Bri Colon: Hello. And welcome, everyone. We'll let folks have about a minute or so to trickle in and we'll get started.

[Brief pause]

All righty. Well, welcome again. We'll dive in here. Welcome to the Better Buildings Webinar: Get a Handle on your Waste Data Before it gets a Handle on You. It sounds intense, but I'm excited today to learn some of the tools to better get a handle on that data. A few housekeeping notes before we get started. Today's webinar will be recorded and archived on the Better Building Solution Center. We'll follow up after today when that recording and the slides are made available.

Next, attendees are in a listen-only mode which means that your microphones have been muted. But if you do experience any audio or visual issues throughout the webinar, please go ahead and drop a message in the Q&A box located at the bottom of your Zoom panel. And our tech support will help and troubleshoot any issues. You can also utilize that Q&A box to submit questions throughout the webinar for our speakers, and we'll address those at the end. Feel free to address those questions towards a particular presenter or if they're applicable for both, that's great as well. We can go to the next slide.

My name is Bri Colon, and I serve as a fellow in the Building Technology's Office at the DOE. For the Better Buildings Initiative, I serve as the sector lead for higher education, as well as retail, food, service, and grocery, and as the commercial lead for the waste and water networks. Next slide. Our agenda for today is as follows. I'll share some programmatic information here to start. We'll go through some engaging polls here in a moment. And then we are joined by some wonderful speakers from EPA and Oak Ridge National Lab, Jenny and Subodh. We're gonna share some really valuable tools out there for waste data management. And then we'll go through a Q&A period, as well as our closing.

So next up, we can transition to our polls. If folks are able to engage with these polls, they should pop up here on your Zoom platform panel here. If you want to take a couple minutes here to answer these questions, it's really helpful for us to understand as a program, as well as for our presenters to get a better understanding too of who's in the room, what kind of a waste processes, or practices, organizations, are employing at this time. So there's a variety of short answers, as well as yes and nos. Take a couple of minutes here.

[Brief pause]

Okay. We'll give 30 seconds or more. Thank you all for imputing this information. It's really helpful for us to better understand where folks are at, what platforms they might be using, whether they're engaging with a third party to analyze that data. What are some of the challenges around tracking those waste streams and progress towards goals, and if there has been an established link that organizations are able to track with that waste energy nexus. So great. We will wrap up here. Leave last few seconds to input that information, and then we will transition. Perfect.

And I'm seeing some results here from those polls. Thank you everybody for sharing that information. I can see some of that yes and no's at this point. I can't see any of those short answers, but I'm seeing for the second question around if folks are utilizing a third party, it looks like a majority are no. So it could be a barrier there around cost or awareness of what some third parties are out there potentially. And then for the final question, I see if folks have been able to establish a link between waste reduction and energy recovery, it looks like a majority are no. So that's helpful for us to better understand maybe a gap out there in terms of being able to track that.

So thank you. And we'll that hole and transition to the next slide. All right. So I'm happy to share some programmatic information here from the Waste Reduction Network, and then we can transition into our speakers. First off, I wanted introduce your waste team. I won't read everyone's name here located on this slide, but know that we have representatives from the DOE, on the industrial, as well as the commercial side of the house. Folks from Oak Ridge National Lab, as well as our contractors from ICF and RE Tech Advisor. So a lot of people dedicated to this initiative and this network going forward. Next slide.

Our network participants are listed here. We are continuously enriched in our network by folks joining within and across sectors. So if you're interested and you don't see your name listed here on either the industrial or commercial side of the house, please go ahead and send us a message. We would love to have you in the network. There's a variety of different tracks and ways to engage with the network. So on our next slide, I'll go into some more details about how organizations can participate in the initiatives. If we can go to the next slide. Perfect. Thank you.

Organizations can commit within the networks to two tracks. One being the solution track, and the other in the data. So for the solution track, participants aren't required to set a data goal. They can contribute in a variety of different ways. They can publish a case study, which we call solution on the Better Building Solutions Center, share best practices and lessons learned, challenges and obstacles through things like peer exchanges, or document ways that waste management impact other priority areas such as energy reduction, greenhouse gas emissions, embodied carbon, equity, and circular economy and the like.

The other way to engage in the waste reduction network is through our data track where participants can set a waste goal and report their progress using different options. We know there's no one-size-fits-all with waste goals, so there are different options to set goals whether it be a diversion, absolute zero waste, intensity waste energy, or circularity. Participants are also welcome to join both tracks too. So we welcome engagement in these different avenues. We'll go to the next slide.

Within the Waste Reduction Network, we provide a variety of different activities. Some examples are listed here, one being our bimonthly newsletter which is chocked full of resources, new news that's emerging related to waste, and any tools that have been recently published. We also produce in concert with our national labs particular resources related to waste, as well as solutions. Webinars, you found us here today at today's webinar. We're excited to continue putting on these throughout. Peer exchanges and working groups.

So some examples of past working groups have entailed on the commercial side of the house, data and measurements, as well as employee outreach. And then for the industrial side, there's been a focus on plastics in the past for a working group. So a lot of ways to engage with the network here. Next slide. I mentioned some of our solutions on the solution center. This is just a taster here of a few organizations that have been highlighted for their leadership in this space.

When these slides are available later, you'll be able to click the hyperlink and view them. But they're great resources to understand what organizations are doing in the space, and how to learn from the practices that they've implemented at their organizations. If you are doing something exciting within your organization related to waste, we would love to feature right here as a recognition opportunity, as well as you get to better understand more of these

processes being implemented. So please go ahead and reach out to us, and we'd love to help craft one of these narratives with you. Next slide.

And then finally, I'd like to showcase our landing page for resources for waste diversion reduction. This page really highlights solutions for organizations looking to increase waste diversion, decrease source generation, recover energy, and create financial savings. So a great place to start and really understand what's out there related to waste. So without further ado, I'm happy to transition into our speakers here. We can go to the next slide.

First off, we are joined by Jenny Stephenson. Jenny as the environmental protection specialist in the zero waste section within the land, chemicals, and redevelopment division in EPA's region nine, which is based in San Francisco. Her work aims to advance sustainable materials management, to conserve resources, and reduce greenhouse gas emissions. She has a master's of science from Johns Hopkins University, and has been with the EPA for 18 years. She focuses on measurement efforts helping to increase the use of waste tracking in Energy Star Portfolio Manager and assessing the environmental impacts of food waste. Thank you so much for being here with us today, Jenny. I will turn it over to you.

Jenny Stephenson: Great. Thank you so much. And thank you all for taking the time. If you can start the slides. Awesome. And just head onto the next one. I always appreciate connecting with organizations that are focused on waste because so often as long as the waste is hauled away, it's kind of out of sight, out of mind. But with that mentality, we really missed an opportunity to conserve resources, reduce greenhouse gas emissions, and connect with both our employees and our tenants, and possibly save money.

So today I am going to focus on three things. Next slide. And that's going to be how to get it. We say that you wouldn't think it should be this hard, but it can kind of be a challenge, how to enter it, and then what to do with it. You know, you have that data, what does that actually mean, and how you can use it to improve your waste performance. So going forward, how to get it. At the very basic level, and this might be beyond where most of you all are at, is just to survey your site, your portfolio, your building, whatever kind of entity you have, and see what size containers are there, and what materials are being collected and hauled.

And you can keep this really basic of, you know, we have a trash. We have a mixed recycling. You can also include, okay, we have

the like shredding service that comes a month or quarterly, whatever it might be. And we have other elements. So like whatever you want to define as your scope, you know, do a survey and get that information. Another resource to get the data is waste invoices. And if you have more than one property, you're probably quickly realizing that like no one waste invoice is the same. But like just taking a close look and have a conversation with your customer contact to better understand what information is on the invoice.

If you're really large scale, you might have like to tipping scale receipts. If you have compactor or generate a lot of waste that goes directly to a transfer station, you might have that piece of data. And then lastly another emerging field is take a tech based approach. So we'll talk about all these a bit more. Next slide. So within Energy Star's Portfolio Manager tool, at the very entry level, you can measure and volume. So we have a lot of volume to weight conversion factors within the tool.

So you enter the material tape, the container size, and it can be everything from like I have a ten-gallon bucket of food scraps from our kitchen to I have a 12-yard mixed recyclable dumpster. And you just enter in the material type, the container size, and the number of times that was emptied during like the month, or the week, or however long a period you're tracking between entries. And then Portfolio Manager will automatically convert that volume to a weight. And so then you can all have a unified metric of tonnage.

It also has a place where you can assess the fullness in there. So along when you're doing your survey or if someone on your team is doing a survey, you know, have a great question of like by quarter, 25 percent, half, three-fourths, a hundreds percent, like how full are the containers before they're empty. That can also help give you insights to see if you have a right-sized trash or material service. So next slide.

Another way to do it is if you want to get a little more specific when you're still measuring volume but getting higher accuracy is to conduct a waste sort on your own. I'm a big advocate of waste sorts. I've done many. I know they're not always fun. But it can be everything from like one, you know, floor a property, to a casino, to a whole like community or like whole campus. It just depends on what your goals are, but waste sorts are really insightful opportunities to get rich data.

I could have a whole hour on just like how do waste sort, and the great insights that you can get from it, and try to convince you that it's worth your time. And it can be simple, and you can still get really good information on like are people understanding your communication, what other opportunities are in there. Anyway, if you have a waste sort, and you have your own data in there, you could use tailored volume to a conversion factor.

So let's say you do an annual or quarterly waste sort, and you find that for your batch of mixed recyclables or for your batch of mixed paper or whatever it is, that you have either higher or lower than what Portfolio Manager is entering. You can enter that weight also into Portfolio Manager. You can also designate it as estimated within the tool. And then more for the tech-enabled approaches, we're seeing more organizations and work tax services being offered. A couple here that I'll just mention.

Compology, I've worked with them in a school district, and they have cameras applied to the dumpsters that assess the fullness, contamination, and it records the actual dates and times at which the containers are emptied. And they have their own display platform also. And that Zabol is a company that they have an EPA Small Business Innovation grant that I've been communicated and working with on. And they've worked really well in like more of a healthcare because of waste is so expensive, and also universities.

And they have a mobile application that enables staff to snap a picture of the container as it's being emptied, and it will assess contamination or the staff can then just kinda easily flag the contamination, and also record fullness. You can get a really exact deemed picture of where waste, especially in kind of a large property setting is being generated, and where you might want to focus your outreach or kind of engagement. You know, talk to different folks, and like this area is generating a lot more or having higher rates of contamination that other parts.

And then also a lot of universities have created their own programs and software. And then a couple other approaches, next slide, to get the weight is to really ask, and I should mention like both, a lot of the software companies have their own volume to weight conversion factors as well. If you actually want it measured, which would be our preferred, or as much as you can get more specificity, is to look at your invoices, talked your hauler. If you have any sort of roll-offs or compactors, your hauler is probably directly hauling that from your site to a scale so they would likely have that information for you.

If you have the power to have an RFP, or as you're competing your hauling contracts, ask for onboard scales. At least in California where I'm based, you can't assess a price based on the scale because it's not – it's hard to calibrate and it doesn't meet like the scientific specificity that it needs. But for your weight data, you could get a lot of insight just from their onboard scale technology acknowledging that it might be a little off a couple times. But I've seen a lot more onboard scales come about. And there's at least two, if not more, California college campuses that have gotten their haulers to have onboard skills so they get that data.

And then weigh onsite. So scales on loading docks, scales on janitorial carts. And the next slide shows a picture of that. Here we have Stop Waste dot-org. They put a large industrial scale under each one of their totes, and those scales communicate to a computer and it records data every 15 minutes. And what was interesting there is they found anytime their kind of a community meeting space was rented out or used, it really increase their trash rate.

And that was because folks didn't have like – they typically brought in a lot of food or different materials that weren't necessarily recyclable, or they didn't know how to properly divert their materials. And so they realize that like any time someone's using that event space, they need to have more engagement and education. But they wouldn't have gotten that insight unless they saw like, oh, that's interesting. About 9:00 p.m. every Wednesday, you know, our trash really increases. What's going on here? But they got that information from their scales.

And then Etsy, this was several years ago, they had actually created some scales on their janitorial carts. So as the janitorial service was emptying the things on a multi-kind of – they just occupied a couple floors within a building, which is can be challenging to get data, then the scales on carts communicated directly through an app to the cloud and they got that data right there. And so there's a lot of different kind of approaches you can take for getting data. And then next slide.

And then once you have the data, highly encourage you to use EPA's Energy Star Portfolio Manager tool. It's designed to kind of meet you wherever you're at with what data you have, or monthly, or more frequent tracking. If you only know volumes, that's good. That's a good place to start. If you have more detailed data, it can also accommodate that and get you some insights there. Next slide. Energy Star Portfolio Manager is a free secure online platform that

organizations use to benchmark and track their performance. Most commonly on energy and water, and more so on waste. It's both a measurement tool, next side, and a metrics calculator.

So you can get – if you can go to the next slide, you can get both custom reports. It's really great at sharing data with others in your organization all through portfolio manager. And then you can track hundreds of metrics, a lot of different waste metrics, including waste intensity, and diversion rate. Next slide. You can see like by specific properties, what your waste metrics are, or across to portfolio, or group of buildings. And so I highly encourage you to use portfolio manager if you don't currently have a tool, and it's free.

So next slide. There's three ways to get data in. Manual entry, which is tedious. But if you only have one property, it's the best way to go. You can enter, upload spreadsheet, and we have a lot of it details on how to do like a bulk for like five years. Enter your data, spreadsheet upload. And lastly, Web services. So in that polling question, like do you use tracking services, a lot of organizations that have utility bill pay programs, they're getting those utility bill pay programs to also enter in their waste invoices for waste data and Portfolio Manager. And there is one major hauler that offers Web services for two of their large clients. So talk to hauler to see if they'll enter your data automatically into Portfolio Manager for you.

And I'll just kind of breeze through these next couple sites. We have a lot of information on our website, you can go to the next slide on actually how to enter the data into Portfolio Manager. We have how-to guides and really short videos. But as I said, it's really designed for flexibility and comparative analysis. You can track weights. You can enter in volumes and it will convert it to weights. We have 29 different material categories. Those are based on our longstanding Waste-Wise Partner Program looking at what they reported.

And it's really track by four management options. So we have donated/reused, recycled, composted, and disposed. And within disposed, you can further designate whether was landfilled, incinerated, sent to Waste Energy, or you don't know. And if you have an energy recovery metric within your diversion goals, well, Waste Energy isn't included as diversion within Portfolio Manager. You can get all that data in an Excel spreadsheet. You can see your waste-to-energy metric, and you can calculate your energy recovery metric if you want to. Next slide.

This is just a quick listing of the 29 material types. It's designed for both your regular kind of materials. Trash recycling is what most commercial buildings have. But also if you have, you know, pallets. If you have like building materials. If you did a building reno or like something else, like lots of cardboard, you can have those things in there as well. Electronics. Food scraps. So if you have all those materials. And then next.

And those materials kind of coordinate as well, like we really want regular data tracking, but also to capture those like intermediate, or intermittent, or like one-time events like you might have donation of electronics, or you have some building reno, and you have construction materials, trying to get a full picture of your full waste profile. And then lastly, what to do with all that lovely waste data that you have. Most important: share it, report it, and translate it.

So within Portfolio Manager, next slide, we have a lot of sharing capacity. You can grant access to other folks within your organization and outside of your organization. There are ready to go reports within the tool as well. You can download any of your data in there and create your own reports if you need to. Next. Here's just a quick thing of the metrics. So if you want to go to the next one. Overall, there's overall aggregated metrics. So total waste disposed, you know, the most environmentally preferable thing you can do is source reduce.

So reduce that total waste generation, and then you can also look detailed by material type, detailed by property type. You can look at each management method or even within the disposal destination. And so all that data can be pulled in a custom report, and also downloaded through Excel. And then two other EPA tools that I love and adore that don't get much attention that I want to quickly mention, next slide, is first off, EPA's Waste Reduction Model, WARM.

And after you take that data you've had in Portfolio Manager and you see it like your tonnages, and you want to be like, hmm, I wonder what that means in terms of greenhouse gas emissions reductions. You can enter your data into EPA's other tool, WARM, and calculate the lifecycle GHG emissions from your recycling and composting diversion activities. And that will give you like a metric tons of carbon dioxide equivalent, which is like, huh, I wonder like what a metric ton of carbon dioxide really is.

So then if you get to use EPA's other tool that I love, the next slide, the greenhouse gas equivalencies calculator. And this is great

for any greenhouse gas emissions number or value that you have because it really makes like a metric ton of carbon understandable to your audience, which can help you engage your management or other stakeholders that you have within your organization. The next slide just shows kind of a picture of the interface of all the different kind of metrics that it translates a unit of emissions into, like cars off the road, electricity used by homes, number of hours that you can run your cell phone or your tablet.

So if you need help translating those emissions metrics, this is a great resource. And then lastly, this other list of helpful resources. We have waste FAQs. We have a whole Energy Star buildings training page. If you can go to next slide. And we have a guide for managing waste available. So these are resources both on if you have specific questions or just generally looking to get more involved with Portfolio Manager waste tracking. And if you are really interested, let me know. Here is my contact information. Please reach out. Next slide. It's Stevenson dot Jenny at EPA dot-gov. I love talking about Portfolio Manager and waste tracking. And so if you have questions, I'm happy to help. So thanks.

Bri Colon: Thank you so much, Jenny. That was really valuable information to hear more about all the many capacities that Energy Star portfolio manager, as well as those additional tools that you know and love. So great to hear more about what's out there and how they could be utilized in tandem.

Next up, we have Subodh Chaudhari. Subodh is the technical account manager for the Better Plants Program and waste reduction expert at Oak Ridge National Lab he has participated in over 150 energy assessments in various roles at manufacturing facilities, and has help clients reduce energy consumption and waste. Subodh is also a certified energy manager. Thanks so much for being here with us today, Subodh. I'll turn it over to you.

Subodh Chaudhari: Sure. Thank you, Bri. If we can go to the next slide, please. And thank you to Jenny as well for giving us a great view of those tools. So going forward, I will be talking about the tools that Better Plants has developed for its partners. And so I'll be talking about waste stream energy calculator, and then finally the reporting form. And so let's get into that. So when we talk about waste reduction, talking about risk management hierarchy is very important.

And so EPS developed waste management hierarchy is what you can see here on the slide. And through that source reduction is prioritized, or energy recovering, or recycling. But this hierarchy

stems from the fact that not all waste streams can be eliminated. And so some of them are going to end up going down the line into our disposal. But recently, we have found that there are lots of disadvantages to landfill. And so diverting your waste from landfills is taking priorities. And so that's when I think energy recovery makes sense to some of our partners. Next slide please.

So what are waste-to-energy technologies? Right? These are treatment processes that are used to extract energy from nonrecyclable waste stream. And the recovered energy can be in different forms. So for example, if you are incinerating your waste, it could be just the heat that is coming from the incineration, or it could be electricity generation from heat generated. Or there can be other technologies which could give you gas or liquid, or even solid fuels from your waste. And these technologies are evolving rapidly and they can make use of various – or in fact a number of waste streams in solid or even liquid waste such as cooking oil or food and beverage waste. Next slide please.

So when we are talking about energy recovery from waste, there are three main processes from which we can do energy recovery. The most common is thermochemical reactions where we treat the waste with heat. And so commercial is the primary source of the energy recovered. And there can be other processes such as gasification and pyrolysis that can give you liquid oils. But other than that, there could be biochemical processes such as anaerobic digestion, which can give you access to biogas, or even fermentation, which can give you – which can turn organic waste into ethanol. So next slide please.

So this is the map of US, and shows that states that classify waste energy as one of the renewable energy. And the students that are colored blue here classic waste-to-energy as in their renewable portfolio standard. So here waste-to-energy is classified and regular mandate, where the state is committed to increasing the renewable energy through waste-to-energy technologies. But the states that are colored in gray do classify waste-to-energy or renewable energy, but they don't include in their renewable portfolio standard. So if you are located in one of these states, you could count your waste-to-energy as a renewable energy. Next slide please.

So talking about waste-to-energy technologies, there are two technologies that are most prominent in the market. So first is the incineration where you combust the solid waste. And this deals with mostly organic waste. And then organic digestion, which is

used to deal with mostly organic waste such as food or other farm waste. So the table that's shown here on this slide tell us what are is the energy content of most common waste streams. So we can see here that some waste streams in non-biogenic wastes can give us a lot of energy per ton. And they even can give us more energy than coal per ton.

So for example the polypropylene here can give us 38 MMBtu per pound, and rubber can use 26.9 MMBtu per ton. So there is significant potential in these waste streams to be recovered. Next slide please. So coming down tool that the Better Plants developed. The waste stream energy content calculator. The main purpose of this tool is quickly evaluate your waste streams, and see how much energy those waste streams contain. So that's the primary purpose of this tool. But we have not accounted for the efficiencies of the process. So incineration or another big digestion.

And so the energy estimate that you might get from this tool might be a little bit higher than well what you will actually see. But since the efficiencies vary by the operation, it's really hard to account for those efficiencies when we are just looking at energy content. This tool looks at three common scenarios, and what is the combustion of all waste streams, or the anerobic digestion appropriate organic waste streams, or a combination of combustion and anaerobic digestion. It can also look at the impact of these operations onsite. And so we have used the GHG factors to evaluate the CO2 impact.

We also collect some data on the cost of energy so that we can evaluate how much cost savings you can get from this energy recovery. You can find this tool at this website, and it is available for download. And we are currently testing it so we can release it later on our solutions center. So let me go into next slide please. So I think let me go into a little more here. So can you all see my screen?

Bri Colon: Yes, we can.

Subodh Chaudhari: Okay. Sounds good. So this is the initial splash screen of the tool. So this gives us a little bit of information how the tool works. There are steps that are required for the tool. It also gives us more information on the portfolio of the tool and some other stuff. So going into the second tab, there is the user's manual. So this tab is designed to give you information on how to use the tool, what are some of those options that have gone into the making of this tool, or doing the analysis that we have done.

So first, the most important is it gives you the color scheme of the data input. So this light blue is for our type in, orange cells is where the dropdown list, the data input list. And then there are a few calculations, intermediate calculations that are strong in gray area. So coming down to the assumptions. This specifics what are some of the assumptions in our analysis. It also gives us the detail of three ally scenarios in there the tool. So first scenario pathway is to combust all of the waste streams that you have populated in the data input. And how much energy can be get from those streams.

The second pathway is to anaerobically digest the organic waste streams that you're hiring for and what is the impact of those on your energy as well as how much it cost it will save you or how much GHG impact can you see onsite from that. And then third is the combination of one and two. So if you are a combust analyst, it will anaerobically digest the streams, and then what is the impact. So instruction section basically goes over individual cells and what input is expected from you. And then as well as it also details in there about user detail about the resource section where you input and what the resource mean from this analyst.

So going forward to the data input. So there are a few sections, and so first section is plant information. This is genetic information about your facility where you are trying to evaluate the scenarios. And then energy information is basically meant for getting some idea from you on how much how much energy is used onsite, what is the energy source that you are planning to offset when you recover that energy so that we can do a cost analysis. And then so this offset energy cost also goes ahead and utilizes this cost on how much energy or how much savings can we expect if we offset off this energy.

This offset source, offset factor is auto populated. So when you select a particular energy stream that you want to offset from your facility, it will have basically populate that cell. Then coming down to waste information. This is total cost that you're seeing for a particular, your particular waste streams. So this is auto calculated from this data, and but this weight is also from what you entered here. The waste generating activity is something that is meant to give you some idea of what is generating particular waste streams so that it gives you some idea if you want to manage and what you want to do.

So coming down to the waste streams data. Now this is the main part of the tool, I think. So here is where you input your waste streams that you think are – that you can use for energy recovery.

And so the waste streams are divided into two parts. There are these categories that are main categories, all the solid waste. And so that can give you energy. So if you think that there is paperboard or cardboard, then you select that. And then coming down here, once you select that this goes into a little bit more detail on what that – just to drill down how much energy can we get.

So this lets you select a subcategory. And so that gives us a little more detail on how much energy is possible to be recovered from that waste stream. And then coming here, how do you track the waste streams. There are different types of units. So whichever unit applies here, you can choose that unit. And it doesn't matter. You can have different units for different waste streams. You go through the calculation, and can work those into appropriate units when we do the analysis. There are four ways the waste streams are tracked. So streams that are going to landfill. If there is a compost – if there are streams that are going for composting, and you want to utilize them for maybe say anerobic digestion, then we can populate those here. And then if there are onsite commercial that already exist or another organization that already exists, then we can populate those here.

Finally, from your waste invoices, how much cost did you incur to manage that waste stream is what we input here. And so if you are – do have anaerobic digestion onsite, or plan to have anerobic digestion onsite, so then this input helps. So there are four different anerobic digestion types either dry or wet. So if you don't have land, we'll have to cure or digest it before you send it out, I think you can select dry and cure and digested. We are taking this input because it affects your onsite emissions from this data.

So I'm running out of time. So I will be a little bit quicker on this. So going to results. So first section is it basically tells us how we are currently managing the waste. So how much is going to onsite combustion, anerobic digestion, and how much is going to landfill or disposed. And so it gives you a nice graph on that. The first section tells you about how much energy recovery is possible through different pathways that we discussed. And so with this current data, seeing about 6,000 BTUs.

And so it corresponds to about 180,000 dollars of savings for me. And from the total site energy used data, it tells us how much impact I can have my on my energy through that pathway. And similarly other two pathways are calculated. On the GHG direction provincials, I think it's the same way. It goes through and

calculates the CO2 emissions onsite for different parties. And then you see the results. If you are getting savings, then you will see a positive results here. If you are increasing your emissions to accomplish that sort of operation, then you will see a negative figure here. So that way you can see how much carbon impact you're having through this operation. So going back, I'll stop share.

So the next tool I wanted to talk about the reporting form. And in addition to the portfolio manager, I think portfolio manager is really detailed. And so but if you want to track in the Better Plant programs, I think this gives you a good tool to track your different goals that you set on diversion, or absolute production, or zero waste. And so we have a modified our form, and you can use that to track your waste data. Next slide please.

So there are a few major changes. We have allowed our different goal types to be tracked through this form. And we've also allowed for onsite energy recovery versus offsite energy recovery. And there is tracked energy recovery. So those are the major changes. There are some minor updates that you will notice. But let me go into our demo here so that I can show you the form. So yeah, so hopefully you can see my screen.

Bri Colon: Yes, we can see it.

Subodh Chaudhari: Yeah, so there are a few tabs here also, but main tab is the reporting form and all the other tabs are optional. So first tab is kind of the instruction. It tells what each field in the reporting form is. So if you don't know, you can just hear about it. So coming down to the main form here. So this is generic information about the plant; contact name, company name, address, and NCIS code, and those. The change that I talked about, you can select the code that you are using that you're tracking here.

So is it waste diversion that you're doing? Is it intensity reduction? Zero waste, and so on and so forth. So let's say we are talking about waste diversion. So accordingly, it will change the results that you see here or input that you see here. So the fields that are white is where you are required to have input. The fields that are colored are calculated, are calculated. So here, a required tool data table. So this line here is where you are tracking from, and then quoting here is what your data will be basically.

So if you have more number of facilities, you can have those here. If some of those are manufacturing plants, you can put that in here.

Then coming here and, there is the unit, the baseline as well as reporting units have to match, so there is only one option to select your units. There are different types of units here that you can track. But if you don't find it here, you can come to this waste types tab and you can replace this other unit for the unit that you're tracking.

And this the waste line unit table, you can populate it with your waste streams. These are the common waste streams that we are populating here. If you have, again, a few waste streams that are not included in here, you can come here to the waste types tab and there are these other fields that you can replace so that you can see those waste streams on here. Then you can basically report on whichever – how the waste was divided, waste stream was divided using the manufacturer, how much of it went to recycle, how much of it went to composting. Was there any energy recovered from it, or did it go just to disposal? And it will calculate the total waste. If there are more waste streams, you can add some of those here, and then have similar structure on this recording column.

Once you have all the data populated, your goal progress will be auto calculated here. So that, and then if there are – if you implement any projects, that's the information that goes here. And if there are – if there were any wastes or waste or waste audit activities that you completed as a part of your waste reduction, then those activities will go here. And if you identified any energy saving with those waste reduction activities, we want to hear about that, so that can go here.

And then if there were multiple facilities reporting, then how much improvement did you see on each of those facilities. So this is a table where you can put that data. Then this energy recovery is optional. If you have energy recover, you can go through it and populate it. It's pretty straightforward. We discussed the waste types stat. And then if you want to look at an example when filling out the details, you can look at this reporting form example, and it can give you some good idea about how we want to see the form. And that concludes my demo.

Bri Colon: Thanks, Subodh. That was really helpful to get to see that interactive engagement with the form and the calculator just in general. We have a couple questions here in our last few minutes. I noticed one popular one was asking about the recording of this webinar. So just as a reminder, this webinar will be recorded and archived on the Better Building Solutions Center, and attendees will receive a notification when those slides and recording are

made available. We did have a question too directed towards Jenny around just sharing of that resource for the greenhouse gas equivalencies calendar – or calculator. So thank you Jenny for sharing that. And also if folks are actually learning more about that, it'll be also included in the slides after. And then Jenny question for Subodh actually related to the reporting form. Just curious if waste to energy is included as diversion within the reporting forms, Subodh?

Subodh Chaudhari: So it's yes and no. So in the form, if you have onsite energy recovery, and waste from that is not going through the disposal, then it is counted as diversion. If there is waste produced from those energy recovery activities, then it will be not counted in the waste diversion. So that particular part of the waste. But onsite recovery is counted in diversion in this reporting form.

Bri Colon: Great. Thanks, Subodh. Appreciate that. And in our last minute here, I had a question actually for Jenny, and then we can transition to our closing. Jenny, I'm curious, I know you mentioned to some of the tools, like portfolio manager among others that folks have utilized them in in terms of speaking to leadership, and leading you to translate the importance of that tracking. I'm curious have you heard any other kind of feedback from folks utilizing the tools and how they were not just like collecting it for collection sake, but like you're mentioning like sharing it out, then making the case for additional programs and initiatives.

Jenny Stephenson: Yeah. I mean that's the whole point of data, right, is to tell a story, to be compelling, to get engagement from your employees, from your tenants, from your management, from other organizations for additional funding, for additional resources to help support. So all the communication tools like this is why we do what we do. So yeah, like we've heard a lot of stories – you know, I love to see people tracking. But if you're not sharing that data with anyone, why are you tracking it? Like and if you're not communicating it out, what's the point? So make the use of your time and make sure you're getting your story told by using that data to tell a richer story.

Bri Colon: Absolutely. Thank you so much, Jenny, for sharing. And I know we are at time so I want to thank our presenters again. Thank you Jenny and Subodh for sharing your time here at this today. And if folks have any other follow-up questions related to the Waste Reduction Network, please don't hesitate to reach out. Thank you all for joining in today and listening to this really valuable information. And I hope you all have a great rest of your day.

Subodh Chaudhari: Thank you.

Bri Colon: Take care.

[End of audio]