Hannah Debelius: Excellent. Hello everybody. Welcome to the Better Buildings Webinar Series, which is a chance to explore the topics, technologies and trends that affect your organization, as well as efforts to accelerate decarbonization and energy efficiency adoption.

You are in the right place, next slide, if you are here to learn about tracking and tackling reducing commercial tenant and scope 3 emissions. I know this has been a really hot topic for a lot of our partners. So, I'm pleased to be bringing this webinar for you all today.

As usual, I want to start with just a couple of housekeeping items about this webinar. The first is that it is recorded and archived on our Better Buildings Solution Center. Which means you're also going to be able to share it with a colleague or go back and revisit this if you'd like to.

Additionally, you all are on listen only mode so you are not able to unmute your microphone. However we will have a tool, I'll announce in a little bit, that you all can utilize for Q&A. And if you're having any AV issues or issues with Zoom like that, that we can help you with, you can go down to the Q&A box at the bottom of your Zoom panel and reach out to our tech support there, and they'll be able to assist you. Next.

With that, official welcome again. My name is Hanna Debelius, and I'll be your moderator today. I'm with the Building Technologies Office at the U.S. Department of Energy and I have the wonderful pleasure of working with all of our commercial partners in the Better Buildings Initiative and the Better Buildings Challenge. Next.

Today we're going to be talking about scope 3 emissions. And Sara, one of our first panelists, is actually going to tell you a little more about scope 3 emissions. But just to get us on the same page, scope 3 emissions are the result of activities that an organization indirectly affects on its value chain.

So for today's webinar, we're going to do some welcome and introductions. I've got a couple of polls where I want to learn more about who you are and what you're interested in on this topic. Then we have three phenomenal speaker presentations that are each going to be able to speak to a different subsect of those scope 3 emissions. And we will follow it up with a Q&A and conclusion. Next.

Because we're talking all about scope 3 today, I do just want to remind you all of a couple of different opportunities within Better Buildings to interact on different parts of scope 3. The first is our waste reduction network, which is a cross-sector group of organizations that are dedicated to waste reduction. In addition to the opportunity to either set a waste goal or to publish a solution with us for the Better Buildings Solution Center, this group also engages in peer exchanges and working groups.

They participate in webinars. They usually have a session at Summit. And this is just a really robust, wonderful network. If this is something that's piquing your interest, you can reach out to my colleague Marta Dryzmala, her e-mail's at the bottom of the screen there. And again, this is recorded so you'll be able to access that e-mail later. Next.

If you are maybe not joining the network, you also still have the opportunity to explore all the waste resources we have on the waste network resource page. There are tons of case studies from peer organizations, resources from our national laboratories, and other efforts that you can utilize wherever your organization is right now on their waste journey.

This is also, next, a very exciting week for our Green Lease Leaders program. Green Lease Leaders, which is a partnership between Department of Energy and the Institute for Market Transformation, addresses the split incentive and supports organizations whether you're a tenant or a landlord across sectors to pursue those joint sustainability goals.

And it just so happens that the deadline for applications for this year's recognition is February 16. So, hope that you all go ahead and check that out at GreenLeaseLeaders.com, which is also where you can fill out that application. And recognition this year will be at the Better Buildings Summit.

With that, I'm going to introduce our tool we'll be using today, which is Slido. Next. This interactive poll, if you joined us for other webinars, it should be familiar to you. But what I'd like you to do is open up either your mobile device or another browser on your computer and go to slido.com. And I'm going to say this slide really slowly, because I want you to do it in real time. Open up slido.com on another browser or in your mobile device. And you're going to enter the event code DOE.

We're going to kick things off with some polls, but we'll also use Slido to collect all the questions from you all. So any time during today's event you can submit questions, and we'll be able to get to those at the end. You also can upvote some of those questions by hitting a thumbs up on the corner of a question. It will actually move that question up the queue. And so we'll be more likely to be able to get to it in the time that we have. So go to slido.com and enter that event code DOE. They also, our AV team has provided the link in the chat as well if that's easier for you.

All right, so with that we're going to launch some polls. Again you can use slido.com to participate here. The first thing we want to know is just what sector best describes your organization. All right, not surprisingly we're coming up strong with commercial real estate. I know some of our panelists are representing that sector. Contractors and consultants. A strong showing from government which is wonderful. Some in higher ed, nonprofit and nongovernment organizations, industrial.

What I love about the cross sector between industrial and commercial real estate is also when we're talking about scope 3 emissions, those things are really interrelated of course, because sometimes our commercial scope 3 emissions are scope 1 and 2 for industrial.

All right. Excellent. Well, it's not too late to get into slido.com with event code DOE and start voting. But we're going to move to the next topic, which is a word cloud. So I want to hear anything you've got to say about this. But, what topics within scope 3 emissions are you most interested in?

Just going to throw some ideas out there. We already talked about waste. And we talked about tenant emissions with green leasing. You know, there's embodied carbon. You know, for some people it might be transportation or you know, lights for your staff and that sort of thing.

Okay, data collection, yeah. Absolutely. The tracking and tackling part of this webinar I know is really big, so I'm glad to see data collection and tracking. And measuring and calculations all show up here. Supply chain. Kind of getting those low hanging fruit. Software for tracking purchasing. The boundary of scope 3. I know that's something that our first speaker has been diving and digging into a lot. Tenant engagement. All right. A lot to unpack here. This is super helpful.

All right, we will go ahead and move on to our next poll, which is that, I'm curious. Have you set a scope 3 reduction target? And there is a bit of a scale here, because I know that scope 3 can be so tough and so big that it's not always totally clear.

So a lot of people have not set a scope 3 reduction target. Which is great, we're glad to have you here and have you learn. And I'm hoping that our panelists will be able to provide some insight about some steps that you can take there.

All right, a lot of people considering setting a target, so a great time to be diving in and learning from our panelists. Or setting a partial target. All right, people internally. But we do have 6% of people with a public target for scope 3 emissions, which is really great. All right, excellent.

And then for our last poll today, are you tracking scope 3 emissions? So regardless of whether you've set a target internally or externally, are you tracking them? All right, coming out strong with the no. And I think that can speak back to our word cloud where this is proving to be a really big challenge. But also a solid third of people are tracking some of them.

Hopefully you all have a lot of questions for our panelists today, then. Which of course you can also submit on Slido. Excellent. Thank you all so much. For our participants, I hope you keep Slido open because again that's where you can submit questions throughout the entire time today. But without further ado, I want to jump into today's presenters.

We are really glad to have on board with us today Sara Neff from Lendlease Americas. Lauren Moss from Vornado Realty Trust. And Heather Goetsch from the National Renewable Energy Laboratory. We're going to be kicking things off with Sara Neff, next.

Sara is the Head of Sustainability for Lendlease Americas, where she is helping the company meet its ambitious goal of achieving absolute zero carbon across every scope by 2040. So Sara, go ahead and kick us off.

Sara Neff: Thank you much, Hannah. I'm so happy to be here, and I'm setting my timer so I don't take any time from my fabulous other panelists. Next slide. So yes. I am so excited to talk to you today about scope 3 inventories. We talked about measuring data collection. Oh my goodness, what are we going to be doing about

scope 3?

I'm so excited to be here. Sara Neff, head of sustainability for Lendlease Americas. Very quickly, next slide, Lendlease is a global real estate organization with Australian heritage. In the Americas we do pure construction, we do invested management development, and are the largest providers of military housing and all their hotels.

So scope 3 emissions. You heard Hannah say it earlier. We have set an absolute zero scope three target. That means no carbon offsets, by 2040. Which is a lot. But we do that because it really gives us the mandate to really tackle and get into our scope 3 emissions.

So briefly, what are scope 3 emissions? Scope 3 emissions are the emissions related to your business that are separate from the energy that you control. As we know, scope 1, the fuels we control and refrigerants. Scope 2, the electricity we control. And scope 3, everything else related to the business.

So what I'm going to do with my ten minutes is talk to you about how Lendlease sort of has figured out how to decide what's in our scope 3. It's not an easy process, but it's a process that anybody can do. We've tried to make it really easy. It's not proprietary to us. We're sharing it. And we hope to help you on your scope 3 journey. Next slide.

So why do we care about scope 3? Well, it's where most of the emissions are. So this is Lendlease's current understanding of our scope 3 emissions. You will see that scope 3 emissions, which are split into downstream scope 3, this is code for tenant emissions; and upstream scope three, which is code for everything else but mostly construction materials, make up 92% of all of our emissions.

So if you have a sustainability program only focused on scope 1 and scope 2, you're missing the larger part of your missions. That's why we want to tackle scope 3. So that's why it's really important. Next slide.

And so what Lendlease did is we set our crazy target, our wonderful ambitious target. And then we're like ooh, we need to figure out what's in scope 3. So I encourage everybody to just Google Lendlease scope 3 protocol. And it is, I swear it is not intimidating. It's a document to try to help you inventory your

scope 3.

So what we did is we went through a series of tests with anything that could possibly be in our scope 3. These had to do with things like direct control over it, impact on the business, spend, what our competitors were doing. There was a number of tests that we did. And within each category, we were able to say okay, this is in our scope 3. We do have to get this to absolute zero by 2040, or this, you know what, not. But here, next slide.

One thing I want to point out is we actually have a middle category. And this is I think where scope 3 gets so hard. I heard the pain in that word cloud with the data measurement and tracking, because we actually really believe that scope 3 has a middle category. So measuring, yes, things definitely in our scope 3 emissions. We've got to get those to zero by 2040.

Excluded, things, you know what, what I had for breakfast this morning? Not in the scope 3. But we recognize that there are emissions that we do have control over. For example, employee air travel. Okay? This is something we have control over as a business. During COVID nobody was travelling. We would tell our employees, you're not going to be here.

I work for an Australian company. I get told when I have to go to Australia and when I don't go to Australia. Definitely direct control. And we really, we can tell you what airline to fly. These are definitely part of our scope 3 emissions, must be measured or get to zero by 2040.

Employee automobile travel, well, now we can influence that, right? Like, I can't tell you where to live and I can't tell you what kind of car to drive. But I can make it easier to not take a car by having my office on transit, or electric charging or commuter benefits. So we recognize that there are emissions that we have influence over, but we don't think they're in our scope 3 yet. But we're watching this space, and we're going to keep redoing this inventory to try to figure that out. Next slide.

So here it is. So for those of you familiar with the GHG Protocol, this is the protocol that tells us how to calculate GHG. This is what you're given, in terms of scope 3 categories. This is it. This is sort of as clear as it gets. Here is where we, after doing our inventory, the sort of large categories. What we think of as in our scope 3. So this is how Lendlease did its inventory, applying those tests that you can see if you download the protocol. Next slide.

And this is the subcategories. So the reason I'm encouraging you to look at Lendlease's protocol is like, downstream leased assets is not the clearest thing in the universe. Purchased goods, not the clearest thing in the universe. What we did is a lot of research and decided what those subcategories were.

So within purchased goods and services, we decided the subcategories are directly purchase building materials for the A1 through A3 stage, for those of you who speak lifecycle analysis. And then for directly purchased building materials for refurbishment, and so on and so forth.

So we have done this work for you. You're welcome to do it again if you'd like. But we really encourage you to leverage the work we've done and figure out, and use these subcategories to figure out what is in, what is out of your scope 3. Make your life easier. Next.

And so now I'm just going to talk a little bit in my last few minutes, because I don't want to go over my time, into how we're tackling our scope 3 emissions. So before I go forward, I heard a lot of pain about data collection. You are not alone. We are all in this place.

So what we've decided to do at Lendlease is in our first sort of year doing this, so that's this fiscal year, we are going to be measuring throughout the business, the following things only of the many things that are in our scope 3. Concrete, steel, glass, aluminum, tenant emissions, employee travel. That's what we think we can handle for the short term.

So we're working hard this year to gather all of that data globally. And then we'll be adding more and more as things go, this is a journey. So I don't want you to think you can't start on scope 3 emissions, because you can't measure absolutely everything. It's important to get started.

Because scope 3 work, as you'll hear from my other panelists, it's a lot of supply chain. It's a different way of thinking about our emissions. And it's good to get that muscle working. So it's okay to start, you know, you don't have to, it's a big elephant we've got to eat, right? So it's okay to start with a few categories. We've chosen the most impactful categories, we think. And then we'll be moving on from there.

So that's how we recommend getting started. So we're going to be collecting that data this year. I heard pain about software. We have it too. Nobody has it figured out. There are some products on the market we're looking at. I don't think there's a winner yet. And then data accuracy is obviously going to be a challenge.

We're going to be focused on getting those EPDs, and we're asking all of our suppliers globally to provide EPDs for literally every piece of concrete, steel, glass and aluminum. Not easy for an entire portfolio of military housing, but we are getting that done.

So, in my last few minutes I want to go through a couple of case studies on how we're tackling scope 3 for those categories that I talked about. Concrete, steel, glass, aluminum, tenant emissions, business travel.

Okay, so optimized steel. So this is our project in New York. It's so pretty. 100 Claremont. And what we did here was, the thing I want to talk to you about scope 3, I heard low hanging fruit was on that word cloud. You're in luck. There is so much low hanging fruit in scope 3 emissions. So the first lesson is, just being more proactive in procurement is all you need to lop off many double digit percentages of your scope 3 emissions.

So this was a project where before we awarded the steel contract, we asked for the EPDs from all of the steel suppliers. And for no, I'm actually looking at my clock. For no additional cost we were able to get things like 25% reduced carbon steel. 25% for one of the highest emitting things, for no cost, just by being proactive about it. So being proactive on procurement before you bid the job. Ask everybody who's bidding for the EPD. And then you can make choices from there. Next slide.

So, but sometimes you have to go above and beyond. So this is another project in New York. This is One Java. It is in Brooklyn. It's an 800 unit residential tower. It's very pretty. Another fun fact is it has geothermal, but that's a different webinar. Anyway. So we talked about innovative procurement, more of traditional materials.

Now, I want to talk about using new materials. So what One Java was able to do was replace 40% of the Portland Cement, which is for those of you who don't speak cement, concrete. Portland Cement is the highest emitting ingredient within concrete. It's not the biggest by weight, but it's the highest by emissions. We were able to replace 40% of the foundation concrete with a product called ground glass pozzolan. It is ground up recycled glass. And

you're like wait, I bet that was really much more expensive. Ah ha. No. It was not.

So this is what I'm talking about with scope 3. It's important to think outside the box. So what we did here was, this project is right on the Hudson and it was, so you need extra permeability in the concrete, in the foundation. So normally you have to do this yucky admixture called silica fume. But the ground glass pozzolan gives the concrete the same benefit. So without adding the silica fume, we were able to use the ground glass pozzolan. Same overall cost. You have to look at the overall product.

And my final slide, next slide, is tackling tenant emissions. So we're really excited. We're doing a pilot. These are two beautiful buildings in Chicago at the Reed where there are condos. We are taking unsold units and rolling them in 100% renewable power with the utility. And then when the tenants move in, or the residents move in, we are then transferring those contracts to the tenants so they start out on 100% renewable power at no cost premium.

So we're saving them money, getting them on renewable power, and doing that proactively before they move in. Because we've found that once you move in, trying to get somebody to call up their utility and make the switch is hard. So this is a pilot we're rolling out. We're really excited about it. And we see this where possible with utilities as an important tool to tackle tenant emissions.

And with that, next slide, I will say thank you and turn it back over to Hannah.

Hannah Debelius: Excellent. Thank you so much, Sara. I really appreciate you laying out all of scope 3 for us in this presentation, and beyond. And also highlighting some case studies. Next slide.

I am pleased that next up we have Lauren Moss who's the Senior Vice President, Chief Sustainability Officer, at Vornado Realty Trust where she oversees the company's industry leading sustainability programs, including initiatives on energy efficiency, green cleaning, waste diversion, technology infrastructure, and healthy environments. So, lots of scope 3 things in that portfolio. So with that, Lauren, take it away.

Lauren Moss: Thanks, Hannah. And Sarah did an amazing job setting this up. So I'm really going to walk through what Vornado has done around

scope 3 emissions and what we're working on. Clearly Lendlease is doing a tremendous amount. That's going to help all of us. Go to the next slide.

Just to give you an overview, Vornado is a public rate. We are mostly based in New York City. I don't know if we can go to the next slide. Yeah. Thanks. You can see we are mostly commercial office, which is fitting for the audience it seems. And we focus our work on large commercial, commercial office buildings. Large, tall commercial office buildings. Which as Sara alluded to, you can have lots of different webinars based on what we're looking at. Go to the next slide.

Our sustainability program is public. We have a goal around our scope 1 and scope 2 emissions. For us, our scope 2 emissions are inclusive of our tenant load. So what we call Vision 2030 is our target of carbon neutrality for scope 1 and scope 2 emissions. That's broken down into as you can see, a goal of 50% energy reduction below a 2009 base share.

We also have a science based target, a line that, alignment we did a few years ago, about reducing our energy intensity. We have a goal of 100% LEED certification this year. And actually some of our biggest scope 3 goals are around our waste management, which we'll get into, which is to divert 75% of the waste in our office buildings from landfill by 2026. In 2022 we were at 64%. We'll talk a little bit about how we do that, and why we do that. So if you go to the next slide.

These are really our scope 3 goals. Purchased good and services. Really our scope 3 focus has been waste procurement for the cleaning products and the materials used in our operating buildings for the cleaning products. We last year actually exceeded the goal of getting cleaning supplies to meet our sustainability criteria.

When it comes to development, we have for each of our development projects, been meeting all LEED credits regarding embodied carbon. And then as I said before our biggest undertaking, because we have about 32 to 34 million square feet of space depending on how you measure it, is around waste. And really focusing on diverting waste from our office buildings. Diverting them from landfill. So if we go to the next slide.

The biggest piece for us when it comes to waste is, and which leads into our scope 1 and scope 2, I would say waste is sort of the entryway to sustainability for our tenants because it's the piece of

work where you, where it's visible. Sustainability isn't always visible, and the work we do isn't always visible in everyday buildings. Waste is a very visible piece of the work and of what's happening in our buildings.

So for us, when we think through how we achieve our scope 3 goal, which actually has a lot to do with data management assurance, tracking and engagement, we look at our tenants across our portfolio. We work with wonderful waste consultants to help us. But we have ruled out organics across 100% of our office buildings.

And in order to then get buy in to this, because waste diversion in in-service office buildings is not really me or the Vornado staff controlling it, it's really dependent on the tenants. So we do huge amounts of tenant engagement across our portfolio. Every year we do tenant roundtables which during the time of COVID were virtual, but now are in-person in all of our markets.

We track carbon emissions for tenants so that we can help them report on that. We do a waste town hall every single year for every single tenant, talking to them about best practices, reporting for them on their buildings. Waste performance. We also do a waste audit in every one of our buildings every year. And we really actually try and focus in on the tenants that have either ruled out organics and/or our very large tenants that have had a large return to office recently, so we can start to understand how well the waste programming in their spaces are doing.

We use waste as a way in to then talk to tenants about the energy management in their spaces. We also use Climate Week, Earth Day, as ways to engage with tenants. We look at our, Vornado has an app for all of our tenants that they use to get in and out of the buildings. But also has information on buildings, building services, sustainability. And we promote all the activities either in, captivate the elevators or in the app. And there's a tenant portal for information about that.

We also, lastly, do what we call sort-a-thons, which are sort of onsite in tenant offices. During lunchtime, in their pantry areas, sort of mini-education sessions for anybody who walks in the space so that they can then be taught or supported in best waste practices. We also have developed new signage around waste that we give out to all of our tenants, so that they can use it in their offices if they so choose.

So we do a huge amount of tenant engagement. We'll go through, go to the next slide. And then we've created for every, as a public reporting tool almost, every tenant's website as well as on the app and the building site, a sustainability fact sheet. And that fact sheet shows the tenants how the building is performing annually. It's the whole building, so then when tenants want information on their data they contact sustainability and we give that to them.

But it sort of is an annual update of the building's performance against metrics we feel are important. Renewable energy, Energy Star, but also waste diversion and whether or not they have organics. And now at this point, everybody has organics. And you can find these on our website for every one of our buildings. And it's unique to every single building. Next slide.

So this is sort of the last slide we always give to our tenants, right? All of the tools that we have for them. We have a sustainability section of our website that has lots of policies and procedures. We have information about the work life programs. We have videos on how to properly recycle. And then we give them resources on how to handle their trash and why you do it, right? What's the point of that.

So the one, we're going to stay on this slide, even though now I'm going to actually transition to embodied carbon which I touched on earlier. But we have undertaken over the last year of study on how to create an embodied carbon framework similar to what LendLease did but on a much smaller focus, really looking at embodied carbon.

We do have new, we haven't done new construction development. Although we have one in the pipeline. We do a lot of building reuse and repositioning. And then we do things like refreshing buildings to be able to offer the work life programming and social spaces that we've now become known for in the Penn District, the MART, and in our San Francisco properties.

So we did this sort of very broad study of embodied carbon. We looked the LCA's that had been done for our buildings previously to understand how well we could perform. We sort of researched a lot about what was in the industry, what had been talked about, what were the challenges. We educated ourselves. And we identified opportunities to improve and better understand impact.

And I think there are certain things that we really learned coming out of this. The framework that we developed actually will be

public soon. We're just in the final stages of making it useful to the public, because we really felt like what we were coming up with was going to be helpful moving forward for others.

One is that idea of roles and responsibilities. So in any development project, whether it's repositioning, new construction, or just an amenity package, it's about identifying the roles and responsibilities for each of the people starting from the beginning all the way through the end of the project of where they have impact on embodied carbon, right?

We looked at specification language. We looked at the RFPs that we've been sending out. We looked at really understanding that at this point in time, because embodied carbon has picked up so much. The snowball effect is really happening. But there's still a limited amount of knowledge in the industry. It's like when you think about LEED from 15 or 20 years ago, it's a really specialized skill set.

So how do we bring that specialized skill set on board, and how do we get it on early enough? So when we're developing goals for the projects, like you would develop a certification goal or an energy efficiency goal, that you develop that embodied carbon goal from the start, before anything's been out.

And then we looked at how this framework and this tool could create, it could educate our own, every single department along the way. Sustainability is inherent to Vornado for 15 years. Embodied carbon hasn't been around for that long. So it is this sort of continued introduction of a broader base of skill sets and a broader base of goals.

And then it's, the last and final piece is to develop an understanding that not every product can be the same, right? Sara went through some incredible case studies, and every one of those projects is hitting incredible, is being very successful in specific instances. And I'm sure in more than those what she spoke about also.

But the idea is, what's the availability of materials? What's the cost impact? What's the scheduling impact? And how do we, how can we make sure we can absolutely track the work that we're doing. So that framework is in the final stages. But we feel like then we can use that moving forward with all the rest of our projects and all upcoming work.

And that's my bit for today. So thank you all.

Hannah Debelius: Great. Thank you so much, Lauren. I really appreciate your detail in there on embodied carbon and waste, and covering so many of those topics. As a reminder, I am seeing a lot of questions come in through Slido, which is great. Slido.com with the event code DOE. But you can continue to add those in through our last panelist, and we'll be getting to Q&A right after that. You also have the opportunity to give a thumbs up to questions you like, and they'll move up to the top of the list.

So with that, I will move to our next panelist. Heather Goetsch is a research engineer at the National Renewable Energy Laboratory. As a member of the Building Energy Science Group, her research focuses on decarbonization and applying circular economy principles to the building sector. Heather, take it away.

Heather Goetsch: Thank you so much, Hannah. So we'll go to the next slide. I'll be talking through a resource that we've actually created in conjunction with the Better Buildings design and construction allies. And we're calling it the Embodied Carbon Resource Navigator. This navigator organizes a lot of the various information and resources that is out there regarding embodied carbon. Just to note, you'll have access to this resource at the end of the webinar. And hope that it can also support you in your efforts to reducing embodied carbon.

So also just wanted to shout out to Sara and Lauren. They've done an awesome job of talking about their perspectives in tackling scope 3 and also embodied carbon. And so just wanted to you know, as we've heard from them also, embodied carbon is one part of scope 3 emissions that building owners are concerned about and are addressing.

And just to review, embodied carbon in the building sector, we're talking about the carbon that's emitted in producing building materials, transporting those materials to a building site, and constructing and also maintaining buildings. For the most part the embodied carbon is really front loaded at the beginning of a building's life cycle, as you can see here in this figure.

This demonstrates the annual emissions in each year of a building's life. And you can see this giant spike in embodied emissions at the beginning from material production and construction. Go to the next slide.

So given that the majority of embodied emissions is released at the beginning of a building's life cycle, you know, building owners along with the support of architecture, engineering and construction communities have a really important role in reducing embodied carbon. So these design decisions made early on will impact a building's energy use, their carbon emissions, operating costs, and comfort. And, these decisions are really important to achieve energy and climate goals. So, go to the next slide please.

So to help the design and construction community better support building owners to reach climate goals the Better Buildings Design and Construction Allies program was then launched in 2020. So this group, the allies are really comprised of design and construction practitioners. They include architects, engineers, contractors, construction managers.

And the goal of this program was really to enable design and delivery of zero energy or zero carbon buildings, in order to be more routine. And also to help identify and address the barriers to deliver more zero energy or zero carbon buildings. Really addressing why aren't they being built more now. So go to the next slide.

So one of the major barriers that was identified by this group is understanding this complex relationship of carbon in the lifecycle of buildings and particularly in building construction. And so we've heard a lot already about some of those barriers. You know, the challenges to addressing embodied carbon as a barrier. There is a lot of information out there.

But it can be really overwhelming, and the terminology can be confusing. There's a lot of jargon. There are different analytical approaches or tools that are available. Data can be inconsistent or hard to manage and collect, as we've heard already. And often firms may not have enough resources or staff to really sort through the existing embodied carbon information that's out there.

So our mission was really to help address this barrier. And so the Design and Construction Allies decided to evaluate what information's out there, and then package that information in what we're calling a more deployable or useful literature review. So go to the next slide.

Okay, so in order to do this we did a lot of surveying of the existing educational resources that are out there. We classified

them in terms of what the form of the resource was. Was it a 120 page report or was it a video? Or anywhere in between. Did you have to pay to use the information or the resource or the tool? How much time might it take to get that information? Who is it meant for? And how useful might that resource be, depending on the complexity that you need that information for.

And so we scored that information, and then organized it. So if you go to the next slide. So to organize the resources and then really navigate to the right level of complexity needed for a particular use case, we used a decision tree approach. And so this approach relied on four different guiding questions that we arrived to through several iterations. But they are generally categorized into different levels of complexity.

So the first one, is my client interested in reducing their carbon footprint. And again, this is through the audience really for design and construction practitioners. But still is useful for a wider audience as well. But that's why we use the client information. And then it moves on to is my client interested in low-embodied carbon options.

Then am I capable of specifying low-embodied carbon options? Do I know enough about low-embodied carbon options to specify them? And then finally, am I satisfied with my interactions with the client regarding low-embodied carbon? So the answers to these different questions really guide the user to a set of different resource groupings. So if we go to the next slide.

All right. So this is the resulting embodied carbon resource navigator. Here is shown the title page of the PDF that is actually clickable. So when you click on the get started link that's there, it will actually take you to the, next slide. So yeah. This page shows the decision tree that I was talking about on the left hand side. And that's actually present throughout the whole document, the whole PDF. It's like a table of contents that you can navigate to different resource landing pages with those different guiding questions and answers that you can click on.

So if you go to the next slide. At the beginning again, you start with this question, is my client even interested in reducing their carbon footprint. And then based on your answer, each link would take you to a different landing page.

So if you go to the next slide. So for instance, if you clicked on yes, my client is interested in lowering, reducing their carbon

footprint. And then yes, they are interested in low-embodied carbon options. But, I actually need some guidance on how to specify low-embodied carbon options. This is the landing page that you would see.

And so it's from lots of different resources, we've collected the strategies that would be helpful for reducing embodied carbon. Example materials that could be replacements for high-embodied carbon materials as they are now. There are case studies as well that you can click on. Then in each of these landing pages, we've also listed each resource that, on the right hand side you see that panel. Where those resources are referenced in that landing page, and with a short synopsis and a link to the resource and a general idea of what to expect, how long it takes to read or view.

So, actually go to the next slide. So in conclusion, we've really used a unique organizational structure to help make sense of all of the different resources that are out there. Really to help the design and construction community, but really the wider building sector, make more informed decisions on lowering embodied carbon.

And then finally, the urgency of making lower embodied carbon decisions really makes it important to streamline this path between identifying problems or barriers to solutions. And just want to highlight that this approach that we took with the design and construction allies was an example of attempting that.

So that is the end of my content. And looks like we have a lot of great time for answering some questions. So Hannah, I'll turn it back to you.

Hannah Debelius: Excellent. Thank you so much Heather, and also to all of our panelists. We've covered a lot of territory, as there is to cover in scope 3 emissions. So, I really appreciate that. With that, we, ah yes. So many of our panelists shared wonderful resources with links. When this is posted to the Solution Center, we actually now have additional resource PDF pages that you'll be able to download and access all of that for our panelists.

And actually, I see that our tech support team has already dropped that link into the chat, so you don't have to wait to access all of these wonderful resources. You can go ahead and download that now.

And with that, we are going to move over to our Q&A session. It's not too late to submit questions, and it's definitely not too late to

vote for your favorite questions, because you know, we'll show it in real time of what we can do here. So it looks like our panelists are all back on video, which is great. And I'm going to go ahead and jump into this.

So the first question is are there categories within scope 3 that you don't include in your calculations, and why? And maybe I'll ask Sara if you're able to, to kick off on that question, since you all did such a robust deep dive into that.

Sara Neff: Yeah, absolutely. There's many things within scope 3 that are not part of our calculations. And that is because we didn't, we don't think of those emissions as directly related to our business. So if you go through the LendLease scope 3 protocol, you'll see the tests we did for each of those subcategories to decide what it is, you know, what got excluded.

But it had to be, emissions had to be directly related to our business. So, for example, and it had to have some meaningful amount of emissions. So, I think we decided that office supplies, you know what? We're just not going to, it's so minimal that it's not worth getting the office supplies to zero. What people are eating, food can be in there. We decided you know what, that's not directly related to our business. We're not telling people what to eat and not to eat.

So, if it failed a certain percentage of the tests, then it was excluded. And there's a lot of things that are excluded. And it also depends on your business. Like, we don't franchise. Franchises are a part of scope 3 emissions. So, there are some things that are just by definition excluded, and some things that maybe could have been in there but we decided weren't.

And then the other thing to note is that sometimes we don't get to choose. So, for example, we had a tussle with science-based targets on emission from sold products. We had excluded the future emissions of buildings that we had developed and sold, and science-based targets said no no, those need to be measured. And we're like oh, that's a lot. So, 50 years of emissions, and then we sort of tussled as to, and we ended up with the buildings that we design, even if we sell them, those are in, buildings where we're just the construction group, those are ours. So, it's an ongoing process.

Hannah Debelius: Great, thanks Sara. Would any of our other speakers like to weigh in on that? All right, excellent. We're going to move to our next

question, which is specific about plug load controls. The question is, for tenant emissions is plug load control automation being addressed as a means to address waste energy? Plug and process load is 40% of office building energy demand. So, Lauren or Sara? I see Lauren, you also came off mute. Maybe we'll give you a chance to pop in here, if you're working on plug loads with your tenants.

Lauren Moss: We are. I mean I would say in any commercial office building, tenants drive 50% at a minimum of the energy, right? So, you start to look at tenant space as a huge area of opportunity to reduce consumption and emissions. So, there's two things that we work on. One is we look at the tenant fit out guidelines, right? So, what do you require of the tenants when they fit out their spaces. And plug load automation is a huge, huge piece of that.

The second part is actually exciting tenants. I think it was Sara who, oh, it was. In your case study when you talked about tenants, as soon as someone moves in it's hard to get them to do anything. So that's true with office tenants the same way. So you know, I talked about how we use waste as our engagement, because it is a very visible piece of an office.

And then once we're in their office, my team, we're walking around talking to them about these things and saying there are solutions that we'd like to have you think through, especially because 95% of our tenants are sub metered. So, when they reduce consumption, it goes directly to their bottom line.

So we have started this process of working with not just the new tenants, but also existing tenants, to look at how they use energy in their space and really start to think through. Like I always say their energy use should be spiky. And if it's flat, there's something wrong with how they're running their space.

Because you should see increases when they're in their space and not and decreases when they're not. And so, we start to bring the submeter data into the conversations and start to think through what are cost effective solutions that can be deployed simply for existing tenants.

Hannah Debelius: Excellent. Thanks, Lauren. Sara, would you like to add to that or are you all good?

Sara Neff: I mean I was just going to say that in our fit-out guide, the appliances we put in have some plug load management within

there. So, when we're turning over units and whatnot, we're making sure that the appliance standards are there. But no, Lauren's answer is very comprehensive.

Hannah Debelius: Great. I also would be remiss if I didn't mention again, the Green Lease Leaders is an opportunity to get sustainability initiatives into leases. And the application for recognition closes February 16th. So, still a couple days left to get that in. Great. We will move over to the next question then. For all speakers, what percentage of your material suppliers provide EPDs? Do you accept a price premium for having lower carbon materials?

Also, since although we in the government do love a good acronym, I will define that for all our folks. EPD is environmental products declaration. And essentially a declaration that seeks to quantify the lifecycle carbon associated with a product. And we didn't touch a lot on supply chain. But if anyone would like to jump in on this, we're all ears for our panelists.

Sara Neff: Yeah, I can start. So, this is a bit of a trick question, because remember when I said concrete, steel, glass, and aluminum. So, we can't accept concrete without an EPD anymore. And steel, glass and aluminum are harder. But this is where we're really, really pushing. So certainly, within what we call our development portfolio, so outside of military housing. But even within military housing we're trying for it as well. So, it depends. But for concrete and steel, 100% we have to.

And so, when we're accepting a price premium, we don't like it. And you know, on average construction companies operate at like a 3% margin or something. So, accepting price premiums is difficult. I will say that we are at a place now where we, my teams are sophisticated enough and I think clients are sophisticated enough that we've gone to clients and say hey, listen. We can get you this level of decarbonization for the budget we gave you. If you're willing to pay some more, we can get you this level.

And we actually are having clients starting to say yeah, that aligns with my values. Let's go do that. I would say maybe eight out of ten say no to that. But hey, two out of ten, right guys? It was zero out of ten like three years ago. So, we are seeing some appetite for price premium for decarbonization in the market.

Hannah Debelius: Thank you.

Heather Goetsch: I'll just add too that it, materials or EPDs available for different materials varies quite a bit. And so yeah, for concrete and steel there's certainly more. But then for other products, you know, windows, aluminum, asphalt, there are fewer available. But I think it's maybe a chicken and the egg thing too. If we're asking for them then people will start making them. There will be the incentive to provide an EPD. So yeah. We're in, hopefully in a transition point that more EPDs will be coming out.

Hannah Debelius: This is, I'm kind of going to dig into this a little bit, because I have limited experience with EPDs. But my understanding is that also, the amount of information or accuracy of information could be varied. Sara, do you all have a certain standard or template? Especially since you do require them for, excuse me, concrete and steel? How do you evaluate I guess the quality of an EPD?

Sara Neff: Oh boy. I think we're currently taking EPDs that we're currently believing are EPDs, I think. Unless some, we have an internal tool for embodied carbon. And it has sort of baseline emissions. So, if we were to get an EPD where it was wildly off, we would know, because we have the EPDs from all LendLease projects in there. So we'd know if something was dramatically higher or lower, and then we'd get into that.

But at this point, they're third party verified. You know, getting into ooh, I don't trust this EPD. Unless there's a major red flag, we're going to believe the information in there, for the time being.

Hannah Debelius: Makes sense. I appreciate you letting me go off script to satisfy my own curiosity. Excellent. Our next question is for Lauren. During your annual tenant roundtables, what type of stakeholders attend, and what are some objectives or outcomes of the tenant roundtables?

Lauren Moss: For the stakeholders, we open it up to any tenant and their employees. So, we promote the tenant roundtables through the property management teams, through our own contacts that we've created, developed over the years of spending time with our tenants. We, every time a tenant reaches out to a property manager and asks for emissions data, which happens more and more, we also then, they come to us. We collect their data. So, we see office managers, real estate managers, sustainability people. It runs the gamut.

And we honestly are happy to have anybody interested, because I think there's a question around composting. Like, one of our big

things is we, when you move into the building, you get a whole welcome packet around composting. And now we're going back to the existing tenants, and sort of promoting it in the same way.

It's this idea that anybody who's interested in it, we're happy to have them and talk to them about the resources available to make their space better, to meet their own organization's sustainability goals, or their own personal goals, right? So the idea of the tenant roundtable is multiple. It's to one, usually inform them of regulations we're having in New York City.

So with that local law 97, we've got a lot of stuff that impacts tenants around carbon emissions energy. But it's also to talk to them either about new legislation regarding recycling. It's to talk about how you compost. We also ask our tenants that we're, you know, that we've done projects with to actually present to the other tenants, to talk through what they've done in their spaces so it becomes a learning environment.

So really the objectives are about educating the tenants about opportunities, and then getting them to share. I always joke that we provide food and drinks so that people get relaxed and they start chatting. And we want our tenants to feel like they're part of something that they can learn from, and that's really what we do.

Hannah Debelius: Great.

Sara Neff: I would also just like to make a shout out here. I know, I wasn't asked this question. But to engage your janitors. The janitors are the eyes and ears of your building, and waste programs don't work if the janitors are not on board. They are a fantastic resource that's often just like utterly not part of the sustainability conversation. USGBC Los Angeles where I live has a green janitor training program.

But in general, you're not going to launch a successful program, and certainly not a composting program, unless, and I know Lauren's janitors are fantastic. Unless your janitors are on board. And they'll also tell you who's not playing by the rules. So they'll tell you who's jumping spaghetti in all the white paper, for example. So you need them on your side.

Lauren Moss: Right. I didn't mention that. Thank you. We do a huge amount of training for our cleaning crew all the time. It is intense. And part of that waste audit is to also understand buildings that aren't potentially being serviced properly. But every single person in our

buildings on the cleaning crew has undergone training on how to properly manage recycling and composting.

Hannah Debelius: Thank you both. And actually, I will say that due in large part to Sara's previous work, we do have some resources around green janitor programs on the Better Building Solutions Center as well. With our new and improved search function, I bet you can find it even faster. Thank you. And actually Lauren, I appreciate you also addressing a composting question, since I don't think we'll get to that one, because I think this next question will be our last. I'll ask our panelists to be brief. But could a panelist address the question of ground leases and boundary of scope 3 emissions.

In other words, if a tenant designs, builds, and operates a building via a ground lease, does my organization count those as scope 3 emissions. I'll also throw a definition on here of ground lease. Those folks that are not familiar, is on the ground itself. So not on a developed property. So, it's on undeveloped commercial land. And I know we didn't talk about this, so I'm not sure if a panelist is able to address it. But I'll open the line if they are.

Sara Neff: Yeah, I can answer this question.

Hannah Debelius: Great. Thanks, Sara.

Sara Neff: Which is that this is currently up for debate right now. So, I would say the Science Based Targets organization for all those of you who accept those would probably tell you that these are going to be in your scope 3. It really comes down to a matter of like, was this a JV with sustainability covenants? Did you have any ability to influence this tenant? Do you say I'm not going to do a ground lease with you unless you are building an Energy Star building? I'm not going to do the deal with you unless you meet a certain level.

So even though it seems like you have no control, you put deal covenants on the tenant in all sorts of ways. There are ways to also put sustainability, you know, requirements in there. Our multifamily portfolio for example is, has a JV partner from Australia, and all those assets have to be net neutrally operating from day one, including construction operational emissions and tenant emissions.

And so it wouldn't be correct to say that that investor had no influence over the emissions of the building. So, probably they're

going to end up in there, because the thought is going to be that you had some ability to control what was built.

Hannah Debelius: Awesome.

Sara Neff: But again, major up for debate right now. And there's a lot of tussling between real estate and basically science-based targets right now.

Hannah Debelius: Right. And that, I think I agree with you 100%, Sara. I think we're in the middle of recording but looking at the GHG protocol and looking at how to report financial or operational and then going down the path. We report on a financial basis, so it's a question of control, equity, influence.

If it's, if you're an operational reporter as a real estate owner, then you clearly have no operation, you have no control here. But you should look, this isn't an easy one to answer, because it really does depend on how the building ownership is structured and who operates, who controls, who influences.

Sara Neff: Yeah. But it's not a slam dunk now unfortunately. Sorry.

Hannah Debelius: Well, clearly a good question, Peter. So, thank you for it. And I'm sorry we won't get to the rest of the questions here. This is of course a part of the Better Buildings Webinar series, and we still have two left in this series. Next slide. The next one, in fact I hope you'll join us for is entitled Illuminating Impact: Integrated Lighting Campaign Gives Back to the Community. So, you can sign up for that on our Better Buildings Solutions Center or find out more information.

And after the webinar series is over, next slide, I hope you will all join us in person at Summit. It's that first week in April here in Washington DC, which is going to be really lovely that time of year. I hope you'll come and join us. Registration is open now. And believe it or not, it's only like six weeks away, or something. So register and come to DC. I know. We'll see you soon there.

I also hope that if you go to Solutions Center, you'll check out Road Show. Next slide. This road show, the Cleveland edition, just launched its very fun videos that also talk about decarb for a lot of our wonderful partners. And you can see some of my colleagues having a good time out in Cleveland.

And with that, next slide. Thank you so much to all of our

panelists. We covered a lot of territory. I'm really glad that we were able to address a lot of the things that we heard from partners at the beginning in those polls. We got some great questions. So thank you so much. We're really glad to have you and to share in your expertise today. And this session as well as that resource sheet will all be posted to the Better Buildings Solutions Center. Thank you so much for joining us today and have a wonderful rest of your day.

[End of Audio]

Tracking and Tackling: Reducing Commercial Tenant and Scope 3 Emissions

Additional Resources

Learn more about the topics discussed on the webinar by visiting the resources below.

Better Buildings Resources

- The Embodied Carbon Resource Navigator
- Learn about the Waste Reduction Network
- Learn about the Design and Construction Allies

Explore more resources on the Better Buildings Solution Center

Other Resources

- Learn more about Lendlease Americas sustainability initiatives
- The Lendlease Americas Scope 3 Emissions Protocol
- The Reuse Wins Report
- Vornado Realty Trust 2022 ESG Report
- Vornado Realty Trust Waste Diversion Policy and Recycling Video
- Vornado Realty Trust Worklife WellBeing

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