

*Sarah Stubbs:*

Hi, everyone. Good afternoon. Thank you for joining the webinar today. We're going to give folks one more minute or so to log in, and we'll be starting soon.

All right. I think we're going to go ahead and get started. So hello, everyone, and welcome. This webinar series is dedicated to bringing you the latest actionable insights from leading industry experts in the energy efficiency space. Today's webinar is called Energy Efficiency and More: Benefits of Small Building Controls for Retail Buildings.

Before we dive in, there are a few housekeeping points I'd like to cover. Please note that today's webinar will be recorded and archived on the Better Buildings Solution Center. Next, attendees are in listen only mode, meaning your microphones are muted. If you experience any audio or visual issues throughout the webinar, please send a message to the Q&A box located on the bottom of your Zoom panel.

Next slide, please. So my name is Sarah Stubbs, and I'll be one of your moderators today. I'm an ORISE fellow at the U.S. Department of Energy's Building Technologies Office. Through the DOE's Better Buildings Public Private Partnership, I lead the retail, food service, and grocery sector.

In addition, we have a great lineup of presenters today. We have Nora Hart from Berkeley Lab, an energy technology researcher. We have Nicky Arthur, who is an energy management and sustainability specialist at LUSH, and we have Thomas Grant, global manager of energy initiatives at the Wendy's company. Thank you, all of us or thanks to all of you for being with us today.

Next slide, please. So we're going to kick off in a minute with some audience polls. We'd love to see who's on the line, who's joining us today. And then we'll hear an overview of the Smarter Small Buildings campaign. We'll then hear from our industry presenters, LUSH and Wendy's, and then we'll have some time for moderated Q&A at the end.

Next slide, thank you. So today for our polling, we're going to be using an interactive platform for Q&A and polling. So to participate, and I definitely encourage everyone to participate, please go to [slido.com](https://www.slido.com) on your mobile device or by opening a new window in your browser. Today's event code is #DOE. So if you'd like to ask our panelists questions, you can submit them any time throughout the presentation, and we'll be answering your questions

near the end of the webinar. You can also select the thumbs up icon for questions that have already been submitted that you also would like to be answered live and that will help us select the most popular questions by moving them to the top of the queue.

Next, we're going to go on to Slido polls. We have two polls today, and we'd love to learn more about you. So you can also respond to these polls through Slido. I see a lot of folks are already in there responding. So if you're having any issues, please message our tech support team by using the Zoom Q&A function.

So our first poll is what sector best describes your organization? So far, I'm seeing the other categories. So I'm excited to maybe continue to discuss in the Q&A. We see some contractors or consultants, also some folks from the utility sector, food service and grocery. That's fantastic. Of course, Wendy's is presenting today from that sector, federal government, that's the sector I'm coming from, higher ed as well. And yeah, just continually lots of folks from contractor, consultant, utilities, and then maybe folks whose industry is not described by any of the categories that we have.

So I'll give it a few more seconds. Also seeing some state government folks have joined the chat. So that's great to see. Welcome. And I think we can go on to our second poll today.

So what is your role within your organization? This is really helpful to us. And as I'm waiting for folks to answer, it's really helpful to know what part of the organization you come from. I know folks working in energy and sustainability tend to come from the strategy side, or maybe the facilities side.

And I do see the vast majority of folks who are responding are sustainability managers, coordinators, or some other kind of sustainability focused person. We also have a lot of folks who are controls vendors, building engineers, and then of course, my favorite category, other. That's awesome. So lots of sustainability folks, some building engineers as well. Other making a strong run for the sustainability manager top spot. Still more controls vendors responding. And then our engineers as well.

So it's great to have everyone on the line today. And we're really excited to give this great presentation to you and also hear from you and hear what your questions are.

So thanks so much for answering the polls. And I think we're going

to go ahead and move on from this portion into our presentations. So now I will pass it off to Nora Hart of Berkeley Lab, who will be your additional moderator today. Nora, the floor is yours.

*Nora Hart:*

Thanks, Sarah. Hey, everyone. I'm Nora Hart. I work for Berkeley Lab. I'm an energy technology researcher. And I'll kick off by going to the next slide and telling you a little bit about the Smarter Small Buildings campaign.

So the Smart Small Buildings campaign is something that is ongoing and it's a DOE sponsored program managed by Berkeley Lab to promote improved HVAC controls for small and medium buildings. And when we say small to medium buildings, we really mean buildings that have packaged rooftop units, buildings that oftentimes don't have a building automation system, they may only have a standalone thermostat. And so the goal of this campaign is really to move those buildings forward and make them smarter.

And so today, you'll hear from Nicky and Thomas from LUSH and Wendy's, and they'll talk to you about how they've made their smaller buildings smarter. And hopefully you can learn from them. And then also consider joining us in this campaign. So if you'd like to be a participant, that means you're an owner or operator of small or medium buildings. And when you join the campaign, you get free technical assistance from myself and others at Berkeley Lab, along with opportunities for recognition and peer exchange.

So if you look at the bottom of this slide, we have a website, [smartersmallbuildings.lbl.gov](http://smartersmallbuildings.lbl.gov). And you can go there, learn all about the campaign. You can join or you can just reach out if you have any questions.

Next slide. Next, I'm going to give just a quick update on this campaign. So it's been going on for about a year now. And so far, we have 30 building owners and operators that are participating. And then we also have partners of this campaign. So if you're not a building owner or operator, you can still join and make that commitment to supporting the campaign and supporting our goal of deploying controls into small and medium buildings.

In addition, another benefit of joining the campaign is the opportunity for recognition. So right now, we have our recognition window open, and it's open until May 15. So if you are a building owner and you'd like to join and you're doing great things and you'd like to tell your story, we have opportunities that we can recognize you through best practices for new installations,

operations and maintenance. So if you're doing great things at your small buildings already, we'd love to hear about it.

We have a high impacts category, and this is a chance to tell a story of greatly improved energy efficiency or greatly improved indoor air quality. We have an innovation category. So maybe you retrofitted your building with all electric RTUs, and you want to talk about how you're using controls on your new heat pumps.

And then we also have an energy justice, diversity, equity and inclusion category. So we want to hear about stories from buildings that are in underserved communities and how it's benefiting the people that use those buildings.

So again, at the bottom of this slide, we have our website, [smartersmallbuildings.lbl.gov](http://smartersmallbuildings.lbl.gov), and we'd love for you to go there to learn more.

You can go to the next slide. And now I'm going to hand it over to our wonderful speaker, Nicky Arthur, where she'll talk about energy management at LUSH. Thanks, Nicky. Take it away.

*Nora Hart:*

Thank you. Yeah. Hi. So my name is Nicky Arthur. I'm part of the regeneration and sustainability team at LUSH. I am speaking today from the traditional ancestral and unceded territories of the Musqueam, Squamish and Tsleil-Waututh nations, also known as Vancouver in Canada. Excited to be here. So thank you for the opportunity.

Next slide, please. So for those who are not familiar with the brand, I thought I would start with a very quick overview of LUSH. A lot of you may know LUSH by the amazing and strong scents in your local mall or high street. We are a privately owned company actually founded in the UK in 1995, opened our first shop in North America, actually in Vancouver in Canada shortly after that. And we now have seven manufacturing facilities globally with 900 shops around the world.

So in North America, we have around 260 stores between the US and Canada, around 200 located in the US, and the remainder in Canada. And product for the US market is manufactured in Canada, either here in Vancouver, or we also have a factory in Toronto. LUSH focuses on fresh handmade products made with ethically sourced ingredients, minimal packaging. So around 50 percent of our products are actually naked with zero packaging and no animal testing, which is a big one for us. We are 100 percent

vegetarian company and 94 percent of our products are also vegan with just honey and beeswax as our non-vegan ingredients.

LUSH was the inventor of the many naked products, including the bath bomb and the solid shampoo bar. So yeah, enough of the company plug.

In the US, our shops are primarily located in malls and lifestyle centers with around 20 additional high street locations. So our smallest shop is just under 500 square feet. So pretty small, that's the Mohegan Sun Casino. And the largest shop is the four and a half thousand square feet Tyson Center in Virginia. Typical shop, I would say is between about 1000 and 1500 square feet.

Next slide, please. So our team or the organization as a whole is driven by our overarching mission to leave the world lushier than we found it. In terms of energy, we are guided by our global climate and nature to do list. And one of the key pillars within that is 100 percent renewable power everywhere. And then within that, reducing our energy footprint as much as possible is one of our key objectives.

So we started looking at how we could significantly reduce the energy usage in our North American shops around 2017, 2018. And this was a period of significant expansion for LUSH in the US market. We were opening a lot of new stores. And at the time we were facing, I would say three big challenges.

So the first one was anybody who knows LUSH knows that our products have a very strong scent. So in part, this is made stronger by the fact that we have so many naked products and we don't wrap many of our products in plastic packaging. But the result is a lot of strong odors or scents in the malls. And as the business expanded into more locations, neighboring stores were complaining about the scent.

So to address this, LUSH started installing exhaust fans in all of our locations around 3000 CFM in many cases. So these are big exhaust fans for a small space. And we realized that these were expensive to run and operate. So we started looking at what controls might be available. Not all of our locations needed us to run the fans all the time. So we needed ideally a way to tweak runtimes at different locations.

The second was along with the large expansion of stores became a bit of a headache for our in-house maintenance team, which is

pretty small. They were finding it more time consuming and costly dealing with HVAC and other maintenance issues or comfort complaints from shops. So often the techs we were using would need to make two visits to each store. So they'd first go out, call out to investigate an issue and then return second visit to fix.

And then lastly, but also importantly, was the issue of local programmable thermostats. So we were finding that the thermostats would be installed and commissioned or set, programmed during commissioning. And then throughout the year they would be tweaked by staff. They would get overridden. For example, during holiday periods they might change the store hours and then the thermostat schedules wouldn't be set back. We would find that if we went in at a later date that the programming had often been changed and basically were heating and cooling, so conditioning those spaces outside of regular hours when we didn't need to be.

So after some research, an investigation on what control and monitoring products were available in the North American market that would suit our small store footprints, but also wouldn't cost the earth, we decided upon the SiteSage system by Powerhouse Dynamics. So this was in 2018 and we selected around 20 shops initially for the pilot project.

We now have this system, the SiteSage system installed in around 70 percent of our North American shops, which is about 140 shops. Next slide please.

So the SiteSage system comprises obviously some hardware and a software platform. This is a screenshot of the dashboard. So this is the sort of overview launch page of the dashboard. You can see the dots showing where our stores are and where we have the system installed. The green is where everything's running great. The yellow and red locations flag where the system might be offline for some reason or another.

Next slide please. So the hardware, so what actually gets installed in the shop, typically we initially installed as a retrofit to a number of existing shops and now it's installed as standard for new locations. Basically the components are the energy management piece, the system incorporates the controls piece and also measurements piece.

So if you look at the photos in the picture here you can see hardware for each location. Most of the equipment is installed in

the back of house near where the electrical and the communications panel are. There's a controller which you can see labeled here, that's the sort of larger white box and that enables the exhaust fan to be controlled and also lighting to be controlled.

There's the energy monitor which either has its own separate box like in the picture here or sometimes it's housed in the electrical panel and that picks up the usage from the different circuits that we decide to monitor as well as the electrical supply as a whole to the shop. So typically we'd monitor the lighting circuits, the exhaust fan, the domestic hot water which all our shops have electric hot water heaters and we actually use a fair bit of hot water for anyone who's been in. We have a lot of demonstration sinks; people can come in and wash their hands, try a bath bomb and try a lot of the different products.

We have ice machines as well so that's another circuit that we typically – and then the gateway which is this smaller device that brings all the information together and connects via the to the internet via Ethernet cable. Then in the front of house we have a special SiteSage thermostat you can see here and we also would typically have duct sensors in store to provide additional information to the system.

Next slide please. So the smart thermostat enables us to set heating and cooling schedules and set points remotely via the dashboard so this has been a great feature for us. We have a standard all-year-round template and then we can customize per shop if required so if a certain shop is saying we're always too cold or too hot at a particular temperature at the standard set points we can tweak the schedule for them.

Yeah I realize this is in degree C in metric so sorry I'm in Canada so that's my settings but there's also a imperial setting if you are in the US so our heating set point is at 21 degrees that's about 70 Fahrenheit and the schedules are set relative to opening and closing hours, so if we tweak the opening and closing times, the schedule adjusts accordingly. And then you can see on the top here the cooling schedule, which is similar perhaps as a set point of 23 degrees C.

So the staff have some local control in the stores. They can tweak thermostats up or down by about two degrees in either direction and then at the end of that period it will revert back to the schedule. If they want to make any more permanent changes they would submit a request through the maintenance work order

system and then we change the master for that particular store.

Next slide please. So one of the things that that I love is it's really easy to see the electrical usage by the minute or by the hour by the day by a week by a longer time period so you can see this slide here is a typical week this is one of our shops in Tennessee and in this case there was an alert triggered, a maintenance alert was triggered due to unusual usage electrical draw and that was actually in this case the one of the rooftop units was short cycling. So you can see sort of less electricity overnight and then during the day typical usage, but then these spikes all through the day which is the short cycling rooftop unit.

So an alert was sent to the maintenance team who were able to go in and have a look. We can pull the trend logs and try and diagnose as much as possible remotely.

Next slide please. So this is a detailed sort of dive into that kind of two day period close up when the alert was triggered. And we work with a third-party HVAC service provider so they also have a login to the platform, so when the maintenance request comes through they can also have a login that they can look at the trend log. They can really dive in to seeing what the issue is and get some clues together.

So in this case it was actually a call to the shop resolved the issue. It was actually they were having some unseasonably warm weather locally. The doors had been left open for a long period of time and that was causing the system, it was trying to cool and just not being able to get to the right temperature. So we just asked them close the doors for an hour. Let's see if it stabilizes. And that did actually solve the problem. So, easy fix. But it's been really helpful for the HVAC technician to be able to dig in here and pull some of these locks.

Next slide please. There's a bit more additional information on the dashboard that we get for each location. It shows the energies breakdown in this pie chart which can be helpful for the past 30 days. There's also an off hours energy cost bar chart you can see there which is also helpful and there's a monthly off hours energy report that gets pushed to my email so I can see immediately which shops are spending the most off hours and then maybe go and have a look and see what's going on over there. Lots of other information on the dashboard as well.

Next slide please. So the data that we've collected has provided us

with a sort of average energies breakdown for our stores, which has been really helpful in providing some feedback and letting us know which areas to focus for future energy reduction initiatives. So I don't think it's any surprise to anybody here that heating and cooling was the biggest electrical use for us. Lighting and hot water are also big ones.

More importantly, the systems where we've installed the system versus where we haven't been able to, we're able to achieve average of 20 percent electrical savings through the installation, so that's been huge, and that primarily I would say is from being able to limit the exhaust fan run times and also being able to have that set point for heating and cooling and being able to really tightly set those schedules for each store.

So basically we're only using our equipment or only conditioning this when we need it.

Did the systems solve all our challenges? I would say for the most part, yes. Still so the significant savings was great for us. It's been good for the maintenance team. They've been on board. The stores have been on board with it so I think it's made them feel they've got a bit more information around what's happening if they have hot or cold complaints.

Some of the challenges I would say the system is not compatible with all heating and cooling systems. So for example VABs it's not compatible with, so we've not been able to install everywhere. We still need somebody overseeing the system, so that falls to someone on my team as well as the maintenance team and we've had issues with equipment dropping offline, needs to be troubleshoot, somebody calls to the store so that's obviously time commitment.

At the minute there isn't an API that will pull the energy usage or electricity usage direct to energy style which is what we use to track electrical consumption and use that for our ESG matrix. So I would say that is still a challenge. And also we don't currently have a Canadian installer, so I know they're working on that at SiteSage but that's been another challenge for us.

So thank you. Looking forward to some questions later on.

*Nora Hart:*

Awesome thanks so much Nicky. Okay we can go to the next slide and I'll give a quick introduction to Thomas. Thank you Nicky for your presentation and we'll see you back for the Q&A.

Take it away Thomas.

*Thomas Grant:*

All right. Thanks Nora and great job Nicky. Sarah I think you know your minor verbal flub on thanks to all is actually appropriate because we really appreciate the DOE's efforts on these types of programs and helping get the message out about energy efficiency so thanks for the great partnership.

You can go to the next slide please. So I'll start off with a little bit about the Wendy's company. If you don't know, we're a quick serve restaurant brand known for Dave's Classic hamburgers and our Frosties. We own about 400 company restaurants, own and operate those here in the US. We have a few in the UK that we own and operate as well. And then we have around 6,500 franchise restaurants around the world.

About a year ago February of 2023 we formally announced the acceptance of our science-based target which I have here on this slide. So in general, it's a 47 percent emissions reduction compared to our base year of 2019, and that also includes our franchisees because our franchisees scope one and two or the Wendy's company scope three emissions are part of those emissions.

I think that setting this goal in the, you know, where we're at today really have a longer history of energy efficiency work at the Wendy's company. I think we have some pretty well-designed restaurants and have had so. And so when I remember to you, I'm going to point out on some of the energy use reduction statistics that these were from measures on top of previous measures such as LED lighting and those sorts of things.

For some more information on where we're at with our goal achievement our 2023 CSR report should be out in a couple of weeks, but a little bit of a preview. I know that our emissions reductions, our emissions were reduced for 2023 compared to 2019 so making progress on that which is great and that progress is primarily thus far from our energy efficiency work in our restaurants this past year we also participated in community solar in Florida and will be doing so more actively in Massachusetts and Illinois. But again most of our progress to date is because of energy efficiency and restaurant employee engagement around energy efficiency.

Next slide please. So Nicky did a great job with showing some specifics on data and charts and graphs. I'm going to talk a little bit

higher level and try and discuss some things we've learned and approaches that Wendy's has had over the past several years.

So in general building controls are designed to help modulate building equipment and the building operation when that equipment in the operation does not need to be at full capacity. So most building equipment like rooftop units refrigeration, whatever, is designed for full capacity, you know, when it's needed most, say the hottest time of the year or the coldest time of the winter, when the most people in the building, when you're producing the most widgets. But we all know that our buildings aren't at a hundred percent all the time so controls can enable energy efficiency through turning things on and off when they're not needed modulating or varying when you don't need the full capacity and then providing some information on performance that hopefully you and your organization can react to.

So some of the benefits that we found through our building controls are obviously reduced energy costs, improved employee and customer comfort. Talk about safety, because one of the things that's important in restaurants is minimizing condensation especially for the floors, we have improved operations and then also some improved maintenance and reaction time to maintenance issues.

One of the things that I definitely wanted to point out is that these don't always happen simultaneously and sometimes they can fight against one another so they could be exclusive. A good example is on safety and trying to prevent humidity in our restaurants. That might require more fan run time, longer run times throughout the day, and so that might come at an energy use penalty. But I think overall building controls can help save money and improve operations.

One of the things I wanted to point out as I go through this is at least for our restaurants, kitchen equipment is about 50 percent of the energy use and kitchen equipment in this sense does not include our refrigeration. So think of grills, fryers, ovens, microwaves, those types of things. And really those are designed around our restaurant operations and procedures, so we try and make that equipment, procure that equipment that's most efficient but when we're working on energy efficiency in our restaurants we're really focused on HVAC, ventilation of the that cooking equipment, some of the refrigeration, and obviously lighting, so that's a smaller portion of our energy use.

Next slide please. So about 70 percent of our company-owned restaurants have a building management system. The majority of those are with GridPoint which is one of the partners in the small buildings program that Nora talked about at the beginning of the presentation. We have franchisees that use other control systems including GridPoint, they use Energy Box, Pelican, I know there are others. Can't list them all and I don't honestly know all of them that our franchisees use, but they've found similar experience with energy efficiency through those building controls and we at the company learn a lot from the things that they're working on as well.

So our typical control strategy is we have set points and schedules based on the restaurant's operating hours. We do have, at least company-owned restaurants, 18-hour stores. We don't currently have any 24-hour restaurants but there are franchisees with 24-hour restaurants and so our control strategy really relies on the smarts of the equipment that we're purchasing and then some remote capabilities around those schedule settings and set point settings.

I do want to point out that we allow our restaurant staff to have temporary overrides on those set points so they can bump them up two degrees or down two degrees for an hour at a time and we found that that has improved the acceptance and engagement around those programs.

I know we could get more aggressive and I'm aware that some commercial and retail entities don't allow any overrides so again that's something to keep in mind when you're hearing about cost and use savings. A lot of that depends on how strict the strategy is if they allow for overrides, those types of things.

I know we're mostly talking about HVAC but we do control lighting as well. Our interior lights are controlled with operation of equipment so they're controlled through electrical panel. You can't turn the fryer on unless the lights in the kitchen are on and then our exterior lights are controlled through the BMS based on restaurant operating hours and daylight schedules. So some of the benefits that we found, like I mentioned, the energy use savings.

The five to fifteen percent figure you see here is in addition to initiatives that we had already implemented, my predecessors and Wendy's working on energy efficiency over the years. We had already done LED lighting. We've already had efficient fan motors and walk-in coolers and freezers and kitchen exhaust hoods. So

this BMS savings that you see here is in addition to those other items and then it's based on our whole energy use. So we do have some statistics around how much energy savings there is just for certain pieces of equipment but ultimately for us looking at the whole building energy use is most important.

One of the things that I wanted to talk about as I mentioned earlier is safety issues and how does BMS help us with that? Well we don't have specific mechanical or chemical control for humidity in our restaurants so we have to rely on the capabilities of the rooftop units and make up air units that we already have in our restaurants. But we have installed humidistats with our building management system to help monitor how we're doing on our humidity control in the restaurants. And humidity control is a big deal not just for comfort but also to prevent slip and fall issues in the restaurant.

So you know we generally know where we have issues with humidity tends to be climates with higher humidity, obviously, and using those humidistats helps us to understand if some of the things that we are able to control like fan speed, fan run time, those types of things, if they're helping us reduce our humidity where it's a problem.

Adding on to some of the things that Nicky talked about, you know there are things that you can do with your HVAC that I think we don't necessarily think of them as energy efficiency, but they all add up together in your strategy. So things like, are your fans on whenever the building is open or not? Do you have your fans on in auto mode when your building is not occupied? What are your fan speeds that you're running at when you're able to modulate, either the building's not at full capacity or your operations aren't at full capacity? So those are all things that you should be able to run and have insight on between the smarts of your HVAC and your building management system.

And then related to maintenance we use supplier sensors to help us understand if there's a complaint about restaurants being too hot or too cool. We can check those sensors to see if the units themselves are running appropriately. Obviously if they're not putting the right temperature of air into the space, there's probably more of an issue with that unit itself than something else going on. So things like that can help our maintenance team and be better prepared when they show up at the site to fix the problem.

You can go to the next slide please. So it's pretty easy to talk about what has not worked in our restaurants rather than what has

worked. We're always striving towards what can work or what will work, but one of the top things that has not worked is complexity. So, you know, a restaurant environment has a lot going on. We have a lot of air exhausted because of our cooking, so we have to bring in a lot of air from the outside. So with all that mechanical work going on, having extra sensors and all sorts of data points doesn't really assist us in keeping our operations optimized and energy efficiency. So if we can do the basics, set points, schedules, some remote information and data exchange, that seems to work the best.

Complexity also goes to procurement. So one of the things that we found is that if our maintenance team and maintenance providers can go and procure pieces and parts not only to the HVAC equipment, but also to that building management equipment, it makes it a lot easier than if we have some sort of complicated contract or agreement where we have to go procure and then get pieces and parts to our maintenance folks separately. So I think that's something to keep in mind as you're looking around at your options for building management.

Obviously high cost. That doesn't work so well, especially in some of our small buildings and small commercial spaces, we don't have real high margins, so always keeping in mind what the ROI is on these energy efficiency projects is important. And then lots of alarming, so having alerts and having information that you can respond to seems to help, but alarming over every little issue or temporary temperature increase or decrease just turns into a nuisance and then our maintenance and restaurant staff aren't as engaged.

So what's next for Wendy's? Well we are testing out demand control ventilation. You know, initially it seemed like it may not be a great fit for our restaurants and, you know, when you open a Wendy's, you need to be able to serve good, high quality food whenever your customers come in, but there seems to be some opportunity there with our kitchen hoods. So more to come on that. We're also testing some monitoring based commissioning so that we have third parties taking action on those alerts and information coming from our BMS. I don't think that's a fit for everywhere just because of the cost, but again, we're trying these things out to get more information and test them.

And then finally, really working hard on how can we enable our maintenance staff to take advantage of things like apps and the information coming out of the building management system. I put,

you know, this is old tech because that data exchange and ability to use apps and have, you know, the internet of things has been around for a long time. But I think we all are still struggling with how do we connect that data and information to the people who are actually maintaining equipment and managing our facilities.

So with that, I'm going to turn it back over to Nora and look forward to the Q&A.

*Nora Hart:*

Awesome. Thanks, Thomas. So hopefully during these great presentations, you guys are over at Slido putting in your questions. And I don't know about everyone else, but now I really want a bath bomb and a frosty. So that might be what I do after this, but we'll kick it off with some Q&A.

So the first question I'm going to ask is to, well, this one's actually to both of you. And I'll start with Thomas, but for your energy management systems, are they cellular or Wi-Fi controlled? And do you have a recommendation on that?

*Thomas Grant:*

Yeah, I can tell you that every IT group and every organization is going to be really concerned about security. But I think the industry's evolved far enough that you can definitely put it on your own network. You know, you got to be careful about that and engage your IT security folks around it. I think for us, our best experience has been a hardwired connection from your gateway device to your own network, but wireless sensors and, you know, wireless devices that are communicating to that gateway just to reduce the install costs. But, again, I think those are really good questions to ask your vendors.

*Nicky Arthur:*

Yeah, and I would totally echo everything that Thomas just said. Same thing. That's the way our system's been installed also, through Ethernet, the gateway, wireless in store. And then, you know, we've worked with our IT in-house to make sure that they're happy with the Wi Fi controls that we have with security.

*Nora Hart:*

Thanks, Nicky. And I know Nicky had that great picture, if you remember from our slides, that showed exactly the gateway, the thermostat. So these slides will be posted if you want to go back and look at that exact setup at LUSH.

Thanks, guys.

All right. The next question is to Nicky, because you have SiteSage. So you mentioned having an HVAC service provider,

and they can log in to SiteSage. So is that a single provider that covers all your stores? Do you have to engage with different stores? Can you tell us just more about that process of engagement?

*Nicky Arthur:* Yes, we sort of went a little bit backwards and forwards with that about should we provide an access login for the an external provider or not. And it's actually really just relevant for the US stores. We do have one HVAC provider, a single one. He manages the different call outs, so they might subcontract. But it's really just we've partnered with one overarching company for the US that manages that. And so it's just one login for that one individual, actually it's two individuals at that company. So we have tried to control that. We don't want everybody being able to log in and change settings or whatever else. But they have found it very helpful when they have been able to send someone on site and they can call back in the office and say, "Can you remotely turn something on, turn something off, test something out," and for them to have that, for the couple of individuals to have that login has been really helpful.

So I would say it's worked for us, but with a note of caution that, yes, we don't want logins being sort of bandied around everywhere.

*Nora Hart:* I'm going to do another question, Nicky, to you just piggybacking off of that. Someone asks, how do you handle the holiday schedules now that you have SiteSage? So I'm curious if the store can log in and make changes or do they need to contact someone else?

*Nicky Arthur:* Yeah, so the stores don't have a login. They have to reach out and let us know. We've got some different templates we can apply. It hasn't worked as seamlessly as I'd like because the stores, when they have holiday schedules, they're all different. So it depends on the mall opening hours. It depends where the shop is. It's not a standard holiday schedule. So it does need to be done individually.

*Nora Hart:* Yeah. All right. That makes sense. But at least you can do all of those remotely, right?

*Nicky Arthur:* Yeah, yeah. It's actually not as big of a job as we initially thought it might be. It hasn't been as big of an issue.

*Nora Hart:* Yeah. All right. Thanks, Nicky. Thomas, I'm going to pivot over to you. It looks like these next two are both around some questions

for Wendy's. So it sounds like you have GridPoint and then your franchisees have, maybe they're using some different vendors. Are they all connected or do they keep things separate for operations?

*Thomas Grant:* Yeah, that's a good question. So for Wendy's company, I guess they're not all connected in the same platform. Usually each control manufacturer has their own platform. So I would think that's the same with our franchisees. I do think maybe a little bit higher level question is, so the strategy for a multi-site customer or user of this equipment is how many different vendors do you have? How many different platforms can you manage?

And that is a really tricky question. I think your procurement team probably has one perspective. The team that you're sitting on that has to manage these things probably has a different perspective. But there's a balance in there. It's probably more than one and it's probably fewer than five because you can't spend all your day figuring out your password and login and username for different platforms.

And I do know that there's vendor partners out there that can consolidate all these different platforms into one seamless dashboard. So those are good things to keep in mind.

*Nora Hart:* Yeah, and just to follow on to that, for the stores that have GridPoint, how did you determine which ones have it? And then for those that don't have it, are you looking to install it?

*Thomas Grant:* Yeah, also a really good question. So initially looking at restaurants that had higher energy use, higher energy costs, and then design. You know, I think for any multi-site building owner and operator, you know that you may have some standard designs, but you have these, you know, anomalies in your portfolio that aren't like all the others. So our initial installs were based on, you know, sites that were using more energy where that payback would be better and then the designs that would align better with that control strategy.

We've since expanded beyond that. I think along the sort of management concerns, especially when you have restaurant or store managers going from one site to the next, you know, you have to think of things in their perspective that if they have capabilities at one restaurant, they don't have the same ones or any at the next that makes their job harder. So trying to get some uniformity. And yes, we are looking at expanding where we have those systems installed and doing things like Nicky talked about

more of smart thermostats with some remote communication, you know, kind of this quest to always keep things simple and functional.

And I guess I would leave it at that.

*Nora Hart:* Yeah. Yeah, that makes sense. Thanks, Thomas. I'm going to shift to some questions about cost and these will go to both of you. I'll start with Nicky since Thomas was just in the hot seat, but I'm curious about two things, Nicky. For your install, did you take advantage of any incentives? And then I'm assuming there is an ongoing subscription cost. So how did you make the business case for that?

*Nicky Arthur:* Yeah, good, good questions. We did not use any incentive money when initially we did a big retrofit of like different batches of shops in sort of 50 at a time. I don't think there was anything available at the time. I don't remember there being anything. We might've looked briefly. Now it's done on a shop by shop basis. Again, there might be some new incentive opportunities with the IRA.

I think from the, I know we've looked at this with lighting incentives, just the size, you know, we've got small shops, we've got a very quick turnaround from, you know, lease sort of agreement and signing to shop opening. We're trying to install this equipment now during that, you know, a very tight window in the construction phase and the cost of it just hasn't warranted the time to really dig around and see what incentives are available. So I'm not saying that aren't, there may well be, but it hasn't been something that we've been able to take advantage of. Although we would love to, if there was anything.

And so I'm just trying to remember what was the second part of the question.

*Nora Hart:* Yes. Ongoing subscription costs.

*Nicky Arthur:* Yes. So there is an ongoing subscription cost, obviously. The bigger cost was the install and we pitched that just really with direct savings. So in the locations where we have an electricity meter, that's, you know, specifically billed to LUSH, it was once we had some information from the pilot, it was a pretty straightforward sell of, you know, this is going to pay back within two years. And then we're going to see these savings. The exhaust fan was key because we were under a lot of pressure to install

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these exhaust fans at all our locations. And we knew from the data we had that they were running like from the minute, the mall open to the closing and it was expensive.

So that was kind of the case. And the maintenance costs were high just in terms of sending techs out. So that was, we actually pitched more around maintenance savings than energy savings at the time.

And now the subscription cost is just built into the overall running cost of the shop. We've got good evidence that there was 20 percent savings. And I think everybody's really bought into that.

*Nora Hart:* That's great. Thanks. Twenty percent savings. That's a lot. And I guess –

*Nicky Arthur:* That was an average, you know, I would say, back to Thomas, I think he had a range from 5 to 15 and I would say, yeah, 20 is on the high or no 25, 30 was on the higher end. Twenty was the average.

*Nora Hart:* Yeah. And it makes sense with the exhaust fans. There was a higher savings, right? Those were running.

*Nicky Arthur:* Yeah. And it was everything. So that was exhaust fans, the smart thermostats. Lighting we had pretty much already done. There might be a few other smaller projects, but those are kind of the big things.

*Nora Hart:* Awesome. Yeah. That's great information, Nicky. And I will say, as far as incentives, there are utilities. They even provide some of these smart thermostats for free. But if you join the campaign, that's something we can help you look for. So if you want to know if your local utility provides incentives, we can look for that on your behalf. And I think you did make a good point, Nicky, though. The payback is so quick. Like you were just trying to get in the store and you knew these were worth it. So you just installed them.

And I'm curious, Thomas, from your end, how that process went as far as getting funding and buy-in for the ongoing costs.

*Thomas Grant:* Yeah, I think where we were able to get incentives, we certainly went after those. It is a little bit of a challenge around building controls. And it makes sense that our utility partners have to verify that the controls are actually being used and set points are maintained over time and things like that. So there is a temporal

component to doing incentives. I totally hear what Nicky's saying. And there have been times where we've had to go too fast to get the incentives.

I think a big benefit is putting that on the vendor partner's side. So pitching the project with the available incentives included or not, where they're not available, that's a very useful and helpful approach. I do think in general controls, it's a little bit of a struggle on the subscription fees and ongoing fees. And with the cost of some of these controls and what they are, I mean, really the hardware becomes a commodity. And I think the benefits really come out. And how is that vendor partner supporting you, supporting your facility's maintenance team? And that's how you justify those ongoing costs. I think Nicky was talking about that as well, that those probably aren't just about the energy savings. It's more about some of the other benefits that you get from having the remote information coming into a management team and support it can provide to your facility's maintenance team.

But I would say over my whole career, not just at Wendy's, there is that cycle. You get the initial project done and installed. You get some initial savings and it's great. Everyone's happy. And then slowly over time, people kind of forget that you're maintaining some of that savings from the equipment and services that you have. And then it's really on the team that's managing that to communicate to the company, like we're doing good things. There are these other benefits. Let's not forget why we did these projects in the first place.

*Nora Hart:*

Yeah, that's great. And I think that's part of what the Smarter Small Buildings Campaign is trying to do. So like I said, if you apply for recognition, we'll write a case study that helps you tell that story. Because to your point, Thomas, you have to remind people about the great things you're doing. And maybe it's business as usual, but it didn't used to be. And so really highlighting how those changes have led to those maintained savings.

But I think we'll stop there. We have just a couple of minutes left. And thank you, Thomas and Nicky, for answering all of those questions on the spot. And I'll pass it back to Sarah just to close us out.

*Sarah Stubbs:*

Yeah, thank you, Nora. And thank you so much to our panelists, Nicky and Thomas, for taking the time to be with us today. So you can see Nora's and my contact information up here. Feel free to contact our moderators directly with additional questions or if we

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couldn't get to your question during the Q&A.

I also encourage you to follow the Better Buildings Initiative on LinkedIn and X for all our latest news and updates. You can find our handles by their respective icons on the left half of the slide.

Finally, as Nora mentioned, the recording slides and transcript of this webinar will be available on the Better Building Solutions Center within the next week. Thank you so much, everyone, for joining and hope to see you next time.

*[End of Audio]*