The broadcast is now starting. All attendees are in listen only mode.

Hello and welcome, everyone, to the ESPC Toolkit Webinar Series. We will be starting in just a couple of minutes. Thank you. Hello everyone. Welcome today to the Better Buildings ESPC Webinar Series. My name is Alice Dasek and I'm with the DOE Department of Energy's Better Buildings Initiative.

In today's webinar is part of a five part series. We are on session four. Today, we are exploring the tools and resources of DEO's Energy Saving Performance Contracting Toolkit. In today's session, we'll take a look at the resources available to help project owners use ESPC to enable energy efficiency retrofits in markets beyond traditional administrative buildings. In this hour, I will start off the discussion by introducing DOE's resource toolkit for energy savings performance contracting and specific, the section on new markets. Then, I'd like to launch into a sample presentation from one of our new market resources, the ESPC Primer for K through 12 schools.

I will share data and statistics on the ESPC market and the K through 12 sector demonstrating how performance contracting can effectively address the maintenance and budget challenges in K through 12 school buildings. I will finish up with three case studies in school systems in the states of Colorado, Wyoming and Virginia and then take questions in the time remaining. Before we get started on the program, please note that we will hold questions until after the presentations. Please send in your questions through the chat box on your webinar screen throughout the session today and we'll try to fit in as many as we can. And those that we don't get to, might not get to, we can follow up with you following the webinar. This session will be archived and posted to the web for your reference.

To help us tailor our remarks to your interests, we have three poll questions to start us off. When the first poll question comes up on your screen, please select the one sector that most closely fits yours. Okay. And our results show that we have almost 40 percent from energy service companies today or other private sector businesses and another third from state and local governments. And then finally, 15 percent each from non-profit or research organizations and 15 percent from the federal government. So to further tailor our talk, please answer a follow up question on where you are most active with ESPC projects. You will see a short list of choices on the screen and if you could select the one that most closely fits the market where you are active, that will help us.

Okay. The poll has closed and it looks like we have over 70 percent from municipal buildings or K through 12 schools. And another 13 percent for state agencies and hospital and healthcare facilities with follow up from university buildings for 3 percent. So I think that it'll be very interesting, today's presentation, for those of you who are coming from the K through 12 schools or from municipalities as we will be looking at the ESPC guide for schools as the sample guide for new markets. And then in addition, you will see later when we talk about upcoming resources that we are planning to look at hospitals and healthcare facilities in the future, in the near future, I would say.

Okay. And our final question for you today has to do with the markets where you might not be active yet but are interested in getting specific ESPC information. And for this question, you can select as many of the markets listed as you would like. It's not limited to one choice. If you don't see the market that you're looking for, please feel free to send it in via the chat box on your screen or if you identify a market after this webinar, I welcome your emails or phone calls. DOE is interested in providing resources where they will be most helpful so your input will help us plan future ESPC guides and events.

Okay. And the poll has closed and we see that almost 50 percent are looking at small buildings and projects and so that's very good news. We have an ESPC guide for small projects that is very close to release and will be released in just maybe a couple of months. And then another almost 40 percent are looking at hospitals and healthcare facilities and then also water and wastewater facilities. Our ESPC guide for wastewater facilities is already up on our website. So you will see it there and then as I mentioned, hospitals is an upcoming guide. Of course 26 percent for the K through 12 schools that will be going through which is great and then 29 percent for street lighting.

So we could certainly pool our resources with our outdoor lightning accelerator results and try to put something together for an ESPC guide there. So thank you very much for sharing that information with us and we hope that that will result in some useful information for you in the future. And I'm behind on the slides *[laughs]*. So now, we'll move on and I will set the stage for our discussion today, which is mostly about entering new markets with ESPC, markets that you haven't been active in before and introduce our ESPC toolkit as the foundation. Recognizing ESPC as an opportunity for the public sector to enable energy efficiency retrofits, several years ago, DOE began offering regular assistance to expand access to ESPC for those that were interested in leveraging the mechanism.

In 2014, DOE launched the ESPC Accelerator, which you might be familiar with and that was one of the first of several initiatives to enable energy efficiency in specific areas or markets. So let's take a look at the toolkit that came out of the accelerator. The accelerator itself was a three year program that ran from January 2014 through the end of 2016. There were 25 partners. It included state cities and a school district and the goal of the accelerator was to support ESPC investments trying to get to a $2 billion investment level. And partners exceeded even that ambitious goal and we recorded $2.1 billion in ESPC investment.

And you can take a look at the accelerator online and in this presentation at your convenience at the details of it. Today, I'd like to focus our attention on the final area, area three. Each partner elected on barrier to their ESPC investment to work on over the accelerator period. Very often, the barrier identified by partners were common to those of other state and local governments and through the accelerator, as well as the other accelerators, we then adjust the solutions and resources that were done for a specific partner and make them universally applicable and then make them available to all public organizations so that they can use them when facing the same barriers.

The solutions were compiled and together, they formed the basis of what is now known as the ESPC toolkit. And here, you see the original home page for the toolkit. That link is correct at the top and you see that we have divided the resources into sections, into one package but divided them into sections to make navigation as easy as possible. So the toolkit is structured along the lines of the ESPC decision making process that we heard from our state and local partners. And thus, you see the categories here of first you consider ESPC. Once you decide to implement it, you undertake projects. Then you might want to establish ESPC as a regular go to financing mechanism for your projects. Then you might start to look at other new markets, which is what we're looking at today, and then finally and not least importantly, we certainly are collecting information and resources to help everyone assess the results of their ESPC projects. Very important.

So today, we are here to focus on the section called, "Expanding ESPC to new markets." And this section is a library of resources to help users understand the conditions and needs of the market that they're interested in and to see how ESPC can play a role in addressing those specific and unique needs of that sector. Most of the library is a series of ESPC guides targeted at specific markets. Current guides explore K through 12 schools, fleet and fueling infrastructure, and wastewater treatment facilities.

In progress but not yet published, as I mentioned, are guides for small projects which can be hard to make cost effective under ESPC and then hospitals which can leverage some unique technologies to address their very specific air quality and safety requirements. And also in this section, we are working on a resource that you see at the bottom of the screen that will highlight the approach and practices of several partners in the ESPC accelerator to introduce ESPC to new markets as a way to enable more energy efficiency retrofits and to leverage and garner the savings potential in those sectors. So the library in this toolkit section will continue to expand as we create new resources and take look at new markets. And so your input from today's polls is very important and will information the next guide that we add.

And now, to give you a glimpse of how the series of ESPC guide is structured, I will walk through an outline of one specific resource in the section and that is our flagship guide, the ESPC primer for K through 12 schools. So the ESPC primer for K through 12 schools was released in 2016. It was the first in the series, as I mentioned, and it focuses on the specific needs of K through 12 schools and how ESPC can help get those projects going and garner those energy savings that are there. I'll be talking about this resource in depth and then I'll circle back at the end of the presentation to mention some other available resources that are available to K through 12 schools, as well as anyone active in that market.

So briefly, today, through the primer, I will walk through what ESPC actually is, what makes ESPC useful to consider for your energy efficiency project, a few statistics about the current ESPC market, and the ESPC resources that are available to the public sector and in particular, the mush market, meaning, the municipalities, universities, schools, and hospitals. We will also take a look at some sample projects in school systems in three states: Colorado, Virginia, and Wyoming.

Okay. And we're not having audio problems. We are experiencing a sequencing issue in the slides. The guides in the series all include a section explaining what energy savings, performance contracting is and the purpose there is to help – having that discussion helps readers understand the parameters of what ESPC involves as the term is used in the guide so that we can form the same basis of understand and everyone can be on the same page when they understand how it can be leveraged in particular markets. So following that model, I've included a quick definition here on this slide so that we are all on the same page. So ESPC is a contracting and financing method that provides up front financing for energy efficiency projects and repaid by the savings on utility bills resulting from the upgrades.

Without going into exhaustive detail, this graphic shows how organizations can shift the funds they're already spending on their energy bills represented in the first bar to the more effective repayment of upgrade financing which you see during the terms of financing in the second bar and then finally, the final terms of the project where you have some energy bill and then the rest is going to savings once you've repaid the financing. And this slide is very busy but you can take a look at that at your convenience offline. Today, I really just wanted to mention the four major participants in an energy savings performance contract. At the center of an ESPC is the owner of the building where the upgrades are planned and in this particular instance, that refers to a school, as shown in the lower left hand corner of your slide. This is a simplified reference, of course.

When we say school, that represents the many different individuals on the school team. Really a multi-department team that make a project happen. The school then signs an agreement with an energy services company or an ESCO, which appears in the upper right hand corner of your slide. The ESCO works with the school to develop the project namely, determining the right energy conservation measures for installation, overseeing construction, guaranteeing and providing verification of post-installation savings, and significantly provides the savings guarantee, which is a distinguishing feature of ESPC. There's also a separate agreement with a financier and this role is optional if the project owner chooses to issue a bond or use a bond to provide its own financing where that is an option.

For external financing however, the financier provides the loan or lease that pays for the installation of upgrades. And finally, the fourth leg of the school can be a – excuse me. Of the stool, can be a utility, which in addition to its traditional role of providing power can, in some cases provide energy efficiency rebates or incentives that can help reduce the cost of a project. And of course, it's very important to talk about the options available to finance a performance contract. There are bonds, which are long term debt instruments that schools can use to fund energy efficiency projects. When a single ESPC project is not large enough to support its own bond issuance, the cost of the project can be bundled with larger bond issuances.

In leasing arrangements, a typical lease allows a school to use equipment for a specified period of time in exchange for regular payments to the equipment owner. The special

lease structure, known as a tax-exempt lease purchase agreement, allows a school to pay for an energy efficiency project with operating funds that have already been allocated for utility expenditures. And then finally, traditional loans are also an option. So onto the most significant and distinguishing feature of an energy saving performance contract, the performance guarantee.

Project performance or savings resulting from an ESPC are guaranteed by the energy services company and this is the heart of what makes ESPC different and makes it a reliable instrument for financing projects. The ESCO takes on the project risk through the guarantee of a certain savings level. It then measures and has the savings verified. If the savings don't materialize, the ESCO can literally cut a check to the project owner or fix the problem at no additional cost. And that all leads us nicely into the discussion of why schools should consider or take on an energy savings performance contract. ESPC offers several benefits listed on this slide that are worth calling out.

ESPC provides up front project costs to let the project get started right away and avoid the cost of taking no action. Project saving are guaranteed for piece of mind and an added benefit that the money that was going to cover bills can instead, be used to accomplish mission oriented goals. The point here, really, is that the ESCO takes on project risk and the project owner gets piece of mind. I wanted to share this nice quote we got from a school system that was interviewed for the primer. The sentiment expressed here is what makes ESPC such a promising and valuable tool across the schools market but across many sectors as well. It has the power to shift money that the project owner, in this case, a school already spends to more impactful activities.

And in the case of schools, of course, that's teaching children. And now, we'll talk specifically about how ESPC can support schools in their mission. Like other public entities, schools face challenges in their facilities. In the face of tightening budgets, schools still have to figure out how to accomplish the maintenance needed on their buildings and cover non-energy related needs as well, cover increasing operating costs. That is rising energy costs, and improve the learning environment for students. So let's take a look at each of these areas in a little more detail. They do really demonstrate the great opportunities available to schools through ESPC projects.

In the category of deferred maintenance, schools face an acute need. Our research showed that schools represent the oldest category of public buildings. In 2008, the American Federation of Teachers estimated that the backlog of deferred maintenance projects was as high as $254 billion. That's with a B. And the good news, though, is that ESPC projects can incorporate these maintenance measures and in fact, research by one of DOE's research laboratories, Laurence Berkley National Lab, LBNL, showed that two out of every five K through 12 schools pursuing ESPC folded in non-energy measures like roof replacement or parking lot repairs.

As energy costs continued to go up, schools and other public facilities spend more of their budgets on operating costs. In the first decade of this century, energy costs went up by about 80 percent and are expected to continue rising for another couple of decades.

As of 2011, schools were already spending about $8 billion per year just on energy. And so ESPC represents an opportunity in this area as well by reducing utility bills for schools. In addition, improvements of equipment and building envelope can reduce ongoing building operating costs. In fact, all ESPC projects active in 2012 reduced total US commercial building energy consumption by about 1 percent or 224 million BTU. And the last area, a key focus for schools is the quality of the indoor learning environment for their students. Studies have shown the detrimental impacts of poor indoor air quality, uncomfortable air temperatures, and inadequate lighting. Here too, ESPC can support a school's mission to maintain or even improve a healthy learning environment by upgrading ventilation, HVAC, and lighting systems, just to name a few.

Those are some of the ways that ESPC projects can prove valuable for schools and now, let's take a look at the broader ESPC market to see how ESPC has been doing that. Market conditions are in place to position the ESPC method as good solution for the K through 12 school market's needs. Really see this as a perfect storm for energy savings performance contracting. Because budgets are very tight, ESPC can move project forward that might not move otherwise. ESPC projects have shown great results as I mentioned, in the overall 1 percent savings in the energy consumption of all commercial buildings. And savings in individual projects have registered up to almost one third of the baseline energy consumption.

And finally, Laurence Berkley National Laboratory has estimated growth in ESPC project revenues and has estimated that the investment opportunity of up to 87 billion in the public buildings market. In K through 12 schools in particular, the share of the ESPC market represented by schools has trended upward in recent years. They represent almost one quarter of public projects and that's only behind state and local projects. But still, more than two thirds of the floor area in K through 12 schools has not undergone energy efficiency upgrades and schools represent a sizable potential in both energy and cost savings, up to $30 billion.

ESPC discussion would not be complete without a mention of legislation. Currently, almost all states have legislation that allows ESPC and some, in fact, require that it be considered for building upgrades. Some state legislation specifically addresses ESPC in schools or local governments. The language might set terms for allowable project measures, budget streams or even financing. With so many variables, it's always a good idea to consult with local experts who can help identify or navigate legislation including your own general counsel, your state energy office, or a consultant that can facilitate your project from start to finish.

With all the good news in supporting conditions, what's still keeping ESPC from being the silver bullet for energy efficiency projects in public buildings? There's still challenges to contend with. ESPC is complicated and takes sometimes as long as one year to develop a project. It is hard to obtain data on projects, thus making it hard to make the business case to the management chain that needs to approve projects. It is hard to find managers that know how to carry out an ESPC project from start to finish and have long experience

in this area. And so there are not readily available practitioner peers that have been through one or even more ESPC projects and can share their implementation experience. But knowing the potential for ESPC to advance energy efficiency across the public sector, DOE has focused on helping our partners in the public sector overcome these barriers that prevent access to ESPC on a broad scale.

And now, to circle back to where we started with the ESPC toolkit, I've included a shortlist of technical assistant sources that you will want to be aware of when considering ESPC for your energy efficiency projects. And of course, it's always interesting to hear what others have done in this space and the K through 12 primer includes three examples of schools systems that used ESPC for success in meeting the challenges that we heard about today. I'll let you dive into the details of each project when you have some time of following a webinar but quickly, just to point out how these project represent the primer's message of how ESPC can address the challenges that K through 12 schools typically face in their facilities. For example, the one on the slide here, Mesa County School District 51 was the 11th largest school district in the state of Colorado but was facing low and dwindling budgets and a lot of deferred maintenance.

With about an $11 million investment that focused on a comprehensive upgrade of its building operations, this school district was able to enjoy more than $800,000.00 in annual savings. And one of the more unique aspects of their upgrade was that by adjusting cleaning schedules, the system was able to completely shut down buildings for the summer, adding critical savings to the project. Similarly, the public school system in Virginia Beach, Virginia was the largest school division in its region but faced budget reductions and falling enrollment while still experiencing high operating costs. A $6 million investment here, including comprehensive building systems and water conservation resulted in almost three quarters of $1 million in annual savings.

And finally, Uinta School District in Wyoming was a small rural school district with a severely limited budget and failing equipment. An added challenge here was the small size of its potential project. They were looking at only seven of their buildings and those measured only about 740,000 square feet. But in the end, a $2 million project that addressed the major building controls and also included water conservation achieved almost $200,000.00 in annual savings for the system. So that is a look at the ESPC toolkit and specifically, the K through 12 primer today. I thank you very much for joining us and in the time remaining, I'd like to open the floor to your questions. Please type them into the chat box on your screen and we will attempt to answer them here or following the webinar.

Female: So Alice, there were two questions that have come in so far. One was asking for new markets, if you would include commercial buildings and manufacturing facilities.

So we'd be happy to if we know that there is interest in those particular markets. We will certainly take a look at those. We know that there are some very specific and unique

needs in manufacturing, for example. We started to get at those in the wastewater facility guide and would be happy to take a look at manufacturing as well.

Female: Okay. And the other question that we have is if you can provide links to the guideline documents for the wastewater treatment plans that you had mentioned was available on the website.

Absolutely. I can put that into the transcript or put it into the webinar before the slides are formally posted. They are part of the toolkit and I could pull it up here but just to show you where it is. But I think I have closed all of my links so it might take too long. But certainly, I can include that before we post the formal slides.

Female: Great. And I think those are the only two questions that we've had come in through the chat box. I just wanted to confirm with Megan that the lines are unmuted which I think that they are. So if folks have additional questions, they can feel free to ask those now. Okay. So I believe Alice, I will turn it over to you. It sounds like we may have additional questions at this time.

Okay. Thank you very much. With that, I would like to thank everyone again for spending this hour with us. The hour is not the end of the conversation. Please feel free to contact me with additional questions or comments or suggestions for additional guides or resources that would be helpful. And if we weren't able to get to your question or you weren't ready with it now but think of a question later, also happy to continue that dialogue. You will receive an email notice when the archive of the session is available online. I will add the link to the wastewater guide and in the meantime, I will invite you to visit the ESPC toolkit and that link was available on slide nine.

And we hope that today's session gave you a good understanding of the resource available in this section of the toolkit as you consider which market you would like to look at next for leveraging ESPC and achieving the savings potential there. Please also mark your calendar for the last session of the ESPC toolkit series. We have scheduled it for September to skip the month of August to focus our attention on our annual conference, the Better Buildings Summit, which is joining forces this year with our sister office, the federal energy management program and their event, the energy exchange. And that large joint session is scheduled for August 20th through the 23rd … 25th, the week of August 20th in Cleveland, Ohio.

We have a full program. You would find something to attend everyday. There are very technical sessions. There are tours of facilities including a wastewater treatment facility. We have a correctional facility. We have a brewery and other facilities that are happy to show off their energy efficiency efforts as well as a whole host of sessions for all sectors. Public sector, federal sector, commercial sector, private sector, et cetera. So take a look at that. We also have the dates posted on our website, et cetera. And thank you everyone very much for attending again and have a great day.

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