

*Recording:* The broadcast is now starting. All attendees are in listen-only mode.

*Crystal McDonald:* Good afternoon. Hello, I'm Crystal McDonald with the US Department of Energy's Better Buildings Initiative. I'd like to welcome you to the September edition of the Better Buildings Webinar Series. In this series we profile the best practices of Better Buildings Challenge and Alliance Partners and other organizations working to improve energy efficiency in buildings.

Today we will hear from our collaborative partners in the K-12 sector to raise awareness of ways to enhance the learning environment for children across the nation. This is our back-to-school special. Our guests include The Green School Alliance and the Center for Green Schools at the US Green Buildings Council.

The question is what are school districts doing to manage energy costs, maintain healthy learning environments and meeting STEM academic requirements? The panel will discuss tools you can use to enhance the environmental, economic and energy performance of school buildings. After all, more than 50 million students and faculty occupy our nation's nearly 130,000 school buildings for over 1,000 hours and 200 schooldays every year. Healthy, comfortable facilities are vital to the well-being of the K-12 student and faculty population.

And now it is my pleasure to introduce our presenters. Next slide, please. Today we are joined by Dr. Sharon Jaye, and she is the Executive Director of the Green Schools Alliance. Sharon is formerly the Director of Sustainability at the New York City Department of Education. She has more than 15 years of experience in sustainability work and public and private K-12 schools and public and private higher education. She has a bachelor's degree in business administration, a master's degree in project management and doctorate of education in educational leadership. She is a sustainability facilitate professional through the International Facility Management Association, also known as IFMA, and she's authored IFMA's How-To Guide on Carbon Footprinting and co-wrote The How-To Guide on Waste Management. Sharon, we appreciate you being here today.

And then our next panelist is Anisa Heming. She is the Director of the Center for Green Schools at the US Green Building Council. She provides strategic direction to USGBC's work and school and coordinates an organization-wide team to promote environmental sustainability, health and wellness and sustainability literacy in

school systems around the world. Anisa is a Little Rock native and holds a BS in architecture from Washington University in St. Louis and a master's in architecture from the University of Washington in Seattle.

And then, of course, I'll be the final presenter to round out the conversation and I am a policy adviser here at the US Department of Energy within the Office of Energy Efficiency and Renewable Energy. And I do serve as the K-12 Education Sector Lead and my education is from North Carolina A&T State University and a master's in energy and environmental management from The George Washington University.

So with all of that said, I think a cumulative – cumulatively we all have a lot of expertise in K-12 facilities, and we are happy to bring forward our programs and products to help move our K-12 sector forward in the environmental energy and economic performance of our school buildings. Thanks to you all again for being here.

Before we get started with our presentations, I was to remind our audience that we will hold questions until near the end of the hour. Please send your questions through the chat box on the webinar screen throughout the session today, and we'll try to get to as many as we can. This session will be archived and posted to the Web for your reference. Next slide?

Okay so now that we've done the introductions and have taken care of some housekeeping rules, I'd like to pass the mic to Sharon and look forward to her presentation. Sharon, it's all yours.

*Sharon Jaye:*

Thank you, Crystal. We can go to the next slide. So first what I'm going to do is give you a little introduction to the Green Schools Alliance if you don't know about us. We're going to start with what we do. We connect and empower champions who are creating healthy and sustainable schools. Our focus is the sustainability champion in the K through 12 school, which literally could be anybody. It can be a facility manager, a teacher, a principal, a science education specialist, an AV tech. It really doesn't matter who you are. If you are interested in making healthy and sustainable schools, then you are a sustainability champion. Next slide.

So we are an alliance. Our community represents more than 8,800 schools, districts and organizations from 46 US states and 82 countries. We have a – our organization was started 10 years ago with a leadership commitment on climate and conservation, and we

have over 560 leadership commitments from superintendents and principals around the world. We're there working on making their schools more healthy and sustainable. And we also have an online community that is designated and designed to bring the Green Schools community together. So everybody that is on this phone call and listening to this webinar can actually join our online community and be part of a bigger Green School community. Next slide.

So we focus on systems-level innovation. We use the framework called Whole School Sustainability. It works on bringing together the pieces of sustainability through the organizational culture of the school making sure the planning and policy is in place and communication is happening to make sure everybody is on the same page. We focus on buildings and the physical space and the site of the school and then the educational programs to educate the students in our next generation to be able to have the right behavior and bring those behaviors out into their community. So this is the Whole School Sustainability framework, and this is what we focus on in our organization. Next slide, please.

So we focus on designing integrated tools and programs that empower students, that support schools and districts at an institutional level and build community so that we're all talking to each other and learning from each other and breaking down those silos that is preventing some of our work to be able to move forward and have more green schools in our country. Next slide, please.

So I'd like to talk a little bit about our online community. In our online community we have a resource center. We have over 1,000 curated links to books, fieldtrips, resource papers, whitepapers, non-profit organizations, all kinds of different things that you can think of that a school might need to be able to do their work. We have a place where you can have discussions with other people in the green schools world, where you can ask questions, do different things, ask – troubleshoot problems, kind of go from there.

We have a video gallery. Most of our video gallery is actually student-made videos that have been done in the past through our Green Energy and Recycling Challenges and they're quite funny and inspirational to other schools to be able to do the same thing.

We have a success story blog where our schools are telling their story and telling you exactly what they've done in their schools or their school district to be able to make their school more green so

you can learn and implement it in your own school. We also have a crowd source calendar. You are welcome to go onto the calendar, learning about other things that might be going on in your area or nationally and also post your own calendar events so that other people may come to your event. Next slide, please.

So one of the things in the next couple of slides I wanted to highlight very specific programs that the Green Schools Alliance has that are very focused on energy efficiency or energy management similar to that toolbox that Crystal was talking about that we were going to elaborate on for the webinar today. We have a subset of our Green Schools Alliance community called a District Collaborative. This is made up of 24 of the largest public school districts in the country, represents almost 6,000 schools and almost 4 million students. And on a monthly basis the sustainability directors for those school districts meet. We learn from each other, learn about best practices. We want to work together to influence national policy and then leverage our volume to be able to increase our purchasing power.

So if you are from a school district that has more than 40,000 students, you are welcome to apply to join the District Collaborative. Your superintendent needs to sign a commitment letter. If you're a school district under 40,000 students, you are still welcome to join the Green Schools Alliance community. Next slide, please.

So we also offer a discount for the Building Operator Certification Program. So this is actually run by another group. It's not run by the Green Schools Alliance. But what we did within the alliance was actually work with them to bring this program to more school districts. So if you are a community member of the Green Schools Alliance, you are eligible for a discount for the program. The Building Operator Certification focuses on the operation of facility systems so that you can improve energy efficiency and save money. It's a very awesome program. So if you want to learn more, you can either go to the Green Schools Alliance community if you want to get the discount code to be able to get the discount for it or you go to [BBOC.info](http://BBOC.info) as a website and learn more about the program. I encourage everybody to take a look at it. Next slide, please.

So we also have a partnership with an organization called Project Learning Tree. They have been viewing teacher professional development in the environmental education world for about 40 years and they have a full suite of curricula and programs for

teachers to be able to teach their kids about environmental education but very specifically in the Green Schools world. They actually have items called investigations where the students actually go and investigate energy use, waste and recycling, water consumption, school sites and environmental quality. So if you're interested in learning more about bringing this type of curriculum to your school, please go to our website to learn more information. Next slide, please.

So we also I would like to highlight our youth leadership guides. We partnered with Green Forward and the Pollination Project to bring these to you on our website. They are youth-written how-to guides on how to plan, promote and fundraise for your environmental work. Some of the examples of some of the titles is How to Resolve Conflict, How to Present a Webinar, How to Engage Elected Officials, How to Recruit and Manage Volunteers. These are all written by high school or college students to guide other high school or college students on how to do these things. And these are available for free on our website. Next slide, please.

So I just wanted to give you a little highlight on some of the things that we are doing in the Green Schools Alliance. We are working on building out a sustainability tracking and roadmap tool, which will hopefully make it easier for people to, let's say, apply for Green Ribbons or track what they're doing in their schools with the beginner, intermediate and advanced levels, give them a really good roadmap of hopeful sustainability in what they're doing.

We're also working on expanding our student engagement programs, which we didn't talk about much on this webinar, but if you'd like more information, please feel free to go to our website. And we have a lot of interest in our District Collaborative in crowd sourcing some utility dashboards so we're working on that as a project. Next slide, please.

So just to wrap up, anyone can be part of our community if you're a sustainability coordinator or a conservationist. You work for a non-profit. You're a facility manager or principal or student. It doesn't really matter who you are as long as you're interested in helping schools be more healthy and more sustainable. You are welcome to be part of our community. It is free so next slide.

So this our information. Our website is [Greenschoolsalliance.org](http://Greenschoolsalliance.org). You're welcome to email us at [information@greenschoolsalliance.org](mailto:information@greenschoolsalliance.org) if you have a very specific question. As a wrap-up before I turn it over to Anisa I'd like to say

that our slots for the presenters go out to our districts and schools that live in areas that were affected by the hurricane. I know for the Green Schools Alliance we – five of our District Collaborative schools – Houston, Austin, Broward County, Palm Beach and Orange County in Florida – have all been severely affected by the two hurricanes that we've had in the past couple of months – sorry, the past couple of weeks. So just our prayers and thoughts go out to them and I'd like to encourage anybody listening if you have some way of donating financially directly to those school districts, I think they would greatly appreciate it. So I'd like to turn it over to Anisa to talk about Center for Green Schools and USGBC.

*Anisa Heming:*

Great, thank you. Hi, everybody. This is Anisa. I am from the Center for Green Schools. We're housed at the US Green Building Council, so why don't I dive right into slides, and actually I think you can do two forward, two slides forward. Yeah, thanks so the US Green Building Council for those that are not familiar with us, we're a 501(c)(3) non-profit and the name is – has "council" in it because we are actually a council as members. So we have around 12,000 member organizations that join us in defining what green building and green environments mean and how we put parameters around what that entails. So the community of the council really has a lot to do with what we do as an organization so next slide.

A lot of people know US Green Building Council for the LEED rating system. LEED is a tool that we developed in order to move the market toward green building practices. So when it comes to schools, the Center for Green Schools was established to create and strategized the various tools that we need in order to green our schools. So LEED is a tool that we use and it's a good tool, if I do say so myself. *[Laughs]* But the Center for Green Schools is around to develop all the other things that are needed to get our schools to the goals of a green school so next slide.

The way that we define our green schools is with the definition that is used by the US Department of Education in their Green Ribbon Schools award, and that is a school that reduces environmental impact, increases health and wellness and increases literacy in environmental and sustainability concepts. So when we talk about a green school, these are the three goals that we're talking about. So the next slide.

With you guys today I picked out three particular opportunities for – that I think might be interesting to this group. One are our professional learning opportunities for schools and school district staff. The second is about measuring and certifying performance of

buildings. And the third is about getting all of this stuff into the classroom, which I know is of real interest to most of the people that work in facilities or in operations within schools and school districts.

So let's go to the first – next slide – professional learning opportunities. So next slide. For the last seven years or so we've run a professional learning community of school district sustainability staff. So while Sharon's District Collaborative is focused on large districts and also is focused on effecting policy and doing some advocacy on a national or state level, this is really focused on those staff and what they need so the sort of professional development they might need to do the job within the school district. And we've been running in-person trainings for these staff and online trainings for years. We have around 120 school districts that are a part of this, and it's open to anyone at a school system so on the system level who is doing work related to sustainability in their school district. So this includes energy managers, research conservation managers, green school, green project managers who do green construction and people who are actually sustainability coordinators or sustainability directors and have that title so a whole range of folks. Next slide.

What we do with this network is, again, the annual in-person free training that we host alongside the Green Schools Conference, which I'll talk about later. We also host regular webcasts for the group to share with each other what they're working on and how they're doing it. And then we also have an online network that is very active with questions and answers about the way that people are doing their work in these school systems. So that's just a note to schools that USGBC.org an email if you want to join or if you know someone that would be good for that work and could really benefit from connecting with those other folks so next slide.

Another great professional learning opportunity is the Green Schools Conference and Expo. We run this in partnership with the Green Schools National Network. This coming year it's May 3<sup>rd</sup> and 4<sup>th</sup> in Denver, and we typically have upwards of around 1,000 people who are all over the map in their interests in green schools. About 30 percent of attendees are classroom educators, teachers interested in green schools. A third are from the building industry and a third are district- or system-level staff. So those are rough numbers, clearly, but that's around the breakdown of who comes to this conference. It's a really great intersection of everyone that's involved in making green schools a reality. Next slide, please.

So the final thing I'll say about professional learning opportunities is that we have a whole host of research publications on our website. So we have focused on health, this middle one, The Impact of School Buildings on Student Health and Performance. Powering Down is a guide for reducing energy use without major building upgrades so behavior-based energy efficiency. We also have some really quick web-trainings on this same website so about 10-minute or so long web trainings on different aspects of green operation. Next slide, please.

So the second topic I want to talk about is measuring and certifying performance – the next slide – so as I discussed, we're the US Green Building Council. We're known for building certification, built environment certification – next slide – and we use the expertise from our 12,000+ member organizations to understand what that should include and what that ... how to define what a green environment is. And USGBC members do include schools and school districts, and so those voices are in the development of the rating systems that we have. Next slide.

So a lot of people know the LEED rating system. We certify a lot of square feet a day [*laughs*] in this rating system, and about 40 percent of our projects that we certify are outside the US, so this is an international rating system, internationally recognized. And I bring it up here not just because it's a great tool for anyone working in green buildings. It's a third-party verified stamp of approval that says that you have actually done what you said that you were going to do when it comes to green buildings. Next slide.

It's also a tool that you can use at any time looking up strategies and resources for various aspects of green operations and construction and design. So the credit library here – you can go to the next slide, actually – you can find at this website. The credit library you can click into all the different credits of the LEED rating system for new construction, for operations, for interiors, whatever, and find all of the guidelines that are within LEED and also of the resources that are included in the rating system. So anything that you have a question about, you know, how low emitting is low-emitting when it comes to materials and health? Any of the guidelines that we've developed with our experts are on the Web for you guys to find and this is the place to find them so next slide.

So the system goals for LEED really guide the content of the rating system, so anything that's in the rating system is hooked to one of these system goals and you can go to the next slide. LEED Version

4, the current version, is really focused on performance and we, as an organization, have been moving in this direction for years now. The original LEED rating system that we released decades ago was formulated basically as a series of hypothesis, you know, well-researched, evidence-based hypotheses. But really we're at the point now where we can – we have enough data to know what actually works in making a difference in the built environment based on our years of experience with LEED. So we're to the point where the focus really has to be on, okay, what do those actions actually yield in the built environment? What are they – what do all those actions we do in design, construction and operations, what do they mean for the actual performance of a building so next slide.

So in December we released ARC. ARC is exactly what says on the screen *[laughs]*, an action-oriented measurable green performance tool. It's cloud-based. It's online. You can go to the next slide. And it is in five very specific categories of performance of a building. Any building that is LEED-certified is already in the ARC platform or can be. So any building that is LEED-certified can already start measuring performance with the ARC tool. If the building is not LEED-certified, a building can be registered into the ARC tool. It's very reasonably priced. It's meant to help us and help you understand performance and understand which actions affect performance. This is a benchmarking tool. It's a score and it's – the building's performance is compared against similar buildings in all of these different areas: energy, water, waste, transportation and human experience, which includes air quality and occupant satisfaction. So next slide.

I wanted to show you just a little bit of the behind-the-scenes here so a lot of the LEED credits you would see in ARC. It's a good example of sort of the connection between an action and the score. So you can see on the left side you sort of record what actions you've been taking in the building, what actions the district or the school has been taking related to green performance and then it yields a score. For energy and water this can interact with all kinds of different utility dashboards that you might already be using. You can automatically upload your portfolio manager stuff if that's what you're using. So it's another tool to give you a fuller picture of sustainability performance of your buildings. Next slide.

So the third and final topic I wanted to address with you guys is how to get all of this into the classroom so we have two ways that I'll talk about. Next slide. The first one is active right now, Green Apple Day of Service. This is at [Greenapple.org](http://Greenapple.org). If you're at a

computer, you can go check it out real quick. It's a way for schools and teachers and volunteers to commit to action, a day of action at their school related to green schools. So this is a commitment we ask people to make to draw attention to green schools topics within their schools. They choose their own day of action. You name that day of action on the website as a commitment, so you're making a commitment to a day. Next slide.

We've been doing this for five years and we've seen over 790,000 volunteers in over 73 countries around the world do projects. This is one of our times to really reach way out to a very broad audience when it comes to green, green operations, green schools, green education, all of the topics that are important to green schools. Next slide.

So this is just a couple of examples of pretty cool projects that we've seen around the world. This one up in Guatemala is one of my favorites. They ran some green schools workshops for private schools throughout the year and through those workshops raised money, so the private school paid for the workshops. And then they pooled all that money and did a few projects at needier schools in their community to fix them up and make them healthier places for those kids to go to school so just some really cool stuff going on around the world. Next slide.

So Green Apple Day of Service is a chance for a school to make a commitment to a day of action. We're connecting this much more strongly this year to a platform that we released about a year and a half ago called Learning Lab. And this is a platform for sustainability education online. It is a collection of high-quality, standards-aligned sustainability curriculum from a variety of partners including the Nature Conservancy, Global Oneness Project, STEM Hero. There are a number of others. And each of these is searchable by grade level, by subject, by theme like sustainability theme. And when you get into the platform – next slide – you can see what exactly is included in that lesson. So they're often organized into modules of three different lessons and you can dive into different lessons and it tells you exactly what's included, what to expect as a teacher that you might need to know in order to teach that lesson, what you would be covering, what standards to align with. Next slide.

And it also helps – it walks an instructor, a classroom teacher, through how to prepare for that lesson, what materials to collect, et cetera, the details about how to teach it, how to assess learning so different ideas for how to assess whether students are

understanding and then different ways to extend that learning if there's additional interest in the topic area that students might want to explore further. So these are very deep – this is a very deep level of information for teachers to dig into in Learning Lab. So that URL, which everything will come to you at the end of the – in the follow-up resources that DOE will send you guys. But the URL is LearningLab.usgbc.org so next slide.

So, as I said when I first started talking about Learning Lab, we're really connecting Green Apple Day of Service and Learning Lab because many times the Green Apple Day of Service Projects that we see come out of schools have some component, clearly, of educating the students that are in that school about the kind of activities that are going on at the school, the kind of sustainability action that we would like to see in schools. And bringing the students into that as a learning opportunity is clearly pretty central to what we want to do with this day. So in each of these project ideas that you would find at Greenapple.org, each of these project ideas is linked to a classroom activity, a lesson within Learning Labs so we can connect the action with the learning and make sure that anyone working on school operations or school design and construction has some tools to work with teachers and help everyone get on the same page and work together toward these objectives. So final slide.

Here's my email. Happy to be in touch if any of this stuff sounds interesting to you. Our general email Inbox is [schools@usgbc.org](mailto:schools@usgbc.org) so that's where anyone can ask for information either through our website or through various opportunities we have posted on the website. So thank you so much for having me today. I really appreciated the opportunity to talk to you, and I will pass it back over to Crystal.

*Crystal McDonald:* Thank you, Anisa. I really appreciate that and just for our audience a quick reminder is to send in any questions you may have through the webinar chat box on your screen. We are collecting these for our Q&A period at the end of the session.

So now I will round out the presentation to discuss what we are doing in the realm of K12 facilities here at the US Department of Energy. Next slide, please. You can – and the next, thank you. Just to give you a sense of what I'd like to touch on, you know, why energy efficiency and then the Better Buildings Initiative itself. It's a large platform of different segments, but overall we profile leadership. I'll talk a little bit about what our K12 partners are doing and then how the agency is involved with K12 school

districts and individual schools across the country and then some very specific information around Energy Matters. Also wanted you to know that we will include an appendix with the presentation to give you tools and resources from various technology offices within the Office of Energy Efficiency and Renewable Energy. Next slide, please.

This figure is astounding. One of the things we looked at with our education sector that was a 20 percent energy reduction and that means energy consumption. We are looking at a potential of \$3.3 billion in savings. And then more specifically around the K12 sector we're looking at in the US about 400,000 classroom buildings, 12 billion square feet that consume about 840 trillion BTUs annually and that's pretty significant. So we do realize that school buildings are an integral part of our communities' critical infrastructure, and it represents a significant amount of the commercial building space in the US. Next slide.

The Better Buildings platform stresses the importance of leadership and so we acknowledge the expanding roles of schools in our communities. Our K12 partners participate in the Better Buildings Challenge, the alliance, and we have about 13 Better Buildings accelerators that focus on specific barriers, and more information can be found on our website.

And the Better Buildings platform is about replicating successful solutions to mitigate or remove the barriers to energy efficiency. And so some of the things that we get excited about are how leaders drive change, emerging technologies in energy efficiency and renewable, student involvement. We're also concerned about the adult workforce and, of course, we're doing some work in the Net Zero space and we work with school districts as well as districts, entire districts around Net Zero. Next slide, please. I'm sorry. You can keep going.

So we currently have about 27 partners in the Better Buildings Challenge and this is the sector I lead here. And we're always looking for participants so that we can get a diverse amount of solutions. We're looking for urban, suburban and rural school districts to participate because we like to understand what your challenges are and then how you successfully overcome those particular challenges, and so solutions diversity is very important to us. But these are the districts that are represented across the nation that we've been working with.

And specific to the Better Buildings Challenge, our partners represent about five percent of the commercial sector space in our challenge and about five percent of our energy use. And some of the things we focus are what we call "implementation models" but I like to portray them as playbooks to overcome challenges or barriers to energy efficiency. So we have a variety of playbooks on our solutions center, showcase projects and other cross-cutting resources related to building technology and renewable energy along with infrastructure as well. Next slide.

Here's a snapshot of one partner in particular. This is the Poudre School District in Fort Collins, Colorado. Within the Better Buildings platform, transparency and knowledge sharing is key to the success of the program. And so each of the little snapshots you see here represents a particular milestone or a tool that a partner shared with us and we worked with them to develop it for publication. And we post them so that others can go and take a look and replicate the solution in meeting your own challenges.

And in working with over 350 partners throughout the Better Buildings Challenge, we've discovered some habits of the successful organizations and that is to know the goal, data matters. We look beyond technology. We also understand that it takes an energy champion and a team to get these programs implemented. And then the other thing we realize our partners is doing is as they learn, they teach others and they also evolve within their own organizations.

So here you see the showcase project, a snapshot of energy use and savings as a result of implementing energy conservation measures. And then you also have a snapshot of what we call the implementation model or playbook. And so we ask partners to share their approach to overcoming a particular challenge and in sharing that we're asking them to, you know, share with us your tools and resources be it a spreadsheet, a policy, a PowerPoint presentation. And that will – and it makes it easier for others to replicate and implement within their own organization. Next slide.

The Energy Efficiency and Renewable Energy Nexus. This graph highlights ways we work with schools and some potential opportunities to engage with us from your own organization. We do know that the critical role – there is a critical role for schools in energy efficiency and renewable energy. We realize that students are the next generation of our citizen leadership. There's a current workforce out there that we like to work with and share with them our career maps and the basic skills and aptitudes that are required

for various energy efficiency and renewable energy careers. We do have programs that are the test bed for emerging technologies because, as you know, DOE is primarily a research and development agency. And so we have lots of demonstration projects going on across our technology operations.

And then, of course, schools we recognize are stable properties and they don't easily change hands like other particular, say, commercial properties change hands. And so that stability is helpful in gathering information and data. And so we have our building technologies offices, our training and development program and, of course, the Better Buildings platform, career maps, competition, our energy literacy program and, of course, our STEM education resources. And each of these areas are highlighted in the appendix that we'll share with you.

And some of the resources that are included in that includes information about the Solar Decathlon, our solar training and career map with wage and skills descriptions, which is a great resource for our guidance counselors. We also have information on wind information and workforce initiatives for the wind community, geothermal education initiatives, zero energy schools. This is around the accelerator, the application of technologies. And we're also working with ASHRAE on design guidelines for zero energy schools. We expect that to be ready towards the end of this calendar year. We have information on understanding hydrogen fuel cells. *[Audio gap]* ... more education – I'm sorry – more information included in this presentation for you. Next slide, please.

In terms of energy efficiency, the areas of impact that are represented here have specific attachments to the programs, resources and the type of technical assistance we offer through some of our campaigns. And this is pretty much a comprehensive list of ways we've been engaging with the K-12 sector like in building energy use and benchmarking. We have interior and exterior lighting programs. We have a campaign around energy management information systems and how to best use those systems, financing. We have an energy savings performance contract piece for K-12. We offer a primer on ESPC and how to use that mechanism to fund upgrades in your schools. We have some fleet conversion information working with our Clean Cities program and I mentioned zero energy buildings earlier. We do have a zero energy buildings accelerator that will run for about three years with some very intensive focused efforts around road-mapping to get to zero energy. And then, of course, our standards

like the Advanced Plug and Process Loads. Lots of information around workforce training and development and then more specific information around the STEM connection. Next slide, please.

So thanks to the benchmarking disclosure ordinances that are popping up around the country, I was able to pull this information from Washington, DC's site Build Smart DC. And I wanted to illustrate the benefits of energy efficiency and renewable energy and this is a side-by-side comparison of energy benchmarks for two high schools here in the district: McKinley High School and Dunbar High School.

McKenley High School went through an extreme modernization project, so they do have some energy efficiency upgrades. Dunbar went through – that's a newly constructed building. I think it opened about five or six years ago and also includes some solar PV and other renewable energy technologies. But the more important point that I wanted to illustrate is the importance of having access to energy data so that you can manage your energy use proactively, identify billing errors and other anomalies. And then you verify pre- and post-project energy use, greenhouse gas emissions and, of course, energy costs. And then you can also assess the effectiveness of current operations, policies and practices in system planning and setting goals and targets and timelines and then, of course, communicating the results in meaningful ways.

And I just found it interesting in comparing the building and this is why we get excited about renewable energy technologies as well. If you look at the energy use intensity for McKinley compared to Dunbar, a pretty significant difference. And then you go down and you look at their energy score at the bottom. I know energy scores are very important for our K-12 sector. But I just wanted to illustrate the benefit of benchmarking and using good data and good data sources because bad data will not only characterize – mischaracterize the building wrongly. But it will also result in dedicating resources to wrong buildings and systems that might aggravate the problem.

So energy does matter. Having access to good energy data is the basis of all of these smart decisions that we have to make around building performance going forward. Next slide, please. I think I'm at the end. Yeah, I'm at the end of my presentation. And I know we've presented a significant amount of tools and resources from each of our organizations today. But the hope is that you'll be able to take what you need, customize your toolbox to maximize your building performance and do what is best for your school or school

district. And with that said, before ... should I do this before?  
Yeah, I think we can move into our Q&A. Let me just see if we  
have questions here. I think we do.

Okay, I'll start with – there was a question for Anisa and then I'll  
go to Sharon. Okay, Anisa?

*Anisa Heming:* Yes, hi.

*Crystal McDonald:* There's a – hi. The question is are you considering the topic  
"building benchmarking" as part of any green school energy  
efficiency curriculum?

*Anisa Heming:* Yeah, I'm really glad this question was asked because we are  
moving much more toward connecting three of the things that I  
talked about. I talked about the connection between Green Apple  
Day of Service and Learning Lab, making sure it's easy to connect  
those acts of service in schools with what's available to teach  
students. That's also true of the ARC platform that I talked about,  
so we're actually currently working with 9 school districts around  
100 school buildings in ARC to make sure we understand exactly  
how ARC works for schools, how the data is being collected and  
used and what the value of that platform is for schools. So we're  
learning a lot about how ARC is working for schools.

And one of the things that we're doing with those 100 schools or so  
that are using ARC is connecting some of that benchmarking  
activity to the classroom. So we're using – we're pulling in  
Learning Lab resources, Learning Lab lessons, and connecting  
them with the various pieces and parts of the benchmarking that  
exist in ARC. And at some point relatively soon, that will be a  
formal connection so we'll actually have that lesson content keyed  
to the content in ARC to make sure that that connection, especially  
when you're using ARC in schools, is an easy connection to make.

*Crystal McDonald:* Great, thank you. Sharon, next question for you. The statement is  
"It's great to see so many valuable resources for helping schools  
achieve green goals through the Green Schools Alliance and the  
USGBC. While many schools are actively involved in greening up,  
for those schools that aren't yet on the path, what are you seeing as  
the primary barrier or primary barriers? For example, time, cost,  
anything else?"

*Sharon Jaye:* I think it's the "anything else." Usually once a school gets  
interested in sustainability, sometimes the time and cost factors  
come into it. But when I was working for New York City school

system and in that school system it's mandated to have a sustainability coordinator as a volunteer on your staff, it's more about educating them about sustainability and why you should *[audio gap]* go green. That was the very first thing that I had to do with newer principals or newer sustainability coordinators that were just designated. They were like, "I have no idea what sustainability means. Why on earth should I do anything?" That was usually the barrier to entry into it. Once you got them educated on sustainability and energy efficiency and saving money and all sorts of good stuff that goes along with healthy and sustainable schools, it wasn't quite as much of an argument as to why they should do certain things. Then that's when the time and the cost factors usually came into. They were like, "Well, I just don't have time to do all of these different things or I don't have enough money to do all of these different things." But to me, education is the first primary barrier.

*Crystal McDonald:* Got it. Thank you, Sharon. I'm going to punt this next question to Anisa and then I'll follow up with a few questions specific to the Department of Energy. Anisa, the question is can you talk specific home energy efficiency lessons that have been successfully taught in schools?

*Sharon Jaye:* Yeah, I think when we think about the curriculum that works best for teachers so the stuff that actually helps them achieve what they're trying to achieve with their students and meet the standards they're expected to meet, there's a lot of general energy concepts that are necessary to the education that they're trying to provide. So a lot of the energy lessons that we have in the Learning Lab are pretty like very important basic knowledge of how energy works and how energy is used in buildings and it's good stuff, but it's the basics that, frankly, a lot of adults don't really know. *[Laughs]* And so a lot of that is translatable to any building.

But I also wanted to mention that I'm sure you've had them on in the past, Crystal, but the Alliance to Save Energy has a great schools program that they run that brings some hands-on tools into schools to work on energy efficiency education. And they actually have gotten funding from utilities in the past because some of their lessons are particularly oriented toward bringing that information home and affecting home energy use in that school district. So if you're particularly interested in that translation, the Alliance to Save Energy is a pretty great source for that kind of hands-on education.

*Crystal McDonald:* Wonderful. One other thing I wanted to mention regarding home energy efficiency is we have a webinar that should be archived by now. It was put on by our Better Buildings Residential Network, and the topic was "Back to School: Engaging Students in Energy Efficiency at Home and in the Classroom." That webinar was held on Thursday, August 17<sup>th</sup>, and you can check our website for more information. But we did have guests to talk about home energy kits and involving the classroom connection to the home. And one of the presenters we had we actually met at the Green Schools Conference. That presenter was from Fayette County Public Schools in Lexington, Kentucky, so lots of good information was presented. And, again, that webinar should be archived by now. It's called "Engaging Students in Energy Efficiency at Home and in the Classroom" and that was held on August 17<sup>th</sup>.

Now, there was another question regarding DOE resources. I have quite a few questions regarding specific technologies including HVAC system retrofits, chillers and so on. We actually have very specific information, performance and cost information, on the Better Buildings Solutions Center. The filters that we have on our revised website, they work pretty well. And so you can filter the information you're looking for by technology as well as building type so you can pull up "chiller" specifically, "K-12" specifically and then you'll see lots of information around that. But we do have partners and folks out there that are still pursuing HVAC system retrofits, and all of the energy and economic information around that is available on the Better Buildings Solutions website.

And, in particular, okay, there's always a question about funding. Unfortunately, we do not have any funding opportunities available right now specifically for K-12. But we do offer technical assistance through engagement with our programs, and so that is one way that we can continue with ongoing support. And if you're interested in the Better Buildings Initiative or any of the programs that have been mentioned, do give us – send us an email. Our contact information will be included in the presentation, so by all means, send us an email. We can get you specific answers to your questions.

How – oh, we have three minutes left. I wanted to mention a few more things before we move on. Yes, the ... first, I wanted to mention that we have an upcoming Better Buildings webinar that will continue in our Better Buildings series, and that next webinar is on Tuesday, October 3<sup>rd</sup> from 3:00 to 4:00 PM "New Tools for Leased Space Energy Efficiency". So we hope that you forward

this information to your colleagues and we look forward to your participation on that call.

And then before I close, I'd like to thank our panelists very much for taking the time to be with us today and thank you, audience, for your participation as well. And, again, feel free to contact our presenters directly with additional questions or if you weren't able to get your question answered during our Q&A period. If you'd like to learn more about the Better Buildings Challenge or Alliance, please check out our website or feel free to contact my colleague Holly Carr or you can email me regarding K-12 buildings.

And I encourage you to follow the Better Buildings Initiative on Twitter for all the latest and greatest information regarding what our partners are doing. You will receive an email notice when the archive of this session is available online. With that said, I think we're just about up on our time and let me just check if there's ... oh, okay, one more question regarding water. Yes, we do have information on the Better Buildings Solution Center regarding water and wastewater projects, okay? So we have expanded from beyond buildings to include other infrastructure-related items.

So, again, thank you for your interest and your participation on today's webinar and enjoy the rest of your day. This will conclude our session.

*[End of Audio]*