

Eli Levine:

Hey, good afternoon everyone. We're really excited to have you join us today. We should be getting started in just about a moment so I'll just give everyone 1 more moment to log in from wherever people are logging in from during this period. All right, well welcome. Thank you all for joining us here today. We're really excited to kick off what we're calling our Online Learning Series. This one, our first webinar, is our Better Plants Town Hall. Next slide. That's me, Eli Levine. I was slightly more dressed up than I am now during our days of quarantine but really excited to be with you here today and to have this webinar. Next slide. I lead our Better Plants program.

So first off and I just can't say it enough, I really want to thank so many of our manufacturers, our industrial community for stepping up and helping to respond to this – these great challenges that our country and the world are facing. These are really just a handful of the headlines we've seen, we've been tracking this and watching all of our partners, and you see it on LinkedIn as well. It's really an immense point of pride for me and I'm sure for all of you as well to see how manufacturers are dealing with this pandemic and coping and pivoting their businesses to help respond and address the challenges that we're facing. So there's so many more headlines and that's really in the spirit of this is 1 of the reasons that we're bringing people here today.

Just as 1 of the great things that I really like about the Better Plants Program and what we're trying to do through the Department of Energy is to use our platform as a convening platform to bring people together and to allow them to share what they're seeing at their plants, what they're seeing in their communities, and how we can learn from each other and maybe work through some challenges that we're facing. Next slide please.

So as I mentioned this is the first in an Online Learning Series. We thought we would announce 6 to start off with and depending on how they go, how we keep your interest, and how long this stay-at-home order lasts we may well keep these going. There's a lot of interest I know amongst our partners and amongst our team to bring more and more topics. But the goal for these is to visit you guys every Thursday at 1:00 Eastern with the exception of 1 week where we are moving it to Wednesday and these will be a mix. It will be a chance to elevate our partners and let them share their stories and then learn from each other, a chance for us to bring some training while you may be home and working from home or working in alternate circumstances to really brush up on some important knowledge that your businesses could benefit from, and

then lastly an opportunity to bring some new resources that you may not be aware of that your plants can avail themselves of.

So I'm really excited for that in week 4 there to bring our colleagues from the Department of Agriculture who work in the Rural Development Program and the Department of Commerce Manufacturing Extension Partnership Center to share the resources that their offices are offering as well. I mean this is 1 where normally when we're in the office USDA is just across the street from us at the Department of Energy and all too often we haven't done as good of a job as possible with helping for us to know the phenomenal resources they offer and then helping them share that with you as well. So I hope this webinar series and what's to come in the upcoming weeks will help to provide a little more knowledge for you guys and help you take advantage of these awesome resources.

One thing I just want to mention off the top, this webinar is being recorded so this is something that we'll provide for those who can't make – all of these webinars will be recorded so if you can't make the exact time for when we're doing it we'll record it and transcribe it and then share it on our webpage so that you can watch it later. I know that's something with other organization's webinars that I end up doing a lot where I sign up and then I'm able to watch the webinar later. Next slide.

So the agenda for today, this is how we'll spend the day. I'm really excited about this. We'll have a program update from the Better Plants Program, what's new with the program, some mutual resources for you to leverage, and then some potential upcoming events and opportunities that we hope you'll be able to join us at. And then from there we'll pivot to a partner town hall. We'd love to stir – you know turn the conversation to how partners are adapting to the global pandemic, what they're seeing at their plants, what this means for energy management, and what the future will look like and how Better Plants can support you. And for this second part of it we're just beyond thrilled to have Al Hildreth from General Motors joining us to share his experiences at his plant and how they've been stepping up and leading during this time of COVID-19 and what they're seeing from their vantage point. Next slide please.

So I guess I'll start with the program update here. One thing that I'll mention, you know this is the first time we're trying 1 of these all remotely during the webinar and we want this to be participatory but the way we're going to do this is I'm going to make my brief

presentation, we'll turn it over to Al to make his brief presentation, I believe there's a feature through the webinar where you can raise your hand and we'll be monitoring to see if those who raise their hands and then we'll be unmuting you and calling on you afterwards. There's also the opportunity for you to type your question into the box and we can do it that way too. So I just want to flag that off the top that we're very much looking to have this be a participatory time but to avoid unmuting everyone and having all of the background noise and everything else that has probably interrupted all of your other Zoom meetings and conference calls during this time this is how we're going to try to do this now.

So to start off with an update of the program we're really excited that we just keep growing and bringing more and more partners in. In the last few weeks we've added 6 partners and we're very excited about that and we hope that if you're joining us here and you've not become a part of the program know that we would love to have you be part of it. There's no cost to participate in this program and it's a voluntary program where the Department of Energy is just helping to lend its technical assistance toward helping your plants improve their energy performance and save cost. Next slide please.

Some important dates to remember for those in the program, first on the data side we obviously recognize that this is a year and circumstances unlike any other so there's certainly going to be an understanding of the extenuating circumstances. We do want to encourage you to turn your data in as soon as possible. This is really important for us. Not only does it help us quantify the impact of the program, which goes a long way towards demonstrating our value and celebrating the success that we've all seen but really helps us track your performance and helps our technical account managers identify where they can better assist you.

And then secondly the Better Practice and Better Project awards, which is something we had started a few years ago to celebrate really innovative practices and projects that our partners are undertaking every year and bring attention to them so that we can highlight and provide recognition on a yearly basis as opposed to waiting until you are a goal achiever however many years down the road, we've extended the deadline to apply for this. It's now the 8th of May so it's a short, 4-page application and I encourage you in the program if you have something great to work with your technical account manager and lean on them, let them do most of the write-up if you want or not, but it's a short application and it's

really just awesome to see how much our partners in the community love seeing who wins these awards every year. It was our most popular session last year at the summit and we're always looking for new avenues to recognize and help you tell your story of these innovative practices and projects. So we encourage you to apply and hopefully we'll be able to recognize many of you. Just turn that in by May 8th. Next slide.

We've mentioned this a few times over the years. This was a prize that the Department of Energy had launched that had been extended but the deadline is coming up; it's May 15th. But this is a prize that's looking to – as it says on the screen to find individuals who are responsible for creative, specific, and innovative ideas so we're trying to bring the attention to those everyday folks on the factory floor who are really driving energy savings but may not get the same attention that the Chief Sustainability Officer does or some of you as well so we're trying to have you share those ideas and recognize the individuals. There's a \$5,000 cash prize per winner so there will be 5 winners in the small, medium, and large categories, 5 winner per category. The winners will be announced in July and this year too we want to make it as simple – in these times we want to make it as simple as possible to apply so it's a 3-page application to turn that in so May 15th is the deadline for this. If you're interested or you know someone at your plants that would benefit from this we'd love to have it. If your company has a policy where you can't accept the cash prize we're fine with that too. We're still happy to provide you recognition and point to you as a winner. Next slide.

And so the upcoming slides are about a few events that we have going on. I think for all of us there's uncertainty and every day we hope to find out a little bit more about what the future will bring and what we'll be able to do in the summer and fall months so right now we're saving the date for what we're calling The Fundamentals of Energy Management Training Workshop. This workshop with extensive hands-on activity has been created to educate attendees on the key aspects of industrial energy efficiency and management. Topics range from improving energy efficiency and individual energy support systems like steam or compressed air to establishing an energy management system to enhancing and sustaining manufacturing facilities' energy performance. Finally attendees will learn how to use diagnostic equipment along with DOE's free software tools for identifying energy conservation opportunities or quantifying energy savings.

So we'd love to have you there. If you have other staff or junior

staff or new staff or other folks that you think would really benefit from this type of workshop by all means feel free to pass this along as well. There's an optional tour on August 21st so if you haven't been down to Oak Ridge National Lab and are interested in seeing all the phenomenal resources that they have there we want to facilitate that as well. Should anything change at this we will let you know but right now we're saving the date for the middle of August for this event. Next slide.

We will – right now we are still planning to participate and have an active presence at the Association of Energy Engineers World Energy Engineering Conference, which is taking place in mid to late-September, September 23rd to 25th in Denver, Colorado. They have a great line-up of speakers and always bring in a good crowd and typically we have – we will this year as well have our own dedicated track of panels so if there's any topics that you're interested in hearing or if there's any panels that you would like to present what your company is doing please let us know and we can – right now we're in the planning stages for this so we're still happy to explore that as well. Next slide.

And then lastly we're planning to hold our 4th Annual Technology Day, so this is a really exciting event where we invite industry to come in and explore 1 of the DOE National Labs so it's a few days, 2 days or so of tours and meeting with experts and seeing new technologies, understanding presentations on how to work with the national labs, and there's the Argon National Lab, which is just outside of Chicago, really presents some phenomenal resources and extraordinary capabilities.

So topics that we'll cover include sustainability, manufacturing, and process R&D, applied materials, energy systems, supercomputing and AI, energy storage, if you don't know Argon's legacy with batteries and energy storage they really are the grandfather of most of the energy storage technologies that we see today, building energy and modeling and management, combined heat and power, water treatment, robotics, and then already they're starting to put together a list of what these 2 days would look like in terms of tours and they're excited to roll out a whole new manufacturing materials facility, the Center for Nanoscale Materials, the Argon Leadership Computing Facility, a Smart Energy Plaza, the Center for Transportation Research, so again there's plenty of uncertainty in the world right now and we'll see how we're able to travel but right now we're planning for this event October 13th through 15th. Just save it as a date on your calendars and we'll hope to be able to see you there in the fall. Next slide

please.

And then moving onto some of the resources just to provide an update on what we've been up to, we're moving to modernize to open software for our tools. We want to provide industry with the technology and vendor agnostic analysis and evaluation tools and really the best aspect, the best example of this is our MEASUR tool suite. This is taking all of our system software tools, our system-level software tools and making it available through 1 Open Source platform. So it currently has 5 system modelers and 40+ individual calculators for field validation. This includes built-in guides and tutorials, guided process to perform system assessment and field validation, you can take the novice approach or the expert approach, they've customized it so it can work with you no matter what level you're on, they have dashboards for multi-system summary rollouts, dynamically generated summary reports, on and on. So they've been updated all of our system tools the DOE has used and has developed for decades. They've already updated the process heat tool, the pump tool, the fans tool, the steam tool, and then the Energy Treasure Hunt module, which I know has been very popular. Right now they're already working on our compressed air and our motor tool, the AirMaster Plus and the MotorMaster Plus and expect to have those done sometime this summer.

Lastly the other part of our tools that I'm very excited to highlight is our Plant Water Profiler, so this has been the topic of our new in-plant training on water efficiency but the Plant Water Profiler tool is a comprehensive tool designed by use for manufacturing plants to help their sustainability teams understand the procurement, use, and disposal of water in their plants, be cognoscente of the true cost of water including the costs associated with water procurement, treatment and consumption of water and waste water disposal, and then to identify opportunities to reduce water use and achieve associated cost savings. So all of these are online, they're on our website; I encourage you to take advantage of them. We have a crack team at Oak Ridge that is sort of perpetually updating these tools to make sure that they are accessible and easy and developing new resources to take advantage. And we by all means want to be responsive to you guys in the industrial community so if there's anything that the tools aren't working or can be done better please email me directly, please talk with your technical account manager. We constantly have a team that's focused directly on these tools so if there's anything we can do to improve it we want to.

Lastly on this page if you notice in the bottom center and bottom right of the slide this is to highlight our diagnostic equipment loan program. So we have a closet's worth of diagnostic tools that we are happy to lend out to your plants. They're free of charge, we'll mail it to you, we'll teach you how to use it and how to get the most out of the tool, and all we ask is just mail it back to us unbroken. This has been something that has been really growing in popularity in the program and my colleague at Oak Ridge passed along that we've seen Saint-Gobain take advantage of the Treasure Hunt Kit Tool recently, Leggett & Platt borrowing instruments to allot power and determine how much compressor operations cost, which will feed directly into an evaluation of when and how to replace some air compressors, TitanX borrowed equipment last year to evaluate water flow rates and heat transfer, Legrand just continues to leverage the program as well as anyone. They've borrowed instruments in the fall to collect data that can be used in the energy footprint tool and then additionally Ozinga Brothers borrowed instruments to determine what would make sense for them to buy. So there's all sorts of different motivations for leveraging our diagnostic equipment program. Whatever is yours we encourage you to take advantage of it; there's really no cost to participate. Next slide.

It's a shame with all of this going on most of our in-plant trainings are now having to be rescheduled but 2020 served as our biggest year ever for in-plant trainings where we've offered the most amount of in-plant trainings. I encourage you to check out our website to check on the status of the in-plant training schedule to stay up-to-date on what's available and the other opportunities for training including all the videos from the pre-in-plant training webinars that we've posted on the website. So I want to commend all of our partners who have been awarded these in-plant trainings; we can't wait to offer to them to you.

If you're looking through this and you're saying, "We're sort of based near Wickliffe, Kentucky. I'd love to take advantage of the multi-system in-plant training for fans and pumps that Ingevity is hosting." Let us know, work with your TAMs, let me know. More often than not our Better Plants partners are happy to open the door and accommodate other folks who aren't hosting the training whether it's part of their supply chain or other Better Plants partners or other manufacturers in the area. We want these to be as accessible to everyone as possible so that's obviously up to the host partner but if there's 1 that's near you that you're interested in please let us know and we'll try to work with the company to accommodate you. And then be on the lookout in the next many

months for the next round of in-plant trainings. Next slide.

Our Field Validation Pilot, this is something that we're very excited about and we hope to launch really just as soon as things return to normalcy a little bit more. This is something we held a workshop on last fall. You know essentially we hear from – by being a part of the program these companies have set audacious energy, water, waste reduction goals and are leveraging our technical assistance but oftentimes are also looking for that new technology and the innovation that can help them make the big jumps in energy performance that they're looking for to achieve their goals. And whether that means when they're at a trade show or they're just stepping outside, many partners are being inundated with vendors and entrepreneurs and innovators who say, "Oh, do I have the technology for you," and we're here to try to develop a way to develop a way to do some verification and validation to identify which technologies could really have that true impact.

And so bringing some national lab experts to your plant to test the technology and write it up in a report so that not every partner, every company feels like they have to hold their own experiment on whether these technologies have the impact that they're saying they will. So this is something that we're really excited about but want to make sure when we're launching it that it's launched perfectly as a pilot so we're getting all of our ducks in a row and preparing for it, but stay tuned because we think it could be something that our partners could really leverage. Next slide.

This time while we're home we're using it to try to publish as many case studies as possible that we're sharing on the Better Building Solutions Center. These are 6 that we've most recently published. Our time now is a wonderful time to go and check out the Better Building Solutions Center. They have over I think 2,500 solutions out there on all sorts of different topics. So I want to commend these partners, Xerox, Bristol Myers Squibb, Saint-Gobain, Schneider, Celanese for their leadership. You know it's the record of excellence that you guys are showing that give us the case studies that we can develop and for those of you who aren't familiar with these case studies or familiar with what the Better Buildings Solutions Center is I encourage you to check it out. One of the really great things about the program beyond the technical assistance we offer is just the ability for partners to learn from other companies so if there's a strategy that 1 company employed there's a lot that another company can do to read about their case study and determine if there's something they could replicate in that strategy. Next slide.

And then lastly if you're – these are just 3 initiatives that we've – they're not new but they're – some of them are newer than others but I really encourage you to take advantage of these, particularly the supply chain initiative. Many of you are thinking about science-based targets or scope 3 emissions and you know – or just driving sustainability down your supply chain and we view ourselves as a really great resource for companies so if there's a way for you to bring your suppliers in, let them in the program, or let them have the technical expertise at Oak Ridge to help them through and for you to get updates on how they're doing and be able to better track and monitor your suppliers' performance we see it as a really great opportunity. So we've had 5 OEMs take advantage of this so far with about 6 to 10 of their suppliers per cohort and if you're not doing this I'd love to see you bring your suppliers in and let them work with us. But then additionally our Water Savings Initiative and our new Waste Reduction Initiative as well, we're piloting the Waste Reduction Initiative. I think we have about 20 industrial partners who've stepped up and are participating in it and that's – if you're interested in setting water or waste goals we'd love to work with you on that. Next slide.

So that about wraps it up for an update from the Better Plants program. We have a lot of new materials that are coming that our technical account managers are developing, our baseline updates through the baseline guidance documents, a number of other research white papers and other materials that we hope you will benefit from, but we'll be hopefully meeting here every Thursday for 6 weeks to come so we will share them as they become developed. So with that I want to turn this over to Al Hildreth who we're just so excited to be joining us here today and being able to provide the industry perspective of what companies are seeing here and share GM's leadership story of how they've responded to this pandemic. So Al, I will turn this over to you and just thanks again for being here with us today.

Al Hildreth:

Okay and thanks Eli for that great introduction as well as all the great information you've provided us. I'll put in a plug that I didn't hear you talk about, which was your 50001 Ready application. That has really helped us organize ourselves related to energy management and I think we've got about 25 plants in recognized with that so far and it's just a great program. So if anyone out there is in need of getting yourself organized with where you're at at each of multiple facilities or even 1 this is really a great program so appreciate that. Next slide please.

So I want to start off with just kind of personalizing this and I guess you know I'm doing fine, which is really good during the COVID-19 crisis that we're in. I spent the first couple of weeks in March down in Florida with my grandkids with kind of a spring break and babysitting vacation, they live down there, and then kind of the news hit and when I got back then we were quarantined in Michigan because of the governor's order but I'm doing fine. But it really kind of struck home last night, I attended my first virtual funeral, which a friend of mine passed away from COVID-19 in Spain. And so you know when you're watching a funeral and you can't be with friends and family it kind of really strikes you and hits you hard. So I want to talk about GM's response to the COVID-19 virus and I'll start off talking about energy management, how that's benefitted us, as well as what our response is in making ventilators and masks.

So first I want to say you know sustainability is really in our DNA. Our commitment is – or our vision actually as a world with zero crashes, zero emissions, and zero congestion. And if you've read any of the newspapers some people are getting kind of a glimpse of what that's like now. You know there's people that say they can now see the Himalayan Mountains from their backyard and they've never been able to see them before in their life. People are seeing clean water in Venice. If you've ever been to Venice you would never imagine that the canals there could be clean as they are right now. So you know maybe this is going to give people a glimpse of what true sustainability in the long-term could really look like so we're excited about this and you know we have some basically sustainability is in our key values.

But first off and foremost is our overriding priority, which is safety. And so most of what I'll talk about today is related to keeping people safe and so it's mostly public information except for the energy management stuff, that I can talk pretty much freely about, but the rest of it will be public information and we'll end up with a video that will show the progress of making ventilators. Next slide please.

So the things I want to talk about, first we had to close all of our major manufacturing facilities in the Americas recently. We had closed facilities in China and in Korea and in other parts of Asia. I happened to be in Wuhan last June doing an Energy Treasure Hunt and so I know some people there, I tried to make some contacts and find out, I also have a cousin that lives in Wuhan, and her and her husband were in Thailand at the time vacationing so they're very fortunate that they got quarantined in Thailand, which if

you've ever been there it's a beautiful place to be stuck at I guess in a bad situation. So what I'll talk about then is how our energy management system kind of kicked in and is able to without having a lot of people involved because most of the people in our facilities are not able to be there, but that's been really beneficial for us. I'll talk a little bit about that, our support of ventilator production with Ventec, and how we've started to manufacture respirators as well. Next slide.

So first energy management. You know that's the thing that I really enjoy the most. I have fun with it, been doing it for a lot of years, and so 1 thing we learned during our work stoppage last year, which lasted about 40 days due to a strike in the United States, was that we have the ability since we have an online energy management system that can monitor each facility's energy use we can do kind of hourly or daily or whatever frequency that we wish of energy reporting to see who's the best and then we can track best practices. So we gathered a lot of information last year and from globally really so this is kind of a snapshot, I took the facility names out of there to protect the innocent, but this is kind of a snapshot of what we look at on a daily basis. I just sent this report today so every day I send it to our top leadership, our vice presidents, plant directors, facility managers, and utility managers so that they can see how they performed and kind of look at some of their other facilities and there's competition involved in this. People really want to be the highest percentage reduction.

Typically we've done this in the past on holidays, we have contests on holidays as to who can get to be in the lowest in for and out of these 54 facilities that we monitor this at in the Americas we see an around 80-percent reduction. And then the strike kind of taught us a few things and some best practices and this extended shut down has taught us some more so now we're into the 90-percent, which is really good. Our 85th percentile of plants is about 92 percent, which is in my mind really a great feat.

The other advantage of having online energy management system when you can't physically be in a plant to gather data, which is what we have for Energy OnStar system and others, is that you can forecast energy and in areas where we have do daily forecasting for gas we've been able to save quite a bit of money by being able to have that information at our fingertips and reduce demand costs. We can see which plants are operating the best, we can look at our HVAC systems and see how many are operating; hopefully it's zero. We have a lot of plants that have just basically gone to zero HVAC systems, which is really great, especially when the weather

cooperates with us in some areas. So there's a lot of advantages to having an online system that integrates multiple facilities together, especially when I don't have people in the plant to look at information and to react to it. So I think this daily report, having information available as continuous commissioning is really beneficial to us and we're reaping the rewards of that. Next slide.

So now I want to talk about 1 of the things as we mentioned that once our facilities were shut down we wanted to help respond to the virus. We have a lot of manufacturing facilities, supply chain capabilities, and so we chose some desperately needed medical supplies to assist with, 1 of which is ventilators and the other is masks, which I'll talk about. We're doing some other things that we're not talking about publicly but at least I know I can talk about these publicly.

So 1 of the things, and I just saw a really great news interview with our CEO Mary Barra actually I think it's through Twitter talks about the record time, we partnered with Ventec in a short period of a month and started producing ventilators this week in our facility in Kokomo, Indiana. It used to make semiconductors and still make electronic components here and so this week we started producing ventilators. As safety is our overriding priority we're using workers that offer to help so we don't want to force anybody to go in that may be high-risk or just not comfortable with working. We take their temperature, provide them masks, and maintain social distancing along with regular cleaning and some other protective measures to make sure that people are safe.

So this one is something which we were able to find a company that didn't have – couldn't expand to make more ventilators that were, they were proved to make – Ventec – life-saving devices, and we were able to use some of our idle manufacturing facility space as well as supply chain. Supply chain is huge in this because you can imagine all the parts that you have to get and all the suppliers ramped up and so it was really a vast effort and came together pretty quickly. Next slide please.

So next is kind of – and this one is pretty close to home – we have a facility in Warren, Michigan that used to make transmissions and it was idled just last year. I worked a lot on making sure we had the lowest energy use in an idled facility, they were doing really great, and then this crisis came and people need masks. That's 1 of the things that originally they said masks don't help and then everyone said they do help. I wear one when I go to the grocery store. I get to go to senior hour in the first thing in the morning but I always

wear my mask. And so we were able to get together very quickly and this was kind of a grassroots effort to mass produce masks using very similar safety measures that I mentioned in Kokomo. And now I'd like to share a video that kind of shows just in 1 minute the progress of making ventilators.

[Instrumental Music, 0:37:47 – 0:38:57]

And thank you very much Eli again for allowing me to share. I really did appreciate it and I'm hoping that this will spark some discussion. If you have any questions I think Eli is going to kind of walk us through that next piece of it but again thank you very much. I really appreciate the opportunity to share.

Eli Levine:

Al thanks 1 more time. I mean this was really extraordinary and we did a walk-through yesterday and I still learned quite a bit from even from yesterday to when you were talking today so I just want to thank you for sharing. This whole presentation was significantly better from having an industry perspective and having you there to share what you're doing. So I really want to give us a chance to open it up a little. I have some questions but if there are others who are interested in sharing what their plants are doing, some challenges they've had, how your experience compares with what you've seen Al, do talk about that or maybe share your experience for what you think the – what this will mean for the future, how this is something that you can take the lessons that we're seeing during this time where Al was mentioning you can do a lot of monitoring remotely and online energy management and tracking is something that there may be lessons that we're seeing here that we can carry forward into the future.

So we are trying to figure out how to do the questions but if anyone has any questions or wants to share their story just indicate and we can raise your hand and we'll try to call on you. So maybe I'll give it a moment or 2 to see if anyone has anything they want to share. Well maybe Al I'll ask you a question related to what I was talking about. So what did you see as the – what were the biggest challenges that you guys faced in pivoting 1 of your plants and then secondly to that what is your day-to-day like as the Corporate Energy Manager or the Global Energy Manager for GM and how has working remotely impacted or not impacted your ability to do your job?

Al Hildreth:

Yeah, so that's a good question and I appreciate that. So 1 thing I find is that you'd think working remotely might be a little easier. I find I work more hours. I think that working kind of takes my mind

off of the present situation that we're all in so I just don't mind working. I work around my wife's time and she likes the – she sleeps in so I can work really early in the morning and not get in trouble at all. But I find a lot of people interested in energy shutdown that we haven't found in the past so we have a lot of good supporters now and very top level of the organization. Again I mentioned our vice presidents that get this report and plant directors, they all want to be the best, and 1 thing it's done is really help the accuracy of our readers.

So we've got a guy, Dave Denton, that does most of our metering in the United States and he's been on the road to repair meters in a couple of plants, he's been to Kokomo to fix 1 of the meters there, and so it just kind of gotten the attention. Actually 1 meter that we had that wasn't working for a number of weeks finally got repaired so some good things are happening I think from an energy management perspective.

Eli Levine:

That's really interesting. I see some names in scrolling through here that I don't view as our reticent shy partners so I do encourage those of you who want to share your own story or have questions for Al or questions for the Department of Energy by all means speak up or write in. If we've muted you and you don't want to be muted just write that in the chat box and we can add you because we do very much want this to be participatory. Al, maybe take another moment and talk about do you – I really appreciated your response bringing up our 50001 Ready program. You know that was something that we do very much hope to feature in the weeks after this first 6 weeks. Can you talk a little bit about how having gone through those 25 steps and developed your own energy management system to the ISO 50001 standard, has that prepared you for – how has that helped you prepare for your current working situation?

Al Hildreth:

Yeah. So you know again I got a great team of folks that have worked on this. They put it into kind of a standardized work format you know with files on SharePoint sites and we shared that with all of the facilities. People at each facility kind of really embraced this. DOE provided some great training for us, which got us kind of set up and all organized. We had folks from Toyota there at our supply chain and others because we really want to take this and move it across the industry because it's – I mean 1 thing it's free. So right now we're not making much money so free things are really great for us Eli so I appreciate your vision and your group's vision in putting together something like this. It's been really beneficial for us.

We have most of our facilities in the United States that are able to be recognized are and now we think hey, this is a great program. We can just take this globally to all our facilities. And we have an energy management system that's been in place for a number of years and you know we were doing some manual tracking but people change all the time and they get new people in so this is just a great way to kind of formalize what needs to be done for an energy management system and identify gaps. So if a new person comes in and says, "Hey, I don't know what to do," we've got 25 steps that are perfect to give them a lot of guidance as to what an energy management system is all about. So our next step is to move this into Canada and Mexico and then as well into Brazil and Korea and China and other areas of the world.

Eli Levine: That's fantastic Al. A few more questions are starting to roll in. So 1 question we got was when setting goals and trending energy use improvements how are you handling changes to the plan of operation and scope?

Al Hildreth: Yeah, that's going to be a bad one. As you know the most efficient that I can be is to run 7x24 and the least efficient I can be is right now because I've got the fixed energy. Although we've reduced it down to a minimum if I'm not making vehicles and my energy intensity goal is based on a per vehicle basis it's going to look ugly. But on the other hand we just need to do the – that's kind of the situation that we're posed with. We just need to do the best we can in keeping our non-production energy down to its lowest level that we can and we'll just have to explain our way out.

One good thing is our carbon goal is an absolute goal and so that's going to help us a little bit from an absolutely standpoint. But we also have a renewable energy 100 goal and so all of those coupled together I think our absolute goal we're going to be in great shape; our intensity goals are going to be a challenge. And 2020 the energy intensity, water intensity goal, it will be a challenge no doubt.

Eli Levine: Yeah, understood, and 1 of the things that I really like about the program is you know being able to bring our community together where everyone is facing similar challenges or going through things and being able to share in a candid and frank way with each other on what we're seeing and how we're adapting and what we're doing to try to be the best we can be. So this was nothing GM could've foreseen or planned for. Al another question that was raised was for the online energy management system do you utilize

submeters? The person specified that we had a lot of work in ensuring metering is correct and functional.

Al Hildreth:

Yes, so have 2 basic meter systems. One is we count pulses, turn it into KW at our revenue meters for electricity and gas and that's at pretty much all of our facilities in the United States, some in Canada, and then in other plants we use submeters. Typically for electricity we do it at a substation so our process has been basically any time we put in a substation we put in a meter with it and then we tie it into our online energy management system or Energy OnStar so it can do remote monitoring. So the nice thing there is we had a utility company in Mexico for instance that says, "Okay, you can tie into my meter with a data logger," at least I have my own internal meters that I can sum up. But even in plants where I have the revenue meters I've got online we then have the energy management system that looks at submeters at a substation level. And substation is good because you can kind of identify it to a work area and I can sum them up by building, which I do.

I do virtual meters by department so I know how much my paint shop uses, how much my body shop, and general assembly, and then you know you can kind of tie that to an area manager, a person that says, "This is what I'm responsible for, I know what my energy per unit is," and we also send daily emails to each facility that says, "This is how you performed yesterday with that system," and that's been pretty helpful too because trying to get a monthly scorecard, looking at a monthly scorecard to figure out what you did last month is really difficult, but figuring out what you did yesterday is a little easier.

Eli Levine:

Yes, very much so. We've got a few more questions for you Al if you don't mind. One question we got, and I swear to you we spent – Al, you can attest to this, we spent a whole lot of time yesterday planning for how we would allow people to raise their hand and unmute them, but the chat box is working well so we're going to keep going with that. Do your energy conservation projects compete with other cost savings on an annual basis?

Al Hildreth:

Yeah, so they do at some point. However, we've tried to decouple them by using energy performance contracts and we've been doing those since about 2012 in the United States. We're expanding into Canada and Mexico, I've done some in Korea, and so that kind of decouples it because now what I'm doing we used the shared savings approach and so if I'm saving \$1 million and I'm sharing \$800,000 with a contractor over a period of 5 years or then I'm really not competing with plant monies. I'm saving money, I'm

saving 10 to 15 percent, and so it's not really an issue.

We also have – we used to have a large dedicated fund, I don't know if it was large, it was \$25 million I think at 1 time, including utility incentives and then when we started to figure out well we've got to transform into electric vehicles we said, "Hey, some of that money is going to have to go to vehicle development," and we increased our use of energy performance contracts. So that's kind of our prime mode of getting energy projects implemented.

Eli Levine: Wonderful, thanks Al. Questions are now coming in fast and furious. If the production line is running on the social distance guidance, 6 feet minimum, et cetera, what approaches could facilities take to keep the productivity still relatively better? What innovative approaches could they take to keep productivity high? For example, can 1 worker take care of 2 tasks on the production line?

Al Hildreth: Yeah, so we haven't figured all of that out yet as I'm sure many of you are in the same boat with this. But we're providing masks to folks, we're keeping the 6-foot distance, we're adjusting shift times. We're doing to start off slow and see how the productivity goes. So in some cases we probably don't know the answer to that yet and it'll be a trial and error and see how it goes. I know that safety is our overriding priority and if we have to suffer on productivity for a while until we get out of this we'll have to do that.

Eli Levine: Yes, I appreciate where you're coming from and I applaud you guys for – that's the right stance in my opinion. Another question we got was have you General Motors, and for all of these if there's someone else who wants to chime in and share it's not just questions for Al but if you want to share your own story that's welcome too or we can certainly facilitate a lot of these conversations offline as well. Have you General Motors established a cost value for carbon when considering energy projects?

Al Hildreth: So we have. We set an internal price on carbon of about \$25 per ton currently and we did that because we sold into the marketplace at Korea at about that price so that was kind of 1 that we could talk to our finance folks and say, "Hey, this is real because we got some cash back from it in Korea by turning in or selling carbon credits." How we use that though is it really kind of helps us in prioritizing energy savings projects. So we use it as kind of a – we built our online system that tracks our energy savings projects and it

calculates a payback inclusive of the price of carbon so it helps us prioritize our energy efficiency projects.

Eli Levine: Excellent. Yeah, this is really helpful Al. There was a question I think focusing on your renewable energy goals and your participation in the RE100. When GM is looking at renewables how much are you looking at self-generation at your plants versus power purchase agreements?

Al Hildreth: Yeah, so the first one that we ever did actually I did back in the 2000s, mid-2000s at a facility and it was on-site and we just thought, "Well we'll just blanket all of our roofs with solar panels," and quickly then we decided once you go to RE100 that's just not possible. You don't have enough roof space to do that or ground space. So we quickly kind of figured out that we have to have a multi-tiered approach. Our 4-pillar approach really starts with energy efficiency because I don't want to buy renewable energy if I can just reduce energy and that's the best method to start with. Then we also do – we have some virtual purchase power agreements, we have straight out purchase power agreements, we rent space on our land, on our roofs, and have other people own the systems and we just get a lease price so there's a number of different ones. And GM's got a blueprint that we published that kind of talks about the different methods that we use including virtual purchase power agreements, et cetera, that's public and free. I can send a link to you guys and you can take a look at it.

Eli Levine: Thank you. Yeah, that would be great and I know that under our leadership and Maria Vargas, who oversees all of this with the Better Buildings Initiative has been pushing us towards looking at renewables as well so it's definitely an important area the Department of Energy is thinking about and it's great to have partners like you who are already so far out in front that we can work with on this. There's 1 more question that we got that was directed at the DOE also so you're off the hook but I at least want to acknowledge and know that it's something that we're talking a lot about internally and hope over time to have guidance or assistance for you guys. But the question was with the shutdowns and inefficiencies caused by the COVID-19 crisis models are going to be severely impacted in 2020. Model variables will likely not be valid due to the statistics. What advice and suggestions does DOE have to deal with this 2020 data? So knowing that we're at 1:57 right now I just want to acknowledge the question and know that this is a really important concern that you have and something that DOE is thinking a lot about and will work with you all in the future because I recognize that this is something that Al addressed

in a response to 1 of the questions and something that is probably on many of your minds.

So with that I just want to turn to the next slide and make a couple of more announcements that I arguably should've made at the beginning, but first off I wanted to highlight our Better Buildings Solutions Center that we talked about earlier the graphic here really does a great job of showcasing. It has all of our technical tools and resources and these are the technology focus areas so if you're looking at any of these industrial systems on each of these pages not only does it have who our technical expert is that you should work with on this but also all of the technical resources and the case studies that we've put together, it has our webinar calendar; it's really an extraordinary resource and I encourage you to spend time on the website and leverage it as best you can. Next slide.

Again this is our calendar for the upcoming events. If you enjoyed this one or even if you didn't we'll get better. I encourage you to register for next week's and the week after. These are really great trainings. Tom Winning will be leading the next one, which I'm really excited for focused on the basics of energy so next slide.

And then lastly this is something that I want to share with you. We had been planning for our Better Buildings Summit that I know is a highlight of the year for many of you and for many of us to bring everyone together. This year we're going virtual so from June 8th to June 11th we're having the Better Buildings Summit, Better Buildings, Better Plants Summit as a virtual leadership summit so we've really been blown away by the strong registration rates already but it should be a great couple of days of recognition and plenary speakers and interesting interactive panels and topics and sharing best practices so it's free, there's no cost to participate, and I really look forward to having many of you there and I'm sure in your emails if you haven't seen them already we'll be profiling all of the great things that will be a part of these couple of days. Next slide.

So just some contact information for Al and I, although we have Blair's email there for Al. Blair, we'll be reaching out to you for any questions that Al received but we can share Al's email afterwards. But certainly send them to me or send them to our web team and we will – we'll be happy to direct them and answer any further questions that we didn't get to. I know we got a lot of great questions there. So with that I just want to thank all of you for being part of the webinar today. I want to encourage all of you to

keep staying safe and thank you for all the leadership your plants have been showing in helping America respond to this pandemic. So thank you for being part of today's webinar and I look forward to virtually seeing you all next week at the next topic so thank you all very much.