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Eli Levine:

Hello. Welcome, everyone. Thank you so much. We're just trying as just a sneak preview of what we're trying to experiment with Better Plants as a way to further celebrate your accomplishments and promote the program and grow the reach of folks that we're working. As you can see, I am Eli Levine with the US Department of Energy and I'm the program manager for the Better Plants Program.

Next slide, Clifton. And welcome to our industrial sector meet-up. It's going to be a really great time to kick off the Better Buildings: Better Plants Summit for 2021. We're obviously sad that we can't be all together in person, but we've really thought hard about how to make these various new meetings as dynamic and engaging and interactive as possible. And we have a great sector meet-up today and a really great full conference. And so we're thrilled to have you here today and hope you can join us all week.

Next slide. This is some of the industrial track agenda that we have put together for our partners in the Better Plans family. Many of you were able to join us this morning for the low carbon pilot roundtable as well as I know a lot of you went to the water session as well. We really should have thought some great sessions here. Please mark your calendar. Please join us. And even after this session today, we have Secretary Grandholm kicking off the summit with a plenary session and a whole lot of build recognition and announcements there.

And then we have this amazing sessions with multiple cabinet secretaries and leaders from the White House talking about building electrification as well. So I hope you can join us for the other sessions today. By the end of the week, I can promise you that you will all the experts with Slido. Next slide. This could be our first introduction here. Slido is a great chance for you to submit questions to see what others are asking and vote on what you want the speakers to answer. There's an upload button.

So if you could take a moment here either by downloading the app or going to www.slido.com, and you cannot enter the hashtag "DOE", you join the event, and then specify that you're going to the industrial sector meet-up. And that's what we're trying to do for all the questions here. Feel free to submit comments for me and questions on anything I've talked about here, and then from there, we will we will have a fireside chat with – that I know I'm really excited about. That will be our acting deputy director Dr. Diana

Bauer, and the senior director for industrial emissions at the White House Council on Environmental Equality, Dr. Jane Flegal as well. Join us for this, and it should be a really great time today.

Next slide, please. Let us – oh, sorry before we move to the next slide, let's do a little bit of a warm-up so we can understand who we have with us here today. Please go to Slido dot-com and vote first on what organizations you're representing today. Are you a Better Plants partner? Are you part of Better Buildings? Did you just want to see what Better Plants is all about? Are you a perspective Better Plants partner? Are you broader category of other?

All our friends and family on the on the outside, you know, supporting us, partnering with us, cheering us on and just trying to learn more about what we are at. Great. We have 53 votes and 55 votes in so far. I will give us a few more minutes to let everyone chime in. Let's give it a little bit longer as we wait for everyone to get into Slido and respond, and then we have one little more poll question after this. I'll wait 'till we get to about 75 votes in.

All right. Great. Well, I am personally very excited about that nine percent perspective Better Plants partner. That really puts the pressure on us to show everything that Better Plants is about and convince you to be a part of everything that everyone else has been leveraging so well for the last decade or so. Clifton, let's move to the next poll question as well. We're curious how many summits have you attended? This is great. I mean this is one of the things that I find really validating about being in the program is that there's so many familiar faces that I've come to see every year and really lean on for their expertise and wisdom. and understanding where they are in their journey.

But this is also it really cool to see somebody first timers as well. That's really great. And we're already up to 76 votes so I can tell the people have gotten a handle on Slido, which is great. So by all means, keep voting, and all let's turn over to the next – let's move back to the slides and move to the Program Update and Partner Recognition. And as we're voting, you know, feel free to turn and move over to the Q&A part and submit any questions or comments you have on what we're doing.

So next slide. And this was actually a slide that I repurposed from last year's talk as well. But the industrial sector has been so incredibly important to our nation's resilience and well-being during this challenging year. So I know it wasn't easy as energy

managers for your job with all the challenges, but I just want to continue to acknowledge and say thanks to everything you and your companies have done over this last challenging year.

Next slide. So now I'd like to welcome new partners. This is something that I take a lot of pride in. We are consistently looking to grow the program, to expand our reach, to bring new leaders in who have new ideas, or may want to join, so we want to welcome all our new partners and also welcome the folks who have stepped up to the challenge level. We see that with a lot of folks as well. That commitment to transparency in sharing solutions is a lot of what makes a Better Plants Program so great.

Next slide. So this year, we are blessed to have a number of goal achievers, and I want to use our time now to briefly recognize them. We actually have a number of them who although we don't have a stage that you can walk across, they've agreed largely to take a moment and accept their recognition and speak on their accomplishments. So congratulations to Alumalloy, our Better Plants for a program partner, for achieving their program goal of 25 percent of energy reduction ahead of schedule by their 2026 goal. So, Tom, if you're there, and you're the Guinea pig who gets to learn how to unmute themselves and accept their recognition, let's see if this works.

Tom:

Thank you, Eli. Alumalloy Metal Casting Company, since its founding nearly 50 years ago, has always strived to be good stewards for the environment. In this tradition, Alumalloy has made investments totaling nearly ten million dollars in the last years for new aluminum melting and holding furnaces, clean aluminum castings, energy saving facility, and other new technologies. Alumalloy is proud to accept this award. Thank you.

Eli Levine:

Thank you, Tom We're really excited for all of your accomplishments, and look forward, you know, this will be something I say for all of you, look forward to your next goal in continuing to work with you in the program. Next slide. Let's turn and recognized AstraZeneca for their achievement of achieving their program goal of 25 percent reduction of energy intensity by 2021.

And I know we got to hear from Mike during the low carbon pilot this morning. He's one of our young real thought leaders, and aggressive folks who are pushing out to do wonderful things with their company. So Mike, I will congratulate you and give you a moment here to accept your award. If you can – I think you just

need to unmute yourself. And if not, that's fine. We are happy to come back later and give you a moment later. But certainly congratulations to AstraZeneca who's been a real leader in on all sorts of areas in the sustainability field from your waste reduction and energy reduction and carbon reduction.

Next, let's turn to the next slide of Ford Motor Company, who I think you're gonna be hearing a lot from this week. They're participating in – they're offering a virtual tour of one of their facilities later during the summit, and I encourage you to attend that. They've done some pretty cool stuff. But Jeff, congratulations to you and the whole team at Ford for achieving your challenge goal by 2021. I'll turn this over to you.

Jeff: Thank you. Can you hear me?

Eli Levine: Yes.

Jeff: Okay. Great. Yes, so thank you, Eli, for that. I just want to acknowledge that much time and effort, and many resources at many different levels, are required to move the energy needle on a large multinational company like Ford. The efforts of the DOE staff to bring so many diverse companies together today to recognize these achievements is just amazing, so thank you for that. I'm sure that if I name names of all the people involved, I would invariably miss someone that made a difference in this effort at Ford.

With that said, I would like to recognize just a few. Sachin's been very supportive in helping to crunch data every year and just being supportive with questions at reporting time every year. And so thank you to him. My team here in the US; Alex, Ian, Solomon, they take on much of the heavy lifting of keeping the reporting, the project activities, and the plant teams aligned to cross the finish line. And finally the mini plant energy champions and energy coordinator teams at each of the plants involved. It just goes on and on.

The importance of our OEM suppliers and integrators for performance contracting and project implementation are a critical part of this achievement. Ford has implemented over 500 million dollars of performance contracting projects that drive energy efficiency over the past 25 years that I've been involved. I just want to say thank you to everyone that is participating and helping Ford achieve this effort.

Eli Levine: Thank you, Jeff and to the whole Ford team. We've really enjoyed working with you and look forward to some great things to come. Next slide. And let's recognize Owens Corning. And this is what makes being with the program for a long time so cool is that you see partners like this who have already a proven track record of savings, who are doubling down and setting new goals and then achieving them well ahead of schedule.

Just a point of personal privilege, you know, as Jeff mentioned, for many of these partners, it's our – you know, us working with the company is not just one person, and Owens Corning really has a tremendous team that we've liked working with that pushes us not only on energy reduction and conservation, but also thinking about how we can leverage the whole innovation ecosystem as well. So Don, congratulations to you, and I will turn it over to you for a moment here.

Don: Okay. Thanks, Eli, for the recognition. And I'd just like to thank everyone at our plants, all the people in our sustainability organization. You know, the people in finance to make our energy projects possible. The engineers at the plants who get them executed, you know, that's what it's all about. That's how we were able to achieve the goal. And thanks to the DOE for all the wonderful resources that you guys provide, the implant trainings, the software tools, and you know, communications tools online.

Eli Levine: Wonderful. Thank you so much, Don, and to your whole team. Next up is OWASA, the Orange Water and Sewage Authority down in the research triangle in North Carolina for achieving their 25 percent reduction in energy intensity by 2025 I don't believe that Mary is here with us today or available to speak, but they are a just a wonderful partner, and we love working with our water, wastewater treatment plants as well. It's just a really neat sector to watch them learn to share with each other, and we're really excited for their goal as well.

Last but not least in terms of goal achievers is Steelcase on the next slide. So congratulations to the entire Steelcase team. It's a wonderful goal. I know you guys have set very ambitious personal goals. So Maeve, I will turn this over to you, and congratulations.

Maeve: Thank you, Eli. And great to be here with you all today. By way of introduction, I lead our energy climate and renewables team at Steelcase. And over the last few years, I've had the privilege to work alongside a diverse team of folks helping work toward our Better Plants goal. This was an incredible achievement for our

company, and it took tremendous internal engagement as others have mentioned to drive these initiatives on things such as investing in energy efficiency at some of our larger manufacturing facilities, to fuel switching, but it also took support from our contacts at DOE to help motivate and track progress toward this goal.

And so I just wanna say thank you for giving us the opportunity to recognize our internal teams today and for your efforts, but also to highlight our partnership with DOE. So we're looking forward to setting the bar higher still for our own operations as we embark on this next decade. And I'll pass it back over to you, Eli.

Eli Levine:

Fantastic. Thank you so much, Maeve. I know speaking on behalf of our technical account managers, you know, the journey from when you set your goal to oftentimes achieving your goal can be, you know, seven, eight, nine, ten years down the road. And it's just incredibly fulfilling and validating to watch all, not just Steelcase, but everyone's progress in driving energy savings to, you know, ultimately achieving their goals.

So we are thrilled to have six goal achievers so far this year, and look forward to continuing to review the data for many of our program goal achievers, many of our program partners and seeing out everyone's progress during this just incredibly strange and challenging year. And so I believe in seeing the chat, I don't think we quite have Mike ready yet, but I will continue moving forward. And as soon as that works out, we will be sure to give AstraZeneca a moment to accept their award as well.

With the next side, I want to also recognize our Better Practice Award Recognition. For those of you who are new, we gave you the Better Practices Better Project Awards a few years ago partially to celebrate all of the incredibly cool impressive, amazing things that our partners are doing. But also, you know, for many of these folks, where the recognition comes, you know, often delayed seven, eight, nine years down the road, this is just a great way on a year-to-year basis to shine a light and amplify all the leadership that your companies are showing, and hopefully develop some replicable solutions that not everyone can benefit from.

So if you're more – I'm not going to take too much time here because if you're more interested in hearing all the details and asking questions about these projects, please join us Wednesday at 2:00 p.m. for the session where all of these all awardees will be presenting on their solutions. But congratulations to Bendix,

Celanese, General Motors, Lineage Logistics, Saint-Gobain North America, and Steelcase as well.

Next slide. With a very similar message for the Better Project awardees. So their session for the Better Project awardees, and unlike last year, we heard your feedback and we spread it out into two sessions to really maximize and give everyone time to present in the details of what they've done and to ask questions. But congratulations to 3M, Flowers Foods, Graham Packaging, Lockheed Martin, Nissan North America, Owens Corning, SugarCreek Packing, and Tyson Foods. And this session will be 2:00 p.m. to 3:15 p.m. tomorrow Eastern Time. Please join us then.

You know, of these, just one that I'll highlight that is a segue to what I'll talk about later. But what Tyson Food, you know, Alex Floyd and the team has done there to leverage our new virtual in-plant trainings to identify savings and take advantage of that was just really wonderful for us to see. And hopefully there will be many more folks having similar success stories in the months and years to come. Next slide. So as I mentioned, you know, one of the things that we try to do from all of these awardees is to turn them into replicable solutions that you can read more about their case studies.

So I encourage you to spend time, as many of you have already, on our Better Buildings Solutions Center to read about the successful energy savings case studies and replicable playbooks. Our technology focus areas, you know, focus on a lot of the important areas that you guys are focused on: compressed air, water, heat pumps, fans. And it has all of our tools and resources and case studies as well as contact information for our subject matter experts. That can be really helpful a point to go to.

Our National Lab Innovation Portal, I'll talk about a little later. Our Financing Navigator and Industrial Financing Primer, I know that's a hot topic for many of us right now. So please take time to check that. Just continue to peruse and check out all of the great toolkits and resources that we're developing for you and putting in on the Better Building Solutions Center. Next slide, this will highlight some of the solutions that we've done over the past year. So thank you to all of our partners who have shared these replicable stories.

And I encourage you if any of these catch your fancy, and you're interested in learning more about one of these topics, they're all up on our Better Building Solutions Center, so please come by and

learn more about these. Next slide as well. These are some of the implementation models that we've done this past year as well. Steelcase, I know your Hack the Packet implementation model was what won you the Better Practice Award this year. So that was that was pretty cool to see.

Next slide. So one thing that I do want to recognize as well is that, you know, I think the topic of decarbonization and thinking about how we can work with our Sugarcreek partners to drive them towards their low or no carbon goals that they may have set is a really important topic that's top of mind for many of our partners. And we've heard you and we're moving in this direction. We launched this low carbon pilot. Many of you have heard myself, Tom Wenning and the team, talk about the challenges or talk about the opportunities here for our sector.

You know, two-thirds of total US emissions come from buildings and manufacturing plants. And so we're looking to work with you, work with interested partners, showcase real world pathways. You know, understand what's possible, and inform DOE about where more research and development is needed, where we're Better Plants and others can develop tools, as well as, you know, understand the correlation between carbon dioxide emission and energy efficiency savings and resilience. Really understand where aspiration meets the real world.

So I'll do one more slide on this, and I know we're able to go back to Mike and AstraZeneca. So if you're interested in this, and I know DOE and the White House are releasing the press release today about who's participating in this. I think there's some a little bit more time. If this interests you and you'd like to get your companies involved, we're working with you to share your experiences, to develop an analysis, to identify the remaining strategies, document your success.

But also have DOE provide some of that robust technical assistance that you really come to appreciate from our technical account managers, help you set energy baseline, set goals, and then, you know, the recognition that does as well. As I mentioned, I think decarbonization and setting carbon goals is a hot topic for a whole lot of folks. And I anticipate as DOE continues to move in this direction that we will want your feedback and understanding on how, you know, what works best for the industrial sector and what, you know, how we can define leadership and work with you out in this space.

So before I turn to any new slides, Mike, I want to turn it over to you. Congratulations to you and the AstraZeneca team. And thank you for your understanding as we all deal with the challenges of technical difficulties, and Zoom, and everything like that. So congratulations, Mike. Over to you.

Mike:

Oh yeah. Thank you. It took us the full ten years to accomplish the 25 percent reduction. And then we installed some CHPs, had some CHP issues. And then we started working towards zero carbon and doing ASHRAE level two audits to identify more opportunities, and then do a treasure hunt to identify more opportunities. We were able to implement enough of those identified projects to achieve Better Plants. So I'm really excited.

And while we grew. We grew 20 percent in square footage, and we've increased our output by 30 percent since starting this project or program back in 2010. So while growing, we were able to still have an absolute energy reduction, which is really exciting, and I'm happy to be a member of the program.

Eli Levine:

Well, congratulations, Mike. And I know you guys are hard charging with new goals. So I'm not worried about continuing to partner with AstraZeneca for many years to come since you guys are doing some really great things. Clifton, next slide. So many of you saw, we launched a Waste Reduction Pilot over the past year or so, and we've been really floored by how many of our industrial partners have stepped up and participated in this. And, certainly, I want to take a moment and commend Bruce Lung for leading this, and really bringing some great knowledge and technical knowledge, and bringing folks together to learn from each other.

So I'll recognize all of our many partners who have – participating in the Waste Reduction Pilot. If this is the first you're hearing about and you want to get involved, please let us know. We'd love to have you in the upcoming year. But, you know, it's been it's been really cool to see a start this new area and then watch it take off. Next slide. One of the things they've done is have these quarterly webinars that have brought people together and allowed speakers to share their stories and talk about the challenges and successes they've had.

They developed this new resources page to highlight solutions for organizations looking to increase waste diversion, you know, decrease source generation, recover energy, and create financial savings. These working groups have been really popular and really interesting to see where they've gone and how people are sharing.

And then lastly, this healthcare and pharmaceutical peer exchange where the healthcare and pharmaceutical companies came together to discuss shared challenges, opportunities for improvement, successes in their sectors, you know, talking about hazardous waste, employee outreach, circular economy principles, data tracking, and everything else. So we've really seen some great waste savings.

And I'd be remiss as well to not mention our water savings initiatives as well, where a lot of folks are taking advantage of the technical resources that we have, our plant water profiler tool, the new implant training that we have around water efficiency. That will hopefully soon we'll be able to do in person, in-plant trainings again. By all means, if you if you're interested in saving water either by setting a corporate goal or just by looking at some of your water-stressed plants and water-stressed region, please work with your camp to take advantage of the resources that we have there.

Next slide. So many of you are familiar with our 50001 and SEP 50001 Program. These programs provide guidance and tools and protocols to drive deeper and more sustained savings according to the ISO 50001 standards. So they provide no cost tools and guidance for facilities, and certainly SEP brings a certain extra validation and verification to the savings that you've seen at your plants. So if you're interested in this, and we have we have a lot of resources for you, I'll get into that a little bit in the next slides. But please take advantage of the resources we have if you're looking to develop a robust energy management system to this ISO standard.

I want to recognize some partners who have self-attested to 50001 Ready. So next slide. I believe we are up to roughly over 30 partner sites that have been recognized for completing the 25 steps in the 50001 Navigator. That includes General Motors with their 25 sites, but also Daimler, Bendix, Quad Graphics, Whirlpool, and JLG as well. So congratulations to all of you. This is great. For those of you who have additional sites, I hope you continue leveraging 50001 ready, and taking advantage of it, for expanding it to more and more sites. We really want to see more and more folks taking advantage of 50001 Ready.

Next slide. In case we have some of you who have done 50001 Ready and not yet joined Better Plants, certainly use this time now to join Better Plants. But congratulations to TVA, to Cree Lighting, to Roseburg, to Polaris, to Ampine, and to – I'm not gonna – I should have practiced this, but Aemetis for being recognized for 50001 Ready as well. Next slide. In addition for the

non-industrial sites, congratulations to all of you. 50001 Ready is not just for the industrial sector. We just tend to think it's great for the industrial sector. But for those of you in the non-industrial sites, congratulations to all of you as well.

Next slide. Superior Energy Performance. If you're not familiar or recognize this organization for driving leadership and sustained excellence for folks who have done the verified improved according to ISO 50001, we've seen this. And you can see the savings many times speaks for itself, but I'm gonna run through these fairly quickly. Our congratulations to AstraZeneca, to Cummings, to the multiple Volvo truck plants that you have there. Thank you for participating in Superior Energy Performance.

Next slide. Congratulations to Nissan as well for doing this with your gold recognition and two silver recognitions at your Smyrna and associated plants as well. Next slide. Congratulations to Schneider Electric for doing this at 14 of your facilities. That's really awesome to see, you know, all across the US and all over. So congratulations to you for driving the savings all over and participating SEP and everything else that you guys do within partnership with the Department of Energy.

Next up. 3M, which has done this across 22 facilities, which is wonderful to see. Thank you for all that you are doing with – congratulations to all of you for taking advantage of SEP and being recognized for your leadership with these plants. Next slide. Now I'll turn and just spend a few minutes to talk about some of the tools and resources that we have through the Better Plants Program. This includes many of our calculators, our no-cost tools, our financing navigator, and our no-cost guides and resources.

Next slide. First off, if you weren't able to participate in real-time, you know, last year when we were all at home over the course of the year, or many of us were at home, we launched this online learning experience that went over a lot of the fundamentals with a lot of different topics. They're all available online for you to watch. So if you missed any of them, I encourage you to go back and watch. Some of this was going through fundamentals of important systems that you have in your plant.

And then the other part of this was trying to bring in our colleagues across the federal family, so bringing in USDA, the Department of Commerce, the Environmental Protection Agency, just to make it a little bit easier for you to navigate all the resources across the federal family that can help you on your sustainability journey. So

if you're interested in any of these, they're all recorded and you can go back and watch the recording at a later point.

Next slide. Partially, we saw the success and the popularity of the online learning series, and that catalyzed us to launch these virtual in-plant trainings. Certainly our in-person, in-plant trainings have been really popular and productive over the last couple of many years, so we weren't sure exactly what the virtual in-plant trainings would look like. And we've been blown away by the success of these and how much folks have taken advantage of them. So I know they're there ongoing right now.

It's on a personal note to thank to your TAMs, the technical experts who are leading these. I know they are time-intensive for everyone. But it's been wonderful to see how many folks have taken advantage of them and how much there is to learn in these different topics. So stay tuned, and certainly inform us if there are topics that we haven't covered yet as a virtual in-plant training that you would like to see.

Next slide. If you like the 50001 virtual in-plant training or if you think you are ready to move forward on 50001, I know our colleagues with the 50001 program are launching these are virtual training cohorts that will receive no cost technical support, and guide you towards completing your 25 steps. So if you're interested in this, certainly reach out to me reach out to me and reach out to Anne Hampson, Ethan Rogers, and we are happy to get you or work through your technical account manager, and we're happy to get you into one of these training cohorts as well.

Next slide. So many of you are familiar with these. I want to just acknowledge we have this diagnostic equipment program. We have all of these full suite of diagnostic tools that we want you to take advantage of. They are free to borrow. Our COMs folks have design these nifty graphics that can dumb it down, what all of these tools do to explain how you could use them at your plant. We will mail them to you free of charge; we will pay for the postage for them to return, and we will teach you how to use them.

But, oftentimes, it's hard to justify a savings unless you can measure it and identify what the opportunity is, and these diagnostic tools can be beneficial in that regard. So please work with our team to take advantage of these tools. In addition, the Oak Ridge National Lab experts are constantly working on our online software tools as well. There's – it feels like every week when I talk to them, they have added at least five new calculators. So they

are super excited about it, and I want you all to take advantage of that.

They told me to highlight three particular things with regard to the measure tool suite. First, as you may have seen our e-mails, they launched a whole new wastewater treatment module. So if you're planning to – certainly if you're a wastewater treatment plant or if you're an industrial plant that does wastewater treatment, please take advantage of the wastewater treatment module you have. They launched an equipment inventory that replaces or replicates the old motor master tool, and then they've launched in data analysis module.

So this is diving in to explore your sensor data and everything associated with that. So much more time can be spent going through all of the great online tools that we have and the resources there. We may spend some time at the AW World Conference really focusing in on this. And I know that there's a number of things just right in the pipeline that are in alpha state that we should be able to release in due time, too.

Next slide. I would be remiss if I didn't highlight our industrial assessment centers. I know our secretary recently was one of our first public things was to do a roundtable with students and companies who have leveraged the IECs or have had their energy management staff come out of the industrial assessment centers. These are no-cost energy assessments for small to medium-sized manufacturers. Please take advantage of them. But they also really provide great training for these students.

So as many of you are thinking about our workforce development challenges and how you are going to staff your team for many years to come, please leverage these students. They really leave school with just our unmatched training and experience from having gone around and seeing so many industrial plants. Next slide. Our combined heat and power technical assistance partnerships, I could spend the whole time talking just about what they offer, but I thought I would leave this on this pretty slide for you to see.

One thing in particular I wanted to highlight is the e-catalog, the Combined Heat and Power Catalogue. It's a voluntary public/private partnership designed to increase deployment of CHP in all sorts of settings including our manufacturing plants. The core of the eCatalogue, our CHP packagers who commit to provide pre-

engineered and tested CHP systems that meet or exceed DOE performance requirements.

And CHP solution providers to commit to provide responsible installation commissioning maintenance and service recognized packaged CHP systems. And it's a single point for project responsibility. So it's a neat thing. It's not a not something the DOE does for a whole lot of different areas. It's great to see them leaders in developing this ECatalogue. And please, you know, go to the Web and check that out as well.

Next slide. My colleague Ethan Rogers, as well, is leading our Sustainable Wastewater Infrastructure of the Future Initiative. This is actually the second accelerator looking at the water and wastewater treatment sector. So we are looking to see all sorts of utilities joining for this, and will provide training, training them on the toolkit we have developed, resources, you know, holding workshops, helping them with one-on-one assistance. It's been great. I think we have 41 facilities signed up so far.

Please, if this is interesting to you, sign up. And, otherwise, there should be a lot of really great case studies and knowledge sharing that comes from this that everyone will benefit in the future. Next slide. And I promise I'm reaching the end of my slides soon, and I will be able to turn this over to the fireside chat we have scheduled. We've taken advantage of our time home to develop some interesting tools and resources that we hope you'll take advantage of. Many of these are resource documents that are hopefully easy to read and are interesting for you.

I'll highlight our quick start guide for energy savings for small to medium manufacturers. We updated the energy intensity baseline and tracking guidance document. Many of our partners, we've heard, are interested in science-based targets or thinking about science-based targets. And the document we put together there can help you understand how participating in Better Plants can help you towards your journey on science-based targets, you know, how much you've already done and what more is needed, and how DOE can help you if you're thinking about or have set a science-based targets guide, the other documents as well.

Next slide please. So this graphic is just a segue here. A lot of what we do is the training and education and the resources we've developed. I'll pivot here to the innovation and our national labs component. We want you to feel, I'm sure I'm a broken record on this, that if you're partnering with DOE through the Better Plants

Program, you have access to everything DOE has to offer, and that includes all of the innovation and R&D capabilities that we have.

Next slide. So one component of this is our industrial technology validation pilot. This was a new pilot we had launched. We hear from many of you that for the audacious energy and sustainability reduction goals that you have set, you're going to leverage all the best practices of training we have. But many of you are thinking about and recognizing that you're going to want to incorporate new technologies.

And oftentimes that can mean thinking about how, you know, what's real? What's snake oil? How do I know I'm inundated with all these vendors and technologies? We created this pilot to help you, you know, to help with the deployment of these new technologies by bringing in National Lab experts who can help perform some of the verification and validation of new technologies, and to do it in a way that we can share the results broadly so that everyone can benefit from.

So we've learned a lot from our partners at DOD and GSA and DOE, who have developed programs like this for their sectors, and we have launched this. We've been so heartened with all the challenges of the pandemic by the amazing response we've gotten already from the applicants. I was really hoping to be able to make the announcement today. It's going to take out ever so slightly longer, but we've gotten about six great projects that we're excited to start kicking off in the very near future and share with you as well.

Next slide please. There will be a new round of – a new solicitation or request for applications coming shortly. This one, we will be reaching out directly to the innovation community so that our Better Plants partners don't have to feel like they are tech scouts in addition to everything else where we can identify interesting technologies, review the applications that have come in, and then share them with you to take advantage of, you know, to host one of the sites or to learn about how the validation and verification took place.

For this pilot in general, while it's geared towards Better Plants partners, certainly if you're not a Better Plants partner and want to host the test site, we're happy to work with you on that as well.

Next slide. We have developed this last year, we want to make it easy for our partners to navigate our National Labs. So that can be

hard. There's 17 of them. At times, it can feel a little opaque, so we encourage you to spend a little time on our innovation portal.

One of the cool things that I've seen really in the last few months is that we've seen different partners coming to us saying, "I'm really thinking about climate risk, and I'd love to hear if there's a lab that specializes in data around climate risk and how we could partner with them on that." Or, "We're thinking about solar and concentrating solar power is the one that's going to work for us. Is there a lab that has an expertise in CSP that we can work with?"

Or most recently, there was – I saw a DOE announcement about a new solvent for carbon capture. Who at Pacific Northwest National Lab works on this? How can we talk to them about that? And so where we've been able to make those connections to Argonne National Lab, to Sandia National Lab, to PNNL, and all of the others. Spend some time. Hopefully in the near future, we'll be able to go back to hosting Technology Days where we can invite to the National Lab campuses. But it's a great resource. By all means, feel free to reach out to us if you want to leverage the National Labs.

Lastly for me, next slide, we launched a new social media for Better Plants. So feel free to – please not to feel free, I implore you to follow us on Twitter. Follow us on LinkedIn. Like our posts. Encourage your friends and colleagues to do so as well. Our team is really trying awfully hard to amplify your successes, to share your stories, to call attention to all of our partners, and we really want to keep growing audience for that. And so that is it for me.

Next slide please. Thank you for bearing with me. I'm sorry if I talked a little fast. I wanted to make sure we left ample time for this fireside chat, which I am just so excited about. My job here is to introduce Anne Hampson, who will then introduce our two speakers. So Anne is new to the AMO family, certainly not new to the Industrial Efficiency community or to the Department of Energy. But Anne currently serves as the program manager for our technical partnerships program.

So she oversees the five core programs of CHP deployment, Better Plants, ISO 50001, the Industrial Assessment Centers, and the Technologist and Residence program. Before joining AMO, Anne was a resilience fellow with the Federal Energy Management Program, where she focused on tool development and stakeholder outreach related to energy and water resilience. And prior to that,

she spent over 15 years at ICF focused on distributed generation and CHP.

So, Anne, thank you so much for joining the AMO team, for everything you've done for us. I know one thing Anne has really led for our team is the coordination across the federal family, too, so working to help us work better with the Environmental Protection Agency and other agencies, which I know is important to a lot of you as well. So, Anne, welcome. I will finally come up, take a breath, stop talking, and turn this over to you to lead this fireside chat.

Anne Hampson:

Great. Thanks, Eli. I appreciate the introduction and I am very happy to, you know, kind of virtually all of that the partners and prospective partners, and others who have joined us today. You know, 2020 was a strange year to join any new office or work environment just because of the virtual nature. So I'm really looking forward in the future to being able to meet a lot of you face-to-face and, you know, potentially gets it you know meet some of the – or go to some of the facilities where we're doing in-plants and other aspects of the Better Plants activities.

So with that I'm gonna jump into our at fireside chat. So I get the great distinction of talking to two very smart ladies, both doctors. So the first is Dr. Jane Flegal. She's the senior director for Industrial Emissions at the White House council on Environmental Quality. So prior to joining the administration, Dr. Flegal served as a program officer focused on US grant making to combat climate change in support of clean energy transition.

Diana, Dr. Diana Bauer, I should say, is our acting deputy director of the advanced manufacturing office. So she's very involved in developing research and development, and technical assistance, investment strategies that support the manufacturing sector. You know, making sure that we produce advanced energy technologies, but also use energy and other resources very efficiently and effectively. So I am going to start off the questions to you both with, you know, a real softball on what are we gonna do on this decarbonization thing.

So looking at it decarbonization and how it's a major focus of the administration, you know, what do you each see as important either technological innovations or important policies that are kind of coming down the line that will help us tackle industrial decarbonization? And Jane, we might start with you, and then move to Diana if that works.

Jane Flegal:

Sure. Thanks, Anne. And thanks you so much for inviting me to be here today. So I want to start out by saying that a strong and resilient manufacturing sector is fundamental to a healthy economy that provides high quality jobs and pathways to the middle class. And this is something that the president has been very clear about throughout the time of the administration. And the critical importance of the industrial sector could not be more apparent given the events of last year.

So I guess I'll echo Eli's gratitude to all of you for your work over the last many months. The industrial _____ is a backbone of the US economy providing and transforming raw materials, goods, and chemicals needed for a healthy and equitable society. And just to say, these materials are going to be especially critical for accelerating an equitable energy transition globally. Now at the same time, the industrial sector, including especially cement, steel, and chemicals production is a really big contributor to climate change responsible for about a third of greenhouse gas emissions both globally and in the United States.

And emissions in this sector only expected to grow in the coming years. Without additional policy, industry's on track to become the highest emitting sector of the economy by mid-decade no matter what approach we take for post-Covid economic recovery. So that's all to say I'm really excited to be here in part because I often feel like industrial decarbonization doesn't get attention that it very much deserves. And to that end, I'm really excited to be here. My job has actually never existed before in context of an administration or a White House, so I think it's one of many signals that the administration sees the industrial sector as central to both our economic and climate strategies.

In my role, I am responsible for developing advancing policies that reduce greenhouse gas emissions, promote technological advancement, and support job creation in the manufacturing and industrial sectors. So that's just to say that as with everything we do in the climate domain, the administration continues to center the maintenance and creation of high quality jobs and competitiveness in our climate work in the industrial sector.

More specifically to your question, I think due to uncertainties in both social and technological systems, and given how early we still are in the transition to net zero greenhouse gas emissions in the industrial sector, I think it's really critical that we take a portfolio approach to industrial decarbonization. We recognize that what works at one facility may not work at another, and that's why

we're so excited to partner with the industry to understand opportunities and challenges at a more granular level identifying solutions that work in real places and working together to move the ball forward on climate action.

We're looking both at our efforts on the demand side and the supply side in the industrial sector. So on the demand side, we understand the value of promoting materials efficiency and recycling, move in toward a circular economy among other important interventions. And on the supply side, we're supporting robust investments to bring technologies to scale rapidly and responsibly. So this includes everything from incentivizing the electrification of industrial processes to demonstrating and deploying carbon capture utilization and sequestration to support for clean hydrogen production and its use in the industrial sector.

And I know that the Energy Act of 2020, which passed on a bipartisan basis at the end of last year as part of the consolidated appropriations bill included pretty significant new authorities of relevance to industrial decarbonization. So we're really excited to move that work forward. The other piece beyond the sort of supply demand push side is that we're quite excited to leverage public procurement to create markets for low carbon materials and products, which we think will, over time, help drive down the cost of newer techniques and technologies. And we are seeing a lot of exciting activity in this area in several states.

And then there's the American Jobs Plan, which I'm sure we'll dig into it later. But I just wanna flag here that the AJB is a historic investment in the industrial sector and represents really the single greatest opportunity in a generation to reinvigorate domestic industries in the face of the many challenges that are facing us. So I feel like I rambled a bit but I am thrilled to be here and really excited to be working on this with great partners like AMO.

Anne Hampson:

Well, we're glad to have you. I guess I'll turn it over to Diana.
[Laughter]

Diana Bauer:

Yeah, I think Jane basically answered the question so thoroughly that I don't need to say much. But just a couple things. One is that AMO is working on a congressionally-mandated industrial decarbonization strategy that lays out the opportunities that, you know, kind of that Jane shared. And the first is energy efficiency, and it's energy efficiency at multiple scales. So thinking about, you know, turning the lights off, or running your pump only when you need to run it.

But then also finding new processes, process intensification to reduce the energy requirements for individual process use, thinking about lifecycle embedded energy, as Jane mentioned, optimizing there. So I anticipate that we're going to be working on a framework in coming years to really understand energy efficiency and where the leverage points are, and that situation will be evolving over time and it will be great to work with all of you to understand this and together pursue, you know, the future.

And then, of course, in addition to energy efficiency, there's fuel switching which Jane also mentioned. So that includes, well, fuel switching end and electrification. So switching over to hydrogen, switching over to electricity-driven processes like, you know, through electrochemistry and other means. And then finally the last priority is CCUS. And so for all three of these, we see some near-term opportunities, and then some really longer term opportunities as well.

So we're thinking of ramping up our portfolio so that we have a full innovation pipeline, so we can continue to innovate at the low TRL levels while also really ramping up what we're doing on demonstrations so that things can get to market faster so that we can we can actually decarbonize by 2050. The industrial sector, I think part of why – and Jane, I'm so happy to meet you on this panel because I also agree, and AMO, I think, most of AMO agrees that the industrial sector because it's so complicated, a lot of people, you know, sort of are less maybe engaged.

The talking points are harder to come up with, so it's harder to, you know, figure out where to prioritize. But we can't decarbonize without decarbonizing the industrial sector. So I think really important. And just one other point to make is that manufacturing, and Jane also made this point, manufacturing underscores all decarbonization. So we need to manufacture all the technologies that are required to decarbonize transportation, the grid, and, you know, all the rest of – buildings, all the rest of the economy. So all of you here today are really important to the future of the planet.

Anne Hampson:

Definitely. And so I did realize I forgot at the beginning to encourage folks also to submit your questions into Slido. We have a couple opening questions that I really wanted to cover, but then, you know, in a few minutes, we'll also switch over and have Jane and Diana answer audience questions. So feel free to put those into Slido. I guess, you know, with that context around decarbonization as a major priority, Diana, I was hoping you could talk a little bit about the priorities for AMO and the office, and then how those

priorities might impact our Better Plants Program and the partners who are joining us today.

Diana Bauer:

Yeah. So I will say, you know, we already had a lot of *[laughter]* a lot of points on industrial decarbonization and that is a really strong priority for the office. Also embedded within that in terms of thinking about, you know, decarbonizing other sectors, an important area for us is energy storage. Energy storage would be important to decarbonize transportation and also the grid, and potentially also industry. We're also interested in agile manufacturing.

So can we build a manufacturing sector that is resilient to disruption and also able to pursue opportunities? Because as we change, we strive to change the economy on enabling industry to be able to respond and to be able to thrive in such a dynamic environment. And this includes both the technical side and also the people side, you know, the workers and the leaders of the manufacturing sector. That's also important. And as Jane mentioned, engaging across supply chains to build a stronger manufacturing sector including through critical materials, topics like that. That's also important.

And as I just mentioned a minute ago, accelerating innovation pipeline. So getting – speeding up the process from innovation to deployment, and the actual impact in the real world, also important. And then, you know, there's some other national priorities that we're also engaged in that I think it's – we also should remember. You know, like one is cyber security. One is, you know, water issues, water efficiency, water infrastructure, etcetera. So I think there's a lot on our plate, and we're actually really excited about all of it, and excited to work with you on it.

Anne Hampson:

Great. Thanks, Diana. You know, and picking up on one the priorities and things that we're working on within AMO is workforce development. And, you know, Jane, you had mentioned the American Jobs Plan. And I was wondering if you could talk a little bit more about, you know, what the passage of that would mean to, you know, the industrial companies who are joining us today.

Jane Flegal:

Yeah, it's a great question. I think maybe to start, one thing to say is that the American Jobs Plan, there are a whole bunch of climate-specific relevant mentions of the jobs plan, but there is also a lot for bolstering the US manufacturing sector more broadly, which will have huge implications for the successful execution of

climate-relevant strategy. So it's really hard to overstate how important the American Jobs Plan is and would be, not just for industrial decarbonization but for the health of our society and economy more generally.

But on the decarbonization question more narrowly, a few items I would highlight. First of all, the American Jobs Plan includes really robust, and in fact, quite historic investments in climate innovation more generally, much of which would be potentially highly relevant for industrial decarbonization strategies including 35 billion dollars for climate innovation. The plan also includes support for carbon capture utilization sequestration, which may prove to be quite an important tool for industrial decarbonization.

In particular including ten demonstration projects for CCUS, and also enabling infrastructure for permanent sequestration in line with the Bipartisan Scale Act, as well as some reforms and enhancements to existing tax credits for CCUS to ensure that they're actually able to be used effectively to drive decarbonization in the industrial sector where you have lower purity streams of CO₂ for example. So that's all really exciting. The plan also includes 15 demonstration projects for clean hydrogen, as well as a production tax credit for clean hydrogen, and tax incentives for clean manufacturing more broadly.

So there's really quite a lot in here. And the last thing to highlight is the administration has been on quite clear, including in the context of the jobs plan, that we're looking to, you know, take a whole of government approach to everything we're doing. And so also included in the jobs plan is some support for, as I mentioned earlier, federal procurement programs to support the production and use of clean materials and products, which I think is really exciting.

Anne Hampson:

So one of the questions I was looking at, you know, already what has been that it put in through Slido, and there was a question about the American Jobs Plan about whether direct funding would be available to incentivize major industrial investment.

Jane Flegal:

Yeah, I mean I think the jobs plan has quite a lot. And actually that would be of relevance to supply chains in the industrial sector more generally, but certainly for direct funding of industrial decarbonization projects. That's a significant piece of what's included in the jobs plan. So I think partners of DOE and the Better Plants Programs should be at least as excited as I am about how much potential exists in the jobs plan and how important it is for

moving the ball forward, as I said not just for the sake of refinement, but for the sake of the healthy and resilient and equitable economy. So I'm really excited about that.

Anne Hampson: So, Diana, it would be great to hear from you about some of the areas that AMO is really engaging on workforce development if you can talk to that a little bit.

Diana Bauer: Sure, Anne. As you know, there's a lot of different workforce development activity across AMO. Certainly those of you in the Better Plants community you know about the Better Plants in plant training program. We also have curricula and course modules developed under our manufacturing institutes that they're the industrial assessment centers, which we also talked about in the session. Even entrepreneurship opportunities through our lab embedded entrepreneurship program. And there's a bunch of other activities as well.

One of the things we're trying to do, you know, in the next, you know, coming months is to really take a step back and look at our portfolio and try to integrate it so that we can think about career path, think about kind of connectivity among the different program programming, and then also identify gaps so that we can, you know, develop new modules, new tools, to help develop people at all levels. Because I think, you know, we want to develop the – we want to develop people. We want to develop the workforce. We want to develop the future leaders.

If we're envisioning a manufacturing sector that's different from where we are today, we wanna develop the leaders as well as the workers. And so we're planning some workshops in the next several weeks to months, and also planning to develop a workshop. So it would be great to include folks in the Better Buildings community who are interested in that. And then also kind of folded up in this, and this is really exciting to me actually because as an engineer who got my undergraduate degree how long ago now, *[laughter]* 30 years ago or something, I, you know, I've seen engineering, for example, become more diverse, but I think it still has a long way to go.

And I think the discussions, the sort of ideas are so much more exciting when you have a richer range of people involved in the conversation. And so I'm really excited by what diversity can bring to our future thinking on our manufacturing, you know, agenda for the nation. So also excited that the administration is

really pushing us on diversity and inclusion, as well as environmental justice and energy equity.

Anne Hampson:

Well, you're just, you're laying it out for me. That was gonna be my next question for you guys was about, you know, how do you think that you know the industrial sector can really play a role in looking at things like, you know, increasing our energy equity and environmental justice. You know, what do you think and envision that could look like? So maybe we'll start with you, Jane.

Jane Flegal:

Sure. It's my turn to say Diana took all of the good points. *[Laughter]* No, but I do think that question before this and this question are so important because particularly in the climate world, we can get really stopped into conversations that focus on technology, thought of a sort of like bits of hardware without taking a much more holistic view, which that these are sociotechnical problems that we have to have a strong and empowered workforce. We have to have diversity in that work force, alongside all of these exciting innovative technologies in order to make the systems operate in the way that we want them to.

So I think this question about the role that the industrial sector can play in the environmental justice, in particular, is really important. And there are sort of, there are so many issues here, but there are kind of a procedural set of issues and a set of substantive issues. And I do think they're really interrelated to Diana's point. If you have more diversity in your process, it's more likely that your outcome on the other end is going to be more robust. So I do think process and substance are really interrelated.

But on the procedural front, one of the things the administration has been very clear about is just how committed we are to engaging with stakeholders and communities including environmental justice communities in everything we do in the climate space early and often. And that's certainly true in the industrial sector. And we have also made our commitment to workers and union workers in particular, very clear, and are going to work to continue to ensure that all of our efforts to decarbonize industry are meaningfully shaped by early engagement with the communities for whom we are hoping to see receive the benefits of our actions on the frontend.

And then on the substance front, I do think it's really important to note that facilities that reduce carbon pollution in the industrial sector can also reduce other kinds of air pollution and water pollution, which can deliver concrete public health benefits to

communities today. And I know the partners who are here today know this better than anyone. And that we can do that even as our US firms and their workers are sort of capturing global market share in the key industries of the future.

But that won't necessarily happen automatically. Right? We sort of need to work to ensure that communities and workers are at the table as we design policies and investment technologies so that we're kind of designing our perceived solutions with those considerations in mind. And that's one of the things I think is so great about the work that AMO is doing including for the Better Plants program is such early and upstream engagement with the folks who are actually going to be using these technologies. And so really excited about that. But I think this is a really central question, and not just for our work in industrial decarbonization, but in everything we do on climate.

Anne Hampson:

So, Diana, is there anything else you'd wanna add on AMO's activities in that area? We have plenty of questions, too. We're going to pivot soon to the *[crosstalk]*.

Diana Bauer:

Just a couple of things, you know, just to underscore some of what Jane said about, trained, you know, I'm trained as an engineer, as I'm sure lot of people online are. And really, you know, we have a lot of discipline of thinking about the technical, you know, the technology, and how it's designed, and when it works, and when it doesn't. And I think sometimes it's easy to not think about people that much, you know, just sort of assume that this technology that we're designing will work, you know, it'll work everywhere the same way, which it will. *[Laughter]*

But the way it's applied, the places that it's applied, the people who use it, that actually affects society. And so being able to engage on those questions of kind of people and place, I think it's really important to address environmental justice in particular. And so I think being able, for us as an office, to think about our programming that is place-based and is considering people will really help us address some of these equity and environmental justice issues. And really some of it is about like how industry can be a good neighbor.

And I'm sure most, if not all of you on the line here, think about that every day how you can be a good neighbor in your community. And I think just sort of encouraging the broad swath, the full gamut of the industrial sector to think that way while also retaining, you know, the regulatory hammer for those who really,

you know, have more trouble getting there. I think that's really important to get to a good place, get to where we all envision.

And, again, I think really important for pursuing environmental justice, equity, etcetera is to diversify the leadership in manufacturing. And I think and I think that there is an opportunity to do that through the programming of Better Plants and others. So I think it's all – we're at a moment where there there's an exciting future ahead of us potentially. But we have to make it.

Anne Hampson: Definitely. There is there's a lot of exciting things going on, and I think ways where we can look at how all of these ideas are interrelated, you know, with the energy equity and environmental justice along with some of the workforce things. And along with, you know, waste reduction and pollution reduction. And you know, it's I think sometimes we can talk about them as a separate things, but they all are, you know, very much interrelated. So I think a chance to be able to look at them and in those ways is really nice.

So we're gonna pivot over to some of the questions we've gotten from the audience. And so one of the ones that came in was what do you both see as the biggest challenges that industrial, the sector is facing to advance energy efficiency and renewable energy, and ways DOE can help with that. We always put Jane on the spot first. I might go back to Diana and say what are your thoughts, and then give Jane a second to think about, you know, the challenges.

Diana Bauer: Yeah, so you know, actually I would like to hit that back to the group here in terms of what you see as the challenges. I'm wondering if is it possible through Slido to do a poll now or can we not do that? Because I think –

Anne Hampson: We can see if Clifton can throw something together in the next few minutes.

Diana Bauer: Because rather than having me kind of come up with some things that I think you feel as a, you know, challenges, I think it would be most valuable to hear what you think the challenges are. I mean to me, it's gotta be about prioritizing what you do, and you have plenty of, yeah, word cloud. Word cloud. That's perfect. Yeah, let's do a word cloud while we're, you know, while Jane and I are tap dancing a little bit, and then we can see how close we came to what everyone in the room thinks.

To me, one of the challenges is like energy efficiency generally saves you money, but you have to do something. It's like it takes some mental effort or some, you know, effort from folks that may be not part of their job or other things. And so it's hard to kind of get over that little hump to do to actually implement those, you know, some of those technical solutions or into putting controls on your equipment, or other things like that. That just takes a little bit of a little bit of activation energy to do that.

I think that in some cases, there's maybe a lack of knowledge about things, and maybe particularly about things like embedded energy, you know, if you're thinking about your lifecycle impacts, etcetera. In some cases, it's a technical challenge. There's, you know, if we're talking about process intensification, coming up with new production methods that are less energy-intensive. We may not quite have invented those yet or they may not work quite well enough for you to implement, and so maybe they need to be validated before you can implement them. Yeah. But I'll hand it off to Jane now.

Jane Flegal:

The other thing I think a lot about in part because I spend so much time with folks who are working on the climate challenge in particular in other sectors of the economy is that many of the sectors here that we're talking about are highly price sensitive trade exposed to commodities, which makes it a really fundamentally different problem than decarbonizing electricity for example. And so that creates challenges around the some of the things that Diana was talking about including making big capital investments that may increase the cost of production even a little bit in the short-term in the context of global trade can have all kinds of ramifications.

So that's one thing obviously is that I think is a big challenge. It's certainly something that the administration is squarely focused on making sure that everything we do to incentivize, oh, here we can see how far off we are. *[Laughter]* But then I think also to Diana's point, some of the more transformational challenges that are going to be required, especially in the sectors that are highest emitting, are capital-intensive.

And as Diana said, potentially a little risky, sort of early, early projects for new technologies. And that's where I think the public sector has a really critical role to play in helping to de-risk early projects that could be really transformative. So those are some of the – oh, this is cool.

Anne Hampson: I think the word cloud is really showing that out. The cost justification and the funding, and you know, that's one of the areas why, you know, we really like the industrial technology validation pilot, you know, that Eli was talking about. You know, how we can look at, you know, having DOE to be able to support some of those types of projects that, you know, are new so that they're not necessarily as risky or as looking at, you know, trying out these new technologies and having the support it to make them work.

So this is really great. Thanks to the team for being at super responsive, and, you know, real-time throwing this together. You know one of the other questions that that has come in, or there are several kind of on different areas related to decarbonization. And one of them talks about, you know, since the electrification of industrial, processes is one of them at the main pathways to decarbonization, but it also leads to increases in electric demand. And so how is DOE, and you know, how can the government support the tradeoffs there on the electric side and issues with the grid?

Jane Flegal: I have a colleague, Dr. Leah Stokes, once did a sort of raft showing just what electrification of other sectors of the economy might mean for electricity demand. And it's been called the Narwhal curve because of its demand upticks at such an aggressive pace when you're electrifying other sectors including the industrial sector. So it's certainly something that were quite aware. One thing it definitely means is that we need to be as aggressive as possible on power sector decarbonization, and construction of new low and zero carbon technologies at scale responsibly and more rapidly than we ever have in history.

And it's a huge economic opportunity for the country, including for manufacturers. But also, you know, a challenge. And I think the president's electricity goals in the power sector for climate are really exciting and will be critical to execute in order for industrial electrification to also be offering climate benefits. So that's – and I know DOE has tons of ongoing work in that domain. But Diana probably has more to say.

Diana Bauer: Yeah. I mean I guess the one thing I would add to that. I think, I mean it's absolutely correct that industrial decarbonization through electrification absolutely depends on decarbonization of the grid, and things like storage are really important for that. And I think I think even if you think within the industrial facilities, things like, you know, considering how we manage heat and thermal energy as a system becomes important.

And so there may be some opportunities to sort of rethink the timing of some processes or incorporate more storage into the way we run our equipment in plants so that there's a little bit of change from assuming that all electricity is transmitted on demand to having a little bit more, you know, flexible demand, or you know, demand response in the industrial sector, as well as in other sectors.

Jane Flegal:

And I think like back to the earlier comment that we made around the _____ portfolio approach, we're super excited about the prospects for industrial electrification and recognize that there are other kinds of tools that we're likely to need, I mean almost certainly going to be here to decarbonize some pretty significant shares of industrial emissions beyond electrification. So just continuing to pursue, as I said, a sort of portfolio of interventions. Also because we just don't know exactly what the future holds, and so you want to have – be placing many bets.

Anne Hampson:

Exactly. Well, I wanted to run in – unfortunately we already have to do our kind of wrap-up question, and then there's a short video and some other things we wanted to do to close out the session. But as our last question for both of you, I wanted to see if we could get you to talk a little bit about how the manufacturing stakeholders who are, you know, here with us today, how can they help inform, you know, AMO's investment strategy or the administration's manufacturing priorities? Maybe we'll start with Diana.

Diana Bauer:

Sure. Sure So I encourage everyone on the call here to be involved in the various AMO programming, including all the different Better Buildings: Better Plants programming, as well as our manufacturing USA institutes. And potentially also contribute to proposals from our funding opportunity announcements. Subscribe to our newsletter to be in touch and participate in workshops. So I mentioned the upcoming educational workforce and development workshop. And then what we need they have requests for information, and so respond there.

And, you know, we're open to your suggestions on how else we can more strongly engaged with you. Because I think without your participation and your kind of wisdom in how to move forward, I mean we won't be as well off. So if you have some ideas of how we can better tap your expertise, let us know.

Jane Flegal:

Yeah, I was lucky to have Diana take the first crack at that one. But I think we're totally aligned in that it doesn't, you know,

there's no way to come up with an effective strategy on industrial decarbonization without it being a dialogue with the folks who actually execute the strategy. So always sort of open-door, you know, all of the existing mechanisms to engage with DOE through AMO and elsewhere are really exciting. There are also equities related to manufacturing and industrial decarbonization in other areas in the government, including now CEQ.

So we're always really eager to hear from folks about priorities and questions and concerns. But just really looking forward to working together and moving forward. So very grateful to be here.

Anne Hampson:

Well, thank you both so much. I mean this is been a great conversation. And thank you for all the participants. They were a bunch of questions we didn't get to that were really good things. So hopefully we'll get more chances to continue these conversations. But now we'll pass it back to Eli for some announcements about the rest of the summit.

Eli Levine:

Thank you so much to Diana and Jane. That was just a fantastic panel. And for Jane, now that we've introduced you to everything the Better Plants and the Better Buildings Initiative is about, you know, don't be surprised that we'll be trying to have you back and to bring everyone from your just extraordinary White House team. We're very excited to have new partners who are providing leadership in this space. So I really appreciate having you all here. And we will share all the questions that weren't answered with the three of you as well in case you want to follow up on any of them as well. But that was a really great discussion.

So as the slide indicates, we have an upcoming summer webinar series for Better Buildings, including two that I want to highlight for our sector on June 17 and then July 1st as well focused around industrial manufacturing and combined heat and power. So by all means, feel free to sign up for any and all of those. Next slide, Clifton. At 3:00 – and here is everyone's contact information.

So if Diana didn't answer your question, you can you can track her down over e-mail and we'll make sure, we very much love staying in touch with our Better Plants community and want to make sure that we are working with you and answering all your questions and facilitating that dialogue. And as Anne and Diana mentioned, there's a number of exciting workshops are coming up for the advanced manufacturing office. And e-mailing any of us is a great way to indicate that you want to be involved in our workforce development workshop or others.

At 3:00 today, we have a an exciting plenary presentation, the opening plenary with our new secretary of energy, Secretary Granholm, where she will recognize the 2021 goal achievers. So for any of our sessions, if you haven't signed up yet and you're able to sign up in real-time and participate. At 4:15 today, we have a session that is White House-led by Jane's colleague, Mark Chambers.

And it will have Gina McCarthy, the national climate adviser; Brenda Mallory, Jane's boss, who is the chair of the White House CEQ; our secretary of energy, Jennifer Granholm; the administrator for the environmental protection agency, Michael Regan; the acting head of the US general services administration, Katy Kale. It should be a really interesting discussion about decarbonizing America's buildings.

And so if you could join us for that. We have a number of other great sessions as well leading up. Please sign up for all of them. We look forward to having you all week. Follow us on social media. Clifton, I will turn this over to you next to show the video that showcases our solution center.

[Video]

Thank you so much for that, Clifton. So thank you all for joining us here today. I look forward to having you with us for the rest of the week. Your participation in these Slido sessions really are what make the week work. It should be a great week. We have some pretty fun ones, the Better Practices and Project presentations and Choose Your Own Solution session. Our round robin session, where we're bringing in different leaders from various NGO institutions.

Please join us all week, and I look forward to continuing to engage with the Better Plants family. All of you is what makes all this work so special. So thank you again. Thank you, Jane. Thank you, Diana. Thank you, Anne. We look forward to seeing you all week.

[End of audio]