

Bruce Lung:

So, why do we have these quarterly calls? These are something that we initiated to help us spotlight the leadership of our partners and talk about some great things doing and also the waste energy \_\_\_\_\_ share best practices. We learned that our partners like to learn from each other, so we wanted to foster that kind of dialog and make it possible for people to \_\_\_\_\_ they're doing and \_\_\_\_\_ learn from each other. That's why, although we have presenters today, it is intended to be kind of a forum so that people can share opportunities and share best practices, news and current events, and industry trends and that kinda thing.

Today's agenda, I'm gonna take a little front end to go over some program updates, and also \_\_\_\_\_. Then we've got two very good dynamic speakers today, Heidi Frasure from Steelcase and Brie Fulton from the Lawrence Berkeley National Lab. At the end, we should have a few minutes for Q&A from our speakers.

We wanted to thank all the \_\_\_\_\_ for joining the waste pilot. We have a good contingent from the Better Plants Program as well as the Better Buildings Challenge and Better Buildings Program. So we're really glad to be working with y'all. We did get a couple new \_\_\_\_\_ at the end of last year. KYB Product, which is an automotive parts manufacturer; and Estee Lauder, a maker \_\_\_\_\_ from the industrial side. Then from Better Buildings, \_\_\_\_\_ DWS. So welcome to all of you, and we hope that you'll get a lot out of the program.

Just to kinda go over \_\_\_\_\_ team. So \_\_\_\_\_ the guys \_\_\_\_\_ there. Also Eli Levine is our program lead for \_\_\_\_\_, and Ethan Rogers \_\_\_\_\_. And Hannah Debelius is \_\_\_\_\_ technologies program office. She \_\_\_\_\_ with the commercial partners. And then we have two \_\_\_\_\_ and program \_\_\_\_\_, \_\_\_\_\_ and Andrea Doukakis from \_\_\_\_\_.

Wanna go over a couple \_\_\_\_\_. The biggest thing going on right now *[break in audio]* that we are looking for data. The data is due around March 1st, and we're hoping that \_\_\_\_\_ send it in. If you can send in your corporate energy or water waste data, we ask you to do it around the same time. If you need a little more time, that's fine, but we are looking for corporate data reports this year again. The nice thing for Better Buildings partners, you use the portfolio manager worksheet \_\_\_\_\_ reporting form *[break in audio]* let us know and we'll make sure you all \_\_\_\_\_. It's pretty straightforward and easy to do. Put the information in. It won't take you any more time than the energy form.

Normally we would have a quarterly summit – quarterly call three months from today, but since that completes the summit, we're gonna do – it's folded \_\_\_\_\_. Registration, by the way, opened just yesterday, and we already had 500 registrants as of this morning. So feel free to register. It's free, and it's gonna be really well organized just like we had it last year in June.

Also, we do have some resources \_\_\_\_\_ visited it recently. There's new resources and fact sheets on there, so including the slides from this webinar presentation, so feel free to check it out in a couple days.

We wanted to give you all a quick update on what's going on with the working groups. As you know, we had two \_\_\_\_\_, one on plastics recycling and \_\_\_\_\_ and one on outreach and engagement. \_\_\_\_\_ the plastics we had a couple meetings. Most of our \_\_\_\_\_ were from the industrial sector, but we welcome commercial sector participants as well, and we already learned a lot about things like *[break in audio]* and different plastics for using technologies and \_\_\_\_\_. \_\_\_\_\_ call, which will be held next week, will focus on plastics reuse, particularly deconstruction of plastics and upcycling of new polymers that are made from those recycled plastics, so we will have some speakers from the American Chemistry Council and go from there. That'll probably be our last working group call for the plastics group.

Commercial building sector had \_\_\_\_\_ working group call on November 9th, and if you're interested in participating in the second one, please contact Andrea Doukakis, and she'll get you all set up.

We did wanna go and do some working group polls since we do wanna have new working groups to take over after the ones that we've already done, and so if you can please go to slido.com either on your computer or mobile device. Enter the code #waste, and then you'll be able to participate in the poll.

We'll \_\_\_\_\_ few \_\_\_\_\_ more seconds to participate. I think right now it's only up to two \_\_\_\_\_. There we go. Now we're getting some people. Leave that for a couple more seconds. Don't be shy. See if we can get up to 20. Circular economy is really the big – most coveted one there, so that looks good. And then sector and waste. Okay, well thank you very much. We'll go ahead and go to the next slide, please.

So \_\_\_\_\_ recycling. This is something that we've heard from

some folks within the pilot and also outside of it as to how do you make the business case to recycle waste. A lot of the time, it seems like it's just a cost that has to be borne, and there's not really a strong return. There can be some intangible returns in terms of your corporate sustainability report and your ability to say that you've diverted a certain amount to landfill. And if you do divert to landfill, then it's less tipping fees, but it's not always clear what is the return from recycling or reducing waste. In some cases, if you can recover some precious materials like electronics or chemicals, or even recover energy from it, then you can get a little bit of a revenue stream from it. But it's something that's not always very well defined, and so we want to take a little bit of time today and kinda go over that.

We're gonna do one more Slido poll for you. If you can go back into the Slido poll \_\_\_\_\_ good. This slide is what metrics do you use to track returns from a waste reduction or recycling project. We'll go ahead and leave it open for a few more seconds so everyone can jump in. Couple more seconds \_\_\_\_\_ to chime in. Okay, excellent. We'll go down to the next one, then.

How hard or easy is it to get approval internally for waste reduction projects and technologies? This could be everything from recycling bins to incinerator. Go ahead and let us know. Pretty hard for some folks. So still pretty challenging for some folks, even at 20. Okay, we'll go ahead and give it one more second. So our next slide, next poll, I should say. That was the last one, so thank you, everyone, for participating in our polls. I will now move on to the next slide.

Today we have two really great speakers, Heidi Frasure from Steelcase and Brie Fulton from the Lawrence Berkeley National Laboratory. We'll go ahead and start with Miss Heidi Frasure, and maybe \_\_\_\_\_ introduce her real quick. Heidi has worked in the environmental sector for over 14 years, and she has a strong background in environmental compliance. She spent most of her career working as a consultant on remediation and mitigation efforts for the Department of Energy \_\_\_\_\_ oil and gas. Heidi also has extensive experience as an environmental \_\_\_\_\_ and has been with Steelcase for over four years as a \_\_\_\_\_ leader.

Steelcase has set some aggressive science-based targets to become carbon negative by 2030, which would be decades ahead of the 2050 target in the Paris agreement. Heidi's current work focuses on environmental compliance and sustainability within operations with a broader focus on circular economy initiatives, including

material utilization and end of use. Her work aims to help achieve the aggressive emissions targets set by the company and to help continuously improve the manufacturing practices that achieve a triple bottom line for Steelcase. Heidi, take it away.

*Heidi Frasure:* Thanks \_\_\_\_\_. Appreciate it. As already stated, I work for Steelcase on the \_\_\_\_\_ team, and I was asked today to present the business case for reducing waste. Steelcase is a global office manufacturing company, and rather than me explaining the background, I thought it would be better to just share this video, so hopefully this video comes through. We sell office furniture, \_\_\_\_\_ solutions, we even dabble with some IT solutions. This video does a better job of depicting what we do and who we are, so hopefully that video will work for us. Are you able to get it to go, Kristin? I think you have to unmute.

*[Video playing from 0:12:44 to 0:14:42]*

*Heidi Frasure:* Really our purpose is to unlock human promise, and Steelcase was grounded in sustainability by our founding partners who were environmentalists. Everything we do kind of revolves around sustainability, and we're now taking a new approach and looking at – Kristin, I think you might need to mute. I'm getting a little bit of an echo. Hopefully that helps. We're now taking a look at ESG principles and how that relates, but really ESG is no different than sustainability. It's just environmental, social, and governance, which was all under the sustainability umbrella already to begin with.

Again, I was asked today to speak to you about the business case for reducing waste. It's been my experience that it's always best to build that business case before you ask for new waste bins or a new baler. It's best to get a return on investment, and we use simple return on investment to do that.

A little history. It used to be very easy for Steelcase to recycle, and it was actually economical. At some point, cardboard was actually all the way up to \$95 a ton in the market, so it actually made sense from not only an environmental perspective, but also an economic perspective. This is an old picture, a historic picture of a manufacturing plant and some of the bins that we had on the line that were allowing source separation on the line. That went directly to our recycler, and then we actually would get rebates for some of these materials.

That is until the National Sword, and I think a lot of you are

probably familiar with that, so I'm not gonna go into a ton of detail. We were obviously impacted by the National Sword, and it was the China National Sword that occurred that basically stopped the import of waste recycled materials into China that had the infrastructure to manage those materials, however, it wasn't sustainable practice. It was just a very common practice. As you can see, this picture, it really gives a good depiction of that happened with a lot of the plastic waste that was getting shipped to China and Hong Kong predominantly, and how that really shifted in a matter of twelve months. And a lot of those countries that those materials started going to didn't have the infrastructure set up to really manage them. It also impacted other commodities. It wasn't just plastic. We saw an immediate decrease in paper products, metals actually bottomed out as well, and so a lotta materials that we were getting a rebate for started becoming very costly to recycle.

So we had to really take a look at how we were doing things and what we were doing, and so we had to look at our commodities and what commodities still had a value in the market, which we ended up finding out were shrink wrap, cardboard, metals, and pallets. Then some opportunities to donate, because anytime you donate scrap or materials, it can be a cost savings as it's a diversion from landfill and disposal costs. And then we also looked at the partners that we were working with. We found that it was time to change some vendors. We needed to change who we were doing business with and cut out some of the middlemen and do some direct partnerships with some of the actual recyclers directly, like the paper mills, for example. Then we also kind of looked at not only our internal four walls, but also how are we impacting our customers? So we're continuously trying to improve our packaging so that we're not sending our customers waste that they are not able to recycle either.

This waste hierarchy is probably a common visual, although I've definitely taken it and made my own. I like this visual because I think what it does is it helps put the focus on where the money can actually be saved, and the bigger money savings really comes in that eliminate phase. For years, I think we were focused on waste to landfill goals and zero waste to landfill goals, and really I think what happened is we lost sight of the fact that we should have been more focused on better utilizing the materials that we were already sourcing. And really this isn't just an environmental impact; it's also a cost-savings opportunity. It goes beyond zero waste to landfill. It's really about survival as we prepare for the negative impacts of climate change and the ability for us to do business and

to source materials that we need to do business. For example, in one of our plants, there was over \$2 million in opportunity per year in scrap reduction savings that we're now starting to focus on. So again, as you go down that hierarchy, your cost savings opportunities really get less and less.

What we've done is focused on materials that still have value in the recycling market, regardless of the current state of the market, and we are using some of those values to offset other costs, so there's – I think always with recycling or waste, you look at it as some materials have value, some materials are net neutral where there's no value, and then other materials are gonna be a cost. So how can you look at the materials that have values differently? So what we did is we ended up developing a partnership with Trex Decking as one of the examples that I'm gonna share on the next slide. They take our waste shrink wrap and use that as \_\_\_\_\_ to create beautiful decking products as you see in this picture here. So not only is it a benefit for us because that material was otherwise going to landfill, we actually get a rebate for that material, and they haul for free, so we ended up making some money off of the deal as well.

These are just some quick examples of some commodities that we kind of focused on that we knew still had value. Again, the shrink wrap project, it took a lot of blood, sweat, and tears to get that material as a commodity baled because it wasn't something that we were currently baling. So for those of you in manufacturing, you probably can feel my pain. When we're trying to shift practices on the manufacturing floor, that can be a very challenging endeavor. Although it sounds simple, it was not. But what ended up happening is we ended up being able to do it and got everyone to buy in because we were able to provide the business case for that. We were able to run the numbers and say this is how much we're gonna divert from landfills, here's the cost of what those materials would cost to go to landfill, and then here's what the rebated cost would be. So it really kind of proved the one year or less ROI that we needed to kind of get the buy-in from leadership to do that.

Same with cardboard. We weren't currently baling cardboard when the National Sword impacted our cardboard recycling prices, and so we had to shift how we were doing things. We had to consolidate that material by bailing it and then cutting out the middleman, which was our recycler – our local recycler at the time and going direct to the paper mill, which was also local. We end up getting full market value for that material rather than having to pay for that material to get recycled.

Similarly, we looked at our donation networks and we expanded them. Not only do donations help with diverting your disposal costs; they also help your communities, and I can talk about a brief couple examples in a future slide on that. Then again, we were looking also not just within our four walls of waste, but also what waste are we sending to our customers and how do we potentially reduce that waste and how do we hack into the systems that we have established and start looking at those differently so that we can help reduce the waste that we're sending to our customers and make our packaging materials more recyclable.

So in total, we're really looking at around \$100,000 a year in savings for some of these projects, and really just again focusing on that simple business case, the simple ROI. We were able to get buy-in from leadership to make those decisions that impacted operations.

This is one of the hacks that we're really taking a big lead in right now. It's called Hack the Pack, and really it was a cross-functional group. We had members from quality teams, from sustainability, from packaging engineers to logistics all get together in a room where we all submitted a couple products where we actually ordered the products, put 'em on the floor, and decased 'em. And what that did is it allowed us to really dissect what we were doing wrong and how we could make improvements. So it was a really good project. It was one workshop, but several \_\_\_\_\_ came out of that workshop, and this is just one example where we, from a sustainability perspective, we were asking them to maybe relook at how they design the package and see if they could eliminate these large pieces of foam that we knew were not currently or readily accepted in recycling markets, so keeping in mind that our customers are not gonna be able to easily recycle these. What ended up happening is they redesigned the product packaging to be fully recyclable, so that's one win-win-win opportunity.

There was also a cost savings involved in some of these projects, and so far, I think they've found over \$1 million in cost savings just by switching how we were doing things. I think sometimes just asking simple questions can really lead to a lot of margin improvement opportunities. And we're always focused on those win-win-wins where we're not only helping from a sustainability perspective, but we're also keeping the integrity of the product from a quality perspective, and it's a potential cost savings.

Again, the donation and community partners, this is where that

ESG principle really plays a huge role. We're looking constantly at expanding donation networks globally. Here in Grand Rapids, that top picture of the bag is an actual example \_\_\_\_\_ from a company called Public Thread. We donate fabric to them regularly. She employees refugees and pays a living wage, and then we actually buy back some of those products and give them to customers as client gifts. We also donate to a lotta nonprofits. The picture on the right there with the fashion models, that's actually a nonprofit that we donate to. They help educate homeless youth and provide fashion design programs. We've also donated to art programs. One in particular is a large art project that goes on in Grand Rapids called Art Prize, and there was a large installation where they used a lot of donated fabrics from Steelcase. And then more recently, we just donated to an NGO called Carpet for Life, and they actually made carpet for one of our clients to actually put in their offices.

Don't forget the advocacy piece here. I think that we kind of get so busy wearing all of the multiple hats that we all wear. We forget that we do have a seat at the table in our local communities as an advocate for industry. For Steelcase in particular, we are definitely advocating for Kent County to establish what they're calling a sustainable business park, and this business park will open up an opportunity potentially divert materials from landfill because they were innovative and saw that there's value in the materials that we're throwing away. One of the things that we're advocating for is a composting facility. We want to compost. We used to compost, but our local composter shut down, and so now we have a really big gap in that area, and we know a lot of our waste is in the form of organics, and we would love to compost, but we just don't have a local facility to do so. So we're really playing a role as an advocate in that development of the sustainable business park and really proposing that they look hard at a composting solution.

I really like this quote because I think it resonates with probably a lot of us. I think we get a lot of no's, and that's why it's so important to build that business case, because when you can come into a leader and show them that it's not only an environmental positive, but it's also a cost savings, you're more likely to get a yes, and so I think that's kind of my overall message is always build that business case. Make sure your numbers are accurate, but also don't forget to crunch those numbers. Most of the time, you will find there is some return on investment, even if it is small. Thank you.

*Bruce Lung:* Thank you very much, Heidi. That was a really good presentation. Hopefully everyone was able to take something away from that. Our next speaker, I'll go right into it, is Brie Fulton. She's the Sustainability Program Manager for the Lawrence Berkeley National Lab, and Brie leads development and implementation of the lab's zero waste activities through engaging with staff to build partnerships. She also contributes toward achieving sustainability objectives such as climate and water conservation goals and increasing sustainable purchasing.

Brie has a background in helping organizations define and execute their sustainability strategies, fostering employee engagement, as well as measuring and communicating their environmental impacts. Brie has done this through roles including sustainability and communications manager at Strauss Family Creamery and as a sustainability consultant for Universal Laboratories Environment and a variety of nonprofit and government organizations. She earned a Bachelor's of Arts in environmental studies at the University of California-Santa Barbara, and an MBA in sustainable management at the Presidio Graduate School. Brie, take it away.

*Brie Fulton:* Great. Thank you. Can everybody hear me? Robert, can you hear me? Great. Kristin, can you grant control of this so I can move through the slides? Okay, thank you.

So thanks everybody for having me today. I'm excited to share with you what we're doing at the Berkeley Lab. Thank you for the nice introduction, Robert. Right here you see a picture of our site. We are located in the Berkeley and Oakland hills, right above the \_\_\_\_\_ campus.

*Bruce Lung:* Are you sharing your screen, 'cause I can't see anything?

*Brie Fulton:* Oh, I am. You can't see it? All right, let's go back. I need to start my video. Does that help? Can you see now? Robert, can you see it now? No? Well, maybe we should just move back to Kristin taking control of it and we can just move through it that way. Okay, great.

So I was saying we are located in the Berkeley Hills. We are a Department of Energy National Lab, which is run by the University of California, so we kinda wear two hats as both a DOE facility and a UC. We sit on land owned by the UC, about 202 acres of it. We have 106 buildings that compose 1.8 million square feet. On our site, we have a total of 270 dumpsters and waste bins. I'll tell you why that's important as we move on.

We had a waste diversion program in place since – it started in – I think about 20 years ago, and it's evolved over time. We have a lot of priorities that have evolved with it. One of our biggest priorities is to improve data, so we follow that whole adage of you can't manage what you can't measure. So I started about four years ago and realized I knew we had a lot of waste, but I didn't know what was in it. So one of the goals was to make sure we had accurate waste diversion by site and by building. Any of you trying to measure and report on your waste will know that this can be a challenge. Sometimes what you get from your waste hauler is not accurate, and even if you do have numbers from them, you don't know what's actually in that waste. So we really wanted to drill down and find out what those details were. What's in the bin? What's contaminating the bin? How are people sorting?

As a UC, we have some pretty ambitious goals. One is to divert 90 percent of our waste from the landfill, and that's what we call zero waste. Another one is to reduce the waste generation by 50 percent per capita from 2016-2017 levels by 2030. So not only are we trying to divert more, we're trying to reduce everything in all streams. Some very important program resources that help us do this are we have central four-bin waste sorting stations throughout the entire site. That's a bin for landfill, two for recycling – we separate our paper from our plastics and other containers – and we also have composting throughout the site. To let people know what to do and how to sort that, we have an online waste guide in addition to signage above the bins that shows people how to sort and explains what happens after you do put those things in the bin so they can have a little more connection with it.

Currently we are diverting about 74 percent of our waste from the landfill. We've got a gap to get to 90, so we're focusing on our biggest opportunities there, which is the waste from the building. Like I said earlier, what we get from our hauler in terms of what's in that waste leaves a lot to be desired, so we have created a really ambitious waste auditing program to help us close that gap and meet our goals.

One way we've done this is to build incentives into our waste hauling contract. Our existing recycling bins when we had this contract renegotiated in 2016 grandfathered in our existing recycling bins so we wouldn't be paying for them. We also made it so that composting costs less than landfill, and that was really helpful to have conversations with internal stakeholders. They get the question pretty frequently that, oh, our waste hauling contract costs us. Maybe we can reduce our costs by removing some of our

compost and recycling bins. There's a lack of understanding about the cost, and so having that built into the system is being able to say, actually no, we're saving money by recycling and composting is very helpful.

Here's a picture of our waste auditing system. We sort through our waste regularly. Since we started the program in 2017 conducting waste audits, we have conducted over 150 of them, giving us really great detail of what exactly is going into the bins. This is one of our interns and a team of students who are conducting one of the larger waste audits.

This just gives us a lot of great data. We know in detail what's in the bin. If you see on the left-hand side of this, we have about 30 percent recyclables, 31 percent compostables is the green slice. Purple slice is the most interesting. That's about 20 percent of our materials that are going into the landfill that really should have been composted or recycled, and greater detail lets us know that most of those things should have been composted. It's mostly food waste and soiled paper. Really only 15 percent of our waste should be going to the landfill, and so what we can do with our waste audit data is see on a building-by-building basis how people compare to the rest of the site, so that's really helpful.

Kristin, I'm just going to go through these next ones pretty quickly just to give people – this is our sitewide data. We can compare building-by-building what the waste diversion looks like. If you go to the next slide, this is a more in-depth view of what exactly is in all of our streams on a materials basis going by streams and substreams. So it's very interesting to know where our biggest opportunities lie, and this has really directed a lot of our efforts. We also know our biggest contaminants, our soiled paper in the landfill and food waste ending up in the landfill \_\_\_\_\_ these are what some of the other ones are. This is the online waste guide I talked about that tells people what bin to put things in.

Here is our site map. Once we have all this great information of what we need to do and how we need to do it, we start implementing these programs of doing it. Well, then what happens? Where do we actually reap the cost benefits of this? To do that, we have to know what is ending up in the dumpsters, because ideally we're getting less in the landfill dumpsters, we're getting more in the recycling and the compost dumpsters, but how do you know that when you have over 270 dumpsters? It's a big challenge, and so we set up a program where we go around on an e-bike around our large and hilly site. That's why it has to be an e-

bike because we have a lot of relief details. Here you can see in the upper left-hand corner, that's where you start, and the red line shows you how the audit is conducted by just going around the site, looking in the bins, and seeing how full they are. This needs to be done on the day before the waste is picked up ideally, and we have pickups four days a week, so it gets to be quite complicated. Different streams get picked up at different times, so we've created maps and a very regimented structure for it. I'm just gonna show you how we analyze the data that we \_\_\_\_\_ next couple of slides.

This is our fullness audit analysis. So people are going in and looking at the bins and noting how full they are. It's a lot of information. Like I said, there's four different days \_\_\_\_\_ gets picked up on, and there's 270 bins, so how do you analyze it all? We struggled for years with really complex spreadsheets and finally got a data guru on our team who was able to convert all of this using Google Data Studio. So now we can have snapshot view of how full the bins are. The writing is a little bit small here, and I was hoping to take you through online how this works, but I can give you the link afterwards.

We \_\_\_\_\_ by day of waste and also by date range of how full these bins are. It can show us that some of our bins have a lot of excess capacity, so the fullness ratio percentage you see over to the right shows how much excess capacity there is. This is a list of all of our different buildings, and this is condensing the numerous bins we have at each of these building sites. The green – the shade of green means it has a lot of excess capacity, and if you go to the next slide, you can see the red shows where we actually need more capacity in our bins. This helps us actually make the changes we need to reap cost savings from not putting as much in the landfill and diverting things successfully to the recycling and the compost.

If you go to the next slide, there are some details that make it – I guess some complexities to the process we've worked through when we've done this. So if any of you are involved in operations at your site, you'll know if you have events, you can have some huge anomalies that require needing excess space in your bins, and so you don't wanna just look at one day or have an average consider fluctuations, and so this is a view that shows us when there might be spikes and how to really account for that, so that's what this page is. If you go to the next slide, this is how we sort out any spikes in what might be normal using the mean and the standard deviation of the adjusted landfill space. And that's pretty much it in terms of our fullness audit analysis.

Once we get all that information, we have to be able to communicate that to our waste hauler, and so we have also made dumpster mapping which shows you in a more detailed view where all the bins are on our site and how full they are, basically. So we can give this information to our waste hauler and make it easy to implement the actions. On the right-hand side, there's a dropdown menu so you can see landfill, compost, and recycling bins. Because it is a large site, we have to give really in-depth instructions of what needs to be changed and where.

Some of our next steps in our whole program are to reconsider technology that remotely monitors the fullness. We've looked at things like Compology and sensors in the bin. It's been a couple years since we seriously considered them. The last time we did, we saw that they probably weren't the best fit for us, but given that this is a huge investment in labor to get this data, we are looking hopefully for the technology to evolve and maybe to get off the bike and looking in bins so much and have that information come to us in a better way.

Another opportunity to do that is to engage building \_\_\_\_\_ and create incentives for them to report on it. Internally, the waste hauling costs don't get borne out by the building management, and so no one really has the incentive on the site to control it. So we've done things where we've parsed out energy and water costs, but the same hasn't been done for waste yet. That's an area \_\_\_\_\_ is on the table for restructuring.

Another opportunity which is coming up soon is to structure our next waste hauling contract to have on-demand pickups and other incentives. When COVID hit, our waste decreased considerably, and we weren't able to get onsite to know exactly what was going on, and no one's on there, but all of our bins are still being emptied, and they're basically emptying air, but we're still paying for it. So we wanna have more automated systems that help answer those questions and make it so that we're not paying for weekly \_\_\_\_\_ of air and we're actually paying for emptying the waste that we are actually generating.

We're doing a lot of other stuff in other areas. Reduction is a huge opportunity, and we are looking to reduce unnecessary incoming materials. Heidi, I really appreciate your company looking to eliminate foam. That takes up a lotta space in our dumpsters, and we have a lot of it. So where we can find opportunities to tell our vendors not to give us – we actually – the UC has a ban against foam in packaging, but it's hard to actually implement it. But we

are acting on other ends throughout the supply chain to try to restrict unnecessary incoming materials and also just not to produce as many in the first place.

That's about all I have. My contact information is on the next slide if anybody has any questions and wants to contact me. Thank you very much for listening about our program.

*Bruce Lung:* Thank you very much, Brie. That was very insightful. These were really good, powerful presentations. We do have some time, about ten minutes, if anyone has any questions or comments, anything you saw that you might benefit from or things you're already doing, you can confirm if it's down the right path, that kind of thing. If you could, please use the chat box.

*Male 2:* Hi, Brie. This is \_\_\_\_\_ from Cummins. Really, really great presentation. Love seeing how you got a data guru to support you on the data aspect and those \_\_\_\_\_ very helpful. One \_\_\_\_\_ that I heard you mention about Compology in terms of monitoring the bins, what were some of the learnings from that process in terms of the cost benefit aspect? Do you find that really helpful for making improvements, identifying opportunities? I can see that you invested a lot of personal time, you and teams, to analyze the data and do the audit, but did that new technology really reduce that and what was that \_\_\_\_\_?

*Brie Fulton:* That's a good question. Thank you for asking it. At the time we looked at Compology, the cost of their monitors, it just didn't provide the return given what our waste hauling costs were and what we could do onsite on our own with more labor. We were looking to colleagues at UC-Santa Cruz who had checked it out and actually were able to create their own version of the fullness sensors that are used in the bins to monitor how full they are. After they had used it for a couple years, they had great data, but it didn't translate into the results that we had hoped in the actual practices at the end of the day. So it's been a couple years. I think it's always good to keep tabs on where technology is and to revisit the question, but at that time, the cost was just too great for the benefits it would have given us.

*Bruce Lung:* We did get a few questions in the chat box, and I'll go ahead and read 'em off and see whoever wants to take 'em. The first one came from Tim **Rinks** of Cooper Standard, and the question he asks is, "What support have your waste vendors provided in your efforts to repurpose \_\_\_\_\_ redirect certain waste streams?"

*Brie Fulton:* Honestly, I wish I could say more. They pick up the waste, and they do that reliably, but beyond that, there's not much. We know there are ways to structure contracts so that they can do more, and our next recompute when we go out to bid, we're looking for things like getting more regular waste. A lot of the haulers now have scales on their trucks, and they can give you the weights of each bin they pick up on a regular basis. As it stands now, we get weights once a quarter, and a lotta times, we even question if those are accurate 'cause a lot of times they don't seem like they are. So I think having engagement with your hauler on data is huge and can be a really big benefit 'cause like I described in the presentation, it takes a lot to figure it out on your own, but you get huge insights when you know it, so it's worth trying to figure it out.

*Bruce Lung:* I don't know, Heidi, if you wanted to chime in as well.

*Heidi Frasure:* Yeah, we have similar problems, I think, with our waste vendors, and that's why for us it became crucial to go out to bid and find new vendors that were willing to collaborate with us and have a seat at the table and be a partner rather than just a waste hauler. And we were lucky, and we were able to find some of those guys. What it ended up looking like was a lot more local mom and pop vendors and less of the national contracts.

*Bruce Lung:* Okay. Thank you. The next question came from Clara \_\_\_\_\_ of Bristol Myers Squibb, and she's asking, "How did you all implement the ban on foam through procurement and how do you enforce this ban?"

*Brie Fulton:* This actually came from the UC Sustainable Practices Policy. There are different groups within the UC sustainability committee, and the procurement group partnered with the waste group to identify the materials that were problematic, and foam came up as a big one. So this was done at the UC level, and that's why I was describing at the beginning our dual status of DOE and UC, so we have to follow both of those policies. Because they did it at UC and UC is a big enough entity to maybe have a little bit of pull with manufacturers instead of just one person coming and asking for a change, it's a great network to be part of for policy changes like that.

As far as the rollout, it is \_\_\_\_\_ plan and it has been going \_\_\_\_\_ slowly. I would say even with the size of the UC, it is still hard to get buy-in from manufacturers to change practices. It's been slow-going. A lot of people have been working really hard on it, and change is happening exponentially.

*Bruce Lung:* Thank you. Another question came in from Hannah \_\_\_\_\_. She says, "Brie, she's interested in how you utilize the hauler contracts to try incentivize waste diversion. Can you share more details about how that worked out?"

*Brie Fulton:* Thanks, Hannah. So basically when we were negotiating the process for how much each \_\_\_\_\_ price for each stream, we told them we wanted it to reflect – we wanted the diversion to be incentivized. So all the existing recycling dumpsters we had onsite were grandfathered in so that tipping those wouldn't – there wouldn't be a fee for that, and the compost was at a lower price than the landfill. Landfill was the most expensive thing to pick up, according to the tip fees for each of the bins.

*Bruce Lung:* I don't know if, Heidi, if you wanted to chime in on that one as well.

*Heidi Frasure:* No, just same thing I said before is after the National Sword kinda hit us hard late on a Friday, we immediately went out to bid and really started leveraging some of our needs and goals, sustainability goals, with these waste vendors. And a lot of them wanna do business with you and they're willing to work with you, but if that's not communicated up front in the bidding process, then they can't really help you.

*Bruce Lung:* A couple other questions I'll read out here. One came from Eric. Said, "Does anyone know if there's any type of place for dry composting facilities? Seem like more have closed than open, and wet food is fairly easy to find, but compostable products seems to be a struggle. That might be more of a general question, but I don't know, Brie or Heidi, if you all have any insights on that.

*Brie Fulton:* Yeah, I guess I am confused by the question. Our composting facilities will take both dry compostable goods and wet organic food goods as well, so I'm not sure if there's – maybe I'm missing something.

*Bruce Lung:* Okay, thank you.

*Heidi Frasure:* I can speak from the California perspective of having SB-1383 be a huge driver in – it is a short-lived climate pollutant policy which speaks to reduce the amount of methane. So one of the results is incentivizing opening up more compost facilities. So that's happening a lot around California right now, and I think it's giving more opportunities to areas where maybe they didn't have the

ability to send their dry goods to composting. It's helping to move those processes forward. We did have to change our internal operations to restrict compostable packaging from being used by our cafeteria vendor because it was the PLA plastic, and our composter told us they wouldn't take it, so we changed our practices so that we weren't using it and it still wouldn't end up in our compost stream.

*Bruce Lung:*

Okay. And then I have to end it there 'cause we're right at the 3:00 PM Eastern hour. I know \_\_\_\_\_ you have one last slide real quick. So basically this is how you can keep in touch with us. this is our contact information, and as I mentioned, these slides will be available and the recording will be available later on on the website on the waste pilot page, but we definitely welcome y'all forward any questions to us or to our presenters, and we look forward to seeing you virtually at the summit in May. We'll probably have at least one other call, most likely in August, and then one more before the end of the pilot, so if you have any ideas for presentations or topics or suggestions you'd like to see or hear more of, please let us know and we'll work on getting that done for you. Like to thank everyone for joining us today, and look forward to seeing you again.

*[End of Audio]*