Better Practice and Better Project awardees sharing what they did that was so exciting that led to the recognition. And then we have a Packaged CHP Accelerator Program later in the day. And then Thursday we have the Early Best Practices from the Waste Reduction Pilot. Next slide.

One of the things that's been interesting about the pandemic is that we had a really exciting year planned and we have a lot of events

that we've been thinking about doing and we are waiting to see. So one of the things we've talked about is the fundamentals of energy management training at Oak Ridge National Lab. We have the AEE World Conference that we've typically participated in and that we were planning for a new technology day at Argonne National Labs. So we will keep you posted. We're monitoring. We're following all of the best practices from the CDC and others, and we will let you know as soon as any decisions are made about being able to bring people together for these events. Next slide.

So, new tools and resources. This is something that our team at Oak Ridge is always looking to modernize and develop these new open-source software for tools. They're technology and vendor agnostic. The highlight of this is our measure tool suite. It's all of our system level tools on one open source platform. Currently, it has five system modelers and 40 individual calculators for fuel validation. That includes built-in guides and tutorials, guided processes for performing system assessment and fuel validation. You can take the novice approach. You can take the expert approach. They've customized it so they can work with no matter what level you're on.

And they've updated all the tools that DOE has that have developed for decades. They've updated a process heat tool, the pumps tool, the fans tool, the steam tool, and then the energy treasure hunt tool module, as well; which I know has been popular. Right now they're working on our compressed air and our motors tool and the airmaster plus and the motormaster plus. Expect to have them done by the summer.

We also have this plant water profiler, which has been the topic of our in-plant training on water efficiency. But the plant water profiler tool is a comprehensive tool designed for use by manufacturing plants to help guide their sustainability teams and understand the procurement, use, and disposal of water in their plants, and be cognizant of the true cost of water. So, definitely take advantage of all of those.

And then separate from that what you see at the bottom of the screen are all of our diagnostic tools. And this is a free program. We want to lend these tools. We have them at the lab. We can help you measure and understand the energy savings on your system, which can help you better make the case to management. We'll teach you how to use the tools. We'll mail it to you for free. We just ask that you return it in one piece.

It's been something that I've really enjoyed seeing that it's gotten more and more popular in the last year or so. So please take advantage of the diagnostic equipment program, and please take advantage of Measur tool suite. And work with your TAMs to better understand how these resources can help you. Next slide.

In-plant trainings. Obviously, we have a number of in-plant trainings scheduled for 2020. Please check the website to keep track of where they are. We hope to keep being able to offer new in-plant trainings in the future. All of these that you see on the right hand side here are ones that have been awarded, but haven't been able to be scheduled because of the pandemic.

But one of the really nice things that I see about, that I like about the in-plant trainings is your company may not be able to host one in every cycle, which makes sense. But maybe you live near the Mitsubishi electric plant based in Ohio and you can reach out to them and oftentimes the host plant is willing to allow other partners or other folks to take advantage of these. But in-plant trainings are a great way to really, you know, it's a workforce development opportunity for your staff, and it's a great way to really spot opportunities and learn how to tackle some of these big challenges. Next slide.

This field validation is something I'm really excited about. It's something that we hope to launch in the next few months. It's getting close. But many of you are hearing about new technologies or thinking about new technologies and innovation that can help you take a major leap forward. But you may be nervous about wanting to be the guinea pig in not knowing what's real, and what's snake oil, and being able to have a National Lab expert come in, and validate, and test how a technology may perform in your plant. And then share it broadly so that not every company and plant has to be the guinea pig.

It's something that we see as a really important opportunity space, and something that we hope to pilot in the upcoming months. So it allows for the performance of next-generation energy efficiency technologies to be evaluated in a real-world operational settings, and then hand advanced research and development in the industrial sector. So stay tuned, but it's something that we're really going to want our Better Plants partners to take the lead on. Next slide.

So, our solutions center, you probably saw the video this morning. It's a wonderful resource. It has over 2,000 solutions. We have a great number of those in the industrial sector. We're constantly publishing more. These are some of the most recent ones that we've done in recent months. And one of the things that I like about our Better Practice and Better Projects competition is that we convert all of them into solutions. Because they're all so fantastic that we want to be able to share them.

And when you talk about peer-to-peer learning, sure, bringing people together in real time and through webinars like this, or even better when we're all able to be in the same room, is really important. But, being able to do it where you can read somebody else's solution and learn about their case studies, I think there's just so much learning that can go on from that. So please, spend more time on our Better Buildings Solution Center and learn about, read all these various case studies. And thank you for the partners who have stepped up and published these. Because that really goes a long way. Next slide.

Now we get to turn to our two goal achievers this year. First off is JBT Corporation. On the program level they exceeded their goal of 25 percent reduction in energy density by 2023. So they were well ahead of schedule, and they achieved a 32.5 percent reduction by 2020. And one of the things that I really like about this is when I was talking with their technical account manager, learning about how they did it just really exemplifies everything that we want to see in a partner.

It leveraged industrial assessment center, assessments that are free for small and medium-sized companies. They developed a corporate grant matching program for financing energy efficiency programs like a set-aside fund. They put on solar expansion in their Madera, California, facility. They did lighting upgrades, compressor upgrades, HVAC upgrades. They developed an aggressive corporate ESG policies. Just kudos to them, congratulations to JBT. We look forward to coming back and continuing to work with you in moving forward for your next goal. Next slide.

And our second goal achiever is New Water, which you probably saw during the challenge video. They served 230,000 residents in Northeast Wisconsin near Green Bay across two wastewater treatment plants and 13 pumping stations. They're treating 97 percent of pollutants from 38 million gallons a day. One of the



things that they've done that I encourage you to read their case study is installing two, is their **R2E2** project that they published online.

Check out their profile page for everything that they've showcased on what they've been doing. They installed two anaerobic digestors, reducing volume process. And they've been converting methane gas to produce electricity. So congratulations to New Water. We really, you've been with the program for a few years now. You've achieved 35 percent before 2025, so you're five years ahead of schedule, and it's just been great working with **Bruce** and the team at New Water. Congratulations. Next slide.

And then I want to take a moment and recognize the various folks who have put together new energy management systems from program participants, whether that's the 50001 Ready program or the Superior Energy Performance 50001. They're really wonderful programs, and we encourage all of you to take advantage of 50001 Ready. And the team with the 50001 Ready is ready and willing to help all of you. So Bendix, Clarios, Cree Lighting, Daimler, Foremost, TVA, and Vornado; congratulations to all of you. Next slide.

So, you all are going to come to the Better Practice and Better Project sessions, so I'm not going to take too much time here. But these are the Better Practice winners. Congratulations to all of you. Please come to that session where you can learn more about everything that they're doing. Because they all have really great stories. This year, we were just, we received more applications than we've ever received before, and trying to decide between all the great projects was really incredibly tough. But you'll be able to see what they've done that's so special. Next slide.

And we have for the Better Project winners we awarded eight. So it goes across two slides. But Bridgestone, Electrolux, Ford, Lineage Logistics – next slide – Ozinga, PepsiCo, ThyssenKrupp Elevators, and Waupaca Foundry. Each of them really did exemplary stuff, and I want to congratulate all of you for your recognition and encourage you all to come to their session to learn even more about what they were doing. Next slide.

So now we're going to back to Slido for a few more interactive questions. So next, we'll give everyone a moment. But I guess we can cue up the first Slido slide. So for those of you who have entered late, please go to [www.Slido.com](http://www.Slido.com). The event code is

#BBSummit. And then we're the Industrial Sector. So, the first one is – this is going to be a word cloud. So as you enter, we're going to see it populate the screen. And the question is with everything that's been going on with the pandemic, with the economic, everything that's resulted from the economics slowdown, recession, from the pandemic, what do you see is the biggest challenges driving your goal, and to achieving your goal, and driving energy savings at your company today?

This is pretty cool to watch it come in. Looks like priority, resources, money motivation, and capital – money and capital are – it's interesting to see. And, yes, these are real challenges and this helps to inform the types of resources that we can develop. And I think you're going to be seeing a lot more from the Better Plants program rolling out. We've been taking advantage of our time being home to develop a lot more guidance documents that you'll see in upcoming weeks and months. So thank you. Let's turn this to the next poll question.

And this is sort of a reflect on we got together last year and we were able to be in person, and I want this to reflect if what would you have said last year – and just to compare the results that we got just now to what we've seen. How much of this is based on what we're seeing now, versus what would you have said is your biggest challenge last year? Really interesting. Okay. Well, thank you. Next slide.

And so this is our question. As we mentioned, we've done six webinar series already. And let us know if there's any topics that you'd like to see featured in our session, in our upcoming webinar series. We want them to be responsive to you. *[Laughter]* A lot of really good suggestions coming in. Well, we may start having webinar series three times a week until the next summit, just to make sure we can cover all these great topics that you guys are bringing up. I'm kidding. But this is really great. This is super helpful to inform us. You can still enter this, but I'm going to – maybe I'll keep it another second because the responses are still coming in.

All right. Well, next slide, next question. I thought we – do we have one more question? Maybe not. And great. So, let's – I think we have one more question, one more. What would you be in – this is the last one for us. So what would you be interested in for your organization's next in-plant training? And I believe we've set this one up so you could add more than one if you haven't done so.

Just because I'm seeing a few familiar faces entering that I get at the bottom of the screen entering the waiting room. If you're just joining us, you go to [www.slido.com](http://www.slido.com) #BetterBuildingsSummit, or #BBSummit. And then you go to the Industrial Meet-Up. And then you can answer these. But this is our last poll question. It's so interesting to watch the results come in. all right.

Well, with that let's return back to the slides. You all have listened to me talk long enough. So now we're going to try something different. And I assume for all of you who have been dealing with three months or so of virtual meetings, and Zooms, and everything, there's a certain degree of being patient and tolerant as we try something new, and we'll see how this works. But we're going to try to break everyone up into breakout groups to see.

And we're going to do a little trivia as an icebreaker. So we put together some trivia questions. Solve them as a breakout room. Your moderator is going to, you're going to have a predetermined facilitator. You can leave that session at any time and come back to the main meeting room. But we're going to meet up in about 15 minutes or so. If you experience any technical difficulties in the breakout room, click the help button and we'll notify the host. So, powers that be that break us into breakout rooms, break us into breakout rooms.

All right. So, welcome back, everyone. I'm sorry if your breakout rooms weren't able to get through all the questions like our superstar breakout room that – went nine for ten, I believe. But, we will go through some of the trivia answers here. So next slide.

So what was the Better Plants known as before it was known as Better Plants? It was Save Energy Now or Save Energy Now LEADERS. So these were the early 2009-2010 days.

How much cumulative money have the Better Plants Partners saved to date? \$6.7 billion. We're looking forward – thank you to all of you who have turned in your data to date. And if you haven't please keep doing it, because that only helps us grow this number. But we're looking forward to refreshing this with an updated number in the fall. But \$6.7 billion is certainly an impressive number.

At present, we offer a water efficiency – we will offer a water efficiency slide. We offer the treasure hunt slide. We don't yet offer an industrial and cybersecurity slide. There's other resources

out there with the manufacturing extension partnership centers, or the industrial assessment centers that offer cybersecurity resources. No in-plant training yet in that.

What is the average potential savings opportunity identified by each IAC? The answer is C, \$130,000.00. These are free energy audits given by students and universities all around the country for small and medium-sized businesses.

Where are the annual Technology Days hosted? DOE's National Labs. We've hosted three so far at the Oak Ridge National Lab in Tennessee, at the National Renewable Energy Lab in Colorado, and then at the Lawrence Labs, Lawrence Berkeley National Lab and Lawrence Livermore National Lab in California. Hopefully, at some point, maybe in the fall, we'll be able to invite everyone to just outside Chicago for Argonne National Lab. Next slide.

What pilot program did the Better Plants Program launch in 2019? Waste reduction. This was new. It's been something that I've been found really interesting. About two-thirds of the pilot participants have come from the industrial sector. We have about 20 from our sector. The other answers in there about a supply chain program, we do have a supply chain program, so if you're thinking about ways to engage your supply chain, if you're thinking about scope three emissions, we'd love to bring your suppliers in and work with your suppliers through that program. But that was launched prior to 2019.

About how much electricity was converted to heat when generating compressed air? The answer is C, 85 percent. So, I don't know about your rooms. Breakout room one is seven for seven so far.

What companies were featured in DOE's Direct Current podcast entitled "Power Couple"? That was Harley-Davidson and Charter Steel. Tari Emerson and Kurt Emerson who work at the two plants that were featured, I encourage you to go back and listen to the podcast. It's a really fun episode that they put together.

In pumping systems – this is the only one group one got wrong – if you double the pipe diameter, how much is the friction, the pressure drop reduced? That would be D, 97 percent. It's just something to keep an eye on and be aware of as you're thinking about different ways to save energy.

And then lastly, we've achieved 63 goal achievers. Now, I'll confess. We just about – we gave you about two easy ones to start by highlighting JBT and New Water. So you should start about 40 percent of the way. But this 59 of the 63. So take a few minutes and keep track of everyone who has been a goal achiever, including those at the challenge level. If you were paying attention, you should have gotten Johnson Controls, as well. Because I highlighted them as a re-pledging to a new goal. So we gave you about three out of five. But, kudos to all of your groups who – is there a next slide with the final four or five?

*Clifton Yin:* There are four that are repeat goal achievers. That's why.

*Eli Levine:* Wonderful.

*Clifton Yin:* Yeah. Yeah.

*Eli Levine:* So, yes. Congratulations. I hope that trivia was fun. It worked out a little bit better than we were – I was predicting when we were debating whether or not we should do this. So let's turn to the next slide, now.

And now we're going to return you to your virtual breakout groups to participate in some discussion. Your moderators will display the questions and take notes on the group's thoughts. When the discussion time is up, we'll be summoned back to the room. You saw you get about ten seconds notice. So finish your thought and then you get shunted back to the main room. And we'll convene and go over the highlights of the program. So, with that, powers that be, break us into breakout groups.

We've returned. How – oh, I should have given some folks the option to – I didn't tell my room to also enter into Slido.

*Clifton Yin:* I kind of forgot, too. We were kind of rushing into it. But some people are quickly putting things in.

*Eli Levine:* So, should you want to share in Slido, you can, as well. Otherwise, maybe let's – Clifton, we have a few minutes here, right? Can we have the various rooms talk about what they talked about?

*Clifton Yin:* Sure.

*Eli Levine:* All right. Well, Tom, I will turn this over to you to talk, let us know what you guys discussed in your breakout room.

*Tom Wenning:* All right. Nothing like going first here. Thanks, Eli. *[Laughter]* All right. So, on this first question, we talked about a number of things. And it sounds like we're all more or less in the same scenario, where most of us as professionals or as engineers, we are working from home, working remotely. And so there are definitely some challenges associated with that. But, our sites are still operating, and so figuring out how to keep people safe and well is priority number one. Right?

And so we had talked a little bit about some things such as the social distancing, and how do you do that in the manufacturing environment? So, trying to move your production lines around a little bit. Maybe installing some of the plexi glass barriers was an example of what one of the individuals, what we had to say.

But then in addition to that, specifically with manufacturing, you have those shift turnovers. So you have a massive amount of people coming in, going out roughly at the same time. So, there's some strategies in there to spread that shift change apart, stagger it, use some of that time for disinfecting. And so definitely some things going on in that manufacturing sector.

And then the last one I think Zach mentioned, we were talking about how are people handling air turnovers? And Zach is with a pharmaceutical. And so for better or worse, they're already set up where they're using 100 percent outdoor air in their manufacturing. That's just part of the pharmaceutical world. But at the same time, they have heat pipes already built into that design. So you don't have to worry about that heat recovery aspect being turned off or diverted. It's in there. It's in a safe way.

So, that's definitely something that it sounds like it's going to have a much bigger impact in the office environment as people start to come back, and really testing out the limits and capabilities of folks' equipment. So those were a couple of things. I don't want to monopolize anymore time here.

*Eli Levine:* Wonderful. No. Thanks, Tom. Clifton, we have time to call on another room or two, right?

*Clifton Yin:* We have 20 minutes. Okay. So I think we do.

*Eli Levine:* All right. Awesome. Bruce, you want to talk about what you guys discussed in your room?

*Bruce Lung:* Sure.

*Eli Levine:* I'll note that I'm really enjoying your background with all the Syracuse. *[Laughter]*

*Bruce Lung:* Sure. So we actually got a lot of good responses from folks, and really happy and thankful that they're able to share so much. We did find that people deal with a lot of temperature checks, social distancing, and wearing masks. There's a combination of folks who are depending on CDC and local guidance and state-level guidance for how to work in their plants. And then but there were also a good mix of folks who were depending on their industrial hygienists, and the people who understood how to disinfect things and such for guidance, as well.

We did find one thing that was interesting that media, to separate people as they work on an assembly line, were being introduced so that you could actually have two people working in a close space, but without breathing or coming into contact with each other.

The other thing we found is that in some cases energy actually rose in prominence in some plants. And there were a couple instances where they actually met some of their goals. They reduced some of the fixed loads because some of the behavioral things, components that they didn't think they could touch were able to be affected. So that was quite revealing.

One thing that is kind of important, I think, for all of us to understand, though, is that a lot of the manufacturers, they need to protect their ability to manufacture. And so they're not letting outsiders come in, whether it's vendors, or consultants, or anything like that. And that's probably going to be the case for awhile. And that's going to affect our ability to do things like in-plant training, but also we can see the things, for example, if there's another stimulus bill, and they want us to do assessments everywhere, that may not be viable thing to offer. So there's a few things there for folks to gather.

*Eli Levine:* That's great. Thanks, Bruce. Kristina, I'll call on you next, but I'll give you the option if you want to pass it along and have one of your industry partners speak. You can either share or call on one of your industry partners to speak on behalf of the breakout room.

*Kristina Armstrong:* I guess I'll just go on and go.

*Eli Levine:* All right. Works for me.

*Kristina Armstrong:* A lot of the same stuff: masks, rotating shifts. We did talk for awhile about how there are, like one of my companies in the group has a special charge code devoted for anything related to new COVID purchases. And it is spending a lot of money. They've also had some problems sourcing new equipment, and they actually do have their industrial hygienist checking like masks and rejecting lots of samples. So that's being a problem.

And as Bruce kind of mentioned, several of them had had an opportunity to examine their base load and see that they're just running water or something for some reason, and getting a chance to stomp down on that. And then new problems being brought forth by this, a lot of doors are having to stay open for safety. A lot of lights are staying on. So there's installing occupancy sensors, and stuff like that. So it was very interesting, the changes that is being brought out.

*Eli Levine:* That's pretty interesting. That was something that we saw, as well, was one or two of our partners talking about how to take advantage of down time and use that time where the plant may be idle to look for well why is this machine still running? Or hey, is there a water leak that we can address, and trying to plan ahead that should you know you have any down times in the future that you can keep going.

Rather than calling on folks, is there anyone else either from one of the leaders, one of the meeting room leaders, or just someone from a partner who wanted to speak on behalf of their meeting room?

*Paul Lemar:* Yeah. I just – this is Paul. I just wanted to add that we did get – we actually got into that same discussion about the baseline of the plan and shutting machines down when those lines are down. And there was a metric of like the rest of the world was able to get to like 18 percent, but in the US it was about 25 percent. And some offered the suggestion that it could be prevailing energy prices, to some degree. But there seemed to be an overall awareness outside of the US that that might be better up unto this point.

*Mahabir Bhandari:* Yeah. This is Mahabir. Just to add to what Paul was sharing, we were sharing a similar thing. And then said that how the company, like in India or China, are able to power down their equipment and then seven isn't that way, versus in Europe and US, we're not able



to do that, even if there was a concern that, oh, if we shut off the plants, maybe then it won't come. We need to calibrate. But somehow some of these plants in those other countries were able to do it. So, there are something to lessons learned.

*Sachin Nimbalkar:* Yeah. So, Eli –

*Eli Levine:* Yeah.

*Sachin Nimbalkar:* I think in our group, also, we discussed probably some similar kind of topics. We covered those topic. I think only a couple of things that are a little bit different. One is particularly how COVID-19 is going to impact our trainings. And as a management point of view, whatever training we generally organize in manufacturing plants – actually in manufacturing plants, they organize their own trainings, different type of trainings. And so training is most important component in energy management.

And so a couple of partners, they mentioned they are thinking about going virtual, virtual trainings. And then even they suggested many our in-plant trainings also maybe energy explored and a couple of facility members only focus on specific system, and then using technology by using smarter technology, they actually train multiple facilities remotely. So rather than just in-person training. So there was that discussion.

And then second one, the use of Internet of things and smarter technologies, like data analytics. Because we were discussing potential impact of COVID-19 on energy efficiency, on energy performance. And so definitely it's too early to quantify impact on energy consumption because we need time data and then analysis. But at the same time, is it possible to use smart technologies like Internet of things and energy dashboards, scale our system, and then collect data, and then monitor things, and then monitor impact of social distancing, as well as whatever technical measures they are taking on the different ENPIs. On improvement level, production line table, and facility. So that \_\_\_\_\_.

*Wei Guo:* This is a Wei. Yeah. I will share a few interesting things. Number one is one of our attendees brought up they will remove all their manual water fountains and replace them with the contactless bottle filling water fountain. And the second one is this time we're doing a lot of things that we all have been doing: keeping social distancing and draw a lot of outside air. And one point is we need to check the outside dampers, make sure that we are calling for

outside air. But if your damper is shut, we got nothing, right?  
[Laughter]

And as for the future challenges, the nation about, for example, we are going to draw a lot of outside air into the building and people will wear masks. Some of them probably will wear gowns. And there's going to be, use a lot more energy in terms of cooling. That definitely will affect our energy efficiency. And I guess that's pretty much it.

*Kiran Thirumaran:* And I can share from my group, Eli. This is Kiran.

*Eli Levine:* Sure.

*Kiran Thirumaran:* So, with respect to the first question, a lot of the things that was already repeated: extensive work from home, routines for using PPE, and things like that. One of the new ones I thought was interesting was with respect to employees bringing their own lunch because of the cafeteria closing reducing the risks. We did have an involved discussion on how the energy management program is evolving. And while a lot of people are not yet at a point where they are actively thinking about it, we did have a couple of folks who are actively doing virtual energy treasure hunt. So we are folks in betian are looking at it. Encore has already done it. And also I think Full Bore Products, they are looking at potential to work with restaurants, as well. Which I thought was really interesting.

So even this situation, people are actively engaging in finding opportunities and getting those implemented so people are making use of building automation systems and things like that to kind of like virtually track what is going on in their facilities and try to find energy opportunities.

*Chris Price:* Building on what Kiran said, in our group we had a discussion of using augmented reality and virtual reality to bring experts into the plant – not only for treasure hunts, but for anything technical; looking at specific equipment. If your heating guy is across the country and can't travel, how do you get him into your plant to look at your equipment today? So using the virtual glasses where you can annotate what he's looking on in real time, and bringing people into the plant that way was something that we talked about, as well.

- Daryl Cox:* Eli, one of the things that we discussed in our room was the increase in remote monitoring and the value of being able to monitor equipment remotely. That's going to be a big deal. And also as product lines change – this was not an answer, but it is a question – how facility design is going to change moving forward. That's going to affect education and also a lot of the industrial engineers and plant design and plant layouts. And we were having a great discussion and got brought back to the big room. But, we were discussing [break in audio] down and what that could reveal as far as plant performance.
- Eli Levine:* Could you repeat that part? You cut out for me. Maybe not for everyone else, but just for me.
- Daryl Cox:* Oh, the value of when your plant's shut down, if you did a quick shut down, then you're still looking at the energy content as kind of well, what happened? And did it do what you thought it was going to do? Did it go down where you thought it was going to go down? Or were there some surprises in there where things didn't change and should have?
- Eli Levine:* Yeah. We discussed that, as well. It's a really interesting space and opportunity. Maybe there's a time now. Any others that want to chime in? Otherwise, I know we've gotten a couple interesting questions through the Slido app, and I'm happy to use the last couple minutes to address those, too. Unless anyone else would like to –
- Walt Brockway:* Eli, this is Walt. Very quickly, a couple things.
- Eli Levine:* Go ahead, Walt.
- Walt Brockway:* Everything every one else said, but a couple things unique that I heard were the use of UVC lighting. And I don't know a lot about that. And treatment in air handling systems. And this was from a food manufacturer. So something I hadn't heard about kind of unique.
- Eli Levine:* Interesting. Yes. Anyone else? This was great. And by no means do you have to be a TAM or a meeting organizer. If you just want to chime in, feel free to unmute yourself and we can take a minute. Otherwise, I want to respond to some of the questions we've been getting through the Slido app.

*Mark Johnson:* Hey, Eli, whoever just talked about UVC, it's interesting to note because I got involved in this on a whole research project I was working on the last couple months. Before –

*Eli Levine:* I'm sorry, sir. Can you introduce yourself.

*Mark Johnson:* My name is Mark Johnson. I'm sorry. I'm with Clemson University. And it's interesting to note before the development of vaccines with polio vaccine, UVC was actually the predominant means of fighting virus in medical environments. And what people would do is they would put it in the rooms up above where there's line of sight. And it's actually very effective in terms of convective air decontaminating and inactivating viruses.

So there's a long history of doing that that kind of went away in the 1950s. But especially if you have a building where you've got high heights and look at it, Ednar Dehli, if you want a name, who is a medical doctor at Harvard Medical School is actually one of the key sort of scientists that still is pushing that technology. But it's an interesting approach that one could see coming back; whether it's in HVAC ducts, or wherever it is. And perhaps even product opportunities for somebody.

*Eli Levine:* Thanks, Mark. it's nice to see you there. Anyone else? Otherwise, I'm happy to turn to answering some of our questions. We only have a few minutes left – seven, apparently. So one question we had gotten was under the current COVID-related situation, is DOE considering developing virtual implant trainings? For example, virtual energy treasure hunts?

I would say yes. That's something that's under consideration. We're still thinking about it and monitoring the situation. Getting through today's session was a positive step towards believing we're not too technologically incompetent to be able to do this. But I think that there's a lot that we could do to learn from you all. I think that's part of why we wanted to do the breakout rooms and see how you guys are already doing this, and are there successful approaches that we could replicate? But certainly if the social distancing and the inability to fly persists, we'll want to consider other options to make sure we're sharing knowledge.

Somebody asked will there be a discussion of energy efficiency as a service, given all the focus on resources and money? I think that at large, one of the reasons that we hold everyone in terms of their

top questions that they want to see from us from webinars and new topics that we can cover is to really take the pulse of our partners.

And certainly the message to us of financing new energy projects being a challenge moving forward is something that I think was very clear to us today. So we'll want to coordinate and develop resources and materials to help address and provide our partners with the best strategies and interesting approaches to address that. By all means, if anyone else for any of these questions wants to chime in or tell me I'm wrong, feel free.

Somebody asked where can I find these free tools? And I'm encouraged that that person was responded to in the questions. So by all means, take advantage of the diagnostic equipment program and the Measur tool suite that are online.

Other questions here. I'm fielding them as we come in. Here's a question that I was curious about. Could we have more virtual peer-to-peer sessions hosted by Better Plants? How are people – this was a question I was going to save until the last day to get your temperature on how much are people sick of sitting and looking at Zoom boxes, and crave face-to-face contact. If this is something that you're interested in, and if the discussion was worthwhile, and the trivia wasn't to juvenile for you guys, I think that there's a really interesting model.

That was something that our meeting room ended up moving into towards the end of discussing in this new normal if there's more that can be done virtually through Microsoft teams, or Zoom, or others with a way to stay in contact with each other, and bring some more of that peer-to-peer learning to each other while keeping travel costs low. So, by all means, this is something we were going to – we'll poll you on towards the end of the week of if this worked well, if this is a model for future meetings, let us know. Because we might be interested in that.

Let me go through other questions that we got here. There was a question. Someone else hopefully can answer this. UBC lights and air handling units on coil are supposed to save energy, kill bacteria on coil, less pressure drop and better heat transfer. Are there case studies on this? Does anyone have an answer to that? Otherwise, we will take this for the record and get back to you. All right.

And I think that – so keep sending your questions in if they have come in. But otherwise, feel free to unmute yourself and use this

time to ask questions directly. You've got the whole team here. But I just want to thank you all. This has been a really – this went better than I expected, and it's been a really interesting discussion. And I hope you'll join us for the upcoming sessions. Clifton, could we maybe move to the additional slides, where we can see the future slides and I can share – we can share our contact information, our webinar series for the Better Buildings program. And everything else that we want to share.

And it may be that that's already up and I've somehow gotten lost in looking at all of your faces and can't see the slides anymore. So it's the shared content there. There we are. Oh. It is up. So here is additional information on ways to contact us. As I mentioned, we now have our own social media feeds. Please follow us on Twitter and follow us on LinkedIn. We want to be sharing more information with you. Next slide, Clifton.

Oh, before we play this, can we go back to the webinar series slide? Maybe that was up. But this is the broader Better Buildings webinar series that has been launched. We anticipate launching our own webinar series just for our industrial partners. But take note and if there's any of these that are interesting to you, whether it's data centers or submetering, or anything that's interesting to you, by all means sign up for any and all of these.

So with that, Clifton, I guess we can hop forward two slides, and you can share the video on the Better Buildings solution center.

*Clifton Yin:* You know, I think we might be out of time. I don't want to risk –

*Eli Levine:* Oh, I apologize.

*Clifton Yin:* That's okay. We can share this video – all the sessions will be sharing this video. So look forward to it. But basically the Better Buildings Solution Center in a nutshell is a great resource for energy efficiency solutions.

*Eli Levine:* My fault there.

*Clifton Yin:* No, no, no.

*Eli Levine:* I just wanted to thank you all. And I think the next session after this will be the plenary session with our lab leaders, where you'll hear leaders from Pacific Northwest National Lab, Argonne National Lab, I believe the National Renewable Energy, the

National Renewable Energy Lab. There are three really dynamic speakers, and I hope you'll tune to that session next to learn from that. So, thank you all for joining us. This was as much of a success as I could hope given the circumstances and us all being in our little boxes. And thank you, again, and hope to see you all in person someday soon.