

*Joe Indvik:*

All right, welcome everybody to What's New in Energy Efficiency Finance, which is part of the 2020 Better Buildings/Better Plants Virtual Leadership Symposium. This is Joe Indvik here and boy do we have a packed house today. Kyle, if you'd go to the next slide. We've got about 1,600 people registered for this session, which tells me that you all are as excited to dive into recent trends in energy efficiency finance as we all are. If you're a fellow clean energy finance nerd then you're in good company and if you're relatively new to some of these concepts then you're also in good company because we're going to try to start from square 1 on a lot of this and make it as adjustable as possible so welcome.

For those of us who have been working in clean energy finance for a while it's kind of remarkable to look back on the last 10 years and think about how far we've come. We've seen the advent of many new financial products during that period that are making it easier than ever for commercial building owners to get access for the capital that they need for energy retrofits, and in fact all 3 of the major financing options we're going to be talking about today were essentially invented in the last 10 years and many of them have sort of come into their prime just in the last few years. So I think everybody here knows that we face a monumental challenge when it comes to realizing the full energy savings potential of the built environment in the US economy. We know from studies by McKinsey and other groups that the opportunity is something to the tune of hundreds of billions of dollars of high ROI projects if not more and you know it's been really interesting to kind of see how the financing industry has risen to the challenge of addressing that market need and providing an ever-increasing arsenal of clean energy financial tools ranging from, excuse me, ranging from kind of traditional financing solutions to more innovative solutions, which we're going to be focused on today.

So before we dive in there's just a couple of housekeeping points that I want to cover. Please note that today we are going to be recording and archiving this on the Better Buildings Solutions Center. We're going to follow-up when today's recording and slides are made available, and then attendees are going to be in listen only mode today so your microphones will be muted. If you experience any audio or visual issues any time throughout the session just go ahead and send a message in your chat window in the bottom of your Zoom window and our technical team will hopefully get you taken care of.

So again just to introduce myself again my name is Joe Indvik and I'll be moderating today. I'm the Head of Clean Energy Finance at

RE Tech Advisors and along with Kyle Saltsman who is running the slides today. We lead the Better Buildings Financing Sector and the Financial Allies Network and I'm really excited, I think both of us are, to see so many folks joining to learn about recent trends in clean energy finance. Thank you all for making the time to hear from our speakers today.

So if you go to the next slide we've got a pretty action-packed agenda for you today. I'm going to briefly introduce the state of energy finance industry in 2020 and the current landscape of energy financing options. Then I'm going to hand it over to our speakers who are going to talk through 3 of the most rapidly-growing financing solutions that are sort of making waves in the commercial building sector and those are Commercial PACE, efficiency as-a-service, and green bonds, and then we're going to have a lot of time, probably about 30 minutes for Q&A at the end of the session.

If you go to the next slide the main takeaway I want you to have here is a practical understanding of innovative financing tools that you can bring back to your organizations to get more energy retrofits done. We're going to talk a little bit about the research and a little bit about the principles here, but ultimately we want this to be actionable and practical for you in getting projects across the finish line.

If you go the next slide we're really excited to announce that we're using Slido, an interactive platform for Q&A and polling so please right now either in a web browser or on your mobile phone if you haven't done this already for the other presentations, go to [Slido.com](https://www.slido.com) and then you'll be prompted to enter an event code. The code is #BBSummit and when you enter that event code you're going to see a drop-down for different sessions. You want to select this session so that's "What's New in Energy Efficiency Finance," and if you want to ask our panelists questions at any point throughout this presentation please go ahead and submit them through Slido. We'll be answering them at the end but you can ask them anytime. I'm going to give everybody a couple of minutes to get Slido up and running. Again, go to [www.Slido.com](https://www.slido.com), enter the code #BBSummit, and then select "What's New in Energy Efficiency Finance." And to get started we're going to do a quick poll on what sector you're joining us from so it looks like folks are already filling this out. If you'd please go ahead and fill it out now, what sector are you joining us from?

Okay, we've still got a bunch rolling in here. It looks like

contractors and service providers are pretty high on the list, we've got a bunch of others, a fair number of local governments, state governments, folks from the financial services industry. Kyle would you scroll down a little bit and see what some of the others are saying? We've got a happy few from the data center crowd, higher education, commercial buildings, a little bit from K12 schools, non-profits, so pretty much all the major sectors in Better Buildings covered. It's great to have you all with us today. Some of the other categories we're seeing, healthcare, technology, federal government folks, energy services companies, et cetera, so it's great. It's good to have you all with us today.

If you want to go back to the next slide...there we go. So we'll hope that you all can join us on social media as well around having a conversation around the 2020 Summit. You can do that on both Twitter and LinkedIn at the links and handles that you see here and remember again if you're having any issues technically speaking with the webinar please message our tech support team by just using the chat function in your Zoom panel and we'll get you taken care of.

All right, if you want to get smart on trends in energy finance you are definitely in the right room. We've got a fantastic panel of folks who have quite frankly been in the trenches driving a lot of the energy finance innovation that I was talking about over the last few years and I'm really excited to have all 3 of them here. So we've got Rachel Davis who leads Business Development and Originations for Petros PACE Finance. Petros provides financing to midsize and large PACE projects ranging from \$500,000 to over \$200 million each and has closed transactions in 12 states. We've got Edwin Luevanos who is the CEO and Co-Founder of Citizen Energy, an efficiency as-a-service company headquartered here in Washington D.C., and they actually joined The Better Buildings Challenge as a financial ally just this last year so welcome to Edwin and his team. And then we have Greg Montgomery who's the Managing Director at CleanSource Capital who has experience designing and administering green bond programs for literally as long as green bonds have been around since 2014.

Before we dive into the weeds on any 1 financing solution I want to just take a minute and review the basics of energy project finance with you for those of you in particular who are starting from square 1. So typically, if you want to advance the slide Kyle, when we're looking at doing an energy retrofit in a commercial building you'll typically have a financing provider, a bank, a lender, et cetera, and a customer, could be the owner or the

operator or the occupant depending on how it's structured, the financing provider puts up the capital to fund the project, and the customer repays the financing provider over time. That financing provider is typically raising its capital from a set of investors and/or potentially putting up some capital itself, and then if you advance the slide once more, the customer is of course working with the contractor to execute the installation, which could either be done through the financing provider or working directly with the contractor. So that's basically it, right? Pretty much all of the financing structures we're going to be talking about follow that basic model so don't lose the forest for the trees if you're new to some of this stuff. We're going to be throwing around a lot of terminology, a lot of different repayment mechanisms and structured finance approaches, but ultimately this is at the core of everything that we're talking about today.

So if you go to the next slide 1 other thing that folks kind of often struggle to get their heads around is what are all the financing options that are out there and how do they compare to each other and I think this is a really helpful way to kind of cut through the fog and make sense of that. So this diagram here is how we at the Department of Energy think about the landscape of energy financing solutions. You've got within energy efficiency and renewable energy finance, you've got traditional financing, things like leases and loans that are used for many other purposes in the economy of course but can also be deployed to do energy projects, and then you have specialized financing vehicles so these are solutions specifically designed for efficiency and renewables, things like on-bill financing where the customer repays on their utility bill, property-assessed clean energy where the customer repays on their property tax bill, and various flavors of energy services including efficiency as-a-service, which is an off-balance sheet, performance-based solution for efficiency projects, energy savings performance contracts, which are typically larger scale, engagements where an energy services company will come in and do a service of retrofits in a group of buildings, and power purchase agreements, which are an off-balance sheet solution for third party ownership of renewable energy generation on-site.

So if you'd advance the slide the 3 financing options we're going to be talking about in more detail today are these 3: Commercial PACE, which Rachel's going to talk about, efficiency as-a-service, which Edwin is going to talk about, and then we put green bonds in the internal funding category because it's often used as a way to capitalize a company at a corporate level to then use for sustainability purposes but you could just as easily put it under

loans because it really is a form of borrowing money from investors as well. So those are the 3 we're focusing on. Why are we focusing on those 3? If you go to the next slide I think it will become pretty evident upon looking at these 3 graphs. So all 3 of these financing options have experienced frankly meteoric growth in volume and deals done over the last few years.

The first one here, this is from PACE Nation, and Rachel's going to talk more about this in her presentation, we've seen a pretty significant – what is that – a quadrupling of activity just in the last few years on Commercial PACE and the projections are that it will continue to increase going forward and that goes for residential PACE as well. Going to the next one, this is a study done by Navigant Research that was kind of discussed and presented by Greentech Capital Providers, which shows the anticipated size of the energy as-a-service market. Now that's not efficiency as-a-service, that's kind of a superset of efficiency as-a-service that includes some other stuff too, but the takeaway here, this is actually billions of dollars per year on the Y axis is that energy as-a-service could become a \$200 billion-a-year-plus industry by 2026 according to Navigant.

And going to the final graph, this is green bond deployment or green bond issuances I should say since 2014 again starting from basically not existing in 2013 to over \$250 billion in global issuances of green bonds in 2019 so significant growth in all 3 of these areas. These 3 products are increasingly becoming sort of household names if you will in the commercial building industry and I think there's many aspects of them that even if you've heard about them before will potentially surprise you, which we're going to talk about today.

All right, moving onto the next slide, before we get into the individual financial products I want to touch on another topic that is a pretty big emerging trend and that is the financial implications of climate and resilience risk on commercial buildings. There's been a pretty substantial spike in climate and weather-related disasters over the last few years with building owners kind of understandably scrambling to understand how to get a handle on resilience and particularly how it's going to impact the energy and financial performance of their properties and for that reason in 2019 the Department of Energy convened the Financial and Resilience Initiative bringing together experts from commercial real estate, insurance, and finance industries to kind of demystify some of these concepts and produce a series of resources to help building owners get a handle on resilience planning. And the

whole effort was structured around this Resilience Roadmap, which we came up with with the roundtable participants, which is a set of 6 steps that any building owner can follow in order to develop a resilience management plan.

And then we worked with the roundtable to create a series of fact sheets and resources about each of those steps. So the reason I mention this is that all the financing options we're going to talk about today are actively being used by commercial building owners to address these resilience risks. That's really step 4 as you can see there, Finance and Implement Improvements, and we're going to hear a lot more from our speakers about that. But we're not just talking about energy savings potential here; we're also talking about the ability of these financial products to unlock resilience in commercial properties as well and other properties.

If we go to the next slide I'm excited to say that the Resilience Roadmap is now live and on the Solutions Center so you can get to it through that link at the bottom of the screen there or just go on the Solutions Center and search for Resilience Roadmap and again it's a series of resources organized around these steps. And if you go to the next slide, since we have a lot of building owners on the line I know many of whom are concerned about resilience, I wanted to share 1 interesting takeaway from our work with the roundtable that I thought you all might find fascinating and that is as a lot of you know 1 challenge that a lot of organizations face is communicating the financial benefits of resilience to CFOs and other financial decision-makers who are used to thinking in terms of steady cash flows rather than sort of episodic risks like climate change or earthquakes.

And so in response to that and I think for the first time ever we worked with the roundtable to sort of map potential climate, weather, and resilience risks to the typical financial statements of a commercial building. And I won't go through this in detail, we go into much more detail in the Resilience Roadmap, but I think the first takeaway here is that most of these line items are being or will be impacted in terms of for example under balance sheet, property plan, and equipment building owners are likely to see a decrease in valuation for vulnerable or inefficient properties, possibly limitations to liquidity as they can't buy and sell properties that are in areas prone to climate or other weather-related risks. Going down to the income statement we are in fact already seeing a decrease in asset marketability to tenants for properties that are considered not resilient, an increase in property downtime potentially, and kind of the mother of all risks, abandonment risk

in which it's impossible to fill a property with paying tenants, all things that could happen in an intensified climate and weather disaster scenario.

And then there's also another category of risk often called transition risks that aren't so much about the direct impacts of climate change or resilience on a building but instead other costs that are incurred by that building as part of a broader transition to resilience to things like tax increases to pay for seawalls or disaster recovery bills, even increases in codes, building codes, which could increase the compliance cost just to build new buildings in markets that are likely to be most impacted. So I think the takeaway here is that even if your building never experiences a direct impact from climate change or a seismic event or other resilience risks your preparedness for those risks can still very much impact the financial performance of the building and that was 1 of the key takeaways that our – 1 of the conclusions that our roundtable came to.

I mention that again because the 3 folks on the line here and a lot of the financial products we're going to be talking about today are actively being used by these building owners to kind of get out ahead of this risk as a resilience planning and risk mitigation tool. If you go to the next slide I do want to mention if you've been in Better Buildings for a while or come to other events in the past you'll have heard about this a bunch of times but I want to keep reminding you that we have this great tool called The Better Buildings Financing Navigator, which includes all of the financing options we're talking about today plus a bunch of other ones.

It's a free and publicly available online tool that we developed to help building owners find financing solutions for energy projects basically. You can explore the different financing solutions, you can answer a few questions about your project and about your preferences and get matched to a financing solution that might be a good fit, and then of course you can connect directly with the Better Buildings financial allies who can actually finance your project in the event that you want to. So I highlight recommend you check that out at the link, if you actually just go back real quick Kyle, at the link below. You can also just Google Better Buildings Financing Navigator and that will get you there as well.

And finally going to the final slide here, before I hand it over to Rachel I just want to mention that our network of financial allies are the ones who made all of this work possible. So if you're not familiar the allies are a group of 50 financing companies ranging

from the big guys like Bank of America and Citi to medium-sized specialty financiers all the way down to start-ups with hyper-specialized products, all of whom are committed to deploying capital into clean energy projects in commercial buildings and they're really onboard to help all of you, all the other partners in Better Buildings and other folks get more projects done. So if you ever have a question about clean energy finance or you have a project that needs financing you can always feel free to reach out to me and I'm happy to introduce you to any of these folks. My contact information is going to be at the end and you can also find all of these provides directly through the Financing Navigator as well if you just go to the "Connect with Providers" section. And I'm happy to say that all 3 of our speakers today are members of 3 of these financial allies so welcome to everybody.

And with that I'm going to turn it over to Rachel who's going to do a deep dive into some of the recent trends in Commercial PACE financing and how it's being used for things that you might not expect, things like new construction, seismic projects, and resilience projects as well. So Rachel, please take it away.

*Rachel Davis:*

All right, thanks Joe. I'm happy to be here today and I'm glad we have a really great, diverse group of folks that are interested in learning more about different types of financing that's available so ready to dive in and give you guys an overview of what's going on in Commercial PACE. So if you want to go to the next slide here.

So as Joe mentioned I work with Petros PACE Finance. We are a national Commercial PACE lender, pretty much 99-percent focused on Commercial PACE alone so we transact all across the country where PACE is available, project sizes from \$500,000 to \$200 million-plus if you can believe that there is demand out there for Commercial PACE for projects of that size and we have committed capital with our investor partners in order to deploy into these projects so there is no shortage of demand for folks that want to invest in these great renewable and efficient projects. And so 1 of the things that we've also done too is really taken a leadership role in building out the C-PACE network and making sure that we can broaden as much as we can the availability of the programs and we'll talk about that a little bit later on in the presentation here. Next slide please.

So I won't go into this in too much depth, I think most of the people on the call have probably heard the basics of PACE, but I didn't want to be remiss for those where this may be a new concept. But Commercial PACE stands for Commercial Property

Assessed Clean Energy. It is a relatively new but an extremely quickly growing alternative financing mechanism that is meant to carve out the energy efficiency, water efficiency, renewable energy, and resiliency aspects of projects that folks may be doing whether it is a retrofit, new construction as Joe mentioned, or if you're doing a gut rehab project, all of those would likely have measures that would qualify for PACE and really what makes it different is that it's designed to be 100-percent financing and it's low-cost, long-term, meant to line up with the financing or the amortization period will line up with the life of the equipment that it's financing. And then it's also repaid as a tax assessment, which is another part that makes it different from those traditional forms of financing as a voluntary special assessment on property tax bills. Next slide please.

And just we'll go into this a little bit more in detail when we start talking about some of the case studies, but really wanted to highlight some of the benefits. Again it's low-cost, it's long-term with terms up to between 20 and 30 years depending on where the market and what the measures are that are being financed, and it is also fixed rate financing so ideally what we're going to do is give you all of the case up front so that you don't have to come out of pocket for anything so all of the closing costs, capitalized interest, if there's going to be a construction period, all of that is designed to be financed into it so that there's nothing required out of pocket. Ultimately it can decrease your utility bills and lower your overall maintenance costs. It allows you to put in those efficiency and renewable measures that your building tenants may desire even as an owner-occupied facility. If you just have deferred maintenance maybe that needs to be done this is a great alternative to consider when you're looking at your financing options. Go ahead and push to the next slide. Thank you.

And so here I just really wanted to show you for Commercial PACE financing it can go across all asset types. We've worked with industrial, office, retail, multi-family. I would say right now just in terms of trends that we're seeing in the market and where a lot of Commercial PACE funds are being deployed it is into the hospitality sector, it is in multi-family, mixed use retail, and we're starting to see quite a bit too in your senior living and student housing sectors as well. But really any type of facility that is not residential or that is not government-owned would qualify and potentially be a good candidate for Commercial PACE financing.

And then here's another aspect, we won't go into this in detail, but I wanted to give everyone an idea of what types of measures can be

funded. So when you're looking at a building retrofit anything that is energy efficient or water efficient in most states where PACE is available would qualify. There's typically not a hard and fast list of measures that actually qualify. What they're going to say is, "Does putting in this new HVAC system, does it reduce your energy consumption?" and if so then it's likely going to qualify, same thing on the water side, and then certain states like California and Florida and Oregon and a couple of others as well have carved out and made special allowances for resiliency measures like seismic, wind hardening, and micro-grids to be funded via Commercial PACE, which is great because as you guys I'm sure are fully aware seismic measures can be extremely expensive and don't have very much if any payback. It's there to give you the resiliency measures that you need so it's great that folks now have the option to finance it with PACE and we're seeing a lot of folks take that opportunity. And then same with renewable energy, I think most people probably when they think about Commercial PACE for the first time that's maybe more of what they associate the financing with is that it's a way to finance solar projects and that's true and we can do that, but it's certainly more broad than that.

So keep in mind that all of these measures can be done for the most part in a retroactive basis as well as certain states where they do allow it to be done if you're taking a building back down to the studs and building back up those efficiency measures that are being put in whether it's over code or it's again just more efficient than what was there previously could qualify and then same thing for new construction. So when you're looking at the building envelope or mechanical, electrical, plumbing systems that are going to go into the design of new buildings those – the measures that we're looking at here could be carved out and funded via PACE as opposed to more expensive mezzanine financing or prep equity or something of that sort so it's a really great way to help facilitate additional implementation of these measures in the build environment.

And here I just wanted to give you guys an idea of where PACE is available and this map is probably even changed since we put it together and sent it to you guys because I think Washington state should now be lit up; they have a PACE statute. So we're now at 37 states plus D.C. that have an active PACE statute authorizing the use of Commercial PACE. Typically from there it has to be opted in at the local level but these states that are all blue or some shade of blue have the ability to utilize PACE so it's pretty well available in your major metropolitan areas.

All right, so here's the meat of what we really wanted to get into to show you guys. When we looked at this project this was an office building that was funded here in Houston. This is what most people think about when they think of C-PACE. It's the building had aging mechanical equipment that they needed to replace and so they used Commercial PACE so that they didn't have to come out of pocket to finance that so they used a little over \$1 million to replace their chiller and some efficient lighting and the associated BFDs and air handling units and building controls and monitoring systems. So that is your kind of textbook I think PACE project when folks think about that. And so this is a really great example of how they were able to improve their building for their tenants. Next slide. Thank you.

And so when we talk about what is emerging in PACE Joe I think you hit the nail right on the head, right? New construction is where we're starting to see quite a bit of activity and we expect to see it continue that way. This client was out of Ohio and they were building a senior living facility so they decided to use about \$8 million worth of Commercial PACE to fund their more efficient building envelope, HVAC system, and lighting that they were going to include in the construction. And so really what they were able to do here is 1, get the financing that they needed, right, and make sure that they were putting together the most efficient capital stack as they could. So by pulling in PACE they were able to displace whether it was higher cost equity or mez financing and that significantly improved their weighted average cost to capital on the project. And so keep in mind too with PACE because it is tied to the property generally after construction it's non-recourse financing, which for developers and building owners that's obviously something that they're very interested in hearing about as well. And then for this instance too it's also a great way for the local governments and municipalities to allow development to continue without any – it's no money out of pocket for these local governments so they're not having to do an abatement or anything of that sort to help the developers move these projects forward; this is all private capital that's being invested into these projects. Next slide please.

And here's another one that's also a growing trend and I suspect we're going to see quite a bit more of this, but earlier or late last year we worked with a client out of California to secure about \$11 million worth of PACE financing. They were doing a gut rehab of a property into a boutique hotel and so a good portion of what they were doing was a seismic retrofit and so it just worked really nicely that they could use PACE to come in and fund that and you

know obviously it's cheaper than other sources of capital so it really improved their ability to service debt and generate free cashflow on the outset.

And then here is another one that is I think especially relevant today. We're starting to see quite a few of these. Refinancing has always been an option for PACE, it just wasn't utilized very frequently, but here's a good example of a client of ours in New York that had a hotel that they had renovated recently and decided that they wanted to utilize PACE retroactively to refinance those measures that they had taken out debt to originally fund. And so they were able to use almost \$10 million worth of PACE to pay for those envelope, plumbing, lighting. You'll start to see a theme in the types of measures that are funded here, but they were able to pull this in and then use that to put into the cash that they were able to get back from PACE to put into some additional improvements that they were doing on the property so it worked out really well for all parties. We worked really closely with the folks within New York state and the other parties and this I think was the largest PACE funding to-date in New York and I think you're going to start to see a lot more out of that market. But what's really important here is just in today's environment where there's a pullback in terms of funding that's available and everyone's trying to be as cognoscente as they can when they're putting together their capital stacks, if you can go back and refinance something with PACE that was done efficient construction this could be a really great alternative for you and we're starting to see quite a few projects pop up here recently.

And just before we go I wanted to kind of give some closing thoughts on what we're seeing in the PACE market. Joe, you alluded to this earlier too, right. According to the numbers that PACE Nation has put out we're seeing substantial growth in Commercial PACE activity and as you can tell the numbers are really small here but I think that's through 2025. The numbers just continue to shoot up and we continue to see that exponential growth. I mean our firm alone, the pipeline that we're looking at, has grown significantly and so over \$1.5 billion of cumulative C-PACE investment. So while a lot of people will say it's still new, it is new but I think it's a great milestone that we're over \$1 billion of projects that have been funded to really prove out the concept really across the board in terms of asset classes and whether it's retrofit or new construction so we're really pleased to see that that's continuing to grow.

A couple of the market trends that we are seeing again new

construction and renovation projects as well as retroactive financing that is growing every day and then the average financing dollar is really increasing per transaction. So I would say 4 or 5 years ago your average Commercial PACE project was probably in the \$200,000 to \$400,000 range and what we're seeing today is it's easily over \$5 million as the average project size and then again it is not uncommon for us, and I'm sure it's across the entire industry, to see projects that are \$20, \$40, \$50 million of just Commercial PACE that they're carving out for large mixed use projects or new development projects in some of the more expensive markets for development.

And then let's see, if you go back 1 more – there we go, just a couple of other things. So a couple of things that we're still trying to work through to make sure that the market continues to grow for C-PACE is just market awareness and events like this are fantastic and the Better Buildings group has been a great advocate in understanding and communicating the benefits of C-PACE to the entire market and how it can apply so we're really trying to do as much as we can there and then as much – you know the more folks that we get that utilize it and have case studies and that can make referrals and recommendations to say that they've used it, that it's not too good to be true, that will continue to help the market grow and then just broader lender acceptance. Any of the mortgage lenders on the property have to consent to PACE and so for a while that was a pretty big barrier. It is still there to some extent but it has changed quite drastically even to the extent where sometimes we have leads come to us from mortgage lenders that have borrowers that have gaps that need to be filled and so they're trying to find a way to help them do that. So that has pleasantly changed course a little bit and then geographic availability. It's not available everywhere but again we do what we can to continue to grow that work with our borrowers that may have portfolios across the country and so as they're moving into new markets to develop or have properties we can work with local governments and I expect that that's going to continue growing as well just as folks are looking for recovery financing tools based on kind of what we've seen in the market today so I think that's going to pick up substantially.

And then just I think it goes without saying COVID-19 has certainly been a disruption to the business but you know a lot of new construction projects are on hold as mortgage lenders are kind of pulling back a little bit so we have seen more of a shift to retrofit and retroactive financings. But it's still been extremely busy I think across the sector for this type of financing so it shows

that it kind of has some resiliency as well across all economic cycles. With that I think that concludes my thoughts. I'll turn it over to you I think Edwin and then we'll answer questions towards the end.

*Joe Indvik:* Great, yep. Let me just interject really quick Edwin before you get started. I'm seeing a lot of good questions coming in; keep them coming. I saw a couple of questions come in through Zoom. Just a reminder please ask them through Slido rather than through Zoom so that everybody can see them and have a chance to up-vote them. Yeah, so next up is Edwin from Citizen Energy. So he's going to talk through how efficiency as-a-service is sort of changing the conversation around energy retrofits so Edwin, please take it away.

*Edwin Luevanos:* Thanks Joe. Can everybody hear me?

*Joe Indvik:* Yes, we can.

*Edwin Luevanos:* Okay great. Well thanks everyone for attending and for having me. As Joe mentioned I'll be talking about efficiency as-a-service and sharing some of my experiences or my company's experience with efficiency as-a-service. We've been around since 2012. As you probably heard by now efficiency as-a-service has become really a popular method to finance energy efficiency, energy generation, or just simply other performance improvement projects for buildings you have. Next slide please.

You have different flavors of efficiency as-a-service. Again, as you've probably heard it referred to as energy as-a-service or energy savings as-a-service. There's also lumens as-a-service if it's a lighting project. All these models have very similar characteristics and actually they share – they're similar to offerings in the greater as-a-service industry, things that have been around for a while now like software as-a-service. I'm thinking Salesforce is an example of that or data hosting as service like through Amazon Web Services who you pay to host your data.

A little bit more specifically real quick efficiency as-a-service is known for being again a pay-for-performance solution so the customer doesn't necessarily purchase the equipment; they're purchasing performance elements or results as part of their contract so that could be in the form of cooling performance, lighting levels performance, more lumens, resiliency as was mentioned earlier, and what's very common is savings performance. It's been around for a while, that model where customers pay a share of the measured savings every month through the savings that are being

created by the service provider or the equipment they're installing. Typically you don't have any up front capital from the customer and even though the service provider obtains financing to the customer it is structured for off-balance sheet treatment so it's known as an off-balance sheet solution.

Again because the customer – or sorry, the provider typically owns the equipment or owns it in partnership with the finance partner and because of that, because they own the equipment, the third party is also responsible for installation, obviously again performance, and ongoing maintenance. One quick thing I will also note is that under efficiency as-a-service the customer has the flexibility to request an increase in performance if they don't like the performance that they've contracted for and that usually takes into account some refresh options for the equipment and again that's in an effort to provide the customer with more value, more savings, or just higher output on any of the contracted performance elements. Next slide please.

All right, next here we're going to get you all involved a bit and we're going to launch a poll to request some feedback. Attendees if you haven't already please go to Slido.com, enter the event code #BBSummit and select, "What's New in Energy Efficiency." Kyle could you put the poll up there? So here's the poll. The question is have you been involved in a project that utilized efficiency as-a-service or similar financing? We have the answers coming in. The options are no, this is the first time you've heard about efficiency as-a-service, yes, several projects, yes, only 1 project. Let's give it a couple more seconds.

*Joe Indvik:*

Hey Edwin I'd say we're doing pretty good if only 20 percent are saying they haven't heard of it. That's probably a little below average there, eh?

*Edwin Luevanos:*

Yeah, I was actually expecting more yeses but this will help me as I go through my presentation. Let's give it just a couple more seconds, 179, 182, great. Kyle, if you could go back to the slides please. This next slide is just a very basic overview of how the efficiency services agreement works or energy services agreement; it's very similar. Joe already went over it a bit but it really follows the principles of project financing. This is actually available on the Better Buildings Solutions Center website. I recommend again you go there for more great resources. But if you look at the bottom left-hand side you have the ESA provider that will enter into a services agreement with the customer, the customer is then obligated to pay for – usually on a monthly basis, sometimes

quarterly for those performance outputs, but at the same time that ESA provider will enter into contract with a contractor, in many cases it could be an ESCO energy services company, to install the equipment and to also – the ESCO provides ongoing maintenance for the actual equipment upgrades. Next slide please.

All right, just very briefly Joe already highlighted the state of the market growth for efficiency as-a-service; I'll just add a little value. This is just a quick glimpse. This report is from Business Wire Berkshire-Hathaway and it's for growth forecasts around the world for energy as-a-service looking at the overall industry again and we're showing about a compounded annual growth rate of 37 percent as a forecast. Next slide please.

All right, this is where I'm probably going to spend most of my time. These next couple of slides I'm going to highlight some challenges that I've come across from my experience with efficiency as a service, which as many of you know of those challenges can conventionally provide opportunities in the market. Some of these are also speculative I would say, again things that my company's gone through but maybe others haven't so just wanted to throw out that disclaimer. COVID-19 was mentioned earlier. Obviously it's the hot topic of the season and everybody has been impacted by that. Price Waterhouse Cooper conducted a recent survey of US-based chief financial officers and 67 percent of those surveyed were deferring or canceling planned investments.

They then took it a step further in that same survey to essentially break down priority areas that they will cut and as you can see from the graph to the right the area of facilities and capital expenditures tops that list to no surprise. So that was very interesting. I think it was about 300 folks surveyed and they've been running the survey on an almost weekly basis now so I recommend you guys check that out. But the point here is that efficiency as-a-service directly addresses that main issue because again it's structured not as a capital expenditure on the balance sheet; it's structured as an operating expense, OpX. So these building owners can make these facility upgrades now and create much needed value to combat the COVID impact.

Another challenge/opportunity is vacant buildings. From the opportunity side some of these vacant buildings provide great opportunities to streamline installations because install is easiest, right, when no one is in the building. We've actually seen an uptick in installations and contracts. But it also gives rise to other

questions that are a bit speculative in nature. We're all here today on Zoom. We're not – I think it's the first time ever that this conference has been held through web conferencing and I think what I've seen is some building owners are starting to realize or at least they're evaluating whether or not they need this office space or the built environment, physical buildings for their employees to be productive.

We actually just had a recent customer who we did a complete lighting and controls efficiency as-a-service retrofit that is now considering consolidating employees into another building and the question arose literally just yesterday what are they going to do with this building we just retrofitted and those questions come up in terms of whether they're going to repurpose it, if it's repurposed are they going to sublease it, or are they going to sell it. Who's it going to be sold to? If more people are working from home do we have a growth in residential efficiency as a service? So again some questions, challenges, and opportunities that are popping up in this space. Credit risk is also a big factor. Equity investors are on the sidelines, debt providers are still lending, but requirements and criteria is changing because of this so again some other challenges that we've come across. This last one is just more broader in nature. I think there's an opportunity to include efficiency as-a-service or just clean energy and energy efficiency financing into these economic stimulus policies to combat COVID-19. It's been done before, it can be done again, and it really creates jobs and can drive economic growth. Next slide please.

A couple more challenges and opportunities, smaller-sized projects. I think for those of you on the web conference that have been a while for a while probably know by now that financing smaller-sized projects is a big challenge because financing typically, typically financing a \$100,000 project carries the same or a similar transaction cost as a \$1 million project so it's logical and more lucrative to finance larger projects and a lot of us are doing what we can to combat that. My company particularly has worked on investigating this issue by doing 3 things: aggregating, standardizing process, and streamlining to make these smaller projects worthwhile. To the right you can see a very basic diagram of how – 1 way that these projects can be bundled under a hold-co or a special purpose entity and you can reduce costs significantly by using shared services or just shared processes to make them again much more – make those projects or that hold-co generate better returns for investors and everyone involved.

The next challenge is contractual. Contractual challenges, I'll go

over a couple of them here or a few here. We've seen in states with higher subsidies customers are more willing to take the risk and purchase the equipment or take out a loan and the question is what can we do in order to incorporate those subsidies into contracts so customers seem more value in efficiency as-a-service and not purchasing? You also have challenges in terms. I think the days of the 25-year performance contract are probably over. I'm not sure if I'm overstepping here but we see our customers and folks we work with, they want more flexibility. They want the ability to adjust their subscriptions or their contracts kind like they do with their Amazon hosting that can be done real-time or sometimes even canceled at any point. End of term options are also a big deal. They want again the flexibility to continue, upgrade, request, more performance, or just simply go back to the way they were before, though we're seeing less of that. Most folks are more willing to increase performance and really like the idea of having someone else manage those assets for them and particular for CFOs making that a fixed cost on the income statement as an expense.

*Joe Indvik:* You've got about 1 minute left Edwin.

*Edwin Luevanos:* Good, good. Thanks for the heads-up.

*Joe Indvik:* Sure.

*Edwin Luevanos:* Real quickly 1 other challenge you should look out for is the new FASB rules. If you're not familiar with them these are accounting standards that govern leases and these types of agreements. In the past operating leases were very similar to service agreements, they really didn't make a distinction between equipment versus performance elements, and now with operating leases having to be capitalized on the balance sheet if over 12 months you can have a service agreement that reads like an operating lease and you could get into some trouble, things to look out for and research further. Last slide please.

This last slide just provides a case study that you can find on the Better Buildings Solutions Center. I'll let you look at that on your own time. I think the biggest takeaway here at it relates to my presentation is this is an example of 2 small projects, a total investment of \$300,000, that were bundled for a total of about \$1.5 million that were all very similar characteristics, underwriting criteria, location, and those are some of those results, again an example of how to bundle smaller projects into efficiency as-a-service. Those are – that's the end of my presentation. This is my

contact information. Please reach out or I'd be happy to answer any questions at the end. Thanks.

*Joe Indvik:*

Awesome, thanks Edwin. We've got a ton of good questions rolling in. Please keep them coming. We're going to have our hands full with the Q&A. So Greg, over to you finally. So Greg's going to talk a little bit more about how green bonds have gone from a relatively new concept in 2014 to deploying hundreds of billions of dollars as of 2019 so Greg please go ahead. It looks like you're still on mute Greg. There you go.

*Greg Montgomery:*

There we go. Thanks Joe. This is Greg Montgomery with CleanSource Capital based in Charlotte, North Carolina and I'm glad to be talking with you about green bonds. It's a marketplace we've been involved in for over the last 10 years and have watched mature with time so we're going to run through in the 15 minutes we have together just why green bonds, what they are, who's issuing them, and what were the principles on which a green bonds gets issued. So if we can go to the first slide Joe.

Why green bonds? This is a response from the capital marketplace to the fact that there's positive proof of the acceleration of climate change. Credible leaders and serious people want to do something about that and address the risks that are presented by climate in finance is a great way to do that, particularly when you start looking at the building sector, which accounts for 40 percent of the greenhouse gas emissions worldwide and 70 percent of the energy spend so it's a good place to start doing work and make a difference.

Green bonds came about to address the need for financing for projects. If you have projects you have finance and if you're going to have green projects you need to have green finance and so the green bonds specifically address the Paris Climate Accord to combat climate change and bring global temperature rise down to 2 degrees Celsius above the pre-industrial levels and what we've seen here in the United States is that the leadership on this issue is coming – is a grassroots movement. It's coming from the state and local government and private sector where towns, cities, counties, the constituents that are really experience the effects of climate change, they're the ones responding and wanting to use creative financing vehicles for addressing climate change so then the capital market is responding to that. You know like-minded investors take weather and environmental challenges seriously, they're seeking investment opportunities to provide sound returns while planning and protecting against property and casualty risk

and hedging against environmental regulatory risk. There's 1,700 investors who have signed onto the UN Principles Responsible Investing representing over \$90 trillion of capital and they view environmental climate risk as credit and financial risk.

So if we go to the next slide, so the market is evolving to create a structure to provide confidence to this investment community investing in environmental projects and in order to bring this confidence and to level the playing field between what you would call a traditional plain vanilla bond and a green bond there's really 6 concerns that the marketplace is looking for. They want to see credible fixed income solutions for investing in environmental projects and having environmental impact, they want a clear-cut definition of what constitutes a green investment, they want to be able to measure and verify the evidence of the environmental benefits as a result of their investment, they're looking for parties who have the requisite environmental expertise, accountability and due diligence for structuring a green investment, and they're looking for standardized and comparable reporting across their portfolios so that they can track all investments equally.

The overarching concern is that investors want a bond that is simple and scalable and has the same risk profile and same basic structure so they're not looking – don't think of green bonds as a new financial instrument; it's basically using the infrastructure that has already been put in place for bonds in the capital markets but targeting specifically environmentally-oriented projects. So that's why green bonds have evolved as a specific class to address these concerns and provide a vehicle.

*Joe Indvik:* Hey Greg, we got a comment saying you're just a little bit hard to hear for some folks if you want to just be a little bit louder that will be awesome.

*Greg Montgomery:* Yeah, let me move my microphone up and maybe that'll help.

*Joe Indvik:* Thank you.

*Greg Montgomery:* Okay great. So the green bonds, really the difference is that they're primarily centered around the green use of bond proceeds versus general corporate purposes. So this allows for a new dialogue between the issuers and the investors relating to how the proceeds are going to be used so it's almost a story if you will about the bonds and addressing specifically the environmental climate benefits that the investors want to see. So to give a framework for addressing these factors that the market was looking for the

International Capital Markets Association in 2014 first published the Voluntary Green Bond Principles, which became the framework for green bonds going forward and as a result of this you've seen the market explode.

So if we go to the next slide the green bond principles, there's basically 4 of them. They want to see that the proceeds are used for environmentally sustainable projects, they want to see how that project is selected against a framework that the issuer has for supporting environmental sustainability, they want to see that the proceeds are being managed in a way that can be traced to the use for the very specific project approved, and they want to have reporting on the proceeds and the project's impact both from the issuer's perspective as well as the investor's perspective. So it's really just a simple set of questions that any issuer should be able to answer. What are the project funds being used for? How was the project selected? How are you managing and tracking? How will the investors know the money is going to the projects you said it was going to? And how are you going to evaluate the project?

So external review of these principles in determining that a bond is a green bond has become important so that the objectivity is brought into the process. You can think of this as almost third party credit rating agency reports, the role that they play in the bond market today. And the benefits are pretty significant. The – since 2014 the green market has grown and you've got broad buy-side and sell-side acceptance of these – and governance using these principles. Investors are able to have certainty that the money is being used for the assets that the issuer said they were going to be used for, transparency in reporting, objectivity, the standardized templates, all of this is increasing awareness in the issuer community and the importance of the framework.

So if we go to the next slide, and we saw this is 1 of Joe's earlier slides, the market is growing rapidly. The first green bond was issued back in 2012 and then with the bond principles in 2014 the market accelerated to where it was this past year \$257 billion in bonds, 51 percent growth over 2018. Approximately 1,800 green bonds from approximately 500 issuers and the US was the top issuer of green bonds, \$51 billion, with Fannie Mae being the top issuer in the United States at \$23 billion of green mortgage-backed securities. So approximately \$800 billion in bonds have been issued to-date since the first bond back in 2012.

So if we go to the next slide the types of green bonds or what you would see in the bond market in general. You've got a use of

proceeds bond, a sort of standard recourse general purpose bond except it's being used, the principle borrowings are being earmarked and allocated to eligible green projects under the issuer's framework, then you've got revenue bonds and project bonds, which are tied specifically to a source of revenue so they're typically non-resource bonds either to a basket of projects or a bucket of PACE loans or ESCO contracts or you can have specific projects like solar projects, wind projects, or building that would be tied in the revenue such that that project would support the repayment for the bond, and then we're just starting to see green securitized bonds, particularly the recent [unclear] securitizations have been taken out through a green bond vehicle.

So if we go to the next slide, the types of issuers, or really why would you issue a bond? It's strategic and managerial to align your financing with your sustainability environmental policy, it's reputational if you want to make statement about your commitment to climate change, financing, you've got a growing demand, investor diversification, proven liquidity, and pricing and market access, and then regulatory. The benefits to the issuer, there's evidence that a green bond does outperform conventional bonds with its pricing and execution. Recent research has confirmed that with the growing demand for the bonds in the environmental investment community versus the lack of certified supply has created a little bit of imbalance that has resulted in larger book covers during prices, larger spread tightening during the book building, and then even pricing outside of the yield curves in the secondary market.

You know the offset there is the increased cost you've got for part of your view and ongoing measurement reporting, but that doesn't – there's a smaller cost compared to the benefits. So if we go to the next slide the first principle of the Voluntary Green Bond Principles is use proceeds and you can see that in 2019 30 percent of green bonds went to buildings. And if we go to the next slide you can see the type of projects that are supported by the use proceeds is what you would expect, what the other panelists have talked about, renewable energy, energy efficiency, clean transportation, climate change, green buildings. You can bring in additional project types like if you have net zero buildings or LEED buildings those could verified under the right framework and you know it can cover both construction as well as investment as well as land conservation and green building rating systems can help in supporting the use proceeds for the project.

So if you go to the next slide I'll just point out again these are some

of the categories we just talked about and the type of measures that would fall within those categories that could be used within the proceeds for renewable energy. I mean it's obvious it's beyond site renewable energy generation, solar battery storage or CHP, energy efficiency measures, and sustainable land use is another example of green bonds in the development community. And then down at the bottom the climate change and resiliency that we heard about earlier.

So if you go to the next slide the evaluation selection, so the issuer needs to have an environmental sustainability framework, a program with goals that they're seeking to achieve, and then they select the project within that framework. Best practices have a committee of stakeholders from within their organization that evaluate the projects presented and select the projects to be funded, and so the type of considerations in a real estate framework would be the energy efficiency goals, renewable energy goals, greenhouse gas reduction goals, whether you're building certified buildings or net zero buildings, energy programs, et cetera.

If we go to the next slide you know once – so you've got use proceeds, you've got a framework for selecting a project where you're going to use the proceeds, and now you have to manage the proceeds, that's the third principle, and that's just tracking the proceeds and tracing the approval to the green project. So if it's a general revenue bond you want to segregate the funds inside of your sub-account and be able to trace the use of those funds out of that. If you're doing a project finance it's very easy. You can have a project escrow account or you can REEM fence it. You want to make sure that your interim investments of cash on-hand in the project escrow are being invested appropriately and then you just report the use of these proceeds to your investors so that they're aware that it meets the certain principle; it would go to the fourth principle.

And then we can go to the next slide and – I'm sorry, we continue reporting so there's pre-issuance information that you would put in your offering memorandum that would talk about the metrics that you're going to track and then you have the post-issuance use proceeds, construction of the project, and then it's voluntary but you're seeing more and more of this and that's the impact reporting. You want both qualitative discussion, a narrative of the impact the project's having on the environment, and then actually if you can quantitate that through specific metrics, particularly the metrics that you told the investors you were going to track that's very powerful reporting on how this bond is making a difference in the

effort to get to those climate change goals and primary indicators in this type of reporting would be building certifications and energy ratings.

So if we go to the next slide these are just some examples of types of reporting and measurements that you would be reporting against in the metrics. So obviously the absolute kilowatt hours generated from renewable energy or kilowatt hours avoided for your energy efficiency and greenhouse gas reduction is based on the particular gases that you're measuring. And then if we go to the next slide, so those are the 4 principles and then external review is a best practice where you have a third party that ensures the investors that these principles are being met. There's various levels of external review, everything from the second party to who opines on it after reviewing the literature and the process and gives an opinion that investors can rely on. Moody's and other agencies have come up with a scoring rating just like the credit agencies. You can have a third party audit or you can have post-issuance verification or assurance. It's important that the external review be from an independent source so there's objectivity –

*[Feedback/loud noise]*

I just hit my 15 minutes Joe. So there's a growing universe of service providers and the International Capital Markets Association publishes who these reviewers are for reference and use. So if we go to the next slide this is a case study of actually the various I that was issued for a real estate development company in Sweden, Vasakronan, who at that time was the largest real estate developer in Sweden and 1 of the largest ones in Europe with 180 buildings, a \$2 billion development portfolio. They had a sustainable mission to really emphasize renewable energy generation and reduce energy consumption in their buildings. They had reduced their portfolio 50 percent by 2009 and have a long-term target of reducing it another 50 percent. Reducing carbon emissions they had a goal of getting close to 100 percent reduction and having a 100 percent certified portfolio.

So they issued the first corporate green bond under the ICMA's green bond principles back in 2014 and at that time their framework was focused on renewable energy and developing low-carbon buildings and that framework continued to evolve over time as they got more sophisticated in their practice. They did a first update to include retrofits to existing buildings in their portfolio to make them more energy efficient and sustainable and issued bonds to undertake those activities and then they updated their framework

again to bring in a broader set of financing tools that they can use in their real estate business. The benefits that they derived from this is that they developed a whole new class of investor base that was in sync with their environmental mission, they improved communication with the investors and they were able to tell their story and generate interest and sustainability in the projects, and it enhanced the company culture by creating awareness across the culture of what their mission was and how the money that they were being entrusted by their investors was being used to support that.

So you know in conclusion these are – the green bonds can play a very powerful role in a real estate portfolio and in helping to drive efficiency and greening of both your existing portfolio as well as moving forward with low carbon, zero net energy, or even positive energy going forward.

*Joe Indvik:*

All right. There's Greg's contact information. Thanks a ton; that was great. Keep the questions coming. If you go to the next slide Kyle we're going to do about 20 minutes of Q&A here. We've seen a ton of great questions already and by far the most up-voted one is how do you anticipate financing options changing given the economic downturn? Rachel you touched on that a little bit, Edwin I think you addressed it pretty comprehensively, but all 3 of you feel free to weigh in on how capital markets and financing options are going to likely shift as a result not just of COVID-19 but of the resulting economics.

*Rachel Davis:*

I'll jump in and say that I think they're all going to continue to grow in importance. As cities and counties are looking for ways to help facilitate recovery they're going to be looking at anything they can to help building owners and developers, whoever it might be. So from a C-PACE perspective I certainly expect it to continue to grow given that it is private financing that could be made available for folks on a more broad spectrum. So where we've seen some geographic limitations in C-PACE I'm hopeful that maybe this would be a good point where they could see that intersection of the fostering sustainable development while also finding a way to stimulate economic development with C-PACE financing.

*Joe Indvik:*

Great, awesome. I have another one here, so this is for you Edwin. We had a couple of questions to kind of clarify the efficiency as-a-service structure. One of them was when you do an efficiency as-a-service transaction and the building where the equipment's installed gets sold what happens? Are there options to terminate the contract, move it to the new building owner, et cetera?

*Edwin Luevanos:* Yeah, it's a good question and again I was highlighting flexibility and we try to do that as much as possible. If it can be transferred we try to make sure it gets transferred to the next building owner, but if the next building owner doesn't want it, which a lot of the times they do want it; I think that can be a misconception sometimes because it's very – the added value is great. So but if they don't want it then we'll just put everything back to the way it was really. And there's some things that we do ahead of time with the initial building owner to make sure that we are able to technically and contractually just take our equipment back and leave the building the way it was before we got involved.

*Joe Indvik:* Got it, so you guys would retain ownership of the equipment and just take it back, redeploy it if possible.

*Edwin Luevanos:* Yeah. There are other more complex things that can be done and I'd be happy to chat with anyone offline about that.

*Joe Indvik:* Awesome. While we're on you Edwin we had another question here about what are you seeing in efficiency as-a-service in the private sector versus public sector? Are you seeing state and local governments in the model as well?

*Edwin Luevanos:* Yeah, that's a great question. I've been on calls with school districts and municipal governments. The biggest difference is that the private sector has less bureaucracy and less regulations and can move quicker for reasons related to their bottom line. Unfortunately the government will sometimes try to put us under the performance – energy savings performance contracting regulations. There are states and municipalities that have very comprehensive regulations and sometimes that's difficult to navigate and even compete sometimes and just meet those requirements so that's I think the biggest difference that folks need to adapt to the model a little bit more on the public sector side.

*Joe Indvik:* Very good, thank you. Question for you Rachel that often comes up and that is you talked a little bit about how mortgage lenders are kind of collectively coming around to the idea of Commercial PACE and in some cases actually originating PACE loans, which is an interesting seed change from where we were 5 years. But I had a question here about just generally can you speak to the concerns that mortgage lenders have about default risk and the PACE loan being senior to existing loans on the property, et cetera?

*Rachel Davis:* Yeah, absolutely and that's a very popular question so I figured that was going to come up at some point but I don't want to go too much into the minutiae. But because of the lean priority that PACE takes given that it is a voluntary special assessment it's the same position as any other property tax or special assessment that a property owner would have. And so because of that we do have to get consent from the lenders and so they do ask questions.

But what are a couple of really important things to point that I think a lot of folks don't realize about Commercial PACE is that 1, it cannot accelerate under any circumstance. So if we have a 25-year amortization on that loan or assessment we will have that for 25 years. There's no way we can ever call all of that due unlike on a traditional mortgage or other types of financing that folks may look at. And so because of that it's really only that 1 year's PACE assessment if it's ever past due that's actually in front of the bank. And so typically when they can start to understand that piece of it and realize that it really has no impact to their rights or remedies on the project it can also help improve the debt service. If it's replacing mez in a transaction then it could actually be doing a lot of really good things within the capital stack so long as it's sized correctly and we'll work together to do that.

So worst case a lot of folks will – they really should look at it as just an additional property tax that they're underwriting and so in some cases to get them comfortable they may just decide to escrow a year's worth of the PACE payments and then at that point they're pretty well covered. So happy to – if anybody has any follow-up questions to that I'm happy to answer any additional questions offline and then I'll also point out that the C-PACE Alliance put together a really good white paper not too long ago that is specifically for mortgage lenders and so I would point anyone that has additional questions to that website and to take a look at that. It has some really good talking points that you can use with your lenders.

*Joe Indvik:* Awesome, yeah, and on the Better Buildings Financing Navigator we link I believe that resource and a number of other PACE research resources. While we're on the topic of PACE contracts we had someone – several people ask actually what you mean by non-recourse financing if you could just define that for folks.

*Rachel Davis:* Yeah, it just means that the borrower is not personally liable for that. It's really tied to the collateral.

*Joe Indvik:* Yep, tied to the asset rather than the borrower.

*Rachel Davis:* Yeah.

*Joe Indvik:* Got it. Okay, great. Let's see. Greg, question for you. We had a couple of questions about green bonds and their traction in the market. Maybe you could do them both at the same time. One is are you seeing more green bonds in certain regions than others within the US or internationally and does region matter when it comes to green bonds, like are there regulatory concerns or other things that influence where green bonds are most successful? The second part of that question was talking a little bit about the difference between corporate green bonds versus municipal green bonds and what kind of market activity we're seeing there.

*Greg Montgomery:* Yeah, so to go – yeah, so this concept really came out of Europe but the US is the leader and was the leader in green bonds last year with \$50 billion of that \$250 billion so I'm not sure that region really makes a difference now that the market is accepting of these principles and accepting of these types of specified bonds. As it relates to corporate versus municipal I think you're going to see more municipal bonds using this just because you're seeing more local jurisdictions stand up climate change, sustainability, resiliency plans and they need to have financing that's tied into the goals around those plans so this is the logical path to do that and to cultivate investors beyond just the traditional muni buyers of bonds. It's a different marketplace. If it's tax-exempt than the marketplace that the product corporate, but I think it's very deep and I think the green bonds are going to help to drive adoption because of the ability to tie the financing to their plans if that makes sense.

*Joe Indvik:* It does. Yeah, thank you. Edwin, a couple of questions about how efficiency as-a-service compares to traditional energy performance contracts or ESPCs. The first question was just talking more about what the difference is and just to spice it up a little bit we had 1 comment that said, "Energy performance contracting is not dead but ESAs are starting to become more popular. Please opine on that.

*Edwin Luevanos:* Yeah. No, I actually agree. I was looking to the future when I said that. The – what's the difference? I think the biggest difference is energy savings performance contracts are focused again on savings and that's the performance element but there's also ownership differences. You can have an energy savings performance contract that could be all on the balance sheet for the customer or the municipality or whatever. Those I think are 2 major differences.

With efficiency as-a-service you can have other performance elements. We do a lot of lumens as-a-service where folks do not care about the savings at all. I mean they're getting those benefits but they are contracting with us so we increase the lumen levels throughout the entire building. So I think that's 1 of the – how it's structured, the biggest difference.

And yeah, I think energy performance contracting set the – paved the way for all of us and it will continue. I was just trying to highlight how some folks, our customers, are looking for different options. A school district in North Carolina that we're working with said, "We don't want to do performance contracting anymore because we don't like the terms," so just some of my experience.

*Joe Indvik:*

Yeah, I'll just add to that we too have been trying to kind of taxonomize the energy services economy to make it easier to talk about because there is a lot of questions around what is energy performance contracting versus efficiency as-a-service versus ESAs, et cetera. They're all kind of flavors of the same idea where a third party provides the service of energy savings and of managing your energy equipment. One way we often think about that I think is helpful is think about it as a graph with 2 axes. One axis is the extent to which the performance is actually guaranteed. You can have a very intensive traditional energy performance contract where a third party guarantees you energy savings and they manage it all and they just tell you your utility bill will go down to X percent all the way to very light touch forms of efficiency as-a-service where there's no savings guarantee at all; all that it's guaranteeing is that the equipment will continue operating.

And then you have a spectrum of project size. So traditional energy performance contracting tends to be very large. Usually 1 ESPC deals less than \$500,000, sometimes – usually they're in the multi-millions whereas efficiency as-a-service and some of the more recent products were more specifically designed for smaller scale, as small as \$10,000 in some cases or even lower for residential applications. So that doesn't define it precisely but those are 2 kind of axes you might want to think about in the market on and there's providers all over that graph effectively.

Great, so I want to talk – let's see here. There was a really good question in here. Rachel, question for you, we talked about kind of enabling legislation at the state level for PACE. What exactly does the process look like from when enabling legislation is established to when actual PACE programs are created because this person noted that there's a lot more states that have enabling legislation

that don't have the whole state covered with PACE programs? So how does that work?

*Rachel Davis:*

Yeah, that's a good question too and it really kind of depends on what that enabling legislation says. Most states have legislation that they pass but then it has to be opted in at each of the local levels. And so Texas for instance, Harris County that covers Houston and then the City of Dallas and then Travis County that has Austin, all of those have had to opt in separately because, and I think the person who asked the question also pointed out because the tax assessor is going to be collecting the taxes in many of these instances or the assessments and so we have to get their approval to do that and so there's typically an ordinance that's passed at the local level for each of these to enable the PACE program and then there's also some form of program administration that's set up and in some cases that can be a statewide program administrator that really just serves as a function of approving the projects, coordinating with the local governments and the lenders and the property owners. And so sometimes that's again statewide, sometimes it's municipality-by-municipality. I wish I had 1 kind of peanut butter answer for how it worked everywhere, but sometimes that can be a little nuanced from place-to-place.

*Joe Indvik:*

Mm-hmm, got it. Thank you; that was a great answer. One question here that I can take quickly. Somebody asked with the Finance and Resilience Initiative and the Resilience Roadmap that we developed how applicable is that for city facility, so for municipal government facilities? You know resilience is a huge issue so we focused the initial round of the work we did on finance and resilience specifically on commercial buildings from the perspective of the owner but I'd say 80 percent of the content in that Resilience Roadmap is still applicable to any owner of a commercial building whether you're in the commercial real estate sector or not. Even occupants I think of commercial buildings would find it useful.

That said, we are in the market for new work to be done on finance and resilience. One of the things we're thinking about doing over the next year and kind of discussing with the market is is there other guidance or resources or case studies or other materials that we could help create to kind of demystify resilience for specific sectors or specific issues within resilience so if you have ideas to that effect, it sounds like you do from your question, please shoot me an email and I'd love to talk more about how we could improve that resource.

One final question I guess for Greg and others too if you have thoughts on this, but when it comes to green bonds the green bond principles feel kind of voluntary. There's not a regulatory body that effectively says what is and is not a green bond. So do we have issues with varying qualities, like if you're an investor in green bonds how can you do a set of checks to make sure that your money is actually being used for the purposes that you hope it is?

*Greg Montgomery:* So that's the whole purpose of having external review. Approximately 3/4 to 80 percent of the green bonds that are issued are reviewed externally so that there's a third party that the investor can rely on to assure that these principles are being met, that the issuer does have a sustainability framework against which this project is being approved, the project's in furtherance of that, the proceeds are being used for it, and then the performance is being measured. So you know I think that's what the truly committed investors want to see is they want to see some form of external review. And then you have the even higher standard like the climate box, which are even more rigorous framework and require certification and so that's where the market is evolving. You know if I were an investor and somebody just came to me and said, "This is a green bond," and they didn't have an opinion unless I knew the issuer very well and I knew their story I'd be skeptical.

*Joe Indvik:* Got it. That's great; thank you. Well we have a bunch more but I think we need to wrap up here so we can close out so Kyle if you want to go to the next slide here. Just a couple of final notes at the end. We want to invite you all to attend The Better Buildings Webinar Series in July, starting in July. The partners are going to be discussing some of the most pressing topics that you all are facing and talking about practices and innovative ways to approach sustainability and energy performance. So if you want to register for any or all of these go to the Better Buildings Solutions Center and click on the 2019/2020 Webinar Series.

Go to the next slide. I also want to highlight The Better Buildings Solutions Center, which has over 2,800 solutions including all the case studies and the Navigator and the Roadmap and all the stuff we talked about today to help you find proven and cost-effective energy and water efficiency solutions so we have a cool video to show you if we could just briefly show you that now.

*[Video plays, 1:28:44 – 1:29:37]*

All right, thanks. Yeah, you know how when internet forums became a thing back in the '90s and everybody would – somebody

would come on and ask a new question that somebody else had already asked and there would always be the cranky folks that would sort of descend on them and explaining how they needed to search before asking the question? We're not cranky about it but in a similar vein if you have a question about energy efficiency or a type of project or a policy or any finance concept, chances are it has been addressed in some case study or fact sheet on the Solutions Center. It's truly an incredible gathering of resources that's growing every day thanks to our partners so I highly encourage you guys to check that out.

And if we move to the last slide I just want to thank our panelists I last time. This was a really good discussion, I think we probably could've gone for another hour discussing these topics, but I think we gave folks a good overview so thank you all for being a part of it. If you want to learn more about anything we discussed today contact any of us directly including myself, Joe Indvik, there at the bottom and with that we will tell you all to have a great evening.

*[End of Audio]*