

Brooke Holleman: Let's get started. Hello, everyone, and welcome to the 2021 Better Buildings, Better Plants Summit. We are so excited that you are joining us today for the K-12 Schools Sector Meet-up. We have a wonderful session prepared with some fantastic speakers that I will introduce in just a moment.

Before we dive in, there are a few housekeeping points I'd like to cover. First, today's session will be recorded and archived on the Better Buildings Solution Center, and we'll follow-up when today's recording and slides are made available.

Next, attendees, you have the option of sharing your video as well as unmuting yourself. That said, we ask that you please keep yourselves muted when you're not speaking to avoid any background noise. If you experience any audio or visual issues any time during today's session, please send a message in your chat window located at the bottom of your Zoom panel.

My name is Brooke Holleman. I'm a Fellow with the Weatherization and Intergovernmental Programs Office at the US Department of Energy, where we work to enable strategic investments in energy efficiency and renewable energy with the public sector.

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In terms of our agenda, we're excited to have this time together to share timely insights and resources, specifically to help schools, from an outstanding lineup of speakers. First, we'll hear about the latest – *[inaudible]* – resources from Katy Hatcher with the US Environmental Protection Agency, and Anisa Heming with the Center for Green Schools at the US Green Building Council.

Then we'll hear from two new outstanding school districts, represented by John Lord from Fairfax County Public Schools in Virginia, and Erik Lueders from Parkway School District, Missouri.

I'll introduce everyone more formally a little bit later, and I hope you'll stay for a Q&A following our presentations.

Speaking of questions, today we'll be using an interactive platform called Slido for all of our Q&A, polling and session feedback. Please go to Slido.com using your mobile device or by opening a new window in your Internet browser, or you can scan this QR code for quick access. Today's event code is #DOE. Once you

enter this event code, you can select today's session title, "K-12 Schools Sector Meet-up" in the drop-down menu in the top right.

If you'd like to ask any questions during this presentation, please submit them in Slido at any time. You can also like questions you'd like to have answered and we'll get to them at the end.

We have a couple quick polls to start out with. I'll give everyone a few moments to open up Slido and start your session. Again, you can take a picture of the QR code to jump right to Slido.

All right, let's go ahead and launch our first poll. This one is easy. Where are you joining us from today? All right, some folks from Seattle, St. Louis, Las Vegas, New York. All right. I think we've got almost every time zone so far. Awesome. Kentucky. Lots of folks from Colorado, a really strong Seattle contingent. Awesome. Who else? This is great.

We're really grateful in this virtual format that folks are able to join, who typically might not be able to make it out to DC. So thank you so much for joining us today.

I think that's most folks. Let me go ahead and close this poll and go to the next one. The next one: which here best describes the focus of your role? Another way to ask is: what is your connection to the schools today?

Naturally, a lot of sustainability managers joining. Awesome. Other governmental organizations, some buildings and grounds folks. Fantastic.

All right, I think that this is a critical mass. Perfect. We can go ahead and close this and jump in.

For those who are new to Better Buildings, I'd like to provide a little background to get us oriented. K-12 school buildings consume more than 28 trillion BTUs each year at a cost of approximately \$8 billion. And have the potential to save \$2 billion annually with a 20 percent energy use improvement.

This is why in 2011 DOE – issued the Challenge to school districts with state and local leaders, CEOs, university presidents, many vectors and other building owners to commit their organizations to achieve 20 percent energy savings or more in ten years, and to lead the market by sharing their solutions, overcome barriers – for energy efficiency goals.

Since then, the Better Buildings Challenge has grown to more than 360 partners across most sectors of the US economy, including schools, state and local governments, industrial plants, commercial real estate, hospitality, multifamily housing and more.

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So within the challenge, we've worked closely with more than 25 school districts across the country, representing 215 million square feet, and resulting in savings of \$82 dollars and 8.7 trillion BTUs. So far, seven school districts, the ones listed here, including Parkway, achieved their goals. This year, we're excited to add Pasadena Independent School District in Texas to our list of goal achievers.

Joining us today to briefly share a few insights from the district is Kevin Fornof. Kevin has 25 years of experience in the Texas education construction industry. For the past nine years he's served as the associate superintendent of facilities and construction at Pasadena Independent School District, where he oversees facilities and construction, energy management, maintenance operations, buildings and grounds and transportation. Kevin, take it away.

Kevin Fornof:

Thank you, Brooke. Good afternoon, everyone. It's an honor and privilege to share with you a few things about our district here in Pasadena, Texas. We're located just outside of Houston in southeast Harris County. We have over 50,000 students, 8,000 employees, and 68 schools. We started as a one-room schoolhouse back in 1898.

In 2019, our district made a decision to make energy conservation a priority with the full support of our superintendent and school board. They approved a partnership with Cenergistic to help us develop a comprehensive energy management and conservation program. Together, in the first 27 months of the program, we reduced the district's overall energy consumption by 28 percent for a net savings of \$3.32 million, and 21 of our campuses have achieved Energy Star certification.

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Some of the energy savings initiatives that we adopted, where we updated our local policies and guidelines for energy management. This allowed us to clearly define our expectations and standards throughout the district. We then generated HVAC zoning maps for

every campus. We adjusted our HVAC setback times and enforced district set points.

We installed wi-fi controlled thermostats in our portable buildings. We have over 460 portable classrooms, which has always been a real challenge for us to control. Most of these buildings run 24/7. So these thermostats provided a quick and inexpensive solution to resolve a lot of comfort issues in those portable buildings.

Of course we're upgrading LED lights whenever possible. We completed some large LED projects such as new stadium and parking lot lights.

I think one of our biggest successes was behavioral changes with staff, students, and departments. We've been able to make this a districtwide approach involving key service departments as well as the campuses.

Just to name a few, we've had great interaction with our maintenance department, of course with our BMCS coordination, our operations departments, regular meetings with our custodial supervisors. We have established efficient cleaning schedules, zoning maps, marked and turn in each week for summer cleaning. We have adopted team cleaning, so we only operate AC in the areas where there will be cleaning instead of typically running the entire school.

Food services department, we've had a lot of opportunities there to consolidate food in coolers and freezers. And especially during holiday breaks we've trained the staff to shut down smaller passthrough coolers and equipment not necessarily.

Of course even fine arts. We met with them to try to consolidate instruments and uniform storage into smaller spaces. Athletics, strategies for large events in our stadium.

Even our police department. We've met with them to talk about strategies for the lighting in our parking lots. They actually wanted lighting on the buildings rather than lighting up the entire parking lot. So that saved us some costs.

Then of course our campus principals. We've had to clearly communicate what we're doing on holidays and summer setbacks. We send out a Google Doc checklist that goes to every teacher for every classroom. The principals have been a great support in reinforcing that and collecting those reports. We send out current

guidance on where we stand on those campuses, and they use that as a checklist for their teachers.

Of course the last one, our energy specialists. That's been a key component. We have four full-time energy specialists that complete weekly audits of every facility. We've had over 6,400 to-date. These audits have been critical for us to identify what is actually happening at the campus during unoccupied times.

We found that actual conditions often differ from what our BMCS systems are telling us. So it's just a constant weekly update and tweaking of those systems to get them more efficient.

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This graph just shows our 28 percent decrease with our February 2019 base year of \$1.55 per square foot. Then in January 2021, the cost is \$1.09 per square foot.

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These are just some items that we're going to continue to build on our success. We're committed to encouraging a culture of conservation here at the district. I'd also like to congratulate all the other goal achievers this year.

Thank you for allowing me to introduce Pasadena ISD.

Brooke Holleman: Thanks so much, Kevin, and congratulations to Pasadena again on this accomplishment.

I would like to provide two quick program updates and one more poll, and then we can turn to our panelists. First, I'd like to highlight our new low-carbon pilot launched earlier this year. DOE is working with more than 50 federal building and Better Plants partners to document strategies for reducing operational carbon emissions.

Each partner has selected two buildings to focus on over the next two years, and they'll be capturing these pathways to share with the market. We're experience thrilled that two of our partners, Los Angeles Unified School District and River Trails School District, will be participating.

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I also wanted to highlight a new resource particularly useful for large energy users such as school districts. We recently released the Energy Data Management Guide, a new seven-step guide for implementing energy data management programs in the public sector. Taking a data-driven approach to managing those facilities can help your school identify opportunities for energy and cost savings, make informed decisions about which facilities to prioritize for improvements, enhanced control of your energy budgets.

The proven practices outlined in the Energy Data Management Guide along with the case studies, which include five that feature K-12 Better Buildings partners, resources and tools, are designed to help your school district use utility and asset data to more effectively manage the buildings and facilities you own and operate.

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Finally, we have one more poll before we jump into presentations, so if you could turn back to your open Slido window. As a reminder, our code is #DOE. Our question is more of an open-ended answer. We're asking if you could please briefly list topics for technical assistance and information sharing that would help you meet your energy goals in the coming year.

This is your chance to form in your own words what barriers you're seeking to overcome or any specific challenges you may need solutions to, or general topic areas where additional information would open up new opportunities to pursue energy efficiency. These responses are really helpful to us as we're conducting our own planning for the upcoming year.

Financing. I see we've got at least one answer. It always comes up every year. HVAC efficiency, absolutely, training resources. Indoor air quality, you're in luck. We've got a great presentation here today. Occupancy controls. Absolutely. These are great. Building automation for sure. Perfect.

I'll leave this open a little bit longer for folks to think for a second. Yes, great. These are great answers and we really appreciate you all taking the time. I'd like to offer to you all to continue adding in any option in the chat, in the Q&A section.

With that, I'm going to introduce our panelists. First, we have Katy Hatcher, who is the US EPA's Energy Star Public Sector National

Manager. She works with public sector organizations, such as government agencies and schools, to help improve energy performance through the use of Energy Star tools and resources, including Energy Star Portfolio Manager.

Hundreds of thousands of commercial properties use EPA's Energy Star Portfolio Manager tool to measure, track, assess, and report on their energy and water consumption. Portfolio Manager has become the standard national platform for benchmarking energy use in commercial buildings in the US and Canada.

Katy has been working for the EPA since 1996 and holds a degree in City Planning from the University of Virginia.

Next, we have Anisa Hemin. Anisa is the Director of the Center for Green Schools at the US Green Building Council. As director, Anisa provides strategic direction to USGBC's work in schools, and coordinates an organization-wide team to promote environmental sustainability, health and wellness, and sustainability literacy in school systems around the world.

With a background in architecture, she began her work with USGBC in New Orleans, hired to assist with the rebuilding of schools after Hurricanes Katrina and Rita. Afterwards, she moved to Washington, D.C. and began the Green Schools Fellowship Program at the Center for Green Schools, placing and training sustainability directors in school districts, and beginning the nation's first network of school district sustainability staff.

Next, we have John Lord. John Lord has been an energy manager for public school districts in Virginia since 2003, with experience in three school divisions, Amelia County, Loudoun County, and currently Fairfax County, which is the 11th largest school district in the country.

In addition to being a certified energy manager, he holds several other certifications in the Association of Energy Engineers, and is also a teacher with ten years of classroom experience. John serves on several boards, including the National Capital Chapter with the Association of Energy Engineers, in the Metropolitan Washington Council of Governments Climate, Energy, and Environmental Policy Committee. Programs he has led have earned many prestigious awards, including the AEE International Award for Institutional Energy Management, and Energy Star's Partner of the Year and Sustained Excellence awards.

Finally, Erik Lueders serves as the Director of Sustainability and Purchasing for the Parkway School District in Missouri. He oversees all procurement functions and comprehensive sustainability strategy. During his 12 years at Parkway, Erik has led collaborative efforts across district departments to advance multiple sustainability goals, from energy efficiency and renewables to native landscaping and waste minimization.

Erik is a LEED accredited professional and a certified energy manager, and hold degrees from Webster University and University of Missouri.

We are so grateful to each of you for being with us today. I will now pass it to Katy to start us off. Katy.

Katy Hatcher:

Hi, everybody. Brooke, thank you for the introduction. I'm really excited to be here with the rest of the panel today. So thank you to DOE for inviting me to present. I've been excited about our collaboration with the Better Buildings program at the Department of Energy, and the rest of my colleagues over there at the Department of Energy, to help integrate our Energy Star tools and resources with theirs.

So without any further ado, I'm going to go ahead and present how our Energy Star tools and resources can help the districts that are listening today manage energy efficiency and indoor environmental quality together. I'll be talking a little bit about a sister division within the EPA, the Indoor Environments division's tools, today toward the end of my presentation.

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As, hopefully, many and most of you know that are listening today, the Energy Star program has quite a range of things that we do to help consumers and businesses and other organizations save energy across the country. One way we do that is we help organizations certify their buildings as Energy Star. So I'm coming to you from our commercial and industry branch within the Energy Star program within EPA. So the focus of what I'm going to talk about is how our resources relate to schools, which are covered within that branch.

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Portfolio Manager is our core tool of our Energy Star tools and resources, and its used to track the energy performance of any building type, including schools.

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A little bit more about it. It's an energy management tool mainly. So you can also track water and recycling and your waste. You can track your green power purchases. It's the tool that's the pathway to Energy Star certification, if your school is eligible.

It's also become the tool that's been used very widely across the country as part of local and state energy benchmarking initiatives and building performance standards.

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Some of the metrics that are coming out of Portfolio Manager that are helping us understand the energy performance in commercial buildings across the United States are these you see here: site energy use, source energy use, our Energy Star score. Again, we're trying to bring information about water performance of buildings out into the marketplace, and other things like waste and materials, and of course greenhouse gas emissions performance.

Basically, you can't manage what you don't measure. So the point of Portfolio Manager is to bring energy data in from all the consumption aspects of a building and combine it together with square footage information, and then produce usable metrics that help measure performance against another group of similar types of buildings, which is our Energy Star score, or your own portfolio buildings within the system.

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These are the property types that can earn the Energy Star score and most of these you can certify, and K-12 is among them. We recently updated the survey sample that is used as the basis of the Energy Star score, and that comes from DOE's Energy Information Administration's Commercial Buildings Energy Consumption Survey that we call CBECS. So that basis is on a data of random unbiased survey sample based on 2012 K-12 school performance across the country.

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A little bit more about Energy Star certification. On our scale from 1 to 100, school buildings that achieve a 75 to 100, in that range, could be eligible to earn the Energy Star. In addition to performing at this level on this scale, we do require that schools meet ASHRAE 62 and 55 standards before they can apply.

You apply for a 12-month period, and the data needs to be reviewed by a licensed professional. Each certification is actually stamped with a date. Often schools are reapplying every year, so they can have a fresh Energy Star certification.

Thank you to Pasadena for earning Energy Star on so many of your school buildings as part of your Better Buildings accomplishment. We have a couple of other K-12 success stories that are joining today, but I'll talk more about them in terms of my other panelists.

Before I move on, I want to talk about Energy Star certification in the context of what we've just experienced with COVID-19, and the issues with trying to understand the indoor air quality of school buildings, and how that intersects with energy efficiency. It is my hope that because we do direct people toward the ASHRAE standards, and it's also entirely okay to exceed various levels of performance – I'm not sure where my presentation just went *[laughs]*. Anyway, through other ways of measuring indoor environment quality in your buildings.

For example, if you're using sensors in your buildings that measure things like CO2 on a continuous basis and ventilation rates and other things, you can then incorporate that information into your application for Energy Star certification.

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So a little bit more about our awards. We do have Energy Star certification on individual buildings. You can design a new building to earn the Energy Star. Then in order to actually earn the Energy Star, that building needs to actually perform for a 12-month period and meet the environmental quality standards that I just talked about previously, before it actually can be certified as Energy Star. The basis of our certification is on performance and demonstration of that performance.

We also have another award that we give out a few school districts every year, and that's our Energy Star Partner of the Year Award. We have a Partner of the Year winning category and a Sustained Excellence category, which is for districts that – and this is a

district-level award – and that’s for districts that have demonstrated and won Partner of the Year multiple times.

We have two Partner of the Year winners today presenting, Fairfax County Public Schools. Congratulation to John Lord for his successes in Fairfax. Then also Parkway School District with Erik Lueders. Congratulations to you for your successes, to you both for being champions of energy efficiency and demonstrating that through your Energy Star program accomplishments and your work with the Department of Energy Better Buildings program.

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The message that I’m trying to share today is that what I’m hoping that you will do is continually manage energy efficiency and indoor environmental quality together. These two things have had a history of being a bit divided. So the time has finally come with the lessons what we’ve learned from COVID-19 that these two things actually need to be integrated in order to still achieve the energy efficiency goals, which often are moving in the direction of decarbonization, while maintaining a safe and reduced risk indoor environment for the students and teachers within the properties.

So I’m really glad that within EPA we have our Indoor Environments Division. They have years of experience and history with their Tools for Schools resources, to help school districts understand and manage indoor environmental quality.

We’ve been teaming up for years. However, today strikes a new future, where hopefully school districts will actually truly integrate these two things and manage them simultaneously.

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So a little bit more about our Energy Star tools and resources. As I mentioned, we have Portfolio Manager. We also have a Treasure Hunt set of resources that is a fun way to do energy efficiency audits in your schools. This resource can be coupled with our checklists from our Tools for Schools resources from our Indoor Environments Division.

Again, what I encourage districts to do is look for their energy efficiency opportunities and their indoor environmental quality improvement opportunities simultaneously, and then create a plan to then improve them together, so you can maximize both. As you

improve energy efficiency, of course you get the recognition through the Energy Star certification.

Another thing I'd like to mention is our comprehensive set of resources about creating a competition across your district to manage energy efficiency and create internal rewards and successes related to that, even if the school properties are not eligible for Energy Star yet. So I encourage you to look into those resources, and those can be used, once again, simultaneously with our Indoor Environments Division resources.

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So a little bit more about the resources that our Indoor Environments Division has. As you can see here, there's quite a few. They range from a tool that's an app that's downloadable on your phone, that's got a framework and checklist associated with the different types of activities that you need to do to locate and understand your indoor environmental issues and then address them.

Then there's a whole guide, "The Energy Savings Plus Health Guide" that helps you understand different types of upgrades that are being done and the risks associated with that, and opportunities as it relates to indoor air quality improvements and energy efficiency together.

So I really encourage you to just go ahead and integrate these resources right into your energy efficiency and facility management program and planning activities.

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Actually, before my friend and colleague, Anisa Heming, presents, I'd like to encourage folks to use the resources that are coming out today, from COVID relief funds to really address HVAC improvements and indoor air quality together. I'm so excited that there are resources together that are available now. Thanks.

Brooke Holleman: Those were fabulous. Those resources look very timely. So thank you for taking the time. We will now switch over to Anisa. Anisa, take it away.

Anisa Heming: Great. Hi, everybody. Nice to see a lot of familiar names here. I'm happy to be here with you guys. I'm going to walk through – I'm going to give a very quick overview of who the Center for Green

Schools and the US Green Building Council are, just in case folks don't know who we are and what do. I'll do that super-quick because I want to get to COVID relief funding in particular, which is what Katy was just talking about, and how you all might be able to use that for energy and health-related improvements in your school facilities.

Then I'm also going to talk to you a bit about the results of a survey that we did in collaboration with ASHRAE, related to indoor air quality improvements at schools, and which recommendations that have been coming your way – flying your way related to COVID has actually been implemented at schools around the country, and what the challenges appear to be for your peers around the country.

So that's where we're headed today. Let's go to the first slide – and then the next slide *[laughs]*.

The Center for Green Schools, we work with school systems around the world on green school topics. We define a green school as one that improves the environment, improves health and wellness, and encourages sustainability and environmental literacy.

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We are part of the US Green Building Council, USGBC, which is best known – next slide – for the LEED rating system for buildings. US Green Building Council is actually a council. We are a group of thousands of member companies and organizations, including schools at all levels. That group of members has come together to try to implement various things to improve the environment, and design, construction, and operation of buildings and community infrastructure. So that's who we are as an organization, as a nonprofit.

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Like I said, flying through this. The LEED rating system is a rating system that gives a sense of how a building has been designed, constructed. Then there's a separate rating system for operations and maintenance, to help owners and their stakeholders understand how goals related to the environment and health have or have not been accomplished.

So it's really an accountability tool, especially when we are talking to school districts about its use. Around 2,200 or so schools around

the world have been certified by the LEED rating system, and another 2,000 or so are in the pipeline – pardon that word – for certification. So they have been registered.

I love this photo. It's so joyful. The daylight coming into this classroom is just wonderful. Driving all of our work is ensuring that kids have a healthy and vibrant place, an inspiring place to learn, and that all children can enjoy that.

Let's go to the next slide.

So one thing I wanted to make sure you guys knew about on this call is the educational resources that US Green Building Council has on offer. This link on this screen is an easy one for you to remember or type in. We have hundreds of courses online, some free, some for a small fee. The courses are on all topics related to green buildings.

Then the next slide I think lists some of the badges that we offer. We've taken a lot of the courses from USGBC and our educational partners, and gathered them together into sort of topic areas. So if you have staff who need training on a particular aspect of green building, we have targeted groups of courses that can be taken together to earn a badge. The courses have quizzes associated with them, so that there is some accountability there, too, whether the people earning these badges have actually learned the things you hope they're going to be learning.

I think the next slide gets into some of the COVID content. Brooke, I'm going to send you a link to – that maybe we can get to the attendees – to the webinar series that we're running right now at the Center for Green Schools on getting schools to zero carbon. I noticed that at least one of the attendees was interested in carbon-related education, carbon emissions-related education.

That webinar series that we're running is a three-part series, and the last one is going to be June 1. It will feature a whole bunch of free tools that can be used, and we'll have the organizations that host those tools on that webcast, and you'll be able to actually talk to the people that run the tools. We'll have some breakout rooms where you can dive in a little bit deeper. So that sounds like it might be a really useful thing for this group, and DOE will be with us for that June 1 webcast.

We're going to start with an overview of some resources that we have available for you all, when you're thinking about, in

particular, the American Rescue Plan funds. I know that a lot of school districts are getting their plans together right now for the use of that funding. The funds are – it's a huge amount of funding that's available, as you guys know, for school systems.

There is a lot of need all across the board in school districts. We know that facilities is only one part of that need. However, there's a really exciting opportunity here because facility spending, and the point that we hope you guys are able to make in your school districts, the funding, the nature of the funding as one-time funding is actually really perfect for facility spending.

A lot of districts are nervous to use these funds for staff and additional teaching resources, because they're not going to be annual. They're just coming now. So if the funds can be used on facilities for things that might save on operational costs moving forward, it's a good investment now with this funding that might be able to pay dividends over the course of the coming years. So there's a good case for using a bit of this funding at least on facility improvements. There is, as you guys know, quite a lot of need in our school buildings.

So we released this document, "The Five Guiding Principles." The link to this document will be available as part of this presentation deck, but "The Five Guiding Principles," we've outlined things to think about when it comes to planning for the use of, in particular, America Rescue Plan funding. We'll get into what that looks like.

Then for each of the five principles, we're releasing sort of a briefing, a couple pages for each of the five principles that you can use to sort of make the case for different aspects of spending related to facilities and related to green schools topics.

Go to the next slide please.

Here's the funding that has come out. There's a lot to keep track of. SR1, as people call it, was through the CARES Act, which passed last March. SR2 was part of the December relief act, which passed in December 2020. There's a typo here. It should be \$900 billion was the total appropriation for that. Then \$54 billion is the specific K-12 education allocation.

Some people are calling the funding coming in through the American Rescue Plan SR3. So if you hear that on the street, that's what that means. But, as you can see, it's quite a lot more money for K-12 schools than we've seen in the previous two packages.

We have quite a while to obligate the funds. It's actually 2024 that you have to obligate the funds from the American Rescue Plan Act. So there's a couple years here to figure out what exactly to allocate this funding toward. However, school districts are getting the funding, whether they apply for it or not, but they have to submit a plan to their state about how that funding is going to be spent. So many school districts are, if they haven't already, coming up with that general plan to submit to the state, and they are doing that right now.

We know from hearing from districts that facilities folks are not always at the table for that conversation. So I just want to encourage folks on the line today to really get in the room as much as you can, just to be present when the conversations are happening about how this funding should be spent.

All right, next slide.

Within the American Rescue Plan, we and some other groups advocated strongly on The Hill for facilities to be included as an explicit allowable use for funding. So within the Rescue Plan, it's an explicitly allowed use, and in the December funds it also was. So after the CARES Act was passed in March 2020, we did a lot of advocacy on The Hill to make sure that facilities actually was called out as something that could be – that funds could be used on. So this just lists some of the – this is not a full list, but it lists some of the allowable uses for the funds within the Rescue Plan.

Next slide.

As I said, the resource that we will get you the link to – oh, thank you. That's now in the chat – “The Five Guiding Principles.” These are the aspects of spending that we go into in that guidance document. So I won't dive too much more into this, but it's available for you to make the case within your school district.

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I wanted to open up a poll to see – yeah, on this one. Thank you so much – on Slido to see how you guys have or have not been able to use the COVID relief funding on facilities improvements. We like to keep any eye out on – go ahead and answer this. I'll just keep talking while you read through the questions on Slido.

We, as I was saying, do a lot of advocacy on Capitol Hill related to K-12 schools, school districts, facilities funding, et cetera. We like to keep our finger on the pulse of what the challenges and opportunities are related to K-12 facilities out there.

[Commenting on polling question]. So, yeah. I don't know. Actually, that's very reflective of what we have heard from school districts, especially people in facilities are not at the table when it comes to the conversations around the COVID-19 relief funding. So whatever you need from us to be able to get to the table, if that's something that we can help with at all, please let us know.

I see there's a lot of temporary measures as well, which was allowable in the CARES Act, the original CARES Act. I think that school districts haven't necessarily switched in their minds to the idea that some permanent facilities improvements can be allowable uses for this newer funding.

Okay, great. Thanks for answering that poll.

I'm going to actually skip through this. I want to make sure we get through the – I'm running low on time, so next slide. That was an example of healthy schools investment.

This is the last piece of my presentation about this IAQ survey that we ran with ASHRAE, and the report we just put out about two weeks ago. You can see the timeline of our survey activities. This went out to our networks and ASHRAE's networks, trying to understand how the recommendations related to air quality have actually been implemented on the ground in school districts.

Next slide please.

We heard from more than 47, but we had to cut a few who weren't complete, but we heard from 47 districts in a complete way. That's over 4,000 schools across 24 states. Great representation from Colorado. Thank you, Colorado friends. This is a really important way for us to get a handle on what's been happening on the ground.

Next slide.

Just to give you a sense first about the ways that the survey participants are dealing with various hybrid versus virtual versus in person learning situations, this seems to be pretty representative of districts that I've been talking to and reading. So I'm hoping that

these 47 districts actually gave us a really good cross-section of school districts, because I think this is pretty representative of the country's school districts and how they have managed over the course of the last year, in terms of the in person versus virtual versus hybrid.

The next slide gives you a sense of which of these six recommendations were implemented at the districts that we surveyed. There's a ton more detail in the report. So I would encourage you, if this is something you're interested in, to dive into the report that we released a couple weeks ago.

I'm going to open up a final poll to understand from this group that's on the line today what you guys have been able to implement at your school district. So the same six recommended strategies for indoor air quality that were just in that – oh, sorry. Can you open up the poll instead of this question? I skipped the question for time. Thank you so much. Sorry.

Back to the presentation. This is what happens when you're not in full control of the presentation. You forget what is on here. Can you go back to the presentation? Thank you.

We're going to go to implications next. The long story short here on this slide is that school districts have leaned really heavily on HVAC systems for COVID management, air quality management during COVID. So we saw mostly school districts and schools trying to introduce more outside air into the schools, and/or flushing and just increasing outdoor air supply on a regular basis. We saw much less reliance on the more passive measures of opening windows and using exhaust fans.

So this is even more fuel to the fire for investing in our school facilities HVAC systems, because they were the thing that school districts were trying to use. One of the major challenges that we heard about in the survey was that school buildings were just not designed to do a lot of these strategies, and in particular the strategies that rely on those HVAC systems.

Next slide.

This is the list of challenges that popped to the top in the survey related to implementing these strategies. You'll see that all of them, except the air cleaners with HEPA filters, these schools are not designed to support this strategy was one of the top cited

challenges. So we know that our schools were not starting from a good baseline in trying to manage air quality during COVID.

Next slide.

This is the final slide I had about energy costs and the implications that schools saw related to energy use during COVID. I wanted to open up a poll. Brooke, do I have time to open up a poll related to energy use? This is the last thing.

Brooke Holleman: You can do it really quick.

Anisa Heming: Okay, the last thing, I promise. I'm like two minutes over. I'm so sorry.

Brooke Holleman: That's all right.

Anisa Heming: This one is open. We're curious about the energy use implications that you guys have seen from implementing all that you've been asked to do related to air quality this past year. This takes into account occupied versus non-occupied. So read the answers carefully before you answer. I'm really interested to hear what this group saw related to energy use.

Interesting, okay. So definitely more energy when the buildings were occupied. I'm assuming that's because of the increased outdoor air. Then sort of a mix of whether you used more energy when the buildings were not occupied. I assume that has to do with some policy setting around what state the building should be in, whether occupied or not. So thanks for answering that. That's really informative for us.

I appreciate your time today. Thank you so much for having me. Join us at the Green Schools Conference for more education from a variety of speakers. The Department of Energy will be there with the Healthy, Efficient Schools Program. We're so excited, and that will be late June. Thank you so much.

Brooke Holleman: Anisa, thanks. I know we dropped a lot of resources in the chat. They can access them, I think, on the last slide you shared afterwards.

I want to jump quickly to John Lord. John, take it away.

John Lord: Great. Thank you, Brooke. I appreciate that. I'm just going to briefly start by telling everybody about my career trajectory, and

maybe provide some guidance or some encouragement for people who are looking at their career trajectory and wondering what's happening.

My degree is in Spanish and Latin American Studies. I did quite well teaching Spanish for ten years, but I don't do that anymore. I'm a candidate. I have the certification to do it, but I've gone with the flow over the years and there was an opportunity.

Randy Hoff was one of the participants. He's the, I think, Board Chairman of Cenergistic. They're a great company. I worked with them in all three school districts, where I am now and where I've been in the past. But the opportunity came up to be an energy manager.

In my first school district, the only thing anybody cared about at all was saving money. If we weren't saving money, then we didn't really care. So that was the goal, save money.

Then things changed a little bit. I became a sustainability professional. I realized that not only when you save money by reducing your energy use, you're also reducing your environmental impact when you save energy and reduce your energy use.

Now, I've realized very recently that I'm becoming a health and wellness professional, and a resiliency professional. And if that's happening to you too, if you're not sure what you do for a living anymore, don't be discouraged. It's okay to do different things, to learn new things and to do things differently than you have in the past. So with that, let's go the next slide please.

Energy has always been, in my opinion, a really great unifying theme. There's lots of things that can tear us apart, lots of political opinions, lots of things that are value statements and all, but it really doesn't matter who you are, what you look like or where you come from, you're going to use some energy in your life. You just are.

You're going to want lights. You're going to want food heated up. You're going to want food refrigerated. You're going to like air conditioning and heating.

So when we have student groups who are interested in energy, we find they are the most diverse student groups of any. You talk about what is the standard clique, like the jocks or the nerds or the band school kids or whoever. You don't see that in groups that are

focused on energy. It's everybody, from all backgrounds and all experiences. So this is something that you have in your favor.

Next slide please.

Now you may ask yourself why do you care about what I or what Fairfax County Public Schools may have to say. We've done a few things well over the years. So this is some of the awards. I just want to really draw your attention to the one in the upper left.

First, the Better Buildings Challenge. We decided it wasn't really fair to say we accomplished our goal this year, not for our organization. It just wasn't right for us because it was such a strange year last year. So we did accomplish the goal, but we're going to defer until next year. If we continue to have that number, if we can keep it down, then we'll be ready to say we earned it.

But next to it, you can see the WELL Health and Safety Rating from the International WELL Building Institute. This is part of what I'm talking about, that I became a health and wellness professional and learned about resiliency.

I never expected to do that when I started down the pathway of doing energy management, but it was a pretty logical fit. It involved a lot of different people working together with our food service, our safety and security, all kinds of electrical, mechanical plumbing, you name it. People all around the school division contributed to that.

There are lots of great standards. I don't want to pick this particular one and say you've got to go after this one. But if you're not doing something, like the Energy Star Tools for Schools, a really great program, use it. Take advantage of it. It's free. The WELL Health and Safety is not free, but it's a great program.

I'm sure there are also green schools programs along from the USGBC. Anisa shared those resources and you can look at them, too. But pick one and find out what it's all about, and I think you'll see there's a great overlap with your already scheduled work on doing energy management.

Next slide please.

For me, this is kind of the traditional energy manager's pyramid. We would say, traditionally speaking, you don't get renewable energy on a building until after you've done these other things.

You build the foundation first, and then you work your way up. If you're not trying to conserve by just using energy when you really need it and not using it when you don't really need it, you're missing the foundation. Everything else is you is just going to be really poorly balanced, because it's got to start on a foundation of conservation.

The next step is efficiency. That's when you replace things, put in new equipment, do energy conservation measures that involve changing equipment. Then demand and renewables are after that.

But I guess I just would encourage people to look at the conservation and efficiency things, especially with all the money that's going to be coming down the pike. Look at how you can use energy more wisely and how you can reduce the amount you're using, before you try to do things like put a bunch of solar panels on the roof.

Why buy a ginormous power plant when you really only need to buy a small power plant? So start by getting it down to where you have a small energy use.

Next slide please.

We really like the Energy Star guidelines for energy management. We've been an Energy Star partner for a really long time. The plan is so simple it almost feels obvious, but it's the kind of thing that when you put yourself into it and you actually think it through, and you go down this pathway of making a plan and assessing your performance and recognizing the achievements, that's one that I've learned over the years is really important, because like to get a pat on the back once in a while, and it's nice to know you've accomplished something. Then you can go right back to trying to do something more.

I tell this to people all the time. If you are an American citizen who pays taxes, you've already bought and paid for the Energy Star program. If you're not using it, you're wasting your taxpayer money. You're paid for it. Use it for goodness sake.

All right, next slide please.

The greenhouse gas emissions have been tracked in our school division since 2008. Their school system made an environmental stewardship policy back then. One of the components of the

environmental stewardship policy was to measure the greenhouse gas emissions.

I have found that this is rare among school systems across the country. Just like Katy said and the Energy Star program would advocate, you can really only measure what you care about, and you really care about what you measure. So yes, it is true that we are looking at energy and that's our main job, and we're looking at how the cost and the use of it affects the school system.

But another thing that we really need to get knowledgeable about measuring, and each of us who are in this field need be able to know about our own school division, is what are the greenhouse gas emissions. What is your carbon environmental impact, and can you bring it down?

This slide is really kind of neat. It shows that the square footage has been going up. The same with the square footage going up, the number of students in our school division has been going up. Yet, the energy use has been going down. So we're really proud of that. It's sort of a double-whammy. More people, more programs, more places, and still less energy altogether.

Next slide please.

This is just a slide that shows what you actually can expect to save, if you have a successful program, over some time. It's in some categories. One of the categories, you can see the first block, is what do the greenhouse gas emissions reductions really look like, and how does that compare to some environmental metrics like cars and tree seedlings?

Then it's down with some more about the CO2 emissions and comparing to, again, environmental metrics: tanker trucks of gas, coal burned, homes that can be heated – or the energy use of homes I mean. Sorry.

But the final one is the one that is kind of neat. We are fortunate in the area around the nation's capitol that 18 school divisions have all gotten together and compared notes of what do they have. So we can say how do we save according to numbers of teachers and things like that.

Next slide please.

Now the future, and I'm going to end my presentation – I think this is my last slide – about what's coming next. The JET, the Joint Environmental Taskforce has really decided to push the school system and the county board to move to really, really ambitious goals, goals that honest to goodness we don't know how we're going to accomplish them, but we're going to try.

We're going to try because it's the only thing we have. We can't guarantee success, but we can guarantee that we're going to give it a try.

One example is that they would like to have all of the fleet of vehicles on the road replaced with electric vehicles. Well, we have over 1,500 school buses. An electric school bus costs on average about \$300,000.00. So we're talking a half a billion dollars just to replace the school buses for one school division in Virginia.

So we don't know. Again, like I said, we don't know how it's going to happen, but we know that's the goal and we're going to try. So hopefully, even though you may be facing some unimaginable goals and you may be looking at some really daunting achievements that you'll have to accomplish, I want to give you encouragement and say you can do it. So thank you very much.

Next slide to make sure I'm done. Yep. Thank you. We'll turn it over to Erik.

Brooke Holleman: John, thanks so much for your inspiration and for sharing all that Fairfax has going on. Really appreciate it.

Now we're going to turn it over to Erik for one more presentation before we kick off our Q&A. So if you've had burning questions, please go to Slido and get them in, and be sure to upvote the ones you want us to cover. So, Erik, it's all you.

Erik Lueders: Great. Thank you so much. Hello, everyone. I appreciate the time today to speak with you a little bit and tell you about where we're at within our journey here for energy efficiency and such.

I have a unique role within our district. I am the Director of Sustainability and Purchasing, so I have all green initiatives as well as procurement, which is kind of nice. I am able to oversee specifications for just about every single thing we buy. So we can make sure that we have that influence, and we're specifying those products that are more sustainable and energy efficiency, and

making sure that our vendors are delivering on that, too. So it's a good fit.

But where are we? We're Parkway School District. So we are a school district in the western suburbs of St. Louis. This is kind of a representation. We're about 20,000 students and staff, 34 buildings, 3.3 million square feet. We've got a 95 percent graduation rate. Nineteen percent of our students are on free and reduced lunch.

The average age of the buildings we have in our district is about 53 years old. The reason I bring that up is just kind of context. Historically what we're doing is we're doing capital replacement cycles, so replacing assets on our buildings as opposed to necessarily building new buildings. So any new square footage that we're adding, typically it's maybe a small wing or something like that or a small addition.

Our newest school was built in 1994. So, again, not that bright and shiny new anymore. So that's kind of where we're at and a little context for where our journey is.

Next slide please.

This is just showing a little bit of our kind of meandering journey, if you will. We've taken an approach that has been a little bit opportunistic at times and strategic where we're able.

In 1992, our efforts got started with energy behavior change management and some recycling initiatives as well. We got really started to that point early, the general mission, all about conservation and reducing – you know, lights out campaigns, et cetera.

When I came onboard, I think we identified that there was an opportunity to do broader sustainability work, and take a more comprehensive approach trying to adopt those LEED-related practices, LEED O+M-related practices throughout various district operations. So that's something we've been bringing to the fold.

Specific to renewables now, in 2012 we launched an effort to get solar on rooftops of all of our buildings. What that was was a 25-kilowatt array. That incentivized – at the time, our electric utility provider was offering a \$2.00 per watt incentive, so we jumped on that. I'll go into more of detail a little bit later.

In 2015, we started a strategic planning process, in which we were at the table for that, and worked really hard to get sustainability incorporated into those goals for the district and measurable objectives. So really trying to embed that in there, and through our district's planning process make sure that that's something that we're going to commit ourselves to, holding ourselves accountable moving forward.

Part of that was signing up for the Better Buildings Challenge, which we signed up in 2016 using 2015 as a benchmark for a 20 percent reduction goal with that, looking at the Center for Green Schools to put out a whole school sustainability framework, which again, kind of speaks to more of those initiatives beyond just energy and recycling. So those we took very seriously.

In 2019, we advanced even further with our renewables. We installed more solar as well as bring on geothermal to one of our locations and broader goal adoption.

Recently, we've been putting a lot of effort into drafting more holistic sustainability policies, board-level policies, which are really, really important as we're noticing that with key turnover, key stakeholder turnover, whether that's board-level or key stakeholders within the district, trying to make sure that we have very specific documentation that we can refer back to whenever we are encountering differences of opinion on how we should be moving forward, that we already have a committed policy and procedure for how we're handling energy and other things with aggressive sustainability.

Then from there, we're trying to, again, a future plan for our next bond issue capital placement cycle and furthering our goals.

Next slide please.

This is kind of wordy, all this. But what I want to get out of this is with, kind of going back to a strategic planning process, of embedding what we do into that plan as well as connecting it to our mission. So I have outlined here our school district mission. We're a mission-driven organization.

What things did I point to every single time when we are discussing the why of our work? We are part of responding to the challenges of an ever-changing world, which is what we are expecting our students to do and what we're preparing them to do.

So we're all here for the students and this work is connected to that.

Now within that process, we identified three goals as a district, tried to kind of streamline it to three, and that third goal being really all about operations work. Within each goal, we have various measurable objectives.

Now this is one that I think we did a great, great job in really identifying what that triple bottom line is. Again, holding our district's strategic plan for that, which is we're going to integrate environmentally, socially, and fiscally sustainable best practices into areas of focus. So this all across the board. This is the direction we're heading. So, again, embedding that into district-level documents ensures that the work can live on and we hold ourselves to it.

Next slide.

From there, we add additional goals, so energy reduction, water, landfill, also trying to incorporate outdoor landscapes, going native landscaping. Make sure we're connecting that to learning, sustainability learning as well as health and wellness. So more holistic sustainability goals.

Next slide.

Through our process in trying to achieve those goals, we've been very fortunate and we've come a long way. We've been recognized throughout process. In 2009, we had two schools that were Energy Star certified. Most recently, we had 23 schools.

We are a 2019 Goal Achiever, so we had to make sure that we're communicating that outward. In 2020, we were recognized for that. For that perspective earlier, this is through 2019, pre-COVID. So we're really proud of our achievement in half the amount of time. So we set our sights on a new goal of 35 percent reduction by 2025.

We've been recognized by Green Ribbon as a Green Ribbon district, as well as Energy Star Partner of the Year.

Next slide.

We've had a lot of work with regards to energy, much of which I'm sure you may be very familiar with, but I just wanted to touch on this to a certain extent here.

LED lighting, we've had some great successes there, as I'm sure many of you have. We replaced all of our outdoor lighting with LED. Before, interior lighting looks like it was economically viable. That said, we've moved into retrofitting interior spaces over the last several years, and noticed that even the efficiencies of that technology has improved drastically. I think when we first started, the four-foot linear lamp was about 15-watts. Now we're at about 10.5-watts for the same amount of efficacy and efficiency. So that's been exciting to see that technology continue to move.

Delamping is always a great opportunity. So don't just go one-for-one. Make sure that you are measuring as you move. I'll touch on the renewable aspects a little bit later.

Controls, so a controls upgrade as well as retro commissioning and monitoring-based commissioning. All that is going to be HVAC and controls-related. It's really important to use the data that you have, that you use the systems that you have to make sure that your schedules are input correctly, that you don't have excessive schedules, that you don't have stray schedules, that your systems aren't simultaneously heating and cooling.

Bring in those third-party experts, so those retro commissioning professionals to help. Using a monitoring-based commissioning platform in doing that data analytics, to really provide some oversight in how your systems are functioning has been really important for us into driving our energy use down.

Plug load management. We have a PC power management platform, a Web-based platform that all of our devices are synced to. That way you can make sure that our plug loads are reduced as well.

So all this being said, just from 2015 to 2019, we've seen a reduction of energy use by \$1 million if not more. Again, lots of great resources that being able to then be redirected into educating students.

Then of course 2020 is an anomaly. So we're going to see how we're headed towards that 35 percent goal probably at the end of 2021/end of 2022.

Next slide.

Funding sources. Those utility rebate incentives have been absolutely paramount for us. What we've done is we've created a separate account for all of our utility rebate incentives to go into, to kind of create a revolving loan fund. It's been a tremendous kind of snowball effects that work.

We've got rebates for our solar installations. We engaged in a lease program for our solar, which I'll touch on a little bit more. We used a State of Missouri energy efficiency loan program to do our outdoor LED lighting. We paid that off very quickly.

We've even received some allocation with our bond issues in order to move towards energy efficiency work, as well as our annual operating budget to do things such as LED lighting controls and such.

Next slide.

These are great resources, "Advanced Energy Design Guidelines." We have set the 50 percent advanced energy design guideline as essentially our benchmark. So any time we're doing capital replacement work, the prescriptive measures that are in there for our climate regions are what we are utilizing for essentially our specifications or product selection for capital replacement.

So we're replacing a roof. Okay, it has to be an R30. That's the minimum standard now. So there are lots of those elements for specific building systems that are in there. It's a great resource. I absolutely advocate for that. We're trying to pursue the zero energy when possible.

Next slide.

Our solar array, I kind of touched on that a little bit. Missouri is a regulated state, so we can't do a power purchase agreement, but we can do lease agreements. So we had our solar installations installed at 25-kilowatts across 33 sites. Our lease cost was a fixed lease, and that fixed lease was less than the cost that we would have paid that same retail amount of electricity from a provider.

So it's structured in a way where all rebates and incentives went to the installer. We had zero upfront out-of-cost pocket [*sic*], and we have zero maintenance costs with that, but we're getting the

benefit. So that was a great way to sell the win-win to our school board and it's been a success.

Next slide.

In 2019, in 2020, we have expanded those solar arrays at four different sites. We've added an additional 75-kilowatts. We bought those. So we had a premium bond issue, in which case we identified this as a quick turnaround design and build application, in which we're going to immediately see a savings in our operations budget. So that was an exciting expansion that we did.

So now we've got several schools. We've got the roofs largely blanketed with solar panels, which is gorgeous to me.

That said, we've also installed an additional 25-kilowattson a new addition. That was installed to meet some EUI goals for that addition.

Next slide please.

We've installed geothermal at one of our high schools. It's kind of a perfect storm here as a retrofit application. Some people might be scratching their head, but for us it really worked.

This site is essentially all electric. It was an end-of-life chiller plant. One of the chillers was dead and on its redundancy at that point The cooling tower was a nightmare. It was a water-cooled chiller. The cooling tower replacement was inside the building and had bad airflow. It wasn't efficient. Moving it outside had its own issues and we couldn't necessarily do that in a cost-effective way. So geothermal looked really well, so we phased it in.

We replaced the chillers with chillers that would work in connection to a well field or to a conventional cooling tower plant. We identified that we tested the well to make sure that there was good thermal conductivity in the soil. It worked. We got the bond issue passed, and we went full-tilt with installing geothermal application.

It's got a great benefit. There's a 40-year lifecycle of that well field. So there are less replacements that are needed, such as the cooling tower and such. So it's a great program that we plan on expanding and growing into more and more over the years.

Next slide.

All this being said, these are the results, that blue bar graph showing our emissions over time. So we are steadily marching down. We're rolling back those greenhouse gas emissions, which is critical.

That graph on the right is showing our cumulative solar energy production, those yellow bars being the least arrays and the orange bars on top of them, 2019 and 2020, of our owned arrays. So we're heading in the right direction in multiple different fronts.

Next slide.

So lessons learned. For us, we've been opportunistic. There's multiple entry points, but making sure that we connect to our mission and our strategic plan has been really important for us to be able to continue heading down this direction and embedding that into our work.

Furthering that is we're trying to have those policies live on, regardless of what stakeholders turn over. So that's been really, really important for us, anticipating naysayers and making sure that we build those relationships, and showing why the work that we're doing is important and how it's going to benefit their different programs as well.

Next slide and I think that's about all I had.

Okay. These are much different resources. Again, a unique position maybe to some being within that purchasing role. I wanted to provide different bid specifications for various programs that we did, such as the geothermal, solar, LEDs, et cetera. So hopefully that will act as a resource, as well as draft sustainability board policies. They're not board approved and adopted yet, but we do hope that happens in the future. So in case you're looking for sample language, hopefully this will be available.

Next slide.

Thank you.

Brooke Holleman: Erik, that was fabulous. I see that all those are links that folks can access for sample language in the slides, once they're available. Is that right? Awesome. That sounds perfect.

Okay. We've made it. It's time for our Q&A. Those were all fabulous presentation. This is a reminder to go to Slido.com and enter your question or upvote the ones you are hoping to see. I know folks are still adding them in.

It looks like some of these are from earlier, during Katy's presentation. A question about tracking EUI and wi-fi thermostats. Did that ring a bell to you, Katy?

Katy Hatcher: We do track. You can track energy intensity in Portfolio Manager. The tool takes in monthly energy consumption data and then produces annualized metrics. We do have actually monthly energy use intensities for two fuel types, which is electricity use and natural gas. So if you have additional questions, please contact me offline and I can follow-up.

Brooke Holleman: Awesome. Thank you. The number one question folks have asked I think is from Graham, related to Anisa's poll question. Anisa, I'm trying to think of a way to ask this to you, in terms of –

Anisa Heming: Is there a way for people to – can we open up a Slido thing, for people to just drop in what they've done? Is that possible? But that chat would only go to you. I think people want to see what others have done here. Is that possible?

Brooke Holleman: Well, sure.

Anisa Heming: Can Chris work some magic maybe in the background?

Brooke Holleman: At a minimum, folks can write it in the Q&A.

Anisa Heming: I mean I can say what I – while we figure that out.

Brooke Holleman: That would be great.

Anisa Heming: If we can figure it out. I can say what I've heard.

Brooke Holleman: Yep.

Anisa Heming: From what I've heard from more permanent facilities improvements, either school buildings that didn't have HVAC systems, this is like – that would be something that would qualify as enabling you to implement all of the air quality strategies that have been recommended. That is a really significant, as you know, investment, but that would be the type of permanent improvement that you could make the case for with these funds pretty easily.

John, you had something to add to that.

John Lord:

I'd like to add to that, too, yeah. One of the things that we face, many of our schools have direct through the wall or through the ceiling unit ventilators, especially in the area when you are right outside of what used to be a swamp, and I guess some people would say it's still a swamp – 30 miles outside of Washington, D.C., by the way, for anybody who doesn't know where we are.

Then you really struggle with humidity and moisture management. So we're going to be putting in a lot of dedicated outside air systems, make-up air units, things that are going to be able to control enthalpy and humidity, whereas those through the wall unit ventilators, even though they gave plenty of air, it didn't provide good IAQ. The indoor air quality was bad because we had high moisture levels.

It would not be uncommon at all to find a relative humidity of 70 percent in some of our schools in the summer, and that's just horrible. So to get of those, and that's a permanent facility improvement that would very applicable to this particular grant.

Anisa Heming:

Yeah, great point, John. Some of those ERV retrofits – yeah. That's a great point. Erik, have you guys done anything? We're just pulling the school district people we have that are part of our panel here.

Erik Lueders:

We're considering kind of those more permanent solutions now. So there's a variety of for instance, IAQ options that we're considering, some of which the jury is still out on, it seems, that we've been coming across. But what we've implemented so far is much more the pre- and post-occupancy flush as well as just replacing our filters. MERV 8A is the ratings that we have been having to start using.

We're considering others in the future, as well as we've done some of the other things that everyone else has with PPE or maybe even like the barriers, so the desk partitions and such, which are of course temporary. It's going to be hard to stomach that in a year or whenever, when we're going to have to figure out how to best move those to the next phase of life, hopefully recycle of some sort.

Brooke Holleman:

Great. I think we've figured out that folks want to chat us directly their permanent facilities improvements. We can shout those out.

But in the meantime, we can jump to another question that's related.

Anisa, there's a question about how much money individual schools are getting from COVID funds, and how they find out how much their schools get. I don't know if you can speak to that at all.

Anisa Heming: Yeah. It's allocated by Title I formula. So I can't tell you exactly how much you're getting, but that's what it's connected to. Your state Department of Education should have an information site about the American Rescue Plan funds. At this point, they should have one up, because they just got their guidance from the US Department of Ed about what their own plans are going to need to look like that go to the Department of Ed for how they're using these funds.

They got the instruction last week, so they should have or be getting information up for school districts very soon about what they'll be looking for from school districts. Like I said, it's allocated by formula, so it's not a competitive grant program, but you would have to check with your state Department of Ed about what that allocation looks like by that formula for your school district.

John Lord: If you want just a simple case study, I mean we may not be an example of what would happen across the whole country, but we have about 210 school facilities, 27 million square feet, and 180,000 students. We are going to be getting about \$90 million in the SR2 grant, \$25.1 million of which we're going to use for permanent HVAC upgrade improvements.

So those numbers, again, they may not be representative of anything other than our school division, but if that gives you some sense of just order of magnitude, what you can imagine, it would be close to that probably.

Anisa Heming: What's your percentage free and reduced lunch? Because it would be connected.

John Lord: I think we're in the – you know what. I'm not even going to try. I'm sorry.

Anisa Heming: Sorry to put you on the spot.

John Lord: I hate to misquote. We have a fair amount of free and reduced lunch. We are a very wealthy county when you look at the average

per capita on annual household income, but we also have a lot of people who are really struggling. I think probably more than a third of our students are free and reduced lunch students.

Brooke Holleman: Great. I think I'm going to try to squeeze in one more question for the group before we wrap up. There's one that came in. Given how many of the IAQ upgrades have caused higher energy use, are there efforts or tools to support maximizing passive or low-energy strategies or mixed mode? I don't know if folks want to speak to that.

John Lord: I'll say that the things that we're doing, where we're getting rid of through the wall unit ventilators and we're putting in energy recovery ventilation or direct – you know. Something that you can do in this particular case is you can rid of a lot of problems that you've had. You may not even have known that you had them, if you haven't really looked at your mechanical systems.

We're pretty knowledgeable about them because we do benchmark everything and we certify every building we can through Energy Star. The ASHRAE 55, which is thermal conditions, and the ASHRAE 62, which is ventilation requirements, we've looked at those at our schools a lot and we know where are problems are. We have data loggers that we can show the temperature and the relative humidity over time for specific rooms and specific schools, just to get rid of the dollars that we spend every year doing mold remediation, and eliminating moisture and renting dehumidifiers.

I believe that when you look at this holistically, dealing with the ventilation issues and actually addressing them in a way that provides good indoor air quality, you'd be hard-pressed not to save money, frankly. I know that sounds really counterintuitive, and it probably is like breaking some people's minds, but in our school division with our experience, I can promise you we will save money and we will make better indoor air quality.

We're all super super-thankful that this is being addressed by the federal government and that the need is being met. The only problem that we're going to have is that we and everyone else like us is all going to want to use the same pool of contractors' equipment all at the same time, and it's going to be a busy, busy time for those people.

Brooke Holleman: Absolutely.

Anisa Heming: I would double down on what John just said. The ASHRAE Epidemic Taskforce that we worked with on the IAQ survey was just adamant that we needed to be capturing data on many school districts are actually doing retro commissioning on their buildings and their systems, because that was the number one thing that they were all seeing among their clients that was the need. Making sure the systems are working as designed and to their maximum ability is going to save you money, and it will also improve air quality. So that's like the top of the list, if folks on the phone haven't done that yet. I assume a lot of people that are here might have already done that, but it's important.

Brooke Hollman: Thanks for that point, Anisa, and John as well. I think that's a great point to end on, as we're nearing the end of our time together.

So we can go ahead and jump to the list of resources that we have compiled here. This is clearly not all the resources listed today, so please watch out for those slides to snag these resources, and also the ones listed in the other slides and the ones in the chat.

Last but not least and probably most importantly, you can stay connected to us through our State and Local Solution Center or subscribe to our monthly newsletter to keep up with the latest. If you have any questions about the resources discussed today, feel free to reach out at Stateandlocal@ee.doe.gov.

We have a quick video to showcase our Better Buildings Solution Center that has over 3,000 solutions to help you find proven and cost-effective strategies. We can go ahead and check out this video to learn more.

[Video plays]

Brooke Holleman: All right. I'll make a quick plug for our summer webinar series beginning in June. To register for any of these amazing sessions, you can go to the Solution Center and click on Events and Webinars.

We'd also like to remind you to follow along, since this is just the start of a packed week. You can follow along on Twitter using #BBSummit2021 or follow the handles listed here.

With that, I'd like to thank our panelists so much for taking the time to be with us today. We've launched a short feedback survey in Slido and asked that you please take a couple minutes to give us

feedback on this session. Your answers will be totally invisible to other attendees.

You can go ahead and hit the next slide.

Here you can find everyone's contact information. If you'd like to learn more about these resources, please check out the Solution Center or contact any of us directly. Thank you so much. I hope you have a great rest of the week.

Anisa Heming: Thank you, Brooke.

Katy Hatcher: Thank you, everybody.

[End of Audio]