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*Sean Williamson:* Hello and welcome to C-PACE Financing Turns 10: Impacts, Obstacles, and What Comes Next. Today's webinar is part of the 2020-2021 Better Buildings webinar series. In this series, we are profiling the best practices of Better Buildings Challenge and Alliance partners, and other organizations working to improve energy efficiency in buildings.

I'm your moderator, Sean Williamson. I serve in the U.S. Department of Energy's Office of Energy Efficiency and Renewable Energy as an advisor for partnerships and technical assistance. My work focuses on state and local governments and the deployment of solutions to finance energy efficiency. I'm currently coordinating the commercial PACE working group, which is a cohort of state and local governments working together to learn about, launch, and refine commercial PACE financial programs.

Thank you all for being with us today. We have a wonderful session prepared, and some fantastic speakers with a lot of rich experience that I'm going to introduce in just a moment. Next slide, please.

I'd like to start with some level-setting for attendees on the webinar that may be unfamiliar with commercial property assessed clean energy, or C-PACE. C-PACE is an innovative financing mechanism designed to support the public purpose goals of saving energy, making buildings more resilient, and supporting economic development. Commercial PACE works through a secured voluntary tax assessment placed on commercial properties, which ensures repayment of funds borrowed to complete an eligible building improvement.

The benefits of C-PACE include a tax lien secured form of financing with long terms for the borrower compared to traditional commercial loan products, competitive interest rate financing that does not accelerate in the event of non-payment. For many projects, energy savings exceed the periodic repayment obligations, significantly reducing the likelihood of non-payment for property owners.

Last, PACE is transferrable. Property owners can either pay off the tax assessment at the time of property sale, or transfer the assessment to the next property owner. The debt stays with the property, not the property owner. This is an especially valuable idea in the commercial real estate sector, where property owners

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frequently have short planning horizons and may not want to own the property for an extended period.

Since commercial PACE was first innovated in 2009, a national C-PACE market has emerged, thanks to the countless hours and effort from states, local governments, C-PACE program administrators, capital providers, and other stakeholders. Establishing viable C-PACE programs requires both well-written state-enabling legislation and local ordinances. Building a pipeline of projects requires additional sweat equity from project developers, contractors, lenders willing to provide consent and/or lend, and property owners willing to take a chance on something new.

Through the leadership of states, local governments, and many other stakeholders, United States commercial PACE market has hit some significant milestones at the ten-year mark. There is now commercial PACE-enabling legislation in 37 states plus Washington, D.C. and 20-plus states have financed C-PACE projects. More than 1\$.6 billion in private investment has supported more than 2,500 projects as of the end of 2019, and more than 7.9 tWh of energy has been saved, also since the end of 2019. Next slide, please.

The first C-PACE finance project was completed about ten years ago. The goal of today's webinar is to look back at how far we've come over this ten-year period, extract some lessons learned, acknowledge achievements, and look forward to the next ten years. Today's speakers bring a lot of compelling data, insights, and experience to contribute to the conversation.

Our first speaker, Mike Centore from PACE Nation, will highlight market accomplishments and trends. Our second speaker, Greg Leventis with Lawrence Berkeley National Laboratory, will discuss how and why we assess commercial PACE programs energy impacts. Our final speaker is a true C-PACE pioneer. Charlene Heydinger with Texas PACE Authority helped to develop one of the first and most successful C-PACE programs in the U.S., and brings a wealth of experience to our webinar. I've also challenged our speakers to share their thoughts on the next ten years of C-PACE, including potential trends, tensions, and opportunities. Next slide, please.

I now want to highlight four Department of Energy developed commercial PACE resources for your consideration. First, Lessons in Commercial PACE Leadership: The Path from Legislation to

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Launch. This is a report designed to help state and local governments fast-track program launch after adopting commercial PACE-enabling legislation.

The second resource is DOE's Commercial PACE Working Group. This is a cohort of state and local governments working together to learn about, launch, and refine C-PACE programs. The working group aims to achieve \$60,000.00 in C-PACE financing by 2022. Several resources, including those listed here, have been released under the working group, with more on the way.

Our third resource is the Better Buildings Financial Allies program. This is a program that can connect you to C-PACE capital providers and other experts. Visit the Better Buildings Financial Navigator to learn more.

Finally, the C-PACE for Resilience mini toolkit. This toolkit offers resources and case studies for using C-PACE to finance resilience measures, including energy and non-energy building improvements, and has three pretty compelling case studies as well. Next slide.

Please stay connected with DOE and public sector financing resources by visiting our state and local solution center, subscribing to our monthly state and local newsletter, or reading our 2020 energy efficiency and renewable energy resources for state and local leaders. You can also contact me directly with the information provided here. Next slide.

We're excited to announce that today, we will be using an interactive platform called Slido for Q&A. Please go to [www.slido.com](http://www.slido.com) using your mobile device, or by opening a new window in your Internet browser. Today's event code is #DOE. If you would like to ask our panelists any questions, please submit them any time throughout the presentation. We will be answering your questions near the end of the session. You can select the thumbs up icon for questions that you like, which will result in the most popular questions moving to the top of the queue.

We're going to bring up a couple of poll questions momentarily, so I invite everyone to bring up Slido on your web browser, so you can respond to those poll questions. Next slide, please.

So with that, let's start things off with a poll question so that we can learn more about you, our audience. Please join us over at Slido to respond to the next two poll questions. I will read these

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questions aloud as folks get into Slido and contemplate their response.

Question one. Which of the following best describes your professional affiliation? There's a few options including C-PACE program administrator; capital provider or lender; property owner or manager; state, local, or federal government employee; consultant or contractor; or other. We'll give this about another 10 or 15 seconds. All right. It looks like it's pretty close between C-PACE program administrator and state, local, or federal government employee.

In the interest of time, let's move on to our next poll question. In one or two words, please describe why you are interested in commercial PACE? This will populate an interesting word bubble. We see where there's a lot of emphasis on certain words that will be more emphasized on the visual. We're seeing a lot of access to capital, energy savings, climate, energy efficiency, economic development all rising to the top. This is really fascinating to look at. Thank you all for your response. Market oriented is another dominant phrase. Interesting.

If we can head back to our slides please, I'm going to go ahead and introduce our wonderful lineup of presenters, beginning with Mike Centore. Mike is Director of Market Research at PACENation, the national nonprofit organization that works to expand access to PACE financing. He leads PACENation's data-focused efforts to track national PACE market developments and communicate research to PACENation's members.

Our second presenter is Greg Leventis. Greg is a program manager in the electricity markets and policy department at Lawrence Berkeley National Laboratory. He conducts research analysis of demand side efficiency. His focus includes efficiency finance, cost of saving energy, and incentive program design and analysis. He's a member of the Finance Subcommittee of the Alliance to Save Energy's Policy and Programs Committee and the Research Advisory Council for LIFT Solar.

Our third presenter is Charlene Heydinger. Charlene is president of the Texas PACE Authority, the nonprofit administrator of 52 Texas PACE programs. To date, these programs have enabled more than \$112 million in new property investments in Texas. Ms. Heydinger also led the legislative effort in support of the Texas PACE Act, and the collaboration to create PACE in a Box, the Texas model program of Texas PACE best practices. Ms.

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Heydinger received one of three national 2020 PACE Champion awards from PACENation. She serves on the executive board of the Capital Area Council BSA, and the board of SPEER.

As a reminder, please send any questions through Slido by going to Slido.com and typing in event code #DOE. We'll try to get to as many as we can. The session will also be archived and posted to the Better Buildings Solution Center for your reference.

At this point, I'd like to pass things off to our first speaker, Mike. Mike, are you ready?

*Mike Centore:* I am. Thanks, Sean.

*Sean Williamson:* *Take it away!*

*Mike Centore:* If you're not already familiar with PACENation, as Sean said, we are the national advocacy organization for PACE financing. We run the national PACE event, which is the annual PACENation Summit, as well as producing market research, which you'll see some of today, and working on industry coordination and police efforts across the country. We are a member-funded organization that's grown from a community of about 30 members two years ago to about 170 member organizations today. I'll go to the next slide.

Sean mentioned a lot of these, but these are just some of the benefits of PACE and why is PACE so successful in the marketplace, what's special about it? PACE has a couple of unique and fundamental features that come out of its special status as a property tax assessment. Number one, PACE covers 100 percent of a project's hard and soft costs, which means PACE can fund not just the equipment costs, but also the soft costs, like auditing permitting costs, which can be a barrier to getting deals done, especially smaller ones.

Also, PACE assessments can have, and have had, terms of up to 30 years to maximize the annual cashflow of the project in effect by minimizing annual payments versus annual savings. And, in many cases, can also result in being cashflow positive from day one. PACE is attached to the property and, as such, it transfers on the sale of the property. PACE assessments are non-accelerating and are also non-recourse to the building owner for that reason. Next slide, please.

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A couple more here. A classic barrier to efficiency financing has been the split incentives problem. This is in cases where tenants pay their own utility bills, but building owners invest in efficiency upgrades for the property. So, tenants can see savings, but the owner doesn't see a direct ROI. PACE can solve this problem by allowing both the annual assessment costs and the net savings to pass through to tenants. We've seen a couple of examples of this happening in apartment buildings – actually, many examples – but also in common area management charges in places like malls or other leased buildings. Even in nightly hotel room charges, as well.

PACE can also preserve capital by replacing higher-interest debt or equity in a capital stack. This has been a really important factor in the growth in commercial PACE over the past couple of years, especially in the new construction sector. Finally, and most importantly, the reason that local communities use PACE and embrace PACE is that PACE has the potential to create substantial environmental, economic and resiliency benefits for communities. Next slide, please.

Just keeping in the theme of this webinar, looking back ten years to 2010, at this point, commercial PACE was in its very early stages. Twenty states had already enacted legislation enabling C-PACE, but only two had active programs. Those programs were in Boulder, Colorado and the Sonoma County Energy Independence Program in California. At this point, about 58 projects have been completed, which amounted to \$5 million in total investment. On the next side, I'll show you the present day.

Today, 37 states plus Washington, D.C. are C-PACE enabled and there are active programs in 24 of those states, plus D.C. About 2,500 projects have now closed across the country, which has amounted to almost \$2 billion in total financing being completed. This includes some projects in 2020, so these numbers are a little bit higher from the ones that Sean shared with you, which was to the end of 2019.

On the next slide, we can see the growth in the industry over time. This is showing cumulative C-PACE financing from 2009 to September 2020. You can see growth has averaged about 80 percent annually, but from 2018 to 2019, for example, we actually saw about 150 percent growth in annual financing in a single year.

On the right-hand side is a table showing investment by state. California followed by Ohio, Connecticut and Texas are leading these charts right now. In California and Ohio, a lot of the growth

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in recent years is from the new construction sector, especially in the hospitality sector. Connecticut was one of the early leaders in C-PACE and remains a leader. Texas has seen some of the fastest growth in the nation, and has essentially tripled in annual financing over the past few years, which I'm sure Charlene can touch on. I'll go to the next slide.

What types of measures are typically fundable with PACE? Well, this depends on the state and the individual PACE program but traditionally, PACE can fund a wide range of different energy efficiency, water efficiency and solar PV as well. In many cases, PACE can also be used for other measures, things like co-generation and microgrids that make use of fuel cells, energy storage, even electric vehicle charging stations and resilience measures.

Resiliency has been a growing sector. Seismic strengthening is the predominant resiliency measure that's been installed in commercial buildings to date. This involves things like improving the structural integrity of a building or even building an external skeleton around the building. In California, PACE has been used for this purpose to meet state mandates for building safety. Hurricane resilience, things like wind resistant windows and doors, roof attachments to keep rooves secured. This has mainly been in Florida, so far.

We're also starting to see some programs look into the potential of using PACE for infectious disease mitigation, for things like HEPA filtration in HVAC systems, UV lighting that can be turned on at night to disinfect services, touchless fixtures and antimicrobial surfaces. Also interested in Charlene's thoughts on this in Texas, as we try to have a recovery from the situation that we're in today.

Also, another situation we're in today, PACE is being used for fire resilience, which can be fire-resistant building materials like fire resistant insulation panels or potentially even landscaping to reduce the spread of wildfires. These are taking on new importance today. They were enabled in California, at least fire resilience was enabled as an option in California a couple years back. Illinois has recently enabled a range of resilience measures, I believe including fire resilience in their PACE legislation. Michigan is also considering a bill to do so right now. I think I'll go to the next slide.

This is a graph showing just the predominant types of properties that have used commercial PACE to date. About 30 percent of

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cumulative investment has gone into the hospitality sector so far, followed by the healthcare and office sectors, and multifamily and retail. These sectors all have somewhat different project profiles. The hospitality sector has seen, and is seeing now, about 40 to 50 percent of projects happening are new construction. There's a wide range of investment size also from retrofits in the hundreds of thousands range to over \$57 million on a single project. I'll go to the next slide.

How has C-PACE been used? Just really quickly, on the right-hand side, you can see that about half of all funding has gone towards energy efficiency projects to date. About 23 and 22 percent have gone towards renewable energy and mixed projects that include multiple categories, and so far, about seven percent has gone towards resiliency.

On the right-hand side, you can see some of the most common efficiency measures, specific efficiency measures that have been installed in those efficiency projects, HVAC followed by lighting. These projects are not mutually exclusive. The top uses of HVAC and lighting are also the top two most bundled together measures. I'll go to the next slide.

In terms of resiliency, as I mentioned, seismic has been the predominant use of PACE for resiliency. This has been in both California and in Oregon. That I know of, there have been about 25, possibly up to 30 projects that have closed so far in the seismic space. For stormwater management, there was one major project in Washington, D.C. that made use of PACE for stormwater catchment systems. There were also a number of smaller projects, as well. I'll go to the next slide, just in the interest of time. I have a couple more minutes.

This is just showing you some more detail on the types of projects that are being installed, single-measure versus multi-measure. About a little over half of the efficiency projects that have been installed have been multi-measure projects. The average number of distinct measures in an efficiency project has been a little over three, so we're seeing bundling of multiple measures on a lot of these projects. Go to the next slide.

PACENation has estimated the impacts resulting from all of these 2,500 commercial PACE projects, and we used the results of a study that was completed by the University of Southern California looking at one particular PACE program that operated in a couple states. It's estimated that commercial PACE investment is going to

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result in the creation of over 22,000 job years and \$3.5 billion in economic impact.

Additionally, in terms of energy savings – and this is estimated over the entire lifetime of currently installed measures – over 9 billion kWh of energy saved based on the multipliers we found in the USE research, but this is gonna be a highly general estimate. Resulting from those energy savings would be an estimated 3.5 million metric tons of carbon emissions abated, which is equal to about the annual emissions of an average coal-fired power plant. Next slide, please.

I'm showing some additional PACENation estimates here. I know this is a lot of information, so I can follow up and send this document to you if you're interested. But this is showing you, if C-PACE were enabled nationwide and were used by 15 percent of all eligible properties in the United States, commercial investment would reach potentially \$282 billion. If you include residential in that number, it reaches about \$650 billion. In the commercial sector alone, this investment would result in the creation of over three million jobs and about \$512 billion in total economic impact.

I want to point out also that we can generate these estimates on a state-by-state basis. So, if you are interested in any of these numbers for your state and maybe how we arrived at these numbers, I can follow up. Next slide, please.

I just wanted to give a quick overview of all of the different types of projects that have used PACE, and show the wide range and all the really interesting types of projects that have been completed. Firstly, at the top left is the largest PACE project, the largest single PACE project that's been closed to date. It's a \$54.7 million project on a hotel in Salt Lake City, new construction.

I'm gonna point out a couple interesting features here. The PAE Living Building in Portland, Oregon, this is actually the first living building certified property that has used commercial PACE. That means that the building will have to be energy positive and carbon negative. There's too many interesting projects to really go into detail. Pacific Ethanol was an industrial facility, a biorefinery plant that installed a 5 MW solar field to power their operations and generate biofuels using solar power. Really interesting.

A lot of the mixed use projects that have been completed were either vacant or under-utilized or under-used. Commercial PACE allowed them to be redeveloped into mixed-use properties, for

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example, OM Station and the DuPont Building. OM Station was the former Oscar Mayer's headquarters building in Madison, Wisconsin and DuPont Building was a similar story in Wilmington, Delaware are now being redeveloped and creating that new economic activity in those areas. Next slide, please.

Just a couple more project examples, just to give you an idea of what's being completed. For example, Wheatfield Gardens in New York, this is the first indoor farm that has used PACE for LED lighting. PACE has also been used for many nonprofit properties, as well as even charter schools that have made use of solar PPAs plus PACE, so they can get the benefit of a PPA and also the benefit of PACE together, which they are using because they don't have the tax burden to make sure of the investment tax credit. I'll go to the next slide.

I think I'm gonna skip this last slide, but I can follow up with anyone who's interested in the recent legislative and program developments that have been happening around the country. I think that's it, in the interest of time. I will pass it back over to Sean.

*Sean Williamson:* Great. Thank you, Mike. Just a quick reminder for folks. If you have questions as we go through the content today, feel free to type your questions into Slido. With that, let's transition to Greg. Greg, you ready?

*Greg Leventis:* I am ready. You may hear some kids, dogs, other stuff in the background, so I apologize for that. Thanks, Sean. I appreciate it. I also want to thank the Office of Weatherization and Intergovernmental Programs, who funded this project. And Sean again in particular. He's really given some tireless support to this project, as well as a lot of stakeholders who have given some very valuable feedback. Next slide, please. I'll try to go a little fast here today to get us as back on schedule as possible.

Today, I want to give you some background on this project, and then talk about energy impact assessments. Then next, I'll talk about methods used to assess energy impacts. Finally, I'll talk about the value proposition of energy impact assessments for C-PACE. Next slide, please.

First, let me tell you about the project. Next slide, again. Thank you.

Earlier, Sean mentioned DOE's C-PACE working group. One resource to come from that working group is a series of three issue

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briefs that Berkeley Lab is developing. The subjects of these briefs were chosen based on the working group members' input. The first one was Commercial PACE Financing and the Special Assessment Process, which covered the special assessment process, which includes establishing and recording a lien, billing collections and remittances, and then the enforcement process in cases of non-payment.

We're currently working on ideas for the third brief, but the brief that I want to talk to you about today is the second brief, Practices for Demonstrating Energy Savings from Commercial PACE Projects. The objective of this brief is to provide a resource for C-PACE stakeholders, particularly the state-level policymakers, on energy impact assessments: the methods available to perform those energy impact assessments, the benefits of using them, and then the tradeoffs of using them. Let's take a look at those energy impact assessments. Next slide and one more, please. Great.

C-PACE programs as we know, they produce a range of benefits, like Mike was just pointing out. These are for both the private parties that are directly involved, as well as for the public at large. These public benefits include, but are by no means limited to, increased economic activity, a healthier building environment, and energy savings. Plus, all of the benefits that result from saving energy.

Now, the public benefits of clean energy are often the rationale that state and local governments cite when they're passing C-PACE enabling legislation and ordinances. They may want to quantify the energy impacts and track the program progress. That's where energy impact assessment comes in.

Energy impact assessment is, as you can see here, a process to determine and quantify how an energy efficiency project or program affects energy use. Some of the motivations for using these impact assessments can include, like I was saying, the enabling legislation itself, complying with or reporting on the requirements that I was kind of alluding to there. It can also help with promoting the program, supporting program growth. And finally, validating energy and cost savings if a certain amount of savings is promised or required. Next slide, please.

At a fundamental level, all energy impact assessment methods need to compare a building's energy consumption after an efficiency project is implemented, either actual or forecast consumption, with a baseline consumption that they would have

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consumed without the project. Since you can never know what that level of consumption would be exactly, or with complete certainty, they call these assessments estimates.

The energy efficiency industry has developed a number of different methods and guidance to assess energy impacts. A common one is the international performance measurement and verification protocol, or IPMVP, and the Department of Energy's uniform methods project. Choosing methods generally is a balance between how much it costs to implement the method and how accurate the results are going to be. Because of that tradeoff between cost and accuracy, there are three methods that are more suitable for C-PACE projects. That's deemed savings, as you see here, consumption data analysis, and building energy simulation. Next slide, please.

First, deemed savings. Apologies; hold on one second. Deemed savings are assessments of savings that are done before a project is implemented and are based on predetermined estimates. These estimates can usually be found in technical reference manuals that are often available from utilities or public utilities commissions. Deemed savings fall into two different categories.

First, you have fully deemed savings that are drawn from estimates made in other settings. For example, directly taking a number or an algorithm from a technical reference manual that says, for example, an LED lamp is going to save X number of kilowatt hours. Then, you would multiply that by the number of LED lamps you're gonna include in the project.

Partially deemed savings, another flavor of these deemed savings, use the same estimates, but then they adjust for site specifics like, for example, operating hours or occupancy. This adds accuracy, but it also adds cost. These deemed savings can forecast energy savings ahead of the project implementation, but it doesn't indicate actual savings. It estimates the impact of individual measures. Then, the fully deemed savings values can be very straightforward and low-cost. But again, there's lower accuracy in some applications especially in the case of these fully deemed savings. Next slide, please.

The next one is consumption data analysis. This is a comparison after the project is done and is already operating of actual energy consumption before the project is started and actual energy consumption after the project was completed. It reflects the actual

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consumption, although it's for the whole building and not just for the energy improvements.

For accuracy, because of that, these estimates need to control for external factors like weather. For example, if you replace an HVAC system in August, then you measure energy consumption in March *[break in audio]* March, that's great if you consume a lot less energy. But if last March, there was a polar vortex and this March, you had 70 degrees every day, then you have to control for that to see if it was the new HVAC unit that was actually responsible for some of that savings, or if it was the weather. It also does require getting access to energy consumption data, and that can potentially be a challenge. Next slide, please.

The next one is building energy simulation. This uses engineering models to forecast energy savings. It can be calibrated for better accuracy by, for example, including the operating hours that are gonna impact different energy systems and efficiency measures. Again, this adds accuracy, but it also adds costs. Next slide, please. We can stay on that one.

Some C-PACE programs may require or encourage energy impact analysis, but there are other reasons that property owners may be doing some sort of impact assessment or collecting consumption data that could be used to assess energy impacts. For example, a C-PACE project could trigger the need to comply with building energy codes, which would require an assessment of what the energy impacts would be.

The building may be in a jurisdiction that has benchmarking disclosure requirements, and that could mean that they're collecting and tracking the building's energy consumption. That could be used to assess energy impacts, that consumption data. Some building owners might be seeking a premium certification, like Energy Star certification or LEED certification, which would again mean that they are collecting and tracking their building's energy consumption. That could be used, again, to assess the energy impacts. Even if there aren't requirements to conduct energy impact assessments, doing so can be valuable for other reasons. Next slide, please.

Some of the benefits of conducting energy impact assessments include validation of public benefit, nature of the program. For policymakers who do cite clean energy when they decide to authorize C-PACE, this can demonstrate that the program is actually providing those energy savings. It can also prove to

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potential participants that C-PACE can save energy and money. Potential participants in this case can include property owners, of course, but also mortgage holders on the potential for dissipating properties, as well as state and local governments who may be interested in starting a C-PACE program.

It can also establish progress toward program goals or other clean energy policy goals. Finally, energy impact assessments can also be used to gauge other aspects of the program. For example, to qualify what efficiency measures are eligible and to assess the performance of participating contractors.

There are, of course, some drawbacks. It presents, like we've been talking about, added costs and it can take up significant administrative time. It may require collecting sensitive private information from property owners like energy consumption data, site specifics, and information on operations. Finally, property owners might see it as a burden, especially for projects where energy savings aren't central to the project's business case. That could slow down program uptake.

Those are the motivations for energy impact assessments, the methods that are used to conduct them, and some of the reasons that they can be valuable. I will turn it back over to you, Sean.

*Sean Williamson:* All right. Thank you, Greg. With that, let's transition to our final speaker, Charlene. Charlene, are you ready? Charlene, are you available? You may be on mute.

*Charlene Heydinger:* Thank you. Could we go to the next slide, please? Thank you, Sean. A little drama there.

We're so excited to talk to you today about the Texas program, but I want to say that it is completely collaborative. To just give you a sense of back, Sean, Greg and Mike on this webinar today have all contributed greatly to the success of this program, and I really appreciate that. Commercial PACE is ten years old. In Texas, we're celebrating our eighth year. Next.

One of our big challenges across the C-PACE world is market awareness. A property owner who wants to use the program needs to find a foundation of stakeholders were ready to go to help. That's contractors, architects, engineers, local lenders, PACE capital providers, local governments. Everybody needs to have a fundamental understanding of this program and how it benefits them because it really is a win/win situation. But market awareness

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is critical to being able to make the contributions we hope will come from this program. Everybody wants to lower their operating costs because that enables them to increase their net operating income. You wonder why everybody doesn't do this. Next slide, please.

Without PACE, which is the world that most people still envision, a contractor will come in, let's say a building's HVAC system is dead, can't find parts, there's no option but to replace the unit. The contractor is very excited and correctly tells the property owner, look at all the savings that you are going to achieve. Next.

But from the property owner's standpoint, there is five years of cash flow pain. This is because these equipment loans, with expensive equipment on the front end, long return on investment is risky for the lender. The lenders want to be paid back in five years or less. That results in significant cashflow. Most companies and organizations don't have money that they can cull from their core business or core missions, in the case of nonprofits, to put into a building they already own. So, they don't do it. Next.

What we're doing is unpacking the conventional. We've got to teach people that they've been looking at a picture that's missed a big puzzle piece. You plug in the PACE puzzle piece and the entire picture changes to something new, it's opportunity. The idea of PACE is that we're gonna stretch that payment from five years out to the life of the equipment. When you do that, the savings from the project exceed the cost of the project. So, we end up with a series of one-year returns on investment, but it changes everything. One of the big challenges we have is getting CFOs and property owners to understand the new door that's open to them. Next.

It makes the impossible possible. On the left, you're looking at the Barfield Building in Amarillo, Texas. This beautiful 1926 building has been an eyesore, an empty eyesore with broken and boarded-up windows for 25 years in the center of Amarillo. Developers came in several times trying to redevelop this property and they just couldn't make it work financially. The numbers just didn't pencil. But, Amarillo created a PACE program, the developer came in. This is now going to be a Marriott Autograph hotel, creating 55 permanent jobs in Amarillo.

PACE doesn't replace existing sources of capital in the capital stack; it adds to them. It fills in the hole that enables these properties to be redeveloped at all or to be redeveloped properly. It enables property owners not to cut the energy efficiency because

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they can't come up with the money to build the building correctly. Next.

Another way to look at this is the repayment over five years. That yellow tower on the left, the tower of cashflow pain, all PACE is really doing is knocking that tower over. You still have to pay for these energy and water efficient improvements. The difference is that you have access immediately to the utility savings to help make those installment payments. So, we're getting rid of that tower of pain by knocking it over. We're not getting rid of it, we're knocking it over so the pain goes away. Next slide, please.

All right. My suggestion for those of you who are looking at establishing PACE programs or figuring out how to really make your PACE program deal with the growing pains is to be thoughtful about why you're doing this. In Texas, we are doing this because in 2013, when the statute passed, we had real resource issues. We had an enormous drought and we had power transmission issues while we had 1,000 people moving to Texas every single day. That's been going on since 2011. But our businesses, including our local lenders, were very concerned about whether or not Texas was going to have the natural resources necessary to keep this growth in Texas satisfied and keep it coming.

Number one, we built a giant coalition. When that legislation passed, it was supported by the Texas Association of Business and the Sierra Club. This was a voluntary program with no mandates that was going to produce real energy and water savings. So, everybody was on board with that goal. One of the things that I encourage everybody to consider is who's going to create your PACE program?

We worked with a coalition, an enormous coalition that set goals early. We knew, with 254 counties and over 1,200 cities, that if our program wasn't uniform, and user-friendly, and scalable, and sustainable, it was never gonna work. Our group wanted to separate the government role from the private sector and put all of the decision-making in the hands of the property owners. When it became clear that our local governments didn't have the wherewithal to run the program, to administer the programs themselves, the group recommended a nonprofit do this in a transparent manner as if they were the local government. The local governments are the customer for the administrator. Next slide.

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It took a year. We had the volunteers break into these five different working groups. What we ended up with is best practices. Surprisingly, the business community asked for very tough technical standards and underwriting standards because they wanted to make sure that while they were creating a Texas economic development program, it was gonna be trustworthy and that local governments would be willing to create it.

Our first growing pain was to up front upload all the work before the program even got started to make sure that all voices were heard, that everybody had buy-in. That's made our education and outreach easier because there's one model program that is out there for everybody use: property owners, lenders, contractors, everybody just has to learn it once. Next slide.

For us, there are two pathways. One, the building owner has all the power in the market. The government gets involved after the building owner, the contractors and the capital providers have worked out their deal. We have nothing to do with the interest rates and the terms, et cetera, other than to make sure that the program and the statute obligations are met. There's a firewall. That white line between those two rows is a firewall. We are separated from the market. We don't develop the deals because we don't want to create any appearance of conflict of interest. Our job is to just help everybody have a successful program, and to do the education and outreach necessary to make people aware of the program. Next.

Part of the growing pain is getting a local government to trust the program and establish it. Nobody can use it until the local government creates it. We are working all the time with local governments to show that their fiscal responsibilities are advanced in this program. We don't use taxpayer dollars. They never touch the money. There's no risk to them. There's no risk to their staff. We're not creating a bureaucracy within the local government. They can't afford it and their constituents really don't want that.

We also address their fiduciary concerns. We have a lot of stakeholder support. We have best practices. A lot of people get confused when I say consumer protection in the commercial sense, but we're really talking about protecting the property owners, the mortgage holders and the local governments. And trying to create business for the contractors, the architects, the engineers, the lenders, and everybody else. By separating out the government role from the private sector role, we've protected the private sector from any awkward appearance or perception that they're competing against their own local government.

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Finally, the statute makes very clear that if one of these does fail, the local government's costs are covered. They don't have to pay anything. They are not obligated to take over the property, et cetera. Next.

In Texas, we like our free market. This program was designed for the marketplace to find the highest and best use of this program, and it's gonna be different for every property. We've worked very hard to let the property owners have full control of what they want to do and who they want to do business with. Next slide, please.

Let's talk about tipping point. In 2015, we created our first PACE program in Travis County. Last night, the city of Snyder, Texas approved the program, so we now serve 54 local governments. We've reached a good tipping point, so we now have a basis for a volume of projects to occur. The reason that having this be uniform across the state is important as if all these local governments are sharing one overhead, that means the user fees that we charge in order to stay sustainable and offer this service is low.

So we have, from the beginning, tried to design a high-volume low-cost program. The low-cost is essential because if we're gonna serve small business, underserved communities, our border communities, our rural communities, we've got to find a way to help small businesses. We can't price ourselves out of the market. So, designing this uniformity is critical. Just to give you a sense of humor about how we look at this slide, we've reached 60 percent of the Texas population and we only have 422 counties to go. Next.

It's always important, as you're designing this, to remember who supports your why. Why are you doing this? Always make sure that their voices, and all voices, are included in every decision that you make. We had PACE in a Box adopted in 2014. We are now engaged in our second feedback and improvement process because no document is gonna stay living if it's not reviewed. We look at best practices in the rest of the country. We look at what's happening in Texas.

If you look at this slide, you'll see our first projects closed in 2016. But the effort, the statute passed in 2013. So, from 2013 to 2016, in building PACE in a Box and getting the first local government to create the program, we had no revenue from the program. We were blessed to have significant revenue from foundations. You really need to think about including everybody in figuring out how you're

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going to support what you're doing without creating a perceived conflict of interest the parties.

You'll see our tipping point was 2019. It is astounding to see the growth. It was more revenue than the first three years combined. The first four years combined, if you want to look at it that way. It was exciting. We determined that we would grow steadily over time. In order to make PACE solid in Texas, that we would create a program that enables us to – how can I say it – we want to be the tortoise, in the race of the tortoise and the hare. We want this ultimately to be boring. We want everybody to trust it.

I've also got a bunch of slides of great projects and I'm gonna skip them in the interest of letting you ask questions. I don't know if you want to go all the way to our tracker slide but we've also, thanks to our state energy conservation office, and the Houston Advanced Research Center, and the Mitchell Foundation, found a way to track our savings. We think that's really important to proving the project.

With that, I'm happy to answer a COVID question. But remember, if you stay true to why you are doing this and incorporate the sometimes competing, but most often collaborative interests of the group that helped you create your why, if you stay loyal to your why, the sky is the limit on what you can achieve with PACE. Thank you so much for letting me be a part of this today.

*Sean Williamson:* All right. Thank you, Charlene. Much appreciated.

Let's turn to a couple questions from our audience now. I've got one pulled up here that I think Charlene or Greg may be able to speak to, and that is simply whether we know anything about transfer of C-PACE assessments at time of sale. Has that happened at all? Is there enough data points to say what the impact is on the resale of property? I assume the answer is no, but wanted to see if Charlene or Greg have any thoughts on that.

*Charlene Heydinger:* We don't have a lot of experience with it yet. I think it's going to really depend on what the interest rates are at the time of sale.

*Sean Williamson:* Yeah, that makes sense. Greg, have you seen any examples of properties being sold in your research?

*Greg Leventis:* I have not. Not for C-PACE. I have seen, for some other types of programs, where they allow transfer to new properties. I don't want

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to really talk about that here because I just feel like they're too different to really be able to say anything about it. Sorry.

*Sean Williamson:* Thanks, Greg. Let's do one more question here. Perhaps Charlene, I don't know if you have any experience in the multi-family sector and in particular, affordable housing. If you have any examples from that, or battle scars, for lack of a better term, that maybe you want to highlight, and how challenging it is to make PACE work in that particular market segment?

*Charlene Heydinger:* We are really grateful for PACENation's leadership here. This fall, PACENation is working with some HUD PACE experts in D.C. to create a series of regional meetings to connect the dots with the HUD regional office. Texas PACE Authority has applied for a letter of compliance from HUD that our administration of the program is consistent with guidance that HUD issued on how to get its consent for PACE projects in the multi-family sector. We're very hopeful that we'll be able to move forward with that.

There is market-based affordable housing. We have a really interesting project in East Austin, where a property owner has purchased an old empty motor court hotel with 307 doors that open to the outside. They are being converted into studio apartments in a place where affordable housing is really necessary. We hope to see more of that in the actual market, the free market, not just subsidized housing. PACE is a great tool to help achieve that goal.

*Sean Williamson:* Thank you, Charlene. I see there is a question at the top here that would be well-suited to direct towards Mike. Mike is actually hosting PACENation's monthly call and it started right at 4 PM Eastern. So, I let him off the hook. But if you regularly attend those calls, you may be able to ping Mike either on that call or through a follow-up email – we'll share his contact information at the end here – with regards to the infectious disease mitigation measures as to eligible measure in some programs. Sorry we're not able to tap Mike to respond to that now in real time, but we'll look to provide Mike's contact information and hopefully get more information on that that we can share broadly.

With that –

*Charlene Heydinger:* Sean, many of those measures are energy and water saving: touchless toilets, touchless faucets, touchless light fixtures, and clean air flow. We are really promoting the use of PACE for COVID safety measures because more often than not, they also save energy and water.

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*Sean Williamson:* Great point. Thank you for clarifying.

Well, with that, I want to go to a few additional resources and concluding slides. First, as a reminder, the slides and recording from today will be archived on the Better Buildings Solution Center. Please revisit the slide deck to access the resources we discussed today.

Also as mentioned, this webinar is part of the 2020-2021 webinar series. We have a great lineup of presentations through April 2021. Visit the Better Buildings Solution Center to register for those upcoming webinars today.

We hope you will join us on October 20<sup>th</sup> for the next webinar, titled Wastewater Treatment 2.0: The Next Phase of Energy Efficiency and Recovery. Attendees will learn about the types of technical assistance available through SWIFt 2.0, including energy data management, technology integration, and project financing, and about the target goals for participants.

We also have a technology webinar coming up this Thursday, October 8<sup>th</sup>, titled Future-ready Lighting: IoT Upgradeable Lighting Challenge. Join us as leading experts from the IoT Upgradeable Lighting Challenge share their insights and discuss opportunities for greater energy efficiency and cost savings within the Internet of Things lighting applications.

Then, to watch recordings from the Better Buildings Virtual Summit held earlier this year, the 2020 webinar series or technical presentations from our national labs, visit the on-demand webinars library, where all previously recorded webinars are archived.

Finally, with that, I'd like to thank our panelists very much for taking the time to be with us today. Feel free to contact our presenters directly with additional questions, or if we couldn't get to your question during the Q&A period. I'd also like to thank the attendees for sharing their time with us today. I encourage you to follow the Better Buildings Initiative on Twitter for all the latest news. You will receive an email notice when the archive of this session is available on the Better Buildings Solution Center.

Thank you, everyone, for your time this afternoon, and have a great day.

*[End of Audio]*

