

Holly Carr:

Hello, this is Holly Carr at Department of Energy and thank you for joining the Better Buildings Alliance Open House Webinar. Jake, let's go ahead and move to this first slide. There we go.

And we have an action-packed agenda for you today. This is our annual convening of Better Buildings Alliance folks in a virtual format on a webinar to let you know what we've accomplished in the past year or so, and what we're looking forward to with you all in the coming years.

So we'll first start off with a few introductions. We've got some new folks on our team who will be supporting your efforts this year and then a few program updates, general program updates for the alliance, followed by a lightning round of sector report outs.

We'll have our DOE leads telling you about our sector priorities of upcoming year and some proposed activities followed by updates from our technology research teams as well as the market solutions work that we are engaged in with some of you.

I hope that the Get Involved section will actually be sprinkled throughout this webinar and we hope to give you lots of opportunities and lots of ideas for engaging in the alliance in the coming year. Next slide, please.

So first off, here are some visuals on our teams over here at DOE and ICF and JDM who support the program. I want to pay special attention to new faces and even someone who's so new she just has a little icon there but Nate Allen has recently joined DOE as a fellow, and he will be supporting our healthcare and higher education sector.

Nate has some really deep experience working with particularly – excuse me, particularly education partners at the U.S. Green Building Council. So we're excited to have him come on-board and Cecilia Govrick will be joining us probably momentarily.

I think she's very close to coming on-board and sending us her photo, and she will be supporting the food service and grocery sectors for our alliance partners.

So welcome to both of you. Next slide, please, and a big shout out to our steering committee members. So each one of our sectors is led by a steering committee and that steering committee really help us prioritize our activities for the year, gives us some really good feedback on what would be most useful and valuable to each of our

sectors. So thank you very much to these folks who have stepped up to chair those committees for each sector. Next slide, please.

And so this is just a quick visual on the Better Buildings Alliance, helps us put everything into perspective here. So you'll be sharing updates from each of the sector groups in the blue boxes today as well as the updates and new ideas from our technology research teams, and the market solution focused areas. Next slide, please.

So if you take anything away from our update today, I hope that you will take away that Better Buildings Alliance is indeed a force in the market, and that you are – you are that force.

It's not a force about you. So over 200 partners representing 11 billion square feet of commercial real estate in the U.S. and that's about 13 percent of total commercial buildings in the U.S.

So if you are a better buildings alliance partner, you are part of a force that has and will continue to affect change in commercial building energy efficiency.

You can do that by influencing the direction of new research into technologies that can improve your energy efficiency in your buildings. You can share your story with us through a case study or other means that will allow us to get your story out to a broader audience and let other people learn from what you're doing.

You can stand up and be counted in a technology campaign that promotes implementation of some of these newer technologies that are building. So you're going to be hearing about those and many other ways to be a part of the force that is the alliance today. Next slide.

So speaking of joining the force, these are new members that have joined the alliance in the past year. Some good representation from our healthcare folks and a number of great affiliate partners that joined us this year.

Our affiliates are just really invaluable in terms of helping us spread the word and get resources and assistance to a broader audience within our specific sector. So welcome to the alliance.

If you have not joined the alliance and you're listening today it is incredibly easy. You go the Better Buildings Alliance website, click the join button and spend about two minutes telling us a little bit about your organization and we'll be in touch personally with

you to orient you to the program.

It is free and we hope very valuable to our partners, Next slide, please. So we hope that you will master the force that is the alliance by joining a technology campaign and earning recognition for your organization.

You'll hear more about hosting technology field verifications in your buildings today. We have a couple of exciting opportunities to do that, set a corporate energy reduction goal or improve on the one that you just achieved.

We love that 20 percent or greater number because that qualifies you to participate in the Better Buildings Challenge and earn recognition. There will be a number of opportunities to develop energy efficiency resources with us and to guide DOE's energy work.

And by that I mean participating in some of the broader events that we hold, including a peer review that the building technologies office does each year, bringing in folks from industry and academia to evaluate our work and provide feedback.

These are really critical ways that we learn from folks in the trenches who are actually doing this energy work and it helps us make sure that the work we're doing is relevant and useful to you.

And finally I mentioned sharing your story last year was the first year that we had alliance partners sharing showcase projects and implementation models; two different case studies, and we had some great success with that in the next slide.

You can see Better Buildings Alliance Partners that contributed case studies to the Better Buildings Solutions Center in the past year. If you could go to the next slide, you'll see the speaking of the solutions center, everything that has been developed through the Better Buildings Initiative is hosted here in one handy spot.

There are over 1,400 solutions now in the Solutions Center, really encourage you to hop on there. You can look at just solutions for your sector or your particular energy challenge, very helpful one-stop shop. Next slide, please.

So this is just a quick note on our Better Buildings webinar series. We started it off I believe last week with the back to school and the next session coming up is the year of the lease which is October

3rd, and I think on the next slide we have a little more detail.

We have many updates on energy efficiency for both landlords and tenants. So if you fall into either one of those categories, I encourage you to register for this session and learn what's coming up. Next slide, please.

Okay, with that I'm going to turn it over to Cindy Zhu who heads up our commercial real estate sector from DOE.

Cindy Zhu:

Hi, thanks Holly. Good afternoon, everyone. This is Cindy, here to present a snapshot of the commercial real estate sector. Our 53 alliance partners own or manage 6.5 billion square feet of building space, spanning a whopping 41 percent of the total market floor space. Next slide, please.

This year the series sector focused on three main priorities. Priority one was to encourage tenant level submetering. The outcome of this was our support of Aquicore as they developed a map of submetering laws for commercial and residential buildings around the United States. This can be accessed at this link.

Our second priority was to encourage lease space energy efficiency. The outcome here is that we are expanding our Green Lease Leaders recognition program for energy alliance leasing practices; more on this later.

And our third priority, which is still in progress is to explore how green revolving funds can be used in the CRE sector to finance energy efficiency projects.

We'll soon have a green revolving subprimer for building owners to peruse as they consider this option for financing. Next slide.

Our priorities for 2018 are to continue developing resources for energy efficiency in Class B and C buildings. We have several potential activities that we will pursue, including more case studies on energy efficiency retrofits in these types of buildings as well as conference presentations and communication around financing using the financial navigator for B and C building owners.

Our second priority is to demonstrate the value of combining energy storage with renewables and energy efficiencies, and our third priority is to continue encouraging tenant level submetering in multi-tenant buildings.

Our main activity here is to identify case studies from sector partners that demonstrate the business case for installing submeters. So if any folks on the phone today have recently installed submetering into their buildings and are interested in partnering with us on a case study, please, please let us know in the chatbox in the webinar.

And then our third priority is to assist DOE as they create a strategy that addresses the connection between health, wellness and energy efficiency in the workplace. Next slide. Back to you, Holly.

Holly Carr:

Great, thank you, Cindy. So updates from the retail subservice and grocery sector, you can see a list of all of our great partners here. We're at about 49 partners with about 19 percent of total floor space for the sector. Let's head to the next slide.

So we had a really great success with our reverse pitch session this year with the summit where we brought our Better Buildings Alliance partners into be the panelists and had a number of manufacturers across many different technologies in the room as the audience, and really reverse to the conversation.

So instead of manufacturing telling these organizations what products they have available and why they should buy them, our partners were sharing their thoughts and opinions on what products should be on the market and what they would like to see developed by manufacturers to help them with their building energy efficiency goals.

So that was a great event and something that we hope to try again. We also had hosted a webinar and put out a blogpost on the supply chain energy efficiency program here at DOE that's host – or that's organized to our better plants program.

Many of our retailers obviously have large manufacturing facilities or supply chains with us at the facilities, and so this is a natural conversation to have with our retail partners.

One of our priorities looked at retail lighting and particularly retail lighting that hadn't been involved or included in the interior lighting technology campaign.

So this coming year, you'll hear about this a little bit from the lighting tech research team but we have added low bay and suspended linear lighting categories to the campaign.

So that opens up a lot of opportunity for our retail, food service and grocery partners to earn recognition through that campaign and we keep saying green lease leaders enhancements coming soon.

You'll hear about this but we've done a lot of work, and many thanks to our retail food service and grocery partners who have provided feedback this year, gotten on calls with us and given us some very helpful and candid feedback as we enhanced green lease leaders to include the energy star for tenant spaces, recognition program as well as a lot of other enhancements and resources.

That website is going to be available but the revised, enhanced website will be available by October 3rd when we have our year up lease webinar. Next slide, please.

All right. So in terms of our 2018 priorities, we have heard loud and clear from not just this sector but a couple of the sectors about the need for additional workforce development, particularly in the areas of HVAC and refrigeration, and just helping to bring the service provider market up to speed on some of these technologies that are changing so quickly and being installed.

So potential activities here include developing a resource that notes the certifications that are available now to the service providers and understanding what – understanding from you what the needs are and what additions to the training service providers might be useful.

We'd love to promote our building retuning training which came out of our Work With Lawrence Berkley National Lab. This is a low cost, easy to apply building retuning that I think can be very helpful to our service providers when they are coming into your buildings and making adjustments.

And then also to host a peer networking call, this will probably be a cross-sectoral call. We have some great examples in other sectors of how healthcare for example is addressing these workforce challenges that will be applicable to retail food service and grocery.

Secondly is assisting partners to track and interpret EMIS data. This is a recurring priority. It keeps coming up because it's a big one. It's a challenging one. So we'd like to host an ask an expert session with our smart energy analytics campaign, focus on issues specific to our sector in tracking energy issues and responding to

all of these many, many notifications and warnings that you get from your systems.

We'll also plan to coordinate with our advanced rooftop unit campaign. This year they have been focused on automated fault detection and diagnostics, and so looking at how our retail food service and grocery partners can best use AFDB to reduce energies in their buildings I think will be – we hope will be helpful to our partners.

And then the final priority is refrigeration technologies. Our partners are saying we need the LED and refrigeration. We may not have the LED of refrigeration but we have a lot of technologies that are certainly available in the market today and coming down the pipe.

So we'll be bringing our technology expert, Tony Busa here at DOE to bear on this conversation as well as we've already started conversations with the North American Sustainability Refrigeration Council to leverage some of their expertise and their existing resources in this area. So they'll probably be coming in to talk with us and our partners. Next slide, please.

And before I turn it over to Nate, I just want to encourage folks to really use that question box. Consider it a questions and a comments box as you are listening to the priorities and some of the proposed activities.

Let us know what you think about that. If you have other ideas that would be more useful to you in terms of how we address priorities this year, type those in there. We would love to hear from you. Over to you, Nate.

Nate Allen:

Thanks, Holly and hi, everyone. Before I get to these slides, I want to take a moment just to talk a bit more about how pleased I am to be here. I spent the last decade working in education sustainability and health policy; first as a classroom teacher, then as Holly mentioned for about seven and a half years at the U.S. Green Building Council and then most recently working directly with the mayors on various city level implementation initiatives.

And I'm just so thrilled to be at DOE now as an ORS fellow. I feel incredibly lucky to work with a team of such intelligent, committed colleagues.

So that and I also want to give a shout out to Allison Nozza, Sam

Stafford and John Jameson who are account managers in healthcare and higher ed who I've really enjoyed getting to know over the last month.

And finally, I want to recognize any healthcare and higher ed challenge partners we have on the phone. I have been so impressed on our calls to hear just over the last couple of weeks about the amazing work they're doing in energy and modern reduction; some of the incredible stories I'm excited to help broadcast and amplify.

Let's just jump right to that. So in healthcare, our current sector partners represent nearly 560 million square feet of space. It's about 13 percent of the total market in the U.S.

These partners are committed to strategic cost reduction programs that improve the environment of healthcare for patients, employees and their communities, and we want to especially recognize new members DaVita and UW Health. Can we go to the next slide, please, Jake?

Our 2017 priorities, looking backwards included addressing the Energy and Water and Access, integrating renewable energy on site and leveraging utility offerings.

As a result, we developed a number of resources, including we saw one of these earlier, Welltower's Green Arrow Building Certification which looked at the energy and water Nexus and sustained its ranking in the top five most viewed solutions in May and June, and as Holly had mentioned, all these solutions are accessible through the links in the slide page or in the Better Buildings Solutions Center. Next slide, please.

We're going to look ahead to 2018. Our committee prioritized the following barriers to our drain water efficiency. So number one was – is rather water management and efficiencies.

We want to build off the previous year, set a priority addressing the energy and water nexus. We want to focus on accurately benchmarking water and assess water efficient technologies that are available.

Our second priority is helping to build and educate a skilled work force and efficiency, and maintain standard operating procedures. We'll be developing and promoting partnered affiliate solutions, I've been really impressed that last week we were speaking with the University of Maryland Medical Center and we were working

on a solution with them around the premise or program. Stay tuned for that. I think it's going to be great.

And then third, we want to showcase and encourage internal engagement. So we want to promote partner best practices, engage upper management around engagement upper management employees, tenants, patient groups, et cetera, and collaborate with the communications team to develop resources and guidance and materials.

Let's move right along, Jake if we can to higher education. So in this sector, our partners represent over 300 million square feet of space or eight percent of the total market in the U.S.

We have a new member just last week, Colorado State University. So we want to welcome them. We have seven members who have also committed to the challenge, including UC Irvine who have achieved their 20 percent reduction goal and is now aiming for an impressive 40 percent reduction by 2020, which is awesome.

And our membership aims to be representative of the higher education market, which is to say it's everyone from local community colleges to global research institutions. Next slide, please.

The challenges we have identified include aging facilities, rising utility costs, limited budgets and increased demand for technology in the classroom.

Our steering committee of sector leaders established these 2017 priorities, improving facilities benchmarking, engaging occupants through EMIS and energy efficiency and climate action plan acceleration.

As a result, the following resources were developed. The posted workshop or EMIS team rather joined nearly 40 attendees from a number of our Bay Area colleagues and universities, colleges and universities as well as other regional partners.

We had new implementation models discussing active engagement initiatives at both UC Berkeley and Northwestern, and we're working with six of our sector affiliates on aligning campus data collection efforts between higher education organizations with an eye on improving facilities benchmarking. Could we go to the next slide, please Jake?

So looking ahead to 2018, our committee prioritized the following barriers to energy and water efficiency. Our number one is laboratory efficiency. To address this, we planned to collaborate with and promote resources developed through DOE smart labs accelerator.

We're excited to get more into that with all of you. We're going to build up our affiliate relationship with the international institute for sustainable labs, which many of you may know, continue to develop case studies on laboratory retrofit and new construction projects, as well as other innovative solutions.

Our second priority is engaging occupants through energy management information systems. We'll plan to continue to continue to engage members with our EMIS technology team and specifically through their smart energy analytics campaign.

We're going to promote success of wireless electric meter, of the wireless electric meter challenge and I'd really like to develop a case study or several case studies on successful occupant engagement to low case meters and evaluate other showcase projects; implementation models and any other opportunities we can find from partners.

Third and finally, we will work on energy efficiency in climate action plan acceleration. So many schools have committed to carbon neutrality and with deadlines approaching, building efficiency represents one of the most valuable ways to achieve these goals.

At the 2017 summit last spring we hosted a session with Chesapeake College and Duke University on long-term campus energy planning, looking at deep energy efficiency, so for 50 percent plus savings projects and innovative ways to secure offsets by sponsoring campus community energy efficiency.

And finally we're going to continue to work with the campus data consortium group in helping to improve sector benchmarking through DOE and affiliate organization tools. With that, I'm going to pass it back to Jake and Holly.

Cindy Zhu: Hi, this is me again.

Holly Carr: There you go, sorry Cindy, go ahead *[laughter.]*

Cindy Zhu:

No, it's all right. Hi everyone again. So new of this year is I will be starting to work with our hospitality sector. I have been on the phone with some of you and I look forward to meeting and working with the rest of you one on one.

In hospitality, we have 13 better buildings alliance partners, owning or managing hotel space, covering 17 percent of the total market floor space or one billion square feet. Next slide, please.

The previous year, the hospitality sector aimed to work with their BBA partners to evaluate energy and water efficient technologies, and promote technological, operational and departmental solutions for hospitality.

The outcomes here are for seller hotel showcases that have saved 20 percent or more in energy and/or water including Wyndham, Hilton, Lowes and two Lowes hotels.

We presented at several industry conferences and events with a focused topic on how to engage hospitality franchisees on energy efficiencies. Next slide, please.

Our first priority for 2018 is to better understand how to collect, interpret and act upon data, and translate the value of data finding to the executive level.

Potential activities here will be to develop more case studies from hospitality partners, connect with the smart energy analytics campaign, and partner with initiatives from the better buildings alliance tech teams and national labs.

Our second priority is to focus on technology integration and technical specifications for hospitality. We hope to create a forum for partners to share successful technology pilots as well as educate our affiliate members on existing better building technological specs and case studies.

Our third priority is to provide effective tools for franchisees to implement energy and water efficient operations. We got good information and ideas from our retail partners who are engaging their franchisees, most notably Wendy's, and hope to replicate that success with the hospitality partners.

Our potential activities here will be to work with our affiliate members and current partners to identify impactful resources for development, case studies and training resources that focus on no

and low case operational opportunities. Next slide, please.

All right. With that, I'm going to send it over to Jordan Hibbs who works with all of our technology research teams. Jordan?

Jordan Hibbs:

Thanks, Holly. Hi everyone, so today we're going to go through the technology research team updates. The teams are focused around the topics that you see here. Each of the teams will provide an update on the work that they've done this year and plans for the future.

The teams are led by experts and they provide access to tools and resources, and they provide opportunities for peer to peer learning through meetings and webinars throughout the year, and they also provide technical assistance from our objective experts at the national laboratories which lead the team. Next slide.

Jumping right in, I'm going to first introduce Melissa Voss Lapsa out of Oakridge National Laboratory who will give an overview of some of the work that they have done this year.

Melissa Voss Lapsa:

Yes, thank you, Jordan. This is Melissa. Building envelopes count for 5.81 quads of energy and are the primary determinant of the amount of energy required to heat, cool and ventilate buildings and that's why we're really excited to be launching the Sterling envelope tech solution team this fiscal year in FY17, and the website that links here has all of our information and tools provided to improve energy efficiency in building envelopes, and it's organized by roof, walls and window systems.

The case study that's highlighted here is one of those resources that's on our website and it documents a verification study about Liquid Armor flashing and sealant technology.

The results showed that it lowered the building's heating and cooling costs by nine percent compared to a similar building without no barrier system. So I encourage everyone to take a look at our website and get involved with our tech team.

We have about 30 members already including Newmark, Grub Night Frank and REI, and this coming year we're looking at a variety of activities but including examining air tightness requirements and building enclosure commissioning practices, and with that, I'll turn it back over to Jordan.

Jordan Hobbs: Thanks Melissa, next slide. So next we have the plug and process load team read by Rois Linger out of the National Renewable Energy Laboratory.

Rois Linger: Thanks, Jordan. Hi, everyone. So present process loads typically consume over 30 percent of whole building use in commercial buildings and to help combat this we've produced a number of publications this year through the plug and process load technical team, including some blogposts that can be found in our web page.

But today I'm going to highlight two of the more prominent publications that we have on our web page. First we publish the case study on the Wayne Aspinall U.S. Courthouse and Federal building project which is a NetZero energy motivation of a historical building that's joined by GSA and is located in Grand Junction, Colorado.

Due to the historical building limitations, they had a very small footprint for solar power panels, which was a renewable energy source. So this project had a very large focus on really reducing their energy in the actual building, and in particular they put a large emphasis on finding ways to reduce process loads in order to really achieve the NetZero energy status.

So the specific strategy is the processes that were applied in this building are summarized in a case study which can be found in our website. I hope you all take a look at it.

Secondly, we have updated our list of utility acceptance to reflect current utility acceptance for public energy reduction strategies on the market today, and these are listed in spreadsheet form which can be downloaded from our webpage and it's also searchable by state. So those are our major updates from this year.

Holly Carr: Thanks, Rose. Next slide? For the refrigeration team, this year it was led by Justin Allseth who has been replaced here by Jim Young with Navigant Consulting.

So I'll let him introduce himself as well as give an overview of two case studies that were published through the refrigeration team this year. Jim.

Jim Young: Thank you, hi everyone, my name is Jim Young. I've been involved with the Better Buildings Alliance over the last few years in numerous specific project areas. So I'm very excited to be helping to lead the refrigeration tech team this year.

We have a number of case studies on the tech team website but two of the recent ones we'll kind of talk about that demonstrates the kind of breadth of really types of equipment and systems that are included as part of the tech team.

The first is for supermarket refrigeration, around a display kit, controllers and electronic expansion valves at Hannaford Supermarkets. This case study looked at over the last 20 years, Hannaford has continuously upgraded systems or installed the case controllers and EEV's in their stores and this really documents both the energy savings aspects of it, solved 15 to 30 percent energy savings, but also some of the operational improvements and really the tips and best practices about looking at case controllers and the EEV's of what you should be telling your store operators and their contractors.

The second case study focuses more on walk-in coolers and freezers which, a little bit different from supermarket systems but an additional way of looking at the advanced control technologies that are available on the market.

This one in particular with CKE restaurants at one of the Carl's Junior locations, looking at a demand-based defrost controller that measures the required – measures the frost build-up and reduces the amount of defrost cycles that are necessary in order to go save energy, and looking at anywhere between 10 to 30 percent, depending on the equipment.

And so this case study helps to lay out some of the lessons learned, the payback and some of the additional elements from that case study. Thank you, Jordan.

Jordan Hibbs:

Thanks Jim, we're very excited to have you with us this year. All right, for the next team we have the renewables integration team led by Jay Padipati also with Navigant Consulting. Jay?

Jay Padipati:

All right, thanks Jordan. Hi, everybody. So I head up the renewables integration team. Over the last few years we've been focused on helping commercial building owner operators figure out what to do about renewable energy and other distributor energy resources.

We originally focused on solar energy, so a lot of information on our site about solar energy in different sectors and different decisions, key risk factors. Over the last year and a half we've

really started to focus on energy storage.

A lot of members have come to us saying hey, I'm getting calls from energy storage vendors. So do I ask what I use for the energy storage for, how much did it ask, and all kinds of technologies, what do I do?

So what we've done is put together a decision guide. It's available on the Better Buildings Solutions Center and our team page really aimed at helping you start the conversation of okay, should I get storage? Does it make sense for me?

So check it out. There's a lot of information there and then you can contact myself or anybody else on the team for more information. Going forward, we're going to continue looking more at the how different technologies fit together, kind of like was mentioned for the CRE tech team, one of their priorities, so renewable energy plus energy storage, plus demand response and how those things fit together. So that's what we're going to do going forward. Thank you very much, Jordan.

Jordan Hibbs:

Thanks Jay, so our next one is going to be the EMIS team. It is led by Jessica Granderson out of Lawrence Berkeley National Laboratory. Today on the call, we have Clare Curtin from LBNL as well to present on the updates from the EMIS team.

Claire Curtin:

Thanks very much, Jordan. This is Claire Curtin and today I'll just talk real briefly about four of the documents and resources that we've been producing over the last little bit this year.

So the EMIS team based here is very much focused on the smart energy analytics campaign which we've heard mentioned a couple of times on this call. In it, we offer resources to the participant's campaign and we'll have a couple of slides in a few to talk more specifically about the campaign.

But of the resources that we have developed this year, the first using we have the longest names I think for resources but using EMIS to identify top opportunities for commercial building efficiency is really – it's an overview of – we've looked at nine of the top energy savings opportunities that commercial buildings have and how EIS energy information systems and FDD, Felt Detection Diagnostic tools can really look at those energy saving opportunities.

These are – this is a target audience of building owners, facility

managers, energy managers and those who are involved in data analytics and buildings.

In – as an example for the kinds of one of these nine energy opportunities, it looks at for example building scheduling and how first to look at what the opportunity of that in itself can give in energy savings and then it looks at through the lens of an EIS analysis and then also in an FDD analysis.

So it's just a sample of those nine would building scheduling, something simultaneous, heating and cooling. If there are sensor errors, outdoor air usage and others. So that's a very usable document that we hope that everybody can take a look at.

It is on the SmartEnergyAnalytics.org website as is the next one which is the MBCx planned template. So this is something. What we saw was a real need for a simple guide to help those who are interested in monitoring base commissioning as a project planning kind of piece.

So this template is again for building staff, written for building staff, can also be used by a third party commissioning provider, and what it does is it really goes through a step by, so very methodical plan and it draws out what the responsibilities of all of the team members are, and their responsibilities in it.

And it's written in such a way that it's a Word document. So it has – you know it's looking for the input of the person who is writing this and using this template to really tailor it to what they would want out of their MBCx plans.

So it gives them sort of a – at the end of it, it is a final with an MBCx plan in their hand. The for – a third one here is the characterization and survey of FDD tools, this is a survey that's going to be coming and being released a little bit later this year and what this does is it's really a breakdown of FDD vendor offerings and it offers that through a framework that anyone can use to really ascertain the differences between the FDD products that are out on the market.

So anyone using this can be better informed to make procurement decisions or designing their own pilot programs, and then last we have the synthesis of year one outcomes and the smart energy analytics campaign.

So we just released this last week and this is the data that we've

gathered over this last year of operating the smart energy analytics campaign, and it is the data from the 46 participants in the campaign and what they are doing in EMIS and what sort of the common themes that are coming out of this – out of the campaign.

So it's a very high level report and this is, again it's representing the data that we have from our 46 participants and that represent 185 million square feet. So there will be, again, a little bit more mention of the campaign in a few more slides and I'll just leave it there.

Holly Carr: Thanks so much, Claire. Next slide? Next step is our space conditioning team led by Michael Deru from the National Renewable Energy Laboratory. Michael?

Michael Deru: Thank you, Jordan and so we have a couple of case studies that we've published this year along with some other activities, but highlighting here are the case studies on some of our partner organizations that we've worked with.

First off is Arby's Restaurant Group. Are they – really had a very innovative approach to managing their rooftop units where they were challenged with starting from a position of not knowing what they had out there in terms of RTUs and the conditions of them.

And they had a very innovative approach of surveying and then prioritizing replacements, and worked hard to get high efficiency rooftop units and they were able to – a very low cost approach where they were able to improve.

You know, their cost was up to all ton of cooling compared to the industry average. So it's a really great success story, and then the second one for schools, they're always challenged with trying to condition their – the lowest first cost and luckily, Fontana Unified School District in Southern California was able to use grant money but then they were able to use it very intelligently and install the highest efficiency rooftop units, and really get incredible savings for their efforts, and so that's been very successful.

A couple of other things that I want to mention, we do have some other resources that we'll be highlighting a little bit but I want to mention that the HVAC resource map which is something I've been working on is live.

It's the web link to resources and general information about large HVAC systems. So everything from the tillers and boilers down to

pumps and valves, and stuff work and so on is all in this one resource that HVACResourceMap.net.

That is live now and we'll be publishing, promoting that through the Better Buildings Solutions centers that's coming up very soon and then the other thing is for the advanced RT campaign we have published several resources in there, and what we're doing now is we're putting them together in packages to help different user groups.

So stay tuned for that. That's coming up also and that's all I have for now. Thank you.

Jordan Hibbs:

Thanks, Michael. Next step, we have the lighting and electrical team led by Linda Sandahl from Pacific Northwest National Laboratory. Linda?

Linda Sandahl:

Great, thanks Jordan and hi everybody. Lighting represents about 20 percent of energy use in commercial buildings and there's lots of opportunity to save energy, especially now with LCDN control systems where the technology, plus lighting is one of the more visible improvements you can make on a lighting team.

We share the latest research and discuss new technologies and opportunities related to upgrading lighting systems as well as the issues and challenges, and the team is a great chance for peer exchange to find out what other people are doing and what the lab is up to.

We have a lot of resources and I will highlight just a few of them here. First we have the troffer retrofit application guide that was completed this last year and – excuse me, it includes a decision tree to determine the best fit.

Whether that might be a T-led or a retrofit kit, or a new luminaire, depending on your unique sight situation and then we have specifications for troffer lighting, wall-pack lighting and parking lots, and parking structures.

We also have case studies that were completed this last year on 2016 ILC participants that were recognized for exemplary performance in troffer lighting systems, and those case studies, they're really valuable since they address the system performance, the payback and lessons learned at the site.

And in FY18 we'll be focusing a lot on research related to lighting

systems and interactions with other building systems. So I encourage you, if you're not part of the team now, join.

We have a lot of great discussions and it's just a really good chance to learn what's happening at the lab and what your peers are doing.

Jordan Hibbs:

Thanks Linda, next slide. All right. So for upcoming publications, we have the NREL Central Plan HVAC on-line tool which Michael mentioned. It will be published as a solution at a glance on the Better Buildings website.

The zero clients that they summary is going to be a summary of a study that compared the energy and usability differences between remote virtual machines – excuse me, access through zero client devices and traditional computing systems, such as laptops.

The AFDD tools overview report will be published by LBNL and it will be an overview of commercially available AFDD tools which will be made available also to Better Buildings members.

The evaluation of air tightness requirements report will be developed by Oak Ridge National Laboratory which Melissa mentioned earlier, and then the data-driven plugs case study will be a case study regarding the field validation study of intelligent outlets and being able to use the information from those in order to save energy.

Next slide, and for the sake of time I'm going to run through these campaign updates fairly quickly. The three campaigns that we have, we have the smart energy analytics campaign, the interior lighting campaign and the advanced RTU campaign.

These campaigns offer additional resources and also opportunities for public recognition. Next slide. So for the interior lighting campaign, these organizations were recognized in 2017.

The campaign has been very successful with the 22nd – 2017 recognition highlights there in the bottom right corner. I'll let you read those to yourselves. These slides will be made available after the presentation. Next slide.

What's really exciting with the – and maybe click one more time. I think there's a graphic. The new and exciting news from the interior lighting campaign is that they met the one million Luminaire upgrades or installation goal they had earlier this year.

So the new goal is to reach the two million Luminaire upgrades or installations by April 2018 and they've also included three new lighting categories which are listed here and you'll see underlined where these might fit in, be in your own buildings or in different types of spaces.

So if you're already involved in the interior lighting campaign and have these other types of lighting, we would love to hear from you, or if you're interested in joining based on these new categories or the troffers that we've been focused on, the interior lighting campaign website is there at the bottom and we'll also have additional information on the 2018 recognition award coming this spring.

So please do visit the website or reach out to Linda Sandahl for additional information. Next slide.

The smart energy analytics campaign recognized the following organizations in 2017. You can read more about the outcomes of those on the beat blog which is linked there. Next slide.

They'll also have fall 2017 recognition. They'll be presenting those recognition awards at the national conference on building commissioning in October and they'll also be having 2018 recognition opportunities. So stay tuned for spring 2018 if you're interested in submitting an application.

We are still recruiting participants for all of these campaigns. So for additional information, visit the website here. You can also reach out to Jessica Granderson whose information was listed on the EMIS team slide. Next slide.

In the advanced rooftop unit campaign in 2017 the following organizations were recognized and again we're still recruiting participants and we'll have additional information in the spring about the 2018 awards.

The website is linked there at the bottom and you can reach out to Michael Duru for additional information as well. Next slide. So next up we have the opportunities for field verification site. We're looking for sites for these specific studies.

So the first one is with Edge Power on PV forecasting storage and load control, and the second one is going to be a seventh wave. It's integrated controls package for high performance interior retrofits,

which will be combined lighting, HVAC and plug load demonstrations. So next slide.

We'll have Jay give an overview of what we're looking for, for the Edge Power demonstration.

Jay Paidipati:

Yeah thanks, Jordan. So basically I queued up the idea of really I think a value – important for a lot of members for a lot of you is going to be understanding how different types of distributing energy resources work together.

So Edge Power has won some grant funding from the DOE Solar Program to look at energy storage combined with solar TV, combined with direct load control, with the idea that you can better manage your demand charges and perhaps use a smaller energy storage system if all those different technologies work together.

So go onto the next slide. So what are they looking for? Somebody that already has solar that has loads that are adjustable. Space to the storage inside or outside has a somewhat routine occupancy scheduled because the technology works by looking at historical load data and forecasted load data, and then ideally having 15-minute load data.

And ideally in a place with high demand charges, so above \$12, \$13, \$14, \$15 for TW, and a sizeable cooling season so that we can look at HVAC load demand reduction.

And so why would anybody want to participate? Well, why don't you get free storage for the project. The opportunity to tackle some of your demand charges that maybe there's not a lot of energy efficiency and other settings to bring down your energy charges that haven't listed your demand charges.

And then third benefit is what I mentioned earlier, really understanding how these different things work together because of the – there's going to be a lot of technologies available in the future and it would be great to understand how they work together now. So that's what I got. Jordan, back to you.

Jordan Hibbs:

Thanks, Jay, next slide. So Michael Myer with PNNL will present on this with just briefly the high level overview. We'll have additional site criteria information on the website that the account managers will share with you all. Michael?

Michael Myer: Thanks, Jordan. As mentioned earlier this is a combined demonstration of multiple different building technologies. Ideally, the – it would be located in Excel territory which would be in Minnesota, New Mexico or Colorado, or possibly Midwestern states. Excel is a partner.

Looking for office or outpatient healthcare in a moderately small to large space with daylight, the idea is that lighting controls embedded in the fixtures will help communicate to the HVAC system and combined, they'll save energy also with the plug loads and by bringing daylight we're also – we're going to use a film to possibly bring in more daylight and you really push the energy savings.

So we're just looking for possible partner sites that would be interested in doing a demonstration of this technology.

Jordan Hibbs: Thanks, Michael. Next step is the Better Buildings Market Solution Update.

Cindy Zhu: Hey guys, Cindy again. I'm going to boogie through these, so we can get everyone out at 3:00 p.m. This year, DOE has proceeded towards increasing demand for high performance appraisals, and ensuring appraisers are adequately trained in energy.

Our Energy Matters education course is now certified throughout, which allows for on-line synchronous learning and enables the appraisers to take the course on-line from anywhere in the country.

Coming up this year, we are working to make the course available as an asynchronous on-line version. So that means you can click play at any time you want and along with developing property case studies of high performance appraisals and partners who are pursuing and implementing green appraisal practices.

Please reach out if you are interested in hosting or participating in an Energy Matters training or work with us in any other way related to appraisals. Next slide, please.

This year, the energy factors and commercial mortgages team has continued their work based on their new analysis that energy factors have a statistically significant impact on commercial mortgage default.

To read their results, please see the link to the project team page which includes a recent technical report. This summer, the team

has been working on pilots in partnership with three commercial lenders as well as this work, as well as progress from the appraisal project, and the previous slide will be featured in a webinar hosted by the National Institute of Buildings next Thursday at 2:00 p.m. Eastern.

So please sign up for that webinar if you're interested in learning more about these two projects. Next slide, please.

DOE continues to be interested in research exploring links between energy and sustainability in buildings and their financial indicators.

This year we will build off previous working group meetings with real estate owners and managers, and a pilot study published with principal real estate investors by holding a research workshop with real estate academics this coming October to identify gaps and prioritize sustainability research.

Let us know if your organization is interested in getting involved in research efforts. Next slide, please. As previously mentioned, the Greenleaf Leaders recognition program is relaunching this fall with new criteria for recognition and a brand new website and technical resources for landlords and tenants who are incorporating energy efficiency into their standard leases.

Please join us for a webinar in two weeks to learn more about the new features of the program and we hope you will consider joining in as a participant or supporter of Green Leasing and also apply for recognition. Next slide.

Holly Carr:

All right, thank you Cindy, and it's 2:58 and this is where you hopefully get to take an actual poll. I hope this is appearing for you but wow, I mean so many opportunities to get involved in the alliance, to join the force.

Let us know how you would like to do that this year with the technology campaign, hosting a sales verification, helping us develop a resource, telling us all about a success you've had, so that we can share that as a case study or let us know another idea that you have.

We are very grateful for your participation this year and throughout the year in the Better Buildings Alliance. This is your alliance, so please do let your account managers and your DOE leads know what you'd like to see from the alliance and what would be most valuable to you in your jobs every day.

With that, I'll sign us off and we look forward to lots of energy efficiency successes with you in the coming year. Thanks very much.

[End of Audio]