

Nate Allen:

Okay, I have 3:45 Eastern exactly. Hello everyone. Welcome to the end of day two of the 2021 Better Buildings, Better Plant Summit. Thank you for joining us today. Let's go to the next slide for Teamwork Makes the Dream Work: Collaborating to Implement Carbon Reduction Goals. We have some outstanding speakers I'll introduce in just a moment. Let's go to the next slide.

I'll be moderating today. My name is Nate and I have the pleasure of overseeing our work in the public sector within the Better Buildings challenge and initiative, and that includes across K-12, local governments and states. I am in EERE's Weatherization and Intergovernmental Programs Office. And prior to this role I oversaw our work in healthcare and higher education, which will become relevant in just a moment. Let's go to the next slide.

Before we dive in there are a few housekeeping points I want to cover. First thing I should note is that today's session will be recorded, in fact is being recorded, and it'll be archived on the Better Buildings Solution Center. We will follow up when today's recordings and slides are made available. And I want to also flag that in the context that at the end of this deck we have a number of slides with live hyperlinks. So you will be able to access those later to see the resources that we reference throughout our talks.

The next thing I want to draw attention to is that as of a couple days ago we had about 1,700 people registered for this session, so we decided to put all attendees into listen mode, so your microphones are muted. And if you experience any incoming audio or visual issues at any time throughout today's session please send a message in your chat window located at the bottom. Well, in my screen it's the bottom of the Zoom panel, bottom right. And send us a message and we'll help out. We've got a team behind the scenes that is ready to step in if needed.

Let's go to the next slide and talk about our plan for the day here. Let's get into some substance. So I want to briefly talk about our session today in the context of all of the excitement from yesterday's White House Roundtable and opening plenary.

We heard a number of commitments and new initiatives from cabinet level officials yesterday relating to decarbonization and collaboration across the federal government. We also heard from industry about how they're working to accelerate their efforts to decarbonize their operations, and what it means for how they do business and grow their workforce.

Frankly, and it's wonderful to be able to say this, I was struggling to keep up yesterday afternoon there were so many big, bold, new initiatives being highlighted. And for anyone who wants a primer I would encourage you to check out – we'll put the link there. Brilliant, thanks. I would encourage you to check out the White House Fact Sheet that they published in the afternoon that has a really helpful bulleted list with links for more information about everything that was discussed yesterday.

One of the underlying messages that I was reflecting on last night is that the way that these announcements were communicated stresses the importance of working together. And I think all of us can appreciate that's important. The question is how best to do it, and that's why I think what we're talking about today is all the more relevant.

We have on our panel of the moment three organizations that are demonstrating leadership when it comes to deliberate cross-team collaboration to decarbonize their building operations. You'll hear their stories are different, but they're all doing it very well. And in their presentations we'll hear specifically about who they're working with and how.

The other thing I want to highlight is that this session was planned in tandem with the Pathways to Zero Session, which is taking place Thursday at 11:00 AM Eastern time. My colleague Joe Indvik is moderating that one. That session is all about carbon reduction targets, metrics and accounting, and they're going to be looking at specific examples across organizations.

This session today is more about the process and the how, and it's our intention that these two sessions fit together accordingly. If you haven't signed up yet for the Thursday session I encourage you to do so.

Let's go next to some opening polling, and then we'll get to our panel of superstars. We'll close with some Q&A in ways to stay connected. We will be using Slido for this session as we have been for all the sessions so far in the Better Building Summit. Hopefully you're familiar with how it works. I've got it loaded here on another screen.

There are two ways to access. I think the simplest way is to use your phone and hold it up to that QR code that we have pasted on the slide there. The other thing you can do is enter [slido.com](https://www.slido.com). The event code is DOE. And then the dropdown menu you can get to

our session, which is Teamwork Makes the Dream Work. So I'm going to give everyone a moment to get to the screen. We'll do a couple opening Slido poll questions.

And why don't we go there now. So we have I think – so we've got three or four opening questions we want to just run through quickly that we put together with the speakers. And let's start with this one about where folks are coming from. So where are you joining from today? I'm in my living room but I'm in Washington, DC. So I will enter in Washington, DC, which seems to be prominent. Here we go.

And looking at the reg list yesterday – the other day I saw people from all over, so we've got a really good cross section from across the country here. This is great. The other thing I'll note is that we may move on at certain points, but you can still go back and enter in information here.

So I think with that, why don't we go to the next poll. Let's get a bit more about where folks are coming to us from, so we'd love to know about your role. Like the state and local government focus, okay. This is really handy to be able to see in real time. Cool. Still some responses trickling in.

In the interest of time let's go to the next poll, and here's where we get into some more specifics around – well, we'll do one more of this. Yeah, tell us about your professional expertise and this is a word cloud I believe. Not surprised to see the responses on the screen. Very good, very good. Awesome. Okay, let's go to – I think we've got two more. Let's go to the next one.

Here we go. So has your organization established a greenhouse gas reduction goal? Public facing about 60 percent. That tracks broadly thereabouts with what we've researched across the spectrum of Better Buildings partners. Interesting, okay.

Let's go to our final question and we'll dive into a bit more detail about that. This is a multiple choice; if you have a goal tell us more. Give it a few more seconds. Cool. Okay, that's very helpful. Thank you for participating thus far.

Let's go to introduce our panelists and we will go to the next slide here. We have a really – there we go. We'll get there. We've got a crackerjack panel here. So Andrea Trimble is the director of sustainability at the University of Virginia. She's been a leader in higher education, sustainability initiatives for over 15 years. I've

known her for about a decade since her time at the Harvard Sustainable Buildings Program. And I will say personally as a Darden Alum, I'm very proud to be able to associate with her outstanding work across UVA. Not just UVA but also the whole commonwealth of Virginia as we'll hear about shortly.

After Andrea we'll hear from Ian Lahiff who is an energy project manager for the City of Orlando. Ian's work is incredible. Yesterday we announced Orlando as the latest local government to achieve their Better Buildings Energy Savings Goal, which Ian was integral in helping to meet.

In addition, he's been a really active participant in our low carbon pilot that you likely heard about yesterday, and was one of the very first partners that we got on the phone with to discuss a specific action plan for how they're going to reduce operational carbon emissions across two buildings in their portfolio. Ian is an engineer by training, and he leads a team in the city of construction managers and controls specialist.

Last but not least we'll hear from Jon Utech who is the senior director for sustainability strategy at the Cleveland Clinic Foundation. I think Jon is a widely recognized leader in sustainability and the healthcare space. And something that I've learned through working with him through our healthcare work is that he has a very technical background in carbon footprint planning and analysis work throughout other roles he has held in his career.

I am so pleased by the caliber of panelists we have sharing insights today. And without any further ado from me let's hear from Andrea at UVA. Andrea, take it away.

Andrea Trimble:

Thank you, Nate, so much for the introduction. I'm really happy to be here with the other panelists. Can we go to the first slide? Great. So I lead UVA's Office for Sustainability; a team of 14 full-time staff plus student employees and volunteers. We focus on Pan University Strategic Planning and Partnerships.

We do program and project implementation across all different impact areas. We do engagement, communication with students, staff, faculty, alumni. We run or we partner with programs like our Delta Force Program, which we partner really closely with the Better Buildings Program on our green building standards for capital projects, green workplace, smart labs, green labs, green living and more.

UVA's grounds, we're fairly large. We have over 550 buildings representing over 15 million square feet and about 1,600 acres. We have about 23,000 students, undergrad and grad, and then over 17,000 academic staff. UVA has some really unique opportunities when we think about climate action planning.

We have Thomas Jefferson's lawn as a UNESCO World Heritage Site, so we have historic preservation opportunities. We have intensive research labs, and we have a major health system with over 600 beds and nearly a million outpatient visits per year, which are all included in our sustainability goals. So we have some really distinct considerations across preservation, research and patient care.

Last year towards the end of 2020 we launched a new – our second sustainability plan, our 2030 sustainability plan, which includes 10 goals that are noted here. And these include a goal to be carbon neutral by 2030 and fossil fuel free by 2050, as well as goals focused on an engaged steward discover approach.

So like other large universities, a university can be a pretty decentralized place, and teamwork and partnerships, even within our own university, are really important in how we advance our work. We use this engaged steward discover framework to help us cross some of the academic and operational boundaries, so how we engage our community, how we steward our resources, and then discover how we focus on sustainability in curriculum, research, which has global impact, and hands-on experiential learning on grounds.

So to meet our goals we're developing an updated climate action plan for our scope one, two and three emissions, and we recognize that high ed plays an important role in climate action and resilience. We're not just writing a climate action plan to reduce our own emissions, we're educating current and future leaders both in and out of the classroom. We're connecting research with global impact, and we offer in on a scale that can have really significant environmental impacts if we leave them unmitigated. So I would say that being emission is in our goals is important, but also connecting in key areas across the university and working closely with partners on a regional approach is important, too.

So I'll talk about three today. Our Carbon Neutrality Partnership with the College of William and Mary, then our climate action together Partnership with the City of Charlottesville and Albemarle

County. And then some key internal and more local partnerships within Charlottesville that we use to collectively address climate and to engage other people. Next slide please.

So first William and Mary. William and Mary is located across the state from us. We're closer to the central or western part of the state, and William and Mary is near the coast in Williamsburg. Back in December 2019 we were about to set our new carbon neutrality goal. We had met our new carbon goal. We had met our first goal six years early, and William and Mary was just about to set its first goal when we each caught wind the sustainability directors that we were about to put forward a new goal, and it was the same goal; carbon neutral by 2030.

Our presidents connected, so president Jim Ryan at UVA, and then Doctor Kathryn Rowe at William and Mary decided to form a partnership for both public universities with the same goal as – similar structures in a lot of ways. So they put forward that announcement together in December 2019. Next slide please.

So some of the benefits that were recognized as part of the partnership are accelerated climate action, the potential to replicate and amplify impacts beyond our two schools. So higher ed, sustainability is very collaborative both regionally, Virginia schools, southeastern schools, nationally across the country. And I think we're very open and strive to share what we – lessons learned and best practices, and so this allowed a very direct level of conversation that came from the presidential level from each school. Next slide please.

So what we did once this charge was put out there, or this commitment was put out there was we formed a committee with staff with similar positions, and faculty and students from each institution. So, for example, the director of capital projects, the director of operations, faculty in certain schools, study abroad, all sort of the same entity at each school came together on the committee and was charged with identifying common opportunities and challenges that would benefit both of us as we moved towards 2030, and then to connect area experts at each school to explore what the possibilities are, share what we've already done and move from there.

We're very focused on the operational aspects of carbon neutrality, but recognizing those opportunities in higher ed. We also have really strong connections to engagement, curriculum and research, too. We've identified so far that we're focused on renewable

energy, PPAs, in particular capital projects and fleet management as the three areas we're collaborating on. So we've formed smaller working groups to dive deeper into each of those topics. Next slide please.

All right, so another partnership we have is with the City of Charlottesville and Albemarle County, which are separate entities. Part of our campus is in the city and part is in the county, but we own and operate all of our buildings and land. In early 2019 all three entities were in the process of setting new carbon goals, so sustainability staff from the three entities formed Climate Action Together.

And really initially we're focused on coordinated outreach and engagement. All three of us are getting ready, poised to go out and seek feedback from the community on our planning process, which is an important part of the collaborative process, but there was a lot of overlap like UVA staff who live in the city or county, or city or county residents who are alumni. So the city – so we went – I'll talk about that in a second, but eventually the city and the county both set new goals of 45 percent reduction by 2030, and carbon neutrality for both of them by 2050. Next slide please.

So we formed this partnership. It wasn't necessarily at a high strategic level. It was the sustainability staff coming together and saying let's coordinate at least, but it was really building on a lot of strategic action that has happened in the past. There was a local climate action plan in process in 2009 that provided examples of existing efforts and a five part framework to look at energy in our communities and associated strategies. But really this next step was, "Okay, let's at least coordinate on the outreach." We each have our own baselines and goals, and then let's see what's possible from there.

So now we're starting to collaborate on some very specific overarching initiatives, so one is equity. We've been working with the UVA Equity Center to better understand how to be a just climate community. And so we're partnering with several organizations on a youth climate justice project this summer, so using data and stories about what they see as issues of environmental justice, and we'll use that to inform our planning process. Next slide please.

This is an event we held in 2019, and this is where we were starting to share information on what we're doing, what our goals are, and to gather input and ideas from community members, but

also to really build a lot of networking opportunities across the city, the county and the university. So we were asking them questions like what's the best way to engage you, or what's the number one action you would like to do but you can't, or what are the barriers, and we got a lot of really good feedback on this and looking forward to doing more of this post pandemic. Next slide please.

And then finally a few highlights of some additional community partnerships that are related to climate and how to reduce their carbon footprint but go much broader. So we – our office and the university Committee on Sustainability also partner with nonprofits to broaden the conversation to new audiences. So every January we partner on Martin Luther King Junior Community Event, which is held off campus with local nonprofits. And we had topics like hip-hop and environmental justice, and black youth in the climate movement.

So, for example, in 2019 Doctor Ali spoke and he's the vice president of Environmental Justice Climate and Community Revitalization for the National Wildlife Federation, but at the time he was senior vice president of the Hip-hop Caucus. Then previously worked for the EPA for 24 years, and so was helping to make some interesting connections between hip-hop culture and environmental justice.

And then we also had Isra Hirsi come speak who was 16 at the time, and who cofounded and serviced the co-executive director of the USC's Climate Strike. So we're trying to – they are brought in the audience to the youth of Charlottesville and the Albemarle as we look to climate action regionally. Next slide please.

And then just briefly on these last two slides. We partner also with sustainability focused nonprofits; the Community Climate Cooperative. We have Generation 180 and a few others in our area. And we do things like green tip neighbor videos and Earth Month. We partner with the Career Center to connect students to sustainability related job opportunities, helping them understand how to use LinkedIn for networking. So all in the context of sort of a broader look at our carbon commitment and our carbon responsibilities. And last slide please.

And then finally this is even broader. So our Sustainable Food Collaborative which has a really strong impact on climate, but also equity, waste and water and so on. We collaborate here with across

UVA, but then also across the region, across the state, and then starting to collaborate a little bit more nationally here.

And this is where we bring in organizations like our local Food Hub and Cultivate Charlottesville and the Food Justice Network, and are looking strategically at what's the role of food in advancing these goals, of carbon and climate being part of that, but then also much bigger. And that's all for me for today. Thank you so much, and I'll pass it back to Nate.

Nate Allen:

Thanks, Andrea. I have – the events are fantastic having attended several of them. They're widely attended by students and community members. It's really impressive the work you're doing there. I think we'd like to come back to some of that in Q&A, but for now let us move on to Ian from the City of Orlando.

Ian Lahiff:

Great. Thanks for having me. Let's get that first slide queued up. All right, my name is Ian Lahiff. I'm with the City of Orlando. I want to first thank everybody for being present and letting me share with you today. I'm excited to share some of the efforts and goals that we're striving towards in the City of Orlando. Slide please.

Orlando is a really unique city with unequal growth and tourism. As many of you probably know we're rapidly expanding. We have over 74 million visitors annually, and that's pre-COVID of course, so resource management is extremely important. When Walt Disney decided to build the castle in the swamp in the 1950s it really morphed Orlando from a small military town of roughly 50,000 to a 2.2 million in the greater Orlando area, and you can see that inflection point and that population curve.

2019 was record year for us. We had 133 million people come to the state for vacation and then other activities, but post-COVID that tourist count fell to 35 million visitors. So it's a huge drop off for us, and it's the lowest in 20 years. Slide please.

For those of you that haven't visited us lately I want to just share this overview for scale of how Orlando is connected to the surrounding areas. We actually encompass downtown, the airport, we're close to UCF on the east side, and all the way down as far as Universal Studios, but we don't quite get into Disney that a lot of people think we are. They actually have their own entity down there. But we do cover a lot of different neighborhoods and different communities that we serve. Next.

So with some of those stats in mind, one thing that you might be thinking of is we have a really small population to tourist ratio, and this is a really unique challenge when we compare ourselves to other cities. There's a serious resource consumption problem. Energy, solid waste, carbon footprint, they're all exacerbated by our fluctuating transient population.

Additionally, it was a significant population working in the construction and service industry; vulnerable to not only economic swings as we've seen lately, but also other outside factors whether it's weather or other natural events that could really hurt our economy and those more vulnerable populations. Slide please.

So although we're not concerned with sea level rise as much as a lot of other Florida cities, Orlando's landlocked, but we also feel the print of hurricanes hitting from the east or west coast. And we import a majority of our fuel use for energy, which is primarily coal and natural gas which we don't mind here in Florida for, so it's another point in concern as we look towards our low carbon future.

This winter every state except Florida battled freezing temperatures including Texas, and we saw how unprepared the state was for those unexpected freezes. They were thrown through a crisis their electric grid was not able to handle the demand, or five million Texans lost power and many for several days. Unfortunately, there were several deaths blamed on the storm and the loss of power.

And Florida nursing homes also suffered devastating and preventable deaths due to power insecurities in the recent past as well. This prompted legislative changes requiring backup generators, and we can see how some of that grid insecurity really can be damaging. Even just last week we saw how ransom wear attack can cause panic and supply chain problems with the fuel supply in the southeast for those of you in the audience that are from this area.

So as we plan for the future we're trying to look at solutions through the lens of equitable resilience to figure out how to reduce our reliance on fossil fuels that are important to the state, and have more of a low carbon future. Slide.

So to further specify and breakdown the issues, problems, and of course set goals, the City of Orlando has a collaborative suite of master plans developed hand-in-hand with the community. Now

Mayor Buddy Dyer is the largest serving mayor in Orlando history, and really derives citizen and stakeholder engagement to identify and then tackle goals for the community.

In 2007 Mayor Buddy Dyer launched a Green Works Orlando Initiative, and that's a vision to transform Orlando into one of the most environmentally friendly, socially equitable and inclusive, and economically vibrant cities in the country. So over the years we've built on that and we've been recognized as a national leader in sustainability thanks to these comprehensive set of planning resources.

And now that we have this whole suite that range from not only municipal operations and city wide goals, we also have greenhouse gas emission inventory, but we have vision zero plan to eliminate traffic accidents with pedestrians and bicyclists. And most recently a future ready Orlando Master Plan to leverage technology, data and analytics to improve our quality of life and sustainability goals.

So this is a really great example of how the structure and approach to stakeholder engagement aids in that goal setting, and then ultimately implantation as we work towards those goals. Slide.

Green Works Program, which is what my team is really focused on, has the overarching goals that every department can align with. More specifically my team focuses on clean energy, green buildings, and alternative transportation initiatives. Slide.

Tools are really cemented when the mayor signed the Mayors for 100 Clean Energy Commitment, and we're driving towards the year 2030, which is coming up pretty quick, when all municipal electricity must come from 100 percent renewable sources. So this is a dramatic paradigm shift from our current energy and grid mix.

The greater City of Orlando must be fully powered by renewables by 2050. Again, that's much higher lift, but we're really trying to lead by example for that 2030 goal. We're also working to reduce 50 percent of our municipal energy consumption by 2030, and 90 percent greenhouse gas consumption from our 2007 levels. Slide.

So here we get to this point how, have we been successful along the way? I'm going to share a few case studies and strategies my team uses to achieve these goals, and we can stick on this slide for a second. We utilized a \$17 million bond to really kick things off a

few years back. Installed our first building automation system and of course LEDs like a lot of other partners are doing.

Now we're starting to pivot towards solar, but this entire time we've been operating as an internally funded ESCO model. As part of the Better Buildings Challenge the City has participated since 2016. And I'm really proud to announce, and Nate, thank you for sharing, we recently surpassed our portfolio level goal and have achieved a 23 percent EUI reduction City wide. So really stoked about that. Been working on that for almost the past 10 years now.

Several buildings ranging from fire stations to community centers, as well as stadiums and city hall and performing arts centers have been all undergoing renovations to save energy and tax payer dollars. But as everybody knows from this Maslow's Hierarchy pyramid, getting more energy conservation and energy efficiency are some of the first tasks that align by achieving that low or zero carbon plan. Next slide.

So we've really worked on engaging those different departments that occupy these buildings. Even though I'm embedded in the facilities engineering team, we have to work with the fire chief and lieutenants and community center managers, and all of the different folks that live and work in these buildings to be really productive and successful with our goals. Slide.

So we've managed the energy conservation measures and implementation within my team, but that also tracked and shared some of that feedback with those decision makers and the managers back in those facilities. We're doing a lot of N&B for all those facilities and kind of created these functional dashboards to show progress. Hopefully drive more of that behavior that really gets you set the next level of building performance. Slide.

We've seen some pretty good results in fact. Several sites are flirting with 30 percent savings year-over-year, which is super exciting. And that's enabling us to not only capture that to pay down the debt on the bond that initially spurred some of those investments, but we're also saving year-over-year to reinvest those savings back into those departmental operations. Next slide.

So a lot of you have already done this. You're probably thinking, "Yes, of course. The LED lighting, low hanging fruit. We've got it." How do we move beyond these simple ECMs and into a renewable low carbon energy future? Next slide please.

Well, for one, turn to the experts. So we're just like the folks and colleagues on this call right here, we reached out to the Department of Energy. We applied to be part of a national renewable energy lab cohort called the Solar Energy Innervation Network back in 2017. And by 2019 we had mapped all the city rooftops and dived deep into 32 municipal buildings for analysis on solar potential. Slide.

So the study really showed that there is ample potential for solar generation, and the map proved that our 2030 goals are achievable, which is really something that we want to hang our hat on and work towards as we all want to have feasible, smart, attainable goals. Right now we're on track at 15 megawatts of solar across the municipal buildings, which is pretty exciting. Next slide.

As part of that study we drilled down and really highly selected buildings that met our criteria for solar radiance, roof types, structural integrity, and then proposed capital plan for solar installation. Along the way we generated a guide book for new constructions that we could have all of our roofs become solar ready as we're rapidly expanding and trying to meet demand across the city. We've also done that. As far as mathematical potential we have more than twice the capacity needed, that's required to meet our goals. Of course that's theoretical. Now we're trying to work towards those 2030 goals. Next slide.

We really boiled it down to two discreet pathways to reach those low carbon and 100 percent renewable goals. One is onsite installation, and that's a picture of my office there on the left. And then the second is community subscription, locally grown energy here in the City of Orlando. And that picture on the right I'll get to in a second, but it's really cool solar farm installation. Next slide.

So I'm not going to show all of these detailed decision making factors, but basically we're going through a simple analysis of does it make sense for onsite solar. If not, why, and then how can we subscribe and add that to the cohort for the community solar. But one of the things that we do want to take into account is not only the district, where are they going and the equity of serving each individual community and population, but there's a return on visibility in addition to return on investment.

We want to be the lever that enacts greater magnitude of change across the city if you don't want to just install solar panels, behind a parapet on a roof that nobody is ever going to see. We want these community members to see it if the fire stations, kids to go on field

trips and understand, ask questions, and then bring that information home to their parents and more people get on that pathway to low carbon and a renewable future. Next slide please.

So this is just a quick drone flyover, and I hope that it works here if you click it, otherwise I'll just try to pretend that we're going to – imagine you're in a drone and this video is actually working, and we're flying across this what used to be a coal ash landfill.

So we partnered with Orlando Utilities Commission, which is a municipal utility within the city, and they are actually a generating utility and they're not just wheeling power. A lot of that waste coal ash has been piling up in this landfill, which was recently converted to 25 megawatt solar farm. So really showing the future of energy here in the city. Next slide.

With these partnerships in place we're really anticipating receiving 19 percent of our electricity from renewable sources the next year on our path to 2030. And by putting this single community solar farm in place it's going to divert almost six million pounds of coal from being burned. Next slide.

We're also working with all of our existing fire stations and community centers to find those prime applications for rooftop solar. So we're working with our internal team to manage and procure and install all of the solar. In the state of Florida we're not able to do third party PPAs like a lot of other folks are. It's a regulated monopoly down here.

So we can't just lease out roof space and have somebody come in and capitalize the solar. We're doing it internally and we're actually making great success. We have this fire station that I was hoping would work, but we can click onto the next now.

Fire station seven recently installed and then fire station nine, which has 110 kW system. Just opened. It has a pretty big – over 100 percent of the power used. So it's going to be our model as we move forward. Next slide.

Great, thanks. And we can just click right through that one. So that's modern technology. We're implementing solar on the path where it's low carbon and renewable future, but what are we going to do next? How can we add resiliency into the mix? Next slide.

To practically address these risks and vulnerabilities that I talked about at the beginning of the presentation, we're aiming to make a

strategic investment and community resiliency. We're already adding solar, we've done a lot of energy efficiency upgrades, but now we're trying to leverage these established trusted community managed facilities that are used year round as neighborhood centers.

They're used for community building, educational activities, before and after school care, and then follow a methodology to make them resilience hubs, to make these sites able to serve the community quicker and bounce back after a natural event, disaster, or a severe power outage. Next slide.

In Orlando we have 19 of these neighborhoods and senior centers, and over 100 different facilities. We're trying to make these sites an equity-based strategy for disaster preparedness. Since we're already landing solar we're going to be piloting solar plus storage. And for those that don't make sense to have onsite storage we're going to install accommodations for conventional power gen sites, so we can go up a generator, get these buildings back up and running.

We're also doing an HVSC upgrades for air borne infectious disease mitigation. And then making sure that we can supply essential supplies like food, water, ice in these lower, moderate income neighborhoods where they're not as able to prepare for these impending natural disasters that we're seeing a lot more frequency of. Next slide.

We're also working to educate the community. We've recently just cut the ribbon on our new tiny green home, which is a really cool installation at the Orlando Science Center. And it's an actual green home on wheels just like you've seen on TV. The semi-permanent exhibition that can be towed to festivals and schools. It's become a field trip learning opportunity. Next slide.

And it showcases all of the different home rebates that are available and cool features. You can learn about low flow shower heads and faucets, community garden programs, and then how you can put a new heat pump water heater in your house and save money and get some rebates from the local utility on that as well. So a really cool project that everybody is pretty excited about.

One of the last slides – next slide. We're also working on zero carbon transit solutions. We just unveiled our newest electric bus, which is the first investment towards our city's sustainability goal

for free bus rapid transit with ED Bus. It's 100 percent zero emissions, and we're working to 100 zero emission fleet by 2025.

We have seven additional zero emission electric busses going to be by the end of this year, and then fourteen by the end of 2022. And these are all funded by the low/no vehicle grant from the Federal Transit Administration. So I touched a lot today. I know I had 15 minutes, but next slide.

I definitely encourage anybody who is interested to follow up, greenworks@orlando.gov with any questions. I would be happy to discuss further. Thank you so much.

Nate Allen:

Thanks, Ian. That was awesome. We're going to come back to you during Q&A. Right now we're going to go to our next speaker Jon Utech from Cleveland Clinic.

Jon Utech:

Okay, thanks, Nate. Go ahead, next slide. So I'm here to talk about our topic. I am the director of environmental sustainability for Cleveland Clinic. I've heard it said by others in my field that if you're in the field of sustainability you're a chief collaboration officer. Because I have a team of six people in an organization of 70,000. I can't do anything without teamwork. Next slide.

I'm going to talk a little bit about who Cleveland Clinic is and why we do this work, the power of goals. Really going to focus on how within an organization you can get energy around implementing energy efficiency and other solutions, reaching 70,000, and collaboration is the driver of animation. Next slide.

So for those of you who don't know, Cleveland Clinic is a large specialty healthcare system. It started in Cleveland but we have operations in Florida, Los Vegas, Toronto, Canada. We operate a hospital in Abu Dhabi, and we're building one in London. We have more than 70,000 caregivers. We see more than 10 million patient visits a year. We're nationally and internationally recognized for clinical excellence, and people travel from all around the world to receive our healthcare. Next slide.

So really, when it comes to teamwork, when you're in a big organization like mine, there are lots of competing interest for time and attention, so we really focus on what motivates people to do the work. And I have a deep dive on this at the end of my talk because a good team you engage people. You get them interested in what you're doing.

And those motivators that we found very powerful are our physicians. They take an oath to do no harm. So the work that we do for cleaner energy and renewable energy really aligns with that commitment. We, as an organization, like to be innovators and leaders. We found it to be a huge – we've done research on this, a huge piece of caregiver engagement.

It helps us tackle the social determinants of health, which the built environment and air pollution and water quality are 10 percent of health outcomes in the US. Ten percent are what makes you healthy is the environmental issues that we work on. That number is 25 percent globally, so with our mission of health the work that we do really aligns and supports that overall goal. It makes us more economically efficient and helps build our brand. Next slide.

So I talk a lot about the impact of energy, air quality and health. So a recent study from Harvard lived premature global death from fossil fuels to be 8.7 million every year, and more than 45 percent of the US population is living in unhealthy areas of ozone and particulate pollution. And Cleveland, our home city, is the 11th most – the worst city in terms of particulate pollution.

So now I'm trying to get your hospitals – we're very concerned with the quality of our clinical care. So these talking points and ideas help get the attention of physicians and get money to invest into our work against our very also important clinical investment opportunities. Next slide.

So a foundational partnership in our work has been with the Department of Energy's Better Building Challenge, and I think we were either the first or second healthcare organization to sign up for the challenge. I think there's a little bit of a dispute there, but let's just say we're the top two. In terms of signing up for the challenge I joined the organization in 2013.

We're making progress, and thankfully at the end of last year we – at the end of 2019 we achieved our 20 percent goal. For those of you who are interested these are all the different strategies that we employed, and I'm going to discuss how teamwork made some of those energy efficiency strategies achievable. Next slide.

In looking back at our progress of that 25 percent, again, how did we get here? When I joined the organization 2013 we were sort of doing low and no cost measures. So I got a group together of facilities, professionals, engineers, architects, physicians and

nurses and we got together and designed an energy conservation strategy. And looking back this is what had the biggest impact.

Interestingly we are in expansion modes. We're building and replacing buildings. And actually the dark blue is new construction. Building better buildings that replaced older, less efficient buildings was a big part of our success. LED lighting that Ian talked about was another huge investment that drove success for us.

ORs, which are the heart of our operation. We have more than 250 operating rooms. Use a lot of energy. I'll talk about our work there. Upgrading equipment. Behavior of our own clinicians and caregivers also really important. And things like retro-commissioning and changing out filters and traps as well. Next slide.

So teamwork is a part of the work that we do with every area, and in new construction typically in my organization we decided to build a new building. We want it yesterday for \$2 less than the number that was promised. Budgets are tight. So working with architects, engineers, construction, our marketing team, the community members and their needs, nursing leadership and physicians, all these competing ideas about building the best possible clinical facility that we can potentially compete with our sustainability goals, right?

So the reason that I talk about the health outcomes is really linking our own energy conservation and renewable work into the overall health goals of our organization. And it helps align – at the outset we tend to set a EUI target for our buildings, but the way that we sell that to all these different groups is around our own goals of energy conservation and the health benefits of doing that. Next slide.

We built – we've used LEED as a construction standard. Energy efficiency and renewables are a big part of that. Energy is about 30 percent of that. And we built a number of buildings of all different types. Hospitals have labs and educational buildings, and family health centers, administrative buildings. We've achieved goals on a number of those and we've achieved silver on a number as well. More than six million square feet of LEED certified buildings in the last decade. Next slide.

And this just shows a little bit of the trend and the history of that. And, again, more than a quarter of our energy improvement was by

building these better buildings. And really the getting alignment around specific EUI targets with the health benefits is really the reason for the success in this piece of work. Next slide.

LED retrofits simpler. You're swapping out bulbs and lights. This required the buy-in around the technology for our engineering and facilities team. It did involve doing walk arounds, measuring light levels because we did find in our pilot projects that caregivers were very sensitive of the light levels. So this is more creating the right operating environment for our caregivers, as well insuring that we have a good technological solution.

We tried to have an expanded health impact by using diverse vendors, and about half of the product that we implemented was actually manufactured in the US by a company that had some military contracts, and by USA manufacturing facility. So we tried to create jobs because that's in-house with that as well. Next slide.

So here's probably operating rooms. As I said, we have 250 of them, and this is the heart of Cleveland Clinic's reputation of excellence. And if you are a patient at Cleveland Clinic you're very concerned about the quality of the surgeon, the quality of the nursing team, the quality of that operating environment in that operating room, right?

So how do you do energy efficiency in an operating room? Again, a variety of different roles and needs and responsibilities, and the teamwork here internally is aligning them and ensuring that our surgical operations teams, facilities, clinical, engineering, all of our doctors and nurses and supply chain, we get their needs met when we make changes, such as next slide.

Really a fundamental driving course of those. So there's a case study on this published in our DOE Solution Center. There's something called the Ken Lee Memorial Fellowship, and this is a really neat thing. Ken Lee was a Cleveland surgeon who sadly passed away, but his family actually created an endowed fellowship where residents get to champion a sustainability initiative every year.

So we've used this fellowship, and these physicians educate their fellow physicians about the importance of energy efficiency and work as champions for the projects that we do, and here's images of several of them. This has been in place since 2013. Next slide.

So one piece of work that was a huge part of our energy reduction was OR setbacks. I saw that maybe five percent of you were in healthcare. Healthcare energy is very high. The second most energy sector and for restaurants. Because we use a lot of conditioned air to ensure that we have few clean room-like environment in operating rooms. And Cleveland Clinic being known for excellence, there are standards.

And when I joined the organization the standards when the operating rooms were for to do 20 air exchanges an hour, and six whether or not in use. We were running them at 25 all the time because more must better, right? Hey, we're really good, we want to exchange air, we want to beat the grade and do it more than we need to. There's no clinical reason for that.

And really the surgeons, and doctors, and a couple nurses were really fundamentally important to selling this concept too. We have a surgical committee that oversees every aspect. During a surgery incredibly precise activity taking place by the nurses and surgeons ensuring that that flows, and is done in a clean and efficient way is really important. So we're able to convince the organization to set that to 20 and 6, which resulted in a \$2 million savings for the organization. Next slide.

And one of the ways that we did it is they were like, "How will we know if the room is in balance or not?" We put these monitors in our operating rooms so that all the people that go through an operating room know that the pressure, the temperature differential, the air exchanges are all where they're supposed to be to ensure that during a surgery that everything is good from a sort of an infection prevention. Infections are a huge issue in healthcare.

And if you hit one of those buttons, if it happens to be in setback mode, it automatically puts it back into occupied mode. So that overcome people's concerns and objections. Next slide.

Another huge part of our success has been Green Teams. So we had – they're kind of our secret on the ground forces; people that are really passionate about sustainability, care a lot about the earth. And we do all kinds of educational events with these individuals from all different kinds of roles; nurses, facilities, EVS, doctors.

And when it comes to energy conservation we've started to use the fact that in northeast Ohio we have 14 hospitals. They're all pretty proud of the work that we do, so we use kind of their natural

competitive nature to create friendly competitions. The pictures here are around recycling. We had a contest for energy conservation and recycling between Euclid and Hillcrest. And the leadership team on the left here had this thing where, “Hey, we’re all green superheroes, and we all can make a difference” and made a big deal of this within their organization.

And then Hillcrest on the left did like a challenge video back where they were like doing a dance and all these fun things. So it’s like this going back and forth and it just got people really excited about the concept of energy conservation. And both of those hospitals saw more than five percent reduction in their energy use during the three months period we were doing this. Next slide.

Our kind of latest energy conservation tool is something called a Treasure Hunt. And it sort of flips on its head the traditional work of an energy team where you go into a hospital and say, “Here’s the 10 things we’re doing wrong, and hey, you’d better put a sweater on in the winter and wear a short – you guys are bad. You’ve got to do better.”

Treasure Hunt forms interactive groups that actually rounds the hospital, any facility at the same time. You get administration, nursing, all the different experts from the operating rooms and the labs all rounding together and finding opportunities to save energy. And instead of it kind of being this negative deficit-based, let’s make the bad better, “Hey, we’re finding treasure.”

There’s a million dollars if we just do some simple things that we can actually redirect towards patient care if we do this, and here’s the health benefits, too. So we found this Treasure Hunt to be a really important driver. And three weeks ago I was going through Hillcrest Hospital at 5:00 AM because we go when it’s not occupied and we’re trying to find these opportunities, and we found lots of them. Next slide.

And this is just some pictures. This was the first one we did in December. We did round the in the morning to see what the buildings are like in different states of occupancies, and we had more than 20 caregivers. And so here in the morning the lights were on. The temperature, this was in the winter. One temperature was set at 74.5 degrees at 5:00 AM. No reason for that. So we find those opportunities. We get the leadership of the facilities to sign off and we implement the savings with everyone onboard coming from the outset. Next slide.

So final thing I want to talk about is going kind of deep in the mind of our caregivers and talk kind of about the psychological aspect of this work. I saw that 40 percent of you don't have a public facing climate goal, so I'm going to talk a little bit about just how you create a teamwork around a carbon-neutrality goal. We, in building through our energy efficiency work and doing some renewables, set a carbon-neutral goal in 2017. Next slide.

I'm going to talk about how pitching climate. It's really a bit of a sales job, right? And in getting a team together you really need to think about the individual motivations of an individual who has responsibility within a department, within the organization, has different perspectives on the community perspective and the global impact. And in thinking about these different layers of motivations of individuals for me it's been really fundamentally critical to getting people onboard with our climate goals. Next slide.

I have nine what I call climate hooks, which are different ways that I can get people interested in the topic of climate change. And they kind of go from the more typical topics of energy efficiency, which is saving money, and caregiver engagement, all the way up to transpersonalism and moral obligation which I'll get to. Next slide.

So the first one way that I pitch and really in building a team, I think about our CFO is interested. He's responsible for maintaining cash flow and paying our bonds off. So he is very much onboard with our energy efficiency work because we have seen that as we reduce energy usage we change our spend rate on energy. At the moment we've reduced and we tracked our change in spend rate to be \$10 million a year in spend. So that's obviously one way that you can get people onboard with this work. Next slide.

Head of our nursing, we have more than 20,000 nurses, and they have really difficult, challenging jobs to finding ways to make their work more interesting and meaningful is important. This is a picture of award celebration that we did; our Green Teams that have all – lots of people in different roles.

We've actually done research that proves that engagement in our sustainability and energy efforts increases caregiver engagement actively in the clinic. So when we talk about launching initiatives we say, "Hey, this is a caregiver engagement driver in our organization." Next slide.

Climate resilience. Ian touched on this, and boy, Ian, you're doing some amazing things there in Orlando. And, Andrea, you're the

same in Virginia. When I joined the organization I talked to our leadership about climate and how changing weather is going to impact our ability to deliver our healthcare services.

That precipitation and temperature changes is leading into changes in weather patterns, which is leading to all kinds of outcomes; power outages, destruction to transportation and supplies, flooding of facilities, changes in infectious disease patterns, heatwaves, poor quality, hurricanes, tornadoes, the list goes on.

And the people in our facilities; emergency management and communities. We've had all kinds of collaborations about how to collectively work internally with our community, emergency management, and cities and counties on planning to be more resilient to these weather storms that are becoming much more prevalent. Next slide.

This is about building relationships. Our work is focused on mitigation, adaptation, advocacy and changes in our own clinical practice around climate. The bottom here – the top are kind of the roles most directly involved in that work within our organization, but the bottom, our partnerships that have led to all kinds of wonderful innovations, insights and new ways of implementing things that have been fundamentally change the way the Cleveland Clinic does its sustainability and operational work.

Around mitigation the deal we and EPA have been two foundational partners. And this Better Building Challenge collaborative has been fundamentally both sharing our successes and importing them from others. Adaptation is resilience focused. Advocacy we have gone to state, local and federal governments on the energy efficiency climate and health.

And we're actually rebuilding and building climate change into the practice of our physicians and nurses on a daily basis. And we're meeting amazing people and learning new things in doing that work. Next slide.

Another key driver for us is the population health dimension. So I mentioned that the built environment is 10 percent of health outcomes. So we talked to our – and for me in a health organization that's not part of our physician, nursing training. They're more of a disease prevent and we solve the disease. This is a more holistic sort of societal population mentality.

So we're educating them on the connection of the work that we do to health, and we've created some amazing champions. Some of the heads of our clinical institute is very powerful physicians, and become huge advocates for our work internally. Next slide.

So there's other people that – so our – this is our ex-CEO. Toby Cosgrove was very interested in the concept of societal transformation, so this is a model I put together in talking about how our climate change works. This is the model actually from the IPCC, but there's two different loops here.

We're trying to mitigate our footprint to reduce the increase to the impacts and vulnerabilities to climate change, while simultaneously trying to adapt to those changes because some level of change is inevitable – while advocating for policies around mitigation, adaptation in trying to change our clinical practice. Next slide.

And then transpersonalism is the idea that kind of like Maslow's Hierarchy of Needs, you know, actualizers. There are people that are just interested in changing the world, so one concept we've used there is that in healthcare, healthcare is about 10 percent of the USA's carbon footprint, which makes our carbon footprint bigger than that of the United Kingdom, so that's a pretty big motivator for some people. Next slide.

And then there's the moral obligation. A couple of our churches actually have a Catholic history, and still Catholic leadership. The Pope came out five or six years ago and said we have a moral obligation to take action on climate change. And a couple of our leaders this was a great onboarding to trying to get them interested and become supporters of our work. But then the final hook is next slide.

Is just recognition and leadership. And so we do events with a number of organizations like the EPA and the White House. We had Maria Vargas from the DOE tour one of our buildings in 2015, which was wonderful. We have the White House, Columbus. I think in some ways the work we do with the DOE is the highest level of work because we're really trying to motivate everyone to do this work, right? This is about recognition. It was really trying to inspire a whole healthcare sector in the US and beyond, and that's the whole point of today's summit. Final slide. Go ahead.

So a few lessons learned. For me it's been really important to blend multiple perspectives into action. Find the right personal

connections with people to get the onboard with the work we're doing. You've got to be brave. Some of this work is hard. You've got to be realistic around your timing and say our message. So that's what I had to share. Thank you for listening.

Nate Allen:

Thanks, Jon. Perfect timing, too. We have 16 minutes for Q&A, and I'll close out with a little bit of a primer on some resources that I think are relevant. But this is good because we can get into some discussion. And I have Slido up on my other screen here and I see we've gotten a number of questions coming in.

One that came in early on, Andrea, related to your work with William and Mary. And I just want to put my own spin on that one, too, because we covered a lot of grounds in those presentations there. One common theme for me that I heard is that you all benefit from having I think strong leadership at the top, but you still highlight the power and importance of persuasion and selling this to colleagues whose jobs you can't control.

So I'm interested in hearing a bit more about how you work with those colleagues, and, Andrea, in the context of the William and Mary question, I mean how – they have a different set of constraints. How do you look at your planning together and think holistically to collaborate towards that ambition that you two have publicly stated and set?

Andrea Trimble:

Yeah, it's a great question. We are public schools and we have a lot of similarities, but we are very different. The scale is very different at each of the institutions. So what we had to work through with the committee was really where our common areas, and then narrowing that down to where the areas that we both need to work towards.

We have a lot of work to do. Maybe one is a little bit ahead of the other but we can work together on, and then where the opportunities where our students or alumni or others, there's broader opportunity beyond the carbon reduction. So we ended up for now with this other PPA that if we – the capital projects and potentially one other one. Carbon offsets are probably going to be another topic area.

So really there are a lot of commonalities in terms of topics but the way we approach them are different. So we sort of have to filter through where do we collaborate publicly.

Nate Allen: That makes sense. Thanks. And, Ian, I'm interested in asking you a very similar question, maybe the same question but in the context of one that came in for you about solar panels, and I think really had a cell technology to people whose day jobs it is to understand how it works.

I mean you highlight your work with the fire stations, and I'm just – how do you navigate those discussions? Do you go to the fire chief? Do you draw up a plan? Like what's your process for getting to the outcomes that you highlighted in your presentation?

Ian Lahiff: So one of the things that benefits us greatly is the hierarchy of leadership from my division answers up to the CFO. So, like you said, selling technology, they don't really care what it is. If the ROI, the asset is better than the lifetime of the asset what kind of widget it is doesn't matter. It's going to be money on the bottom line, right?

So it's been easy for me to make these proposals and get some of that funding to make these implementations. The more difficult part is working with these fully occupied, very busy facilities that people tend to have this empowered ownership over, even if it is a city facility asset.

So yes, there is a lot of outreach, engagement, trying to work around existing operations. And we've also found success not just going in and replacing things like for like, but how can we do something that adds value to what they're already doing.

Kind of like Jon said with the sensitivity to the lighting for the caregivers. In some community centers we found that buildings or parts of building used to be used for something decades ago but they'd really like a Zumba room. And if we could just put LED lighting that had more focus on these mirrored walls then they could sell that space to instructors and generate a little bit of revenue. And we're saving energy either way, so it doesn't matter what fixture we select.

That similarly with the restocking of medical equipment for the fire trucks. They want to be able to open it up in 3:00 in the morning and have that red or amber light and not be blinded when they're looking for whatever they need. So working with the stakeholders really makes a big difference. Yeah, great question.

Nate Allen: Thanks, Ian. I want to honor the questions coming in through Slido and I'll stop putting my own spin on them. And looks like some of

you figured out that you can upload questions that you want to stress and see asked. So the most uploaded question right now is for you, Jon, and it's, what's the biggest challenge for hospitals existing buildings when going low carbon? How has Cleveland Clinic addressed those? How do you socialize the idea that X, Y, Z investments are worth it? Good luck answering that succinctly.

Jon Utech:

Sure. Natural gas is the biggest challenge for us. In Ohio we are reliant at the moment on natural gas for steam to sterilize things and for heating our buildings, so that's the biggest challenge I would say. And what we are doing is we're - DOE is forming a low carbon collaborative and we're about to join that and trying to look at options for building - replacing our natural gas systems with electric systems so they'll be good.

When as the grid goes green we will not be generating our own greenhouse gases. That's the specific answer.

Nate Allen:

Okay, stay on you too because there's a question a couple down here about your global operations and how bad does it - key challenges on the global scale. How does that play out?

Jon Utech:

Sure. So with any organization that fits in multiple geographies you have to tailor your strategy to local opportunities. So in Ohio incentives for renewables are probably about the 25th best in the country or something - they're not the worst, they're not the best. In Florida we have a regulated utility we're working with, and so we're partnering with that utility to bring solar online through solar near their building. In Ohio we're kind of left to our own devices.

One question as about limits. With our main campus we could probably if we put a solar panel on every square inch maybe produce two percent of the energy usage. So we're looking at - in Ohio looking at sort of a larger scale off sites. So it's kind of customizing the strategy to different geographies and different weather patterns and things like that is probably the biggest challenge, but that's what makes it fun.

Nate Allen:

Great, thanks. And I see some other questions have been replied to. Thanks, Ian, for getting back to folks who asked those. Jon, maybe we could stay on you for one more because I see one here. Have you considered adding an employee assisted housing program to help make their homes more efficient, safe and healthy? Could reduce carbon, but also address employer attention of how to attract healthcare workers.

Jon Utech: Yeah, so we're – we are – we started out last summer actually where we piloted what's called the Healthy Homes Initiative where we're actually doing three different things, one of which is looking at the indoor environmental quality because things like indoor contaminants are a health trigger. We're looking at upgrading homes including weatherization to make those homes more energy efficient, upgrading their energy systems.

So yeah, we're – that's a big focus is how can we more directly, given that it's 10 percent of health, upgrading our housing stock in our community in those ways is increasing focus for Cleveland Clinic. That's a great idea, yes.

Nate Allen: Wonderful. I'm looking at the screen here. Apologies for – Andrea, it looks like you replied to the UVA. Can you verbally shed some light on that, your recycling plant in the context of the 2040 goals you set?

Andrea Trimble: Yes. So our recycling – our waste minimization goal is a 70 percent reduction of our footprint by 2030, so it's a minimization goal as well as a diversion goal, and it includes our health system. So, Jon, I'll be interested in following up with you some particularly on the waste side because there are major challenges across the work. We're big. We generate a lot of waste. Our biggest opportunities are probably right now on a composting site, so increasing composting.

Virginia, the governor just put out an executive order banning all single use – well, not all single, many single use plastics by July 21st. So we'll have to cease buying those, but then also with alternatives we'll have to increase our composting opportunities for the alternatives that are coming in when minimization is impossible.

So yeah, lots more to do on the recycling encompassing side as well as minimization side. We're being helped by the state with that executive order.

Nate Allen: Thanks, Andrea. I see another question here. So for a lead-in, Ian, I know in Orlando you all have quite a significant agreement with a municipally backed solar farm that you've been able to orchestrate. And maybe you want to answer this as well as Jon. So the questions are actually for Jon, but its hospitals struggle with PV due to limited roof space. How does Cleveland Clinic address this? I'm interested in – because I know both of you are thinking about this. How would you respond?

Ian Lahiff: Jon, you want to go first?

Jon Utech: Sure, yeah. So Ian did a much better job of actually note casing all the different facilities and difference. Thank you for differing to me, but the truth of the matter is for a hospital the EUI of our worst hospital is something like 400 kBtu per square foot. We have a couple that are closer to 180. We use a lot of energy, and for hospitals that are in a municipal environment there's just not enough space to build PV onsite. So we have knocked out PV opportunities across northeast Ohio.

As Ian mentioned, it's a different environment in Florida so we don't have quite the same opportunity there. But we want to maximize and put some everywhere just to demonstrate if nothing, but we're thinking really to achieve the impacted scale. It's got to be more – we want to have a whole bunch of offsite renewables.

Ian Lahiff: Yeah, similar here in Florida. We're doing our best to land it where it makes the most sense and are capitalizing it rooftop solar, owning and operating it. And then working with a municipal utility for those buildings that are not eligible for rooftop solar are actually taking that meter and the usage of that meter annually and subscribing that meter to the community solar farm.

And the more we subscribe to it we're at acre 10 of that solar farm so that other people actually, like my house has a big oak tree over it, so I can't put solar panels on it, but I subscribe to the community solar farm. And the more people that do that that's actually bringing down what's now a premium for that solar energy, and hopefully that premium continues to decline and hit parity.

So right now it's an altruistic approach, but hopefully it's a net neutral cost in the future.

Nate Allen: Thank you both. I'm looking at the clock. We're running a little bit low on time. It's important to me that we stay true to the goal of the summit, which is to make it interactive and answer questions that come in. I think we've covered at least the questions in Slido. And I'm going to probably close it there because I want to flag our last slide, which we'll get to in a moment. It has our contact information. So if you have additional thoughts or want to reach out you'll know how to find us.

Why don't we wrap up the Q&A there so we can end on time. We got a couple more things we want to highlight briefly. These are some links that were referenced throughout the presentations today. Again, you'll be notified when this recording becomes available so you'll be able to access this. I actually put the limitation model for Cleveland Clinic in the chat if anyone wants to click that. Apologies Orland and UVA for not doing the same for yours.

Let's go to the next slide. We'll quickly wrap this up. Yeah, so you'll hear more about this on Thursday, in the session I referenced at the top of the hour, when our partners in Milwaukee talk about how they've used this tool. This is the state and local planning for energy platform. We call it SLOPE. And for those of you who are not familiar, this tool integrates and delivers data on energy efficiency, renewable energy, sustainable transportation into an online platform to enable data driven state and local energy planning.

This map showcases one of the newest datasets, so we just added to Slope last week. It's the light duty personal vehicle stock projected by county across the United States for 2020 under a high electrification scenario. We have this data projected out by state and county through 2050 on Slope. We are very excited about this tool for helping people understand cost effective options and scenario planning. You'll hear more about it later in the week, but I quickly wanted to flag that in this session.

Let's go to our next slide. This one I just want to draw attention to ways to stay connected. Our office maintains a repository of resources specifically for state and local governments, and as well as a monthly newsletter that I recommend subscribing to if you're not already.

Why don't we go to the next slide. We're going to skip this video because it was played yesterday in the opening plenary, so we're not going to run through it again here. But I do want to draw your attention to this webinar series, which I think I mentioned at the very beginning. A couple coming up this summer that I think are – well, they're all going to be excellent but a couple that are relevant to the discussion we've had today, so take a look about that when you receive the e-mail listing and option to join those.

And the final thing I want to highlight with our last minute here is let's go to our final slide. This is our contact information. And what we're going to do next is launch a short feedback survey in

Slido, and we'd ask that you take a couple minutes just to give us some of your thoughts on this session and how it went, and any ideas you have for future summits and just general insights that you'd want to share back to us as we think about how to move forward. This poll will be open until tomorrow morning.

And with that I just want to, again, thank our awesome panelists for taking time to share their insights today, and for all of their great work over years of engagement with Better Buildings and more. I am thrilled that we were able to cover these topics in this session, and I'm so pleased that so many folks were able to join as well. Take care everyone.

[End of Audio]