

Joe Indvik:

All right, let's get started. This is Joe Indvik here and I am particularly excited for this session about Designing Impactful Carbon Reduction Targets. If you go to the next slide.

As we heard in the opening plenary and throughout the summit, frankly, climate leadership is top of mind for many of our partners. That is evidenced by the over 2,700 of you that have registered for this session. Thank so many of you for being with us today. I'm really looking forward to this conversation.

I should also note that more than 55 Better Buildings partners, including some of our speakers today, have joined the Better Buildings Low Carbon Pilot to demonstrate real-world pathways to low- and no-carbon buildings. I highly suggest that you reach out to me or to your account manager, if you're currently a partner, if you'd like to consider participating in that pilot.

But more broadly, if you were watching LinkedIn or reading press releases on Earth Day a few weeks ago, you will have seen a massive wave of new carbon targets being announced across pretty much all sectors. Of course, as with many things in our industry, the devil really is in the details. So, the details are exactly what we're gonna get into today.

Over the next hour, we're gonna wrangle with some questions, like how could organizations set carbon reduction targets that are both ambitious and achievable? How could they put plans in place to actually meet those targets while reinforcing, rather than detracting from, an organization's core mission? Why is it so gosh-darn hard to define what carbon neutrality actually means? Why are there so many different definitions for that floating around? These are all topics we're gonna be wrangling with over the next hour.

This session is intended to complement the Teamwork Makes the Dream Work session, which was on Tuesday. That was all about assembling the right team and the right partnerships to achieve carbon reduction targets. If you missed that one, totally fine. This is more of a sister session as opposed to a sequel. But I do encourage you to go back and watch that session when the recording becomes available.

Before we dive in, a couple of logistical notes. This session is gonna be recorded and posted to the Better Buildings Solution Center for your reference. We'll follow up via email when the slides become available. You're gonna be in listen-only mode as an attendee. If you experience any audio or visual issues at any point,

just use the chat function at the bottom of your Zoom screen and our technical support people will get you taken care of. If you go to the next slide.

Again, I'm Joe Indvik. I'm gonna be moderating today. I lead the Clean Energy Finance & Carbon Solutions practice at RE Tech Advisors, which is a consulting firm here in the D.C. area. I also co-lead the Better Buildings Financing sector on behalf of DOE in collaboration with Kyle Saltsman, who's running the slides today. I've also been closely involved in the DOE Low Carbon Pilot as well. It's great to be with you all. If you go to the next slide.

Our agenda is pretty simple. I'm gonna give a quick overview of some of the recent trends in carbon targets. We'll spend most of our time on speaker presentations from our three great speakers today. Then, we'll have about 20 minutes or so for Q&A at the end.

You should be a veteran of Slido by now, but if you go to the next slide, we're gonna be using Slido again for Q&A, polling, and session feedback. Please go ahead and go to Slido.com now as we are gonna do a poll. You can do that on a mobile device or by opening a new window in your Internet browser. Enter today's event code, which is DOE. Once you enter that code, select the session title, which is Pathways to Zero.

Once you get that set up, if you'd like to ask our panelists any questions now or during their presentations, feel free to enter those. You can also upload questions that other people have asked that you would like to make sure get answered.

If you'd please go ahead and open up Slido now, we're gonna do a poll, asking which sectors you come from. Go ahead and fill out the poll now. That would be great. Higher education off to an early lead. Industrial manufacturing, contractors and service providers.

Yeah, I'd venture to say this is one of the most diverse groups of folks from different sectors that we've had yet. It's a bunch of contractors and service providers, multifamily representatives, state and local governments, commercial real estate. Other category. Okay, great. We're gonna be tackling this topic from several different angles here, so I'm excited to have a such diverse group of folks with us. If you go ahead and go back to the slides.

I want to briefly introduce our panelists today. I'm gonna introduce them more fully when they get to their sections of the presentation. We've got Matt from the City of Milwaukee, Jim from Met Life

Investment Management, and Mark from the Tenderloin Neighborhood Development Corporation. Welcome to you all. These folks are all, frankly, trendsetters in the world of setting and achieving ambitious carbon reduction targets, so please feel free to reach out to them. We'll have their contact information at the end, as well. Thank you guys for being with us today. If you'd go to the next slide.

I'm just gonna do a couple of minutes on background here to set the stage for what's going on in the market when it comes to carbon target setting. I mentioned the big wave of carbon targets that happened around the time of Earth Day a few weeks ago. But that wave, that was really just the cresting of a wave that's been building for a long time. If you look, this is a great data set that's gathered by Natural Capital Partners that shows the Fortune 500 companies specifically, which percentage of them have set carbon targets.

You can see that back in 2015, it was three percent of the Fortune 500. Now in 2020, it's 30 percent of the Fortune 500. That's a 5X increase over just a four-year period. That includes things like science-based targets, which is labeled as SBT here, RE 100, which is a renewable energy target, as well as carbon neutral and net zero targets. These are the more ambitious of carbon targets, even within that universe.

Frankly, can you think of the last time that you saw such a diverse group of companies as the Fortune 500 so rapidly adopt the same business practice? I think maybe the Internet or the computer was probably the last time that happened. There's clearly a sea change underway in the way that many different organizations are thinking about carbon targets and how critical they are to their strategic planning. If you'd go to the next slide.

Another trend that's happening now is an increasingly diverse set of frameworks that are available to help with reporting, scoring, and also providing guidance on setting carbon reduction targets. This is a smattering of some of the most common frameworks, many of which you'll probably be familiar with.

You have Science Based Targets, which enables organizations to set targets that are aligned with the Paris Agreement. You have the old tried-and-true CDP, formerly known as the Carbon Disclosure Project, which allows organizations to report on their carbon footprint and then receive a score for how they're doing, both in terms of their emissions and their policies. You've got the RE 100

Initiative, which targets 100 percent renewable energy by a certain target date.

You've got TCFD, the Task Force on Climate-Related Financial Disclosure. It's more focused on climate risk, disclosing those risks. You have a variety of different carbon neutral certifications. Like I said, all of these have a slightly different approach or lens on the market.

The three on the right-hand side are three relatively recent developments, which are sector-specific carbon reduction or carbon neutrality targets. You have the UN Net Zero Asset Owners Alliance, not to be confused with the Net Zero Asset Managers Initiative, which are separate things. You also have the ULI Net Zero 2050 Commitment for Commercial Real Estate.

Lots of frameworks out there. There's a lot more than this that are growing. They all fit together and interact in different ways. I won't go into much more detail on these now, but happy to get into these during Q&A. If we go to the next slide.

There's also some great guidance out there about how to set a carbon target. If you're starting from square one and want to know what the best practices are in setting a carbon target, I would highly suggest you check out the Greenhouse Gas Protocol Mitigation Goal Standard. If you've ever done a greenhouse gas inventory, chances are you've used the Greenhouse Gas Protocol Standard to guide your methodology for doing the inventory. This is the gold standard for inventories. But they also have a goal standard, which can be a helpful way to think about the different ways that you set carbon targets. Just to give you a sense, there's no one right way to do this.

There's lots of different methods being used. Some folks are using a base year method, where you select a base year like 2010 and you measure all of your reductions in an absolute sense against that base year. Some folks just have a fixed level goal. This is a little bit less common, but it is used in some cases where you just pick a certain emissions target per year and try to stay under that target.

Some folks use a base year intensity goal. Rather than an absolute goal, you set it based on emissions per square foot, or emissions per unit of GDP or unit of revenue. This tends to be a good approach for organizations that have rapidly changing asset portfolios. Like in commercial real estate, for example, if you're buying and selling buildings frequently, setting an absolute

emissions reduction target can be detrimental because if your portfolio grows by 30 percent, chances are your emissions are gonna grow by 30 percent too, even if you're improving your energy efficiency and emissions intensity.

Some folks – and this is more common, I'd say, in state and local and federal governments – use a baseline scenario goal, where they project out what their anticipated emissions are gonna be over a 20-, 30-, 50-year period. Then, they set a target for reducing emissions below that business as usual baseline.

Again, no right way to do this, although some of the frameworks that I discussed on the prior slide do have opinions about which of these you should or should not use. So, there is some guidance out there, but this is a good place to start. If you go to the next slide, my final slide before I hand it over to Matt here.

I want to highlight a great tool for carbon target planning, which is called the State and Local Planning for Energy Platform, or SLOPE. What SLOPE does is integrates and delivers data on energy efficiency, renewable energy, and sustainable transportation in an easy-to-access online platform that enables data-driven state and local energy planning. This is particularly useful if you're a state and local government looking to understand the local grid mix and what your opportunities are.

But I will say, even if you're not, this is one of the coolest things I've checked out in the last few weeks. I highly suggest you go poke around and check out the data 'cause it gives you a lot of great insight into what's going on in the energy markets in these localities.

I won't go into more detail now because the City of Milwaukee actually made use of this. So, Matt's gonna talk about it more in his presentation. With that, I'm gonna hand it over to Matt. Each of our three folks are gonna present for about 15 minutes, and then we'll do Q&A.

Just to quickly introduce Matt, he runs the City of Milwaukee's Energy Reduction Team, which is tasked with reducing energy use and emissions from city buildings, fleet, and operations. He also manages the city's other energy efficiency programs and initiatives, which include Better Buildings Challenge for commercial buildings, NE2 residential energy efficiency financing program, the City of Milwaukee PACE financing program, and the city's interdepartmental electric vehicle readiness team.

I don't know how he found time to be with us today, given all the things on his plate, but I'm sure glad he did. I'm gonna hand it over to you, Matt.

Matt Donath:

Thanks, Joe, for your introduction. I just want to do a quick intro to Milwaukee 'cause I know not everybody is super familiar with our city. We're actually Wisconsin's largest city and the fourth largest in the Great Lakes Region. We're right on the coast of Lake Michigan with a population right around 600,00 currently.

We've been pretty steady there for the last few years. As far as our population demographics, we're a majority minority city. When we start getting into our planning discussion later, we have a large equity focus there.

Similar to many other Midwestern manufacturing cities, we have a very old building stock, for the most part. About 70 percent of our single-family and multifamily units were built before 1955. The commercial and industrial sectors are similarly aged, pre-1900s or early 1900s in our downtown area. About 42 percent of the housing units are currently owner occupied, which is right around the national average. Next slide.

The topics for the day, talking about climate planning and carbon goals. We've had our sustainability office in place for some time now. We actually have had a sustainability plan for about ten years. But we didn't have established carbon reduction goals until just recently. We had a task force created, that's the City-County Task Force on Climate and Economic Equity. That task force established community-wide greenhouse gas reduction goals of 45 percent reduction by 2030 and net zero by 2050 or sooner. This is going off a 2018 baseline.

Those weren't necessarily established looking at one specific situation. It was what we've seen other cities do and what's recommended. The question quickly became, how do we actually reach those goals? The task force has been working on that throughout 2020 and this year as well, putting together a plan to answer the question of how do we reach our reduction goals with a focus on equity and local job creation? Next slide.

Like anybody else going through this process, our starting point was doing our inventory baseline from the 2018 year. We worked with ICLEI to put this together. We won't touch on all the topics today since we're here to talk about buildings, but as you can see

on the breakout on the right, if you total those all together, about 75 percent is coming from the built environment for Milwaukee. That's including heating and cooling, electricity generation for those buildings, stationary fuel for those buildings. It's all-encompassing. But obviously, if we're gonna reach our goals, this is where we have to do a lot of our work. Next slide.

This is one of the more useful graphs that we got out of this initial process is our business-as-usual projection. That dashed line that's going horizontally is that 45 percent goal. The vertical dashed line is 2030. Obviously, we need to be at that intersection in less than ten years now. Obviously, all the way to the bottom right by 2050. I think what this points out is, A, the complexities, looking at the different sectors that we have to have an impact on.

Then, one of the things that stood out to us also is just the high percentage of emissions coming from stationary fuels for us. Milwaukee is a cold climate. We have some long and harsh winters, and the heating season is gonna be a huge challenge for us. How do we get past burning stationary fuels and still be able to heat effectively and cost-effectively?

One other thing to point out is you can see the portion of emissions from electricity dropping over time. That's actually from our utility committing to producing clean energy, generating electricity from clean sources. That's gonna be a big help for us going forward. Next slide.

Once we went through our inventory process and the initial projection, we sat down with ICLEI and we wanted to look at what are other cities around the country doing? How are they having success? How can we duplicate that in Milwaukee? Unfortunately, as we started through the process, we started realizing, hey. We might have some challenges with some of these strategies that are really working for other places.

I won't go through all of these, but just as a couple of examples. I mentioned our stationary fuels and heating through winters. Obviously, electrification is a big part of decarbonizing our buildings. But we know that cold climate adds an extra challenge for us, especially when natural gas costs are so low and we'd be asking customers to take on additional cost. That brings up other equity issues and all sorts of things.

In the same vein, there's some cities that have a potential for hydropower. That's really helped clean their grid. Unfortunately,

we don't have a high potential source like that near us. We have to look outside of that to make sure we're getting renewable energy produced.

That conversation switched from what's working for other places to let's do an inventory of what we don't have control over and what we can't work on right now, versus what we can and where we can actually have an impact. Next slide.

Just a couple of examples of things we don't control. Wisconsin is a regulated state. We don't have a choice of where we get our energy. Our utility is still pretty heavily dependent on fossil fuel. We get about 37 percent of our energy from coal and 32 from natural gas. That's for electricity generation as of 2019. I do want to give them credit, though.

As I mentioned earlier, they set some reduction goals. Actually, just earlier this month, they upped those. They committed to net zero electricity generation by 2050 and 80 percent reduction from 2005 levels by 2030, which is above and beyond what they had already committed to. That's gonna be a big help for us, going forward. Next slide.

We have some challenges just with our state regulatory environment as well. Obviously, using advanced building codes and energy codes is a great way to make an impact across entire sectors, but unfortunately adoption and amendment is controlled 100 percent at the state level in Wisconsin. So, cities and municipalities can't set stretch codes or enforce any advanced measures. We're actually going through a new process right now to determine how that might impact benchmarking or high performance standard, and how that might fit with that regulatory environment.

Actually, currently for Wisconsin, we're on the 2015 IECC, but one that was adopted was actually amended and stripped all the way down to basically a 2009 level. We're operating on a code that's a decade out of date already, which is gonna great inhibit a lot of things, but especially if we start trying to turn the corner towards electrification. If we don't have that tool, it's gonna be very difficult.

Another quick example of some regulatory challenges is around renewables. Actually, this is a city project. We were slated to install 1 MW of solar across six city buildings, working with an installer that we were gonna do a third-party ownership model. We

got through a majority of the process and then, when we were submitting paperwork for approval, the utility was actually blocked by the utility under the grounds that the installer was acting as a utility because we are a regulated state.

Our contractor actually took the utility to court. It's also being reviewed at the PSC level. But if that doesn't advance and end up in our favor, that's really gonna be a challenge not only for the city to get more renewable energy and rooftop solar, but other businesses and homeowners, as well. Next slide.

It's not all doom and gloom. We can actually do some things to advance our carbon goals. Now, we can flip the page to what we've identified as issues we can solve. Next slide.

As Joe mentioned earlier, using the State and Local Planning for Energy tool has been a big part of our planning process going forward this far and will be going forward. He covered this slide, so let's go to the next slide.

Some of the questions that SLOPE can answer. I'm not gonna read through all of these, but this is some of the ways that you can use SLOPE to help your climate planning process. One of the ways we've used it is looking at consumption. It breaks out electricity and fuel consumption by sector, so residential, commercial, and industrial. You can really get a good sense of where you're gonna have the most impact with your strategies.

Another one that's actually not listed on here, but has been very useful, they have a building count module. They have an idea of commercial buildings by size and by dollars spent for electricity and energy generation. That will be very helpful for us again if we start looking at a benchmarking ordinance or something around our commercial building sector. Next slide.

This is a couple other ways we're using it. These are all actually specific to Milwaukee. We were able to drill down to the City of Milwaukee or Milwaukee County. One of the ways we're looking at this is using projected levelized cost of energy by technology. This one's been more of a communication tool. These are some of the things that working in the industry, you know inherently that our renewable energy is starting to decrease in cost. Fossil fuels are staying pretty steady.

This is a great tool in communicating with the public or with elected officials to show that renewable energy is gonna be the

most cost effective moving forward. You can see the yellows and oranges there are commercial, residential, and utility scale solar. Then, the blue line going diagonal is offshore wind which again, we do have Lake Michigan right next to us. That's potentially something down the road. The land-based one is actually the lowest line there. Again, it's showing us that this is the most cost-effective way moving forward. Next slide.

One that we've taken great interest in is looking at geothermal potential. I mentioned earlier the challenges we're gonna have with electrifying buildings due to our winters and the heating issues. The SLOPE tool shows that Milwaukee County has one of the highest potentials for geothermal heating in the country. When we saw that, we were like, okay. There has to be something there. We should really start exploring this further.

The graph on the right is actually showing the economic potential. That big spike in 2028 is when NREL is projecting technology changes that will bring down the cost and make it more cost effective. This is something we're definitely keeping an eye on. We're actually looking now to see if there are some city buildings we could apply this onto now and start being a model for others in the community. Next slide.

A couple other ways we're trying to work around these barriers is actually partnering with our utility. I know we mentioned we're involved with a lawsuit with our utility but on the other hand, we are trying to work with them 'cause we know we're not going to be able to reach our goals without them. We actually just recently had a 2.25 MW PV system installed within the city. It's the largest in the city of Milwaukee now.

We used an existing tariff that the utility had called their Solar Now program. Basically how it works is the utility leases city-owned land to build the system. We were able to retain the RECs. They actually give us a yearly lease payment that we're rolling into additional climate action each year.

That program was maxed out. The tariff can't be used any more. But the task force thought, we approached the utility with the question of, can't we create a new tariff program that's more directly benefitting municipalities? It's something that we could work with the utility to build utility scale solar and not have as many hurdles as we needed to cross with the Solar Now program.

Actually, they were very amenable to that. They came back to us and said that's something they'd love to work on. There's discussions and planning that's gonna be ongoing. We think that's gonna be a great tool for us and a great way for us to start increasing the green energy on our grid. Next slide.

I mentioned we have a high focus on equity with this plan. Also, if you recall from the pie chart earlier, the residential sector was actually our highest percentage, at 31 percent. We have a really big focus on trying to address energy burden in our housing sector. We know that there's areas of our city that have older housing. Unfortunately, those tend to be in minority communities or underserved communities. They might have old housing stock, as I mentioned, or there's just a lack of financing options for low-income families.

We do currently have an Me2 residential financing program, but it's difficult to get the low-income families registered for it or approved for loans. We're looking at putting together a new program to specifically benefit low-income families. Again, hopefully we'd be able to partner with the utility and create an on-bill financing model.

If we can't do it with the utility, there might be some other ways we could do it. But otherwise, we'd be looking at some other pass-as-you-save method with a revolving loan fund or something like that. That's in the works and will be the big focus on our climate plan.

On the flip side of that, we're actually also looking at a new construction program for housing. It includes those areas where retrofit either isn't cost effective or you're really not gonna be able to get an efficient home because the house is beyond that. There also are some vacant lots still within the city.

We want to find a way to create infill housing that's gonna be net zero or near net zero. We've found out that through modular design and construction, we can actually maintain the affordability that would make it achievable for lower-income families. The plan would be to have them actually manufactured in the city of Milwaukee. We're working on that currently. The idea there is obviously reducing transportation emissions, that it's constructed locally. But also we're creating green jobs and we'd have requirements to hire local workers that are in underserved communities, again addressing the equity issues that we have.

We're actually working closely with the Department of Energy on that project through the Advanced Building Construction group, and then the Workforce Accelerator as well. Next slide.

One other thing that we realized going through this process is given the current regulatory environment, we won't be able to reach our goals. We can make progress, but unless things change at the state level, we're gonna have a really hard time achieving our 2030 and our 2050 goals.

So, this year, Milwaukee joined five cities and two counties to create the Wisconsin Local Government Climate Coalition. It's modeled after a group in Colorado that did something similar. But the idea is to jointly advocate for climate policy at the state level. We have a wish list of policies that we think are needed for cities to meet their climate goals. We'll do things like file comments and intervene with PSC cases, and lobby with the legislators to try and get some change.

I do want to give some credit to the state as well because at the end of last year, the Governor's Task Force on Climate Change released their first Climate Change Report. Again, it was the first of its kind in Wisconsin. They went through a planning process in 2020, meeting with stakeholders around the state. All the recommendations in this report align very closely with the things that we would ask for the Wisconsin Local Government Climate Coalition. It's right on the same page is what we think to do to move forward.

Now, we're the point where the report is released. The state government is on board. We just need the legislature to start falling in line, as well. Again, just to reiterate, we know we're not going to be able to do it alone. We're having to focus on partnering with utility, the state, and other entities to get the job done. That's it. Next slide.

Joe Indvik:

Good stuff. Thanks, Matt. We appreciate the transparency and candor there. That's great. We have a lot of good questions coming in for you.

Our tech support people have informed me that some people are asking their questions in the wrong session. There is a different session called Pathways to Community Resilience. They both start with Pathway, but that's not our session. So, if you asked a question there, go back to this session, which is called Pathways to

Zero and ask your question again, please. I just want to make sure we don't miss any of those.

Now, we're gonna transition from the local government to the commercial real estate lens here. It's my pleasure to introduce Jim Landau, who is the head of ESG of MetLife Investment Management. He's got a wealth of experience in asset management, both at MetLife and at Bentall Kennedy. As part of his leadership in ESG, Jim founded the MetZero program, which is probably one of the coolest names in the space, to define and achieve carbon neutrality for several of MetLife's real estate funds. Jim, over to you.

Jim Landau:

Hey, thank you, Joe. Appreciate the opportunity to be a part of this panel. Really briefly, go to the next slide.

Here's a little bit on MetLife. MetLife has a corporate sustainability team that covers our offices around the world. I'm not part of that, although we work closely with them. I'm part of MetLife Investment Management. We manage the real estate investments that MetLife's balance book. We've been investing in real estate for over 145 years. The majority of that time, we were investing our own money and owning assets outright.

Over the last decade or so, we've really transitioned to an advisor, an asset manager. Obviously, we still have MetLife investments that we are managing, but we are now advising and managing assets for domestic and international pension funds, and life companies, sovereign wealth funds and others, both as where our own money is involved as well as an advisor on the separate account side.

A couple things. We have about \$125 billion in investments within the real estate and agricultural finance group that I oversee from an ESG perspective. That's about \$25 billion in real estate equity, about over \$70 billion in commercial mortgage loans. In a typical year, we put out about close to \$12-14 billion in new commercial mortgage loans. Our equity is U.S. only, our loan program is international.

We've got over \$20 billion in agricultural finance, which is all debt. Interestingly – and I'm learning a lot about this over the last year or so since I started in this new role – it's remarkable what we can do from an agricultural perspective in terms of the loans that we are managing. It's not my focus of the job that the panel today, but we've got a several billion dollar timber portfolio, the majority

of which is certified through one of three sustainable forestry initiatives. We are very involved in water conservation and working with our borrowers to improve water conservation. Really interesting and an area where I hope to spend more of my time.

Just finishing up our portfolio, on the equity side, we've got over 60 million square feet of real estate. The majority of that is in office and industrial property. We also have a fair amount of retail. That 60 million square feet doesn't include about 20,000 multifamily residential units that we own and over 10,000 hotel keys that we own, all in the U.S.

The one thing that I want to focus on on this slide right here is that what you see on the bottom. Three funds are participating in the MetZero program. We really started this in 2020. Over the last year to maybe over a year, we really put together the program, formulated it. I'll talk a little bit more about the boundaries and how we're doing this and what we're looking at as we go on.

We specifically are holding back from rolling it out to other funds. We wanted to get our ducks in a row, get our GHG tracker built, figure out what are our boundaries and how do we go about this. Because, at the end of the day, we don't want to just do this to do it. We want to do it to be successful and to reduce carbon. That's really the goal here.

I will say that as we are actively involved in talking with new investors in our open and diversified core equity fund, or Odyssey fund, or new managed account or separate account partners, both domestically in the U.S. as well as in Europe, they're very interested in what we're doing here.

While returns obviously are and will always be a key aspect of what advisors and asset managers, they choose to work with, how we get there and how we manage our assets and our portfolio, how we are doing with carbon in particular is something that the majority of them are all very interested in and really want to talk about at length, which is exciting for me. Next slide, please.

I'm not going to spend a lot of time here. I'm going to focus on one thing; you can read this. On the third bullet, Regulatory Risk Protection, this is something that I think we all, certainly in the commercial real estate industry, are thinking a lot about. New York has got its Local Law 97. Washington, D.C. has its energy law. The City of St. Louis, Washington State, coming soon to a city

near you, certainly Boston and others, other carbon laws and energy laws.

Over the next several years, you're going to need to reduce your emissions or you're going to pay a penalty, at least in many of the primary markets where certainly MetLife is active. In addition, we believe that it's only a matter of time before the U.S. has a federal carbon tax. There are carbon taxes in Canada and elsewhere around the world. They are gaining momentum in terms of the amount of the tax. We think it's likely that we will have a carbon tax in the U.S. at some point in time.

We've done some back on the envelope math. Don't quote me on this, but a \$50 per metric ton of CO₂ equivalent tax could result in an increase in utility costs of, give or take, 20 percent. That's not insignificant. Those costs would probably be put on the suppliers of energy and passed through to the customers.

By reducing energy, reducing emissions today, and having a program over the next several years, you really position yourself better to deal with the influx of state and city laws, and the potential for federal taxes, and that sort of thing. It's not just good today, it's smart long-term to have a strategy. Next slide.

This is not something new. We put a name to it, carbon cascade. But this is really – this is gonna look familiar to many of you – by the way, it's also just slightly similar to one of the slides that Matt used in his presentation. Different categories, but similar concepts. We use the word tranches because we're an investment advisor and it's a business, and people understand that. We try and talk in terms the folks understand, folks that we talk to.

Tranche 1, energy efficiency. Always the most important approach. Always the most important factor. It's becoming an old cliché, but the cheapest kilowatt to offset is the one you don't use in the first place. I'll talk a little bit more in the presentation about how we're working not only to deal with energy efficiency in what we manage and control, but also within tenant premises.

Tranche 2, onsite renewables. Solar, clearly the most... What we talk about most today, prices have obviously come down, they've become much more efficient and cost-effective over the last decade. I think that's gonna continue. We're currently have completed or are working on what will amount to probably about 4 MW of power in the next 18 months or so. We want to continue that and grow it.

We're also working on new development guidelines. We're involved in a lot of new development. I'm in D.C., by the way. Just in D.C., we've got over \$1 billion in development in three mixed-use projects. Clearly, thinking about energy efficiency and including onsite renewables is more efficient if you build it in at the outset than if you try and add it later. You can add it later, particularly something like solar, but there are other technologies.

I also want to add that technology is moving quickly. What may not seem viable today may seem viable a year from now or two years from now. We also believe and we track through some technology committees that we have in house that technology is gonna grow dramatically over the next several years and we believe it's gonna be necessary to take advantage of these advances in technology to achieve our goals long term. We're open to everything that's coming down the pike.

Tranche 3, offsite renewable energy. Purchasing green power, BPPAs, and other techniques.

Finally, you come to Tranches 4 and 5. That's RECs and offsets. The goal is to reduce the amount that we need to pay for RECs and offsets by reducing our net emissions in Tranches 1, 2, and 3. I have another slide, it's not in the deck today, but it's a simple graph. It's very similar to Matt, a slide that you showed between today and 2050. It essentially shows that Tranches 1, 2, and 3 are gonna grow year by year, thereby reducing the amount on a same source basis that we need to spend on RECs and offsets.

I want to add that from an institutional real estate perspective, we think it's gonna be really hard to achieve true net zero. On our industrial buildings and retail buildings, sure. That's probably feasible over time. On a midrise, high rise, multifamily, or urban office building, that's gonna be pretty difficult. So, reducing emissions and doing everything we can is really how we're gonna make an impact. Next slide.

The one thing I'm gonna focus on on this slide is the third area, all tenant-controlled energy consumption. One of the things that we did in putting together our program – and just so that it's clear, we actually work with Joe Indvik, and his team at RE Tech on our program, and they've done a great job. We're really thankful for the partnership that we've had with them.

One of the first things that we had to do when we started was determine, what are our boundaries? What is it that we want to track in terms of our emissions? What is it that we want to, at the end of the day, offset? We made the decision to include all ten premises. That makes it difficult, partly because we don't control those premises; our tenants do. We don't design them and we don't operate them. In many cases, we don't even have the data.

What we've discovered over the last year of building our program is that – and I found this shocking, honestly – we don't have close to 70 percent of the data of our overall buildings, and that's tenant-controlled data. I'm gonna talk a little bit more on a future slide about how we're trying to address that. But the key here is, you need to think about what your long-term goal is. I encourage stretch goals. Then, figure out how you're gonna get there, knowing that it's going to take time. You're gonna have to build it. You're gonna need a lot of cooperation from all participants – Matt made that clear.

Matt, one of the points that you made, in working with the solar project and the utility, we've got over a 500 kw rooftop array that we put up here in a building in D.C. It's been complete for a number of months now and we're still working through utility issues. We had utility interconnection approval two years ago. The bar has changed and it's frustrating. That's ready to be flipped on, if you will, for four months now and we're still working on it. Don't be frustrated by these hiccups and bumps in the road. Next slide.

I'm not gonna go over each one of these. I really started to address them. GHG inventory. Whether you do it with the help of EnergyStar and an Xcel. Use a product off the shelf that's available out there. You need to figure out how you track your GHG inventory.

ECM, energy conservation measures. We've all been doing this for many years. We've really upped our game through the MetZero program.

It's very important, looking at the next one, business planning. We're a budget-driven entity. We work with our money, MetLife's money, our partners' money. We have to think long-term. So, we're always planning at least five years in advance. You need to be thinking about what can you do, and start allocating and budgeting those dollars today so that you're in a position to move forward with projects tomorrow.

Solar energy, I touched on.

Green power procurement, we engaged with a company, Resource Energy, recently to create a national energy procurement program, at least into regulated states. We're moving forward with that. We're buying 100 percent renewable electricity in most instances at this point.

Tenant Partners Program. This is what I wanted to talk about before. We don't have a lot of tenant data and we're gonna need to work with tenants to really achieve our goals. We're using our program, we sent our surveys actually at the end of the year to all the tenants in the programs that are participating in MetZero. We asked them questions such as, are you interested in talking to the landlord about improving efficiency within your premises? Not that we're gonna pay hard dollars to do it, but we've got expertise and we've got expert third-party managers that can help out.

We had great response. At least 50 percent of the respondents said yes, I'd like to talk to the landlord about this. As well as other things, like participating in the EnergyStar for tenants program. Working with your tenants is critical. Last slide, please.

Very quickly, the bottom right. We're working on a series of white papers right now on carbon neutrality. The first one should be published hopefully in the next couple of weeks on our website. We have others that are coming later this year, as we move closer to the COP26 conference in Glasgow this November. We think that the world is going to potentially move the targets and milestones that were set in Paris in 2015.

Finally, embodied versus operational carbon. Everything we're talking about deals with operational carbon. We're starting the process of thinking about, particularly in our new developments of course, how can we address embodied carbon? How can we track it? How can we reduce it over time?

A lot of challenges in the future. Look forward to any questions that you guys have after the last presentation. Thank you.

Joe Indvik:

Amazing. Thanks, Jim. Really appreciate it. I see a lot of good questions continuing to come in. Keep them coming and keep uploading the questions that you want to see asked. We'll be able to get through probably five or six of them at the end here.

I'm gonna hand it over to Mark now. Mark joined TNDC in 2020 as the director of facilities. He's got over 30 years of experience in facilities operations management and maintenance. He's created and implemented facilities and sustainability programs within the semiconductor, software, government, education, transportation, and commercial real estate sectors. Mark, I'm gonna hand it over to you.

Mark Puchalski:

Great! Hey, thank you so much for that introduction, Joe. I feel like I should be holding a Golden Globe award and thanking my parents.

Anyways, hey. Before we get started, I want to give a shoutout to two people within TNDC that really were the ground foot soldiers driving sustainability efforts. First is our former senior sustainability manager who's moved onto bigger and better things, Ruchi Shah. Second is our sustainability coordinator, Magdalena Szymanska. The dynamic duo of sustainability with TNDC drove a lot of the successes we've had at this point. Next slide, please.

Okay, so let's talk a little bit about TNDC. Our theory of change, our ultimate goal, is that people with low income have access to equitable housing in a community that provides for them. The resource that they need to thrive in a neighborhood. That's our core goal and our core mission. Our work supports 5,800 tenants, 43 buildings, 4,000 homes, and 70 different neighborhoods within these San Francisco area. Next slide, please.

To give you TNDC at a glance. We're a nonprofit organization. We fight for housing. We believe housing is a human right. But housing isn't where our work stops, as you'll find out with our sustainability efforts in terms of healing the planet, healing our neighbors, healing our communities. That includes the people that live in those communities as well and the needs that they have.

As we're looking at that, we have after-school programs, we have people's gardens, we have rooftop gardens, we have a lot of different programs that help our low-income residents. Out of our 4,100 residents, 3,280 of them make less than \$15,000.00 a year. I don't know if any of you can survive off \$15,000.00 a year, but I can't. We're happy to be able to provide housing for those who are in that income bracket. Next slide, please.

Okay, so now let's get into the nuts and bolts of this whole thing. These are the values for the facilities department, which I run. They align with the values of TNDC as a whole. I want to read

these to you 'cause these are important. We'll start with homes. Facilities provides support and programs that help create and maintain homes for our growing community. We'll skip over to voice. This is also important. Facilities is committed to hearing the voices of all people under our care, employees and tenants alike. We look for and solicit feedback to enable us to respond to concerns quickly and ensure needs are met.

Then, I'm gonna go to health, which ties this all together. Facilities supports the health of our buildings by incorporating green technologies and ensuring the safety and physical conditions of each property. It was important to incorporate sustainability and green technologies into our facilities values because that translates back into the voice and into the homes. Next slide, please.

Our sustainability goals are common and you've seen these repeated. They're repeated for a reason. These are the goals that people should be having and they work. Energy and water. This is all based on a – compared to a 2019 baseline. We reached the goal in 2019 and now we're continuing to set new goals.

Our new goal is reducing 20 percent of our energy and water by 2029. Increasing waste diversion to 60 percent in the same time period. Operational carbon, we want to reduce combined Scope 1 and 2 emissions to 50 percent. We want to incorporate Solar PV to support a minimum of 30 percent of the building's energy use. We also want to leverage green certification.

This is important because folks have done studies, folks have put up things that you need to meet. Green certification is one of those. So, we want to meet either a GreenPoint Platinum rated, LEED Gold. We also consider the occupant-based health approaches, such as Living Building Challenge, FitWel and WELL.

All these goals combine to have a holistic view of how sustainability impacts the people in the communities, the health of the people, the health of the community, and the health of the neighborhood. Next slide, please.

Our pathways to low carbon. Jim, this is almost a mirror of what your slide was, same sort of things, same initiatives. We're all gonna share a lot of these same initiatives. But I want to talk about energy efficiency. Jim, you talk about energy efficiency as well being a very important aspect of this.

Other than just the ultra-efficient equipment that we should be looking for, ENERGY STAR rated equipment. As multifamily housing, remember, we're looking at washers and driers, and we're looking at dishwashers, and we're looking at these types of appliances that we put in. We look for the most efficient that we can afford to put in.

But I also want to stress that operational and building management practices are just as important when we're talking about recommissioning work, when we're talking about a PM program, predictive maintenance. A robust inspection program. Your equipment will lose efficiency over time if it isn't properly maintained.

So, it's important to have that robust program, a work order system that captures this, a planner scheduler that sets the program parameters. These are really important aspects to maintain energy efficiency. It's not just putting the equipment. It's really about a robust maintenance program to make sure that happens. Next slide, please.

All right. When we look at new construction, all electric isn't always expensive. There was a study done and it was done by the Department of Environment in San Francisco and a power company. What they found is that a change in construction costs – I won't read all the numbers here – if you plan early, you see in the what not to do, switch to all electric late in design.

That's something that you want to do when you see a plot of land, I'm gonna build a building and I'm gonna make it electric. You want to start that process at the beginning. That's what we found. It becomes more expensive – a lot more expensive – when you try to do it later on in design. It's best to make the decision to go electrification at the beginning. Also, when they did a net present value analysis, they also realized that it is a good investment over the long haul to have an electrified building.

Under what to do, I want to comment on – I can't see the whole thing here – we want to set clear goals and get buy-in from all. Getting buy-in from all, part of sustainability is about new technologies. New technologies are about change and change is difficult for a lot of people, especially when they're putting money on the line. Making the sale is just as important as finding the product and doing everything else. Buy-in is extremely important.

As Jim mentioned about going after the tenants and getting their buy-in and getting their participation, we too have tenants that we need to bring in and get buy-in for them to participate in the overall sustainability efforts.

There's another bit underneath that, evaluate onsite renewables options. It's called commissioning. I can't stress commissioning enough. Commissioning helps us make sure that the equipment we're putting in is operating up to spec. It's extremely important. It's well worth the dollars spent. It'll have a payback very quickly. Next slide, please.

This is very quick. These are the programs that were leveraged in order to get the rebates and incentives to allow us to have the money and funding to be able to do the sustainability work we've done. A lot of these will probably be familiar to you folks.

Looking ahead, we're now looking at a solar-plus-storage system to build resiliency within our buildings, remove diesel generators that offer backup power. We run senior buildings, disabled senior buildings. They have medicines, they have things like that. As climate change is starting to impact buyers and power outages and things like that in California, it's important for us to have that resiliency built in, and we want to do it in a sustainable manner. We're looking at the SGIP program.

There's some bureaucracy that's been brought up. Matthew brought up some of the bureaucracy. That's been some of our main stumbling blocks with the SGF program is the bureaucracy wrapped behind it. They're trying to figure out tariff rates, and whether multifamily is a commercial or a residential rate. There's a lot of stuff that needs to be worked out. That's where we look to our partners to help us work that out, our partners within the Department of Energy, our partners within the Department of Environment. Gathering those fine minds together to help solve these issues. Next slide, please.

We did a partial electrification case study as part of our overarching goals and sustainability efforts. We picked this building, it was 1190 Howard Street, a multifamily building, 88 SRO studio units, 74 family units, 162 units total. Five floors, first floor commercial and a boiler room on the ground floor. Let's go to the next slide.

What did we have? We had two independent gas-fired systems: a domestic hot water system, two boilers, and a heating hot water

system with two boilers, non-condensing boilers, low-efficiency gas systems. We took those out and we did one combination system, where we put in a heat pump water heater with a heat exchanger tied into two heating hot water boilers that are high-efficiency gas units that are condensing boilers.

The heat pump provides 80 percent of the domestic hot water load. The heat exchanger provides the rest. We have fully redundant systems for both domestic hot water and heating hot water. Next slide, please.

The entire scope of work for all the projects we've done to get us to the point where we're at today, we're continuing to invest in new projects, we have a solar project going on right now at another one of our buildings, our Rosa Parks facility. That's the building we're looking to employ our first battery backup system.

But when you look at all these scopes of work – the low-flow aerators, in-unit LED lighting, common area and exterior LEDs, variable drives, retro-commissioning, hot water heating pipe insulation. All these efforts combine to give us these projected savings and projects savings in energy and cost, and reduction of metric tons of CO₂.

But I want to stress that this is just part of the physical structure work. There's also other work that we as sustainability managers and people who are fighting the fight of climate change need to keep in mind. As a multifamily housing provider, we also look at holistically how the impact on the community plays into this. We need to look at how do we integrate nature into our urban society? Because it's the lack and the decimation of our natural lands that are really exacerbating this problem. It's important to look at how all of this plays into play.

If I have a community of people who have a lack of education opportunities, the lack of healthcare opportunities, the lack of job opportunities, these things impact us on an environmental level. If I have employees that are driving in three hours a day to work because they can't afford housing where they work, that impacts our environmental objectives holistically as a whole.

You can't just look at putting solar on a building. You have to look at the entirety of your program, the entirety of your organization, and really start to look where you can start pulling stuff out. I think that I want to leave you with that focusing on people is focusing on

sustainability as well. I'd like to go to my next slide, my last slide because this is important.

We're all warriors in the climate change battle that we're all facing here. We're really the super heroes trying to save the planet, if we really look at it. Our collective home. In essence, our very survival. We need to stop focusing on ROI as just money. We need to start looking at what is the return on investment in terms of quality of life, return on investment in terms of the health of our society, of our communities, of our local neighborhoods, of our neighbors and of ourselves.

The ROI isn't just about money. It's about the planet, it's about the environment we're living in, and it's about the quality of life at work and at home. When she said – Greta Thunberg, we all know who she is – "I don't want your hope. I don't want you to be hopeful. I want you to panic and act as if the house is on fire." That's an appropriate statement for what we're looking at in terms of how we approach this.

We at TNDC take this very seriously. We look at all these different aspects of sustainability and the impacts of not performing sustainability actions as well as the impacts of performing sustainability actions. What are the risks of not doing this work is just as much a part of the sell of what are the risks of doing this work.

When you're building your business cases for new technologies, or you're asking for a lot of money, put this together and say, here's what we're trying to do. We're trying to save our environment. Here's the payback for that effort. Yes, your money may be six years in an ROI. A lot of this, you'll see a six-year ROI. A lot of CEOs, a lot of accounts, don't like a six-year ROI. They want a two-year or less ROI.

We have to find new ways to sell this initiative and get people on board with the concept that sustainability isn't just about saving money. It's really about saving our environment. With that, I'm looking forward to a Q&A session, a very robust Q&A session.

Joe Indvik:

Awesome. Thank you all. Not only was that one of my favorite sessions at the summit so far, you also all came in under time, so we have lots and lots of time for Q&A, which is amazing. We've got 30 minutes here. Lots of good questions coming in. No shortage of tricky ones and interesting ones. We're gonna have a nice, long conversation here.

I'm gonna open this first one up to everybody. This is the top-voted question, I think, for good reason. The question is, "Our local government is in the infancy stage of thinking about net zero and carbon goals related to buildings. I'd love to hear how you get buy-in from stakeholders that are only concerned about the financial bottom line and not climate goals."

I have a separate flip-side question about how you make the financial case after this one. How do you get people online when they've got two-year payback thresholds and not particularly interested in anything else?

Matt Donath:

I would say for local governments, I think that payback threshold gets stretched out a little bit longer. I think we have the benefit of looking at paybacks as a long term. Two years is great, but when you're a local government that's planning on being there for a while, ten years is fine. You can make that work in your budget. Every year, your operating costs are dropping when you make these investments.

I'd also say that the good thing is as technology advances, that ROI is becoming stronger with both energy efficiency renewables and all the above, especially when you start pairing those together. I think there is a financial case to make. If that's what language those people are speaking, then make sure you have that ready to go.

I would just say the flip side of it, which Mark touched on, is including other benefits or finding what else speaks to those stakeholders, whether it's equity issues, community development issues, job creation. There's so many things that are affected by these investments that I think you can spin the story the right way for who you're talking to and sell it that way.

Mark Puchalski:

I would add to that that we also need to look at how we can leverage the free market to reduce the cost of new technologies that'll help our ROI be shorter, to what Matthew was saying. There are ways. The free market will, I think, help us start driving these costs down. As regulations start pouring in and creating the need, I believe that the free market will respond to that need and we'll start getting more and more products available, more and more competition within the marketplace.

But we need to drive competition in the marketplace for sustainability efforts. As that competition grows – and it's growing rapidly – we're gonna start seeing those prices come down, just

like we're seeing in solar, as Jim alluded to in his presentations, it is coming down. We need to keep driving it down. By driving it down, we create demand, we create competition, and we should start seeing some better ROIs in terms of financial aspects.

But I would continue to emphasize that ROI is not just about money. We need to start identifying other types of returns on our investment that is not just monetary.

Jim Landau:

I would add one last thing. I touched on this in my comments earlier. To position risk. State, city laws, federal carbon tax, et cetera, is coming. Today, purchasing RECs and offsets is actually really cheap. It's remarkably cheap. You can buy national RECs today for a little over \$3.00 per kilowatt. That's up actually significantly from pre-Texas disaster of December.

But over the next ten years, there are predictions that RECs could go to \$20.00, \$25.00, \$30.00 per kilowatt. Ten times what they cost today. If you think about reducing your emissions today not just based on the ROI that you're gonna look at today, but based on the risk that you have five years, ten years down the road. You need to take that into consideration.

Mark Puchalski:

That's an excellent point, Jim.

Joe Indvik:

Yeah. The cost per megawatt on RECs, just to make sure, Jim, has been pretty dirt cheap for the last – even though it's fluctuated a lot – the last decade, frankly. But yes, most analyses seem to indicate it's likely on an upward trajectory as the demand increases.

The only thing I would add is we work on designing a lot of carbon neutrality and carbon reduction programs. One theme that you saw from all three of these organizations is that prioritized waterfall, cascade, whatever you want to call it, but that prioritized way of thinking about investments. Really what that is is it's ultimately a bundling strategy. It's saying, let's think about the ROI of our entire carbon reduction program together as a bundled investment. You might have some two-year payback LED projects and you might have to pay a little extra for green power.

But if you think about it all collectively, a lot of times you can achieve pretty significant and deep carbon reductions where the higher payback retrofit projects subsidize the lower payback one. Same thing on green power, right? Sometimes if you're switching to a centralized green power procurement model, you might be paying a little bit more per kilowatt hour for the green power, but

you could also sometimes achieve cost savings by renegotiating your utility contracts, or getting in a better rate category, whatever it might be.

I think the bundling is something that all of you were pretty sophisticated about thinking about it that way. I think we have to get away from this idea of thinking about ROI as a project by project metric.

Mark Puchalski: Yeah, I totally agree.

Joe Indvik: Okay, great. There's another good question down here. Hold on a second. Kind of a flip side to that. Maybe we've already covered some of this. We had one question here that I think is a good issue to flag.

They said, "We have yet to hear meaningful discussion about how to overcome payback issues. Solar's best payback is six years without incentives. Businesses won't typically accept anything over two," although I'm not sure I'd agree with that. I'm curious on your folks' thoughts on that. "Wind is also highly subsidized."

So, who bears these hidden costs? What's the payback realities here when we talk about carbon neutrality?

Jim Landau: I'll start. It depends on where you're located. I don't think I'm telling anybody anything here that's new news. California, Massachusetts, New York, New Jersey are jurisdictions where solar is more economical, partly because of the spark spread – the cost of power versus the cost to produce power – as well as local incentives. There's also the considerations like the investment tax credit, which is going to step down over the years.

My suggestion would be, if you've got property in one of those areas – again, California, Massachusetts, New York, New Jersey, a couple others – every property that you have in those jurisdictions, you should be looking at solar today. Focus all your energy there. If you don't have assets in those locations, then it's not gonna be as economical.

Matt Donath: I would just add that there's different financing methods to look at for this as well. Obviously coming from a government perspective, it's not as much of an impact on us. But like I mentioned in my introduction, managing our PACE program, financing it through PACE. You don't have upfront costs, you're seeing operational savings from reduced energy every year. There's ways to change

up financing that's gonna make that more palatable for any business.

Joe Indvik: Great. I have a couple of rapid-fire questions for each of you individually here, and then we'll go back to some group questions. For Milwaukee to start with, one person was asking, "What technological advancements are most critical for you in making geothermal heating more cost effective?" But I'd be interested in you answering that question more broadly. What are the two or three technological advancements over the next 10 or 20 years that you think are gonna be most important to help Milwaukee hit your carbon goal?

Matt Donath: I think there's a couple things. These are in the same vein. Both geothermal heat pumps, also air source heat pumps. I know there's a lot of discussion whether they're viable in cold climates. Some might be down to -10, something like that. Well, we tend to beat that every once in a while here. As those just become more efficient and able to operate in colder temperatures, air source heat pumps are hopefully something we can rely on.

I think as far as geothermal, the big cost of geothermal is trenching, drilling, and bringing the system. As technology advances, it advances in that way. Hopefully insulation costs start to drop. I think that's hopefully where something will change. But also, just more efficient systems, as motors become more efficient, different things are just gonna drive the efficiency of the system up, which makes that payback a little bit quicker.

Joe Indvik: Awesome. A question for Mark. The person said, "A hundred percent agree on the importance of maintenance. Do you have a method for estimating the savings impact from green operations and maintenance?"

Mark Puchalski: Well, when we trend our energy usage, we'll start a baseline trend at the beginning. As I take over a property or whatever, industrial complex or whatever, we start with a baseline. We need to understand where we are. Then, through retro-commissioning, through maintenance procedures, we can start measuring the reduction. A lot of times, we'll do it to the equipment level, where we'll monitor and start trending data.

It's all about the data that you gather. So, we'll put CTs on our electrical equipment, we'll put flow meters. We'll understand first, measure what we have, you can't manage what you don't measure, and then you can start making the progress changes from there. But

it's really about collecting the right data at the front end so that you know where you're headed from there.

You compare that to nameplate data. You get your equipment in top operation positions. If I'm pulling 2 amps more on a motor than I should be pulling for that service, I know that I need to either replace that motor or I need to service that motor, get it rewound or whatever I need to do, to increase the efficiency of that motor. Then, I can take that data that's trending and also bring that back in.

Also, new technologies minimize maintenance. LED lights, for instance. Back to the ROI, there's a cost save for maintenance. Some of the new technologies that you put in are actually less maintenance-intensive. But for the air handling equipment, for the pumps, for the industrial equipment, it's really about managing your data, capturing the data with a control system.

Part of the initiative that we're doing right now within TNDC is building the infrastructure, the base foundation of control systems for all these buildings. A lot of multifamily housing, they don't have control systems in the buildings. How do you aggregate that data to make smart business decisions and smart maintenance decisions?

Really, I would say the start here is to gather your data, start measuring your usage at the equipment level. Put that into a control system so you can start trending that data. Then, you have a baseline to work from to start the process of either recommissioning or enhancing your preventative maintenance program. Also, looking at predictive maintenance technologies, as well.

Control system can help you really fine-tune a predictive maintenance program. A planner scheduler is absolutely necessary for a large organization to have a quality PM program. But all that data that come in, then you analyze that data, and that helps you make the right decisions moving forward.

Joe Indvik:

Great answer. Thank you, Mark. I have a question for Jim. Folks were interested to hear more when you said that all tenant spaces are included in net zero for participating funds. Folks had some questions about that.

One question was, "If you're a building owner," which you are, "and you have tenants with a triple net lease that will not run out

for the next, say, five years," by triple net they mean, of course, that the tenant's responsible for their own utility bills, "how would you encourage your tenant to go about doing net zero? How would you engage a tenant where you have basically no operational control over what they're doing?"

Jim Landau:

Good question. I started to address it a little bit in talking about the tenant partners program that we've created and we're rolling out. Communication with tenants is one thing. One thing that we recognized over the last year, as we started to build this program, was we've got goals.

By the way – this is obvious – it's critical to not only have goals, but to publish them because it keeps you honest. We have goals, we have carbon goals. We put them on our website. You can go see them.

Our tenants have goals, too. It's remarkable how easy it is to find out about it. You could ask them. You could also just go to the website. A lot of our tenants are large national law firms, engineering firms, high-tech firms. You just go to their website and Google sustainability carbon, you find their goals.

That enables a conversation. "Hey, tenant, this is the landlord. I want to talk to you about your goals and how we can help you to reach them." There's nothing like conversation to create value and to create trust. You have to start somewhere. It's not always that hard.

The other thing is lease structure. You need to have a lease. If you're got an existing tenant, five years ago maybe this was tough, but you need to have a lease structure that allows you to share costs. One of the other that we're doing is, particularly in industrial and retail buildings, we're putting in the lease that we have the right to put solar on the roof and to provide power to the tenant. We don't have to go to them and ask for permission at a later date.

You need to think through some of these things in advance a little bit. You can require that a tenant – again, in a lease – to buy green power. You could work with the tenant to educate their employees. By the way, their employees probably are sustainable. They drive electric cars, they recycle at home, they want their company to follow suit.

If you're providing a better workplace, better lighting, better air quality, et cetera, it's good for the company. Because 90 percent of their cost is payroll, not occupancy cost. Work with them.

One other idea is – I heard this on another panel a number of months ago; I thought it was brilliant. We haven't really done anything with it yet, but – create a baseline for carbon. Let's say triple net lease, say in the lease, we anticipate you're gonna use this much power, it's gonna create this much carbon, this much emissions. If you go above that, you've got to pay for RECs, the cost of RECs to offset that additional.

I'm not saying that could work. It may not work today. Maybe it works in a year or two. But you need to think out of the box a little bit. Those are just a couple of ideas.

Joe Indvik:

That's great. Matt, I'm particularly curious to hear, on the subject of community and stakeholder engagement, since your targets span not just city operations, but also looking to the community for emissions reductions as well, what are you guys thinking are gonna be some of your key traction points, I guess, with driving behavior change or investment in the private sector within Milwaukee? Financing programs in particular. I'd be curious to hear more about that, too.

Matt Donath:

I think that's definitely a big challenge, a big part of our planning process. The way our task force is set up, we have work groups. There is one that's specifically designed for community outreach, education, and workshopping those things with the community. We know we need community buy-in on the outside of this plan or it's gonna make it that much more difficult.

But I think part of it that's helpful is some of the relationships we have with the business community already through the PACE program that I mentioned, or the Better Buildings Challenge that we did in conjunction with the Department of Energy. We have a good network of organizations that are developers, business owners that have these same goals or will have these same goals.

It's working with them on the front end, let them know what we're thinking and what potential ordinances or things are coming down the road. Working with them to put those things together, rather than passing it and saying, all right. Now, it's your job to figure it out. I think having those conversations early on because if you have a small subset of business owners and building owners that are bought into it and can start achieving those goals early on, it

makes it a lot more easy to point to them as success cases and show how it can happen.

Joe Indvik: Great. Back to a couple of general questions here. This is a good one. The question is, let's say you were approached by or talking to an organization that was purchasing renewable energy certificates and offsets and saying they're carbon neutral, but not really focusing on energy efficiency, renewable energy, green power procurement, Jim's Tranches 1, 2, and 3, or the first three of the four on Mark's waterfall.

What would you say to an organization that's doing that? Is that enough? Should they be doing more? How would you approach that conversation?

Mark Puchalski: Can I go first on this one?

Joe Indvik: Go for it, Mark.

Mark Puchalski I would say you're not doing enough, period. That's one aspect of it. But if we ignore the whole... Like I mentioned in my presentation, we need to look at sustainability holistically. Look, when I bring in a new engineer and I'm training them on a building, for instance, I equate the building to the human body because we build for humans.

So, the building breathes like we breathe, it pumps fluids like we pump fluids, it has a brain, a DDC system as its brain, it has electrical system, which is our nervous system. We don't look at our body just at one component. We need to take care of our body holistically.

The same thing with a building. When we put in a new piece of technology, we can't just look at that piece of technology. We need to look at it holistically. You translate that up to a community-wide holistic approach to sustainability efforts.

Like I was saying in the beginning, during my presentation, was that you can't just look at one aspect of sustainability and think you're doing your part. This is really a battle to save our environment, which we happen to need to survive. The urgency is important.

I would say to that company, thank you for doing something. Here's what else you need to start doing immediately because we don't have the luxury of generations to solve this problem. I think

we see that in the graph that Matt showed – I think it was you, Matt – that showed how – or maybe it was Jim – how more investments are coming. Maybe it was you, Joe, actually. I'm getting this all mixed up.

But the point is that more investments, more companies, more Fortune 500 companies – that was the slide – are starting to make those commitments. Those commitments are important. I would tell them very bluntly, you need to do more. It's your responsibility to do more for your community and for your employees, for yourself, and for the planet. That's my soapbox speech, anyway.

Matt Donath: I would just say, too, that at that point, you might be saying you're carbon neutral, but you're missing out on the actual return on investment that you would be getting for doing things on site. What Jim just touched on, the environmental benefits in the building of better airflow, better lighting, tenant satisfaction, all those things that go into that.

Not to mention if you're doing a VPPA from wind energy that's in Texas and you're located in Wisconsin, for example, you're not helping emissions in your community and you're not reducing emissions. That's gonna impact the health of your community and wellness of your community. I think that's the way to look at it is what can you do to impact the people around you, in your building, in your community, and at that level first before looking to other sources.

Jim Landau: I'll just say from the perspective of an institutional investor who's always leasing space to other people. It's short-sighted because – I've mentioned this already – our tenants, whether they're office, multifamily, hotel guests, retail, industrial, whatever, they all care about these issues today. They're gonna care even more tomorrow.

If we're not doing the right thing by operating our buildings well, then they're gonna go somewhere else to lease space. You're gonna lose occupancy, you're gonna lose rate, you're gonna lose value. It would be short-sighted.

Joe Indvik: I will say – again, wearing my consulting hat, not my DOE hat here – it's interesting to watch, particularly in the investment realm, how much more specific and more sophisticated investors have gotten over the last ten years in the types of questions they ask about ESG when they're going to a real estate company or any company that they're investing in. They used to be, do you have a sustainability program? Great, tell us about it.

Now, it's like, have you looked at LEDs? Do you report to Science Based targets? How many RECs and offsets are you buying? They're getting much more specific, particularly a good subset of investors in Europe are driving a lot of this action right now. But there's other investors that are following suit. In the private investment space, you're starting to see a bit of a sea change there. That's driving a lot of the action.

Jim Landau:

Joe, let me add one thing just really quick. If your building is valued, even if you're not leasing your building and you need to value it, you may sell it someday. At which point, it's gonna be valued by the market. Over the next decade or so, there are gonna be haves and have nots. There are gonna be those people that have done the work, increased efficiency, reduced emissions in their space, included onsite renewables, et cetera. And those that haven't.

Just simply the cap rate. Even if your occupancy doesn't reflect that, the cap rate that an appraiser looks at your building with will look at that added risk. You're gonna lose value. There's a lot of financial reasons to go down this path today.

Mark Puchalski:

I would add that more and more, people are becoming more and more aware of the need for sustainability initiatives. I don't know how many of you have seen the David Attenborough documentary where he reflects on the loss of the natural habitat in the world over the course of his lifetime of going out and doing his amazing documentaries. It was somewhere like 50 to 60 percent, I can't remember the exact number. But it was a staggering number. I think it was 70 percent of the natural world has been overrun, or farmed, so the non-human...

It's staggering what we're facing here. So, more and more people, like I said, are starting to see this. It's important for us to react to that. It's important to our customers. To Jim's point, it's becoming important to our customers as well. We need to respond as good stewards of our customer relationships. We need to start looking and pushing hard on the sustainability efforts because they're expecting us to do that.

We're the leaders doing that. We're the new super heroes. We're the new Avengers trying to save the world. It's an important mission that we're all on. I'm so glad to see so many participants in this Better Buildings Challenge and these summits, meetings, because that's where we really need to be.

Joe Indvik: Thank you all. A little bit more of a technical question here. One person was asking, they're looking to set, or maybe have already set, a base year reduction goal. I presume that's an absolute reduction goal against the base here. But they want to be more specific by scope, so reducing Scope 1, 2, and 3 against separate targets for Scope 1, 2, and 3 emissions for different emissions sources.

Curious to hear from you all how you think about that. Are you setting an absolute emissions reduction goal across all scopes and sources, or are you thinking about specific targets for individual contributors?

Matt Donath: For the City of Milwaukee, right now we're just looking at the overall. Part of that is because just where our emissions were coming from. I think it's really dependent on where you are and where your emissions are generated from.

For example, one of our power plants is within the city limits, one is without. A majority of it is coming from that one power plant. A lot of our wastewater has actually been emissions coming from that. It changes the calculation a little bit.

I don't think it's as necessary for us to focus on Scope 1 or Scope 2 because naturally the way it's set up, we're gonna have more of an impact on Scope 1. But I think it is dependent on what your situation is, where your emissions are really coming from.

Jim Landau: We're also looking at overall... That might change over the next few years. I don't know.

Mark Puchalski: We're looking at both. The city of San Francisco is mandating – as well as several other communities – the electrification. Now, it's great that we're focusing on this, but I want to pivot here to another issues, and I've seen questions come on Slido.

We'll have the Department of Environment specify electrification for the city of San Francisco and outlying areas. But then, you have the Department of Inspections, who isn't quite up to snuff on the technology the Department of Environment is pushing us to use. The domestic water heat pumps, for instance.

We're going through a bureaucratic nightmare right now with just the permitting aspects in one of our buildings that we did that. Another building, it went just fine. It highlights that there's some

jurisdictional education that needs to happen from the top down, from the federal down to these local communities.

Matthew, I think you talked about some of the challenges you're having with the local authorities, the state governments and those kind of things. We really need to keep pushing on the local governments and all the way up to the federal governments to get an education program down to their local jurisdictions having authority. Because right now, a lot of the roadblocks are coming from those authorities, even when another group within that same authority figure – the state government or the city government – is mandating a certain pathway for us to take.

I'm all for electrification, but we also have power companies that haven't upgraded their infrastructure yet. There's a lot of pieces to this puzzle. That's why I keep focusing on the holistic approach of that. When you're looking at electrifying a building, you may not have the resource from the power company to support that initiative. That's some of the problems we're finding in some of our older buildings when we're looking to electrify them.

If I have a building built in 1910, trust me, the infrastructure of that building is not set up for electrification. When we look to rehab that building and finance a rehabilitation for that building, ripping out all the electricity can be very costly. So, there's a lot of different challenges we face on that approach.

But in terms of looking holistically, I would say we look at both 1 and 2 phases, scopes of work on this. Every aspects of sustainability needs to be under consideration on some level.

Joe Indvik:

Great. I wish we could keep this going for an hour. I have one final question to close this out here. That question is, what do you think about what needs to change, both at your organizations and in the world in terms of technology and policy and everything else to achieve your carbon reduction targets? If you could wave a magic wand and change one thing, invent one new technology, change one policy, change one person's mind that you think would be most impactful in helping you achieve your carbon targets, what would you wave your wand at?

Mark Puchalski:

I'm happy to go first 'cause I got mine right on the tip of my tongue.

Joe Indvik:

Go for it.

Mark Puchalski: I've been waiting this whole time. The one thing I would do is, I would stop subsidizing the problem and start subsidizing the solutions with greater emphasis. Instead of giving \$25 billion a year to the fossil fuel industry, I would put that money into electrification, into redoing older buildings. Really put that money into renewable resources and sustainability. We need to stop subsidizing the problem and start subsidizing the solution. My magic wand would do that for us. We would have a complete priority shift into really putting this as a number one priority.

Also using that money for job training and to take those jobs that are in those sectors 'cause that's the big fear of change is the jobs and the money lost. We need to start looking at pushing that over to renewable resources. We can do this. We have the technology. We just lack the will. We need to start pushing that forward.

This group has the will. We need to make sure that everybody else has the will. That would be mine.

Jim Landau: I'll say one thing really quickly. I know we're running out of time. A lot of state and city laws, regulations already on the books, a lot more coming. The federal government can't tell states and cities what to do, but I would suggest – and there is an effort here underway right now that we're part of – if the federal government would have put out guidelines and standards that cities and states around the country can adopt, it can create more of a level playing field, particularly for folks like us that have assets across the country. That would be helpful.

Matt Donath: That's a great one. I'm trying to create our own standards right and it's obviously difficult. So, it'd be great to just be able to take on something that already exists. But in the areas I mentioned in my presentation that I would really love to have either a giant pot of money to go do it or some program would be the retrofit program we talked about. I think the housing sector, when you look at the energy burn data, we have areas in the city where people are spending 10 to 15 percent of their monthly income on their utility costs.

Being able to reduce that to the national average of three percent. Obviously, the quality of living there is gonna change dramatically. They'll have that much more money to spend every month for necessary items. Obviously, the job creation that comes along with it. That's something that, if we could find a way to really have a sustainable long-term retrofit program that could

cover a lot more of the costs than we can currently for those homeowners, it would just have an amazing impact.

Joe Indvik:

Great. All great answers. Thank you, guys. I think this is really cool to have three very diverse perspectives on the same issue on this panel. Thanks for a great conversation. I think this was awesome. If the comments we're getting are any indication, people really liked it. You can reach out to these guys. We're gonna have their contact information at the end, if you want to follow up with some of your questions.

Just to quickly close this out here. I'm gonna bring back up the slide deck, Kyle. A few additional resources. I mentioned the Low Carbon Pilot that over 55 of our partners are now participating in to demonstrate low carbon pathways at the building level or the plant level. There's a link here, but you can also just Google it. This will be available when the slides are shared. Also, links here to the Financing Navigator, the Finance and Resilience Toolkit, and the SLOPE tool that myself and Matt talked about.

If you go to the next slide, I do want to also highlight the Better Buildings summer webinar series, which is upcoming. This is gonna feature conversations from many partners about some of the most pressing energy and sustainability and climate challenges that they're facing. If you want to register for any of these webinars, go to Better Buildings Solution Center and click on events and webinars.

If we move to the final slide here, I just want to thank everyone again for a great session. Here's the contact information, as promised. We're also gonna launch a short feedback survey in Slido. It would be very helpful if you give your feedback on how this panel went. We'd like to do more like this in the future. If you want that, of course. It would be good to get your feedback on whether this was useful. We also rely on that for designing all future events, so appreciate a little bit of feedback from you all.

If you want to learn anything more about these topics, or access any of the resources we mentioned, the Better Buildings Solution Center is always available.

Jim, Matt, Mark, thank you guys so much. Look forward to the next one.

Mark Puchalski:

Thank you all. Thank you, Joe.

Matt Donath: Have a great rest of the summer, guys.

Mark Puchalski: Thank you.

Joe Indvik: Bye.

[End of Audio]