

John O'Neill:

Hi, everybody. Thank you for joining the webinar today. We're gonna give folks another minute or so to log in, and we'll be starting shortly. Thanks.

All right, let's go ahead and get started. Hi, everybody. Welcome to the 2022-2023 Better Buildings Webinar Series. This is dedicated to bringing you the latest actionable insights from leading industry experts, and this series is really a chance to dive in and explore the topics, technologies, and trends that affect your organization, as well as efforts to accelerate decarbonization and energy efficiency adoption across the economy. Next slide.

Today's webinar is called The Thrill of Bills: Understanding Your Water Bills to Save Money and Energy. Before we dive in, I just want to bring up a couple of quick housekeeping notes to cover. Today's webinar will be recorded and it will be archived on the Better Building Solutions Center. We will follow up when today's recording and slides are made available.

Next, attendees are in listen-only mode. So your microphone is muted. If you experience any audio or visual issues throughout the webinar, please send a message in the Zoom Q&A box located at the bottom of your zoom panel and we'll have some of our tech support assistants help out with that. Go ahead with the next slide, please.

My name is John O'Neill and I'm your moderator for today. So I am the program manager for the Better Plants program and the industrial sector lead for the Better Climate Challenge. I'm in the industrial efficiency and decarbonization office here at the US Department of Energy. Next slide, please.

Okay, so we already covered some welcome and introductions. We've got a couple of speaker presentations for you next, and then we'll have a lot of time for Q&A as well at the end, so make sure you're ready for the question and answer. We've also got a couple polls sprinkled in there, too, and then we'll wrap up at the end and send you on your way. Next slide, please.

Okay, if everybody could go to www.Slido.com, it looks like the link just got dropped into the chat here. You can do this on your mobile device or by opening a new window in your browser. Go ahead and enter the event code, DOE, and we'll get you into Slido. We're gonna be using this platform for both the polling that I mentioned as well as the Q&A at the end. So there's a couple of features in there that we like to use, so go ahead and use that

instead of the native Zoom chat for any questions and answers. And you can drop those in as we roll through the presentation and we'll get to them after everybody has presented.

So we'll give folks just a little bit longer to log in there. Oh, a reminder, too, one of the features of Slido is that you can upload and download – I think just upload actually – your questions that you like that other people put in the chat, so that kind of puts the most popular questions up to the top of the queue so that we know what we should prioritize when we get to the Q&A at the end.

Okay, we're now going to take a couple of minutes to learn more about our audience today, so let's start off with a few polls here. So head on over to that Slido page that you just opened and we're going to open up that first poll. And again, if you're having any issues, please message our tech support team with the Q&A function. Excellent. So first question: What sector best describes your organization? It looks like we've got a lot of contractors and consultants, pretty good representation from both the industrial sector and local government, but a pretty good mix across the board. We'll give this just a little bit longer. We've got about – looks like about 120 respondees and 230 participants in the meeting, so we'll give it just a little bit longer, see if we get a few more, but it looks like it's slowing off a little bit here. Okay, great. Jasmine, why don't you go ahead and close this poll and move on to the next one?

Okay, so here is our – well, here's our final – okay, there we go. Thank you. The next question that we wanted to check in on is how familiar your organization is with analyzing water bills. That's the content of our webinar today, so we want to give our speakers a chance to get a sense for how familiar you are with this topic. So options are dedicated staff that regularly analyzes water bills, maybe you occasionally analyze your bills, or maybe you only really look into them when you think there's a problem and you want to look closer. And hopefully – it looks like not too many people are in this situation, but some rarely if ever take a closer look at your water bill; you just pay it. Honestly that's not uncommon, so hopefully after today you're able to see the importance of this and maybe dedicate a little bit more time to it. Okay, we'll give it just a little bit longer, see if we can get the same number of responses as last time. But this is encouraging. It looks like the most common answer is you have dedicated staff that is regularly checking out your bills, diving into them, understanding your usage, so that's really important. And most of you – the vast

majority of you at least look at them sometimes, so that's great to hear.

All right, Jasmine, you can go ahead and move on to the next poll, please, and I think this is our last one. So what are the barriers that your organization experiences related to understanding and analyzing your water bills? So this is a short answer. I think we might get a little word cloud up here, maybe just a running list. What are the things that prevent you from spending that time and dedicating those resources to getting into your water bills and understanding your usage? It looks like time is a big one and just resources, staff, et cetera. I saw complexity in there, too. We've got a lot of information coming today that should hopefully help you parse through some of that. Incomplete bills, not enough information provided – interesting – time and resources looks like a really common one. This is great. Different bill formats, so maybe across your portfolio maybe you've got different utilities that have different formats and it's tough to parse through that. Low cost is an interesting one, yeah. Outdated billing, multiple sites and providers, hard to validate – okay, great.

Well, I think we're probably not gonna get quite as much participation in the short answer one as some of the other polls. So I think we've got a couple more typing so we'll give them just a bit to finish up, but it looks like one of the most common themes is lack of time and staff to dedicate to doing this. I think that's a challenge for this as well as energy efficiency. That's always one of the big barriers that we hear from our partners. But hopefully today you learn some tricks and ways to maybe make that a little more efficient and understand some of the importance of checking of this out.

All right, I think we'll close that poll there, if we can go on to the next one? Great, thanks. Okay, so thanks for those responses. Before we get into our speakers, I'm gonna do a very brief presentation on today's webinar topic and the Water Savings Network a little bit. Go ahead to the next slide, please.

So the Water Savings Network is a component of sort of a subprogram of the Better Buildings and Better Plants suite of programs. We do a number of things. We work with our partners on data submission on their water usage. We put together quarterly newsletters on water-related water use and reuse and water efficiency related topics. We put together resources and solutions, publish webinars such as this one. We host a number of peer exchanges and working groups as well, all manner of things

intended to get peers talking to each other and understand the ways that we can learn from one another on how to save water in order to save money and to save energy.

We have over 60 partners. Over ten of those partners have achieved their water goals, though I should clarify that it is possible and not required to join the Water Savings Network – you do not have to set a water efficiency goal with us. We certainly encourage it. You know, having a goal and something to strive for is really one of those key things that helps drive action and progress. But we are willing and able to work with folks on the Water Savings Network in all manner of way. If you're willing to contribute to some of our resources, participate in webinars and peer exchanges and things like that, we'd love to have you. So please e-mail us if you would like to get involved with the Water Savings Network. We should have our contact information up at the end of the webinar today. And we've got over 150 solutions published up on the Better Buildings, Better Plants Solutions Center, which you guys can all find, that cover a number of different sectors. Next slide, please.

So I mentioned we have over ten goal achievers. Their logos are listed on the right here. But through 2021, partners had saved more than 13.5 billion gallons of water. That's enough water to fill more than 20,000 Olympic-sized swimming pools. So really this community of companies and organizations that is driving water efficiency and committing to sharing their best practices and their data is really making a huge impact and we're really appreciative for all of our partners, in addition to these goal achievers listed here. Over \$13 billion in cumulative water savings and over 150 solutions published on our Solutions Center. Next slide, please.

And again, so we have the partners on the last slide, the goal achievers on the last slide. Here is a list of all of our Water Savings Network participants. Again, there's a variety of different goals listed here, goal formats. Some partners joined without a goal. But all of these partners are contributing in some way to this network and this knowledge sharing in the Better Buildings, Better Plants Water Savings Network. So we really appreciate everyone's participation on this screen here. Next slide, please.

So again, just to wrap up, the Water Savings Network is a way for partners to engage with DOE to track a water reduction goal across all or a portion of their portfolios or to participate in peer exchange activities and gain recognition for solutions. Water efficiency is really important, not just for the operating costs, the reduced cost

of your water bills themselves, but also the reduced cost of energy to transport and heat and cool that water, as well as to pump it around your facility. It improves reliability, saving on – being more water-efficient increases reliability, improves water quality, and is a really valuable activity for your organization to prioritize. Again the commitment is flexible, but you commit to participating in water-based Better Buildings activities such as tracking or reporting water data, publishing solutions, or sharing best practices and lessons learned in a variety of formats with your peers. Next slide, please.

Again, super easy to join. Visit our website. Reach out to one of us. We'll have contact information at the end. One of our Better Buildings and Better Plants e-mail addresses is listed at the bottom there, and then we've also got an introductory webinar that you can check out for a little bit more detail in addition to the information I gave here today. Next slide, please.

All right, we have got a great lineup of presenters here for you today. We have Alex Botts of Oak Ridge National Lab and Don Nichols of Carlisle, a Wendy's Company franchisee. First up we have Alex Botts. Alex Botts is a research associate at Oak Ridge National Lab for the manufacturing science division and as a technical account manager for the US DOE's Better Plants program. She completed her bachelor's and master's in industrial engineering from West Virginia University. During her education, Alex worked at the West Virginia University Industrial Assessment Center conducting energy assessments and research on small and medium manufacturing facilities. Her primary focus of research was on twin tower desiccant compressed air driers. Ms. Botts is continuing her research in energy-intensive systems found in manufacturing, with an emphasis on compressed air systems. Alex, go ahead and take it away. I'm gonna hand it off to you to kick us off.

Alex Botts:

Great, John. Thank you so much for that introduction. I appreciate it there.

So my name's Alex Botts, like John said, and I am a technical account manager for the Better Plants program. So hopefully some of my partners are on the line. I will be asking you about it if you are. But today I'm really talking about understanding your utility bills and particularly your water bill. So I'm gonna start of talking about a little bit about the program just so you have an idea of where we're coming from. I'm then gonna talk a little bit about water bills, what to look for, the most common things you might find on a bill. And then finally I'm gonna talk about one of our

software tools that you can utilize to analyze your bill. So we are gonna go through all of those portions during this demonstration. Next slide.

So I'd like to start off talking about the Better Buildings, Better Plants program just a little bit. I know John did touch on it there, so I won't harp on it too long, but I like to tell people where we're coming from, right? People get a little skeptical when we say we have free resources and free guides and free everything in the program, right? So people tend to get a little skeptical, so this is why we're here, right? So we are funded through the Department of Energy, Better Plants and the Better Buildings program, and we're really here to help our partners better manage their resources and give them the tools they need to manage and more efficiently use their resources.

So obviously we're Department of Energy, so we started with the energy goals with our partners. We've then moved on to this year adding a water goal, a more official water goal for our partners. So similar to our energy goals, partners have the option to add that water goal on. This past year we've actually added and solidified our waste goals with our partners. So before then we were in a pilot, and now our partners can set an official goal with us. And finally we have added a carbon goal for our partners. So if they choose to join the Better Climate Challenge, then they can set a carbon goal with us as well. Next slides.

For Better Plants, which is aimed more towards water treatment and manufacturers in the US, the industrial sector, we have four main categories of resources that we can offer our partners. Again these are all free, so even if you're not industrial or you're not a partner, you can go find these. They are available online. Particularly today I'm gonna talk about the no-cost software and tools, so you'll hear me talk about one of the tools that we use for water analysis. And we're also gonna be talking about one of the no-cost resources and guides, so the guide that has to do with the water bills. We also offer training and education for our partners, so – and webinars just like this one. They are online. We have a ton to choose from. We also offer in-plant and virtual in-plant trainings to our partners. Recognition opportunities across Better Buildings and Better Plants for our goal achievers, as well as opportunities to publish case studies or solutions in our Solution Center. And finally the last category here would be innovation in the labs. So I'm located at a national lab and DOE has several national labs, 17 across the US that our partners have access to.

And through them, we have lab technology days, field validation program, and resources such as those. Next slide, please.

In the industrial sector we have over 250 partners. You might recognize your logo if you're there. You might recognize someone other big name logos, right? So you take a look at them there. I always like to share this slide to solidify that, you know, we've been around the block, we've been doing this for many years, and we've partnered with a lot of people. Across Better Buildings and Better Plants, there's actually more than 900 commercial, public, industrial, and residential partners. So that's a great number of partners that we work with and that we design our resources for. Next slide, please.

So let's jump on in, right? So I told you why we're free – we're here to help you – so let's talk about one of the guides that we have available for you. We've actually developed a series of documents particularly looking at understanding your utility bills. One that I'll talk about today will be the water bill document. So this is a long document, so I'm gonna give you the short SparkNotes version of it. But we also have a longer document for you to look at the Solutions Center as well as documents about natural gas utility bills, electricity bills. We've also featured a demand response for industrial facilities that's not listed here, but those are all available online as well. And there are webinars to go with those as well if you'd like to look at recordings about the entire document. Next slide, please.

So I'm gonna go into a little bit more detail about the guide itself. We're gonna talk about what you should see in a utility bill, where those numbers come from, aspects like that. Why did we make this guide? It's because utility bills are important, right? Water bills can be hard to decipher sometimes. I've seen utility bills that are extremely long, very detailed. They have every single calculation laid out for you. And I've seen utility bills that just tell you a total, right? So they're very short, kind of a hidden black box. You've got to figure out how they're calculating it. So we're trying to uncover that and make it easy and more successful for people to understand.

Some other things about bills is some charges might appear every month. Some might only appear only once during the time of the account. It's important to understand how to read your bills just so you're able to better use your resources and use your cost rate. So the guide itself covers the basics of water and sewer bills, and I do like to point out that this is only for utility water. So if you self-source your water, we did not cover that. That's outside of the

scope of this document. So if you collect rainwater or you collect your own source water or maybe well water, we did not cover that in this document. This is aimed more towards utility-based water. Next slide, please.

To start, we're gonna start with the urban water cycle, right? So this is a little bit different than your traditional water cycle where you evaporate and precipitation and whatnot. It's more of a cyclical cycle that we have here for the urban water cycle. You'll see that water is a bit different than the other utilities that were part of this series. Whereas natural gas and electricity you produce, you distribute, you use it, and that's pretty much the end of the line, right? The energy is put into your product. For water, this is a very cyclical path instead, all right? So once water is used, it rejoins the cycle and will be treated and reused again and continue that cycle continually.

So to give you an idea of what's happening of this cycle, water's pulled into the treatment facility from your local sources there at the top. That might be groundwater, that might be rivers, whatever that source water is nearby your water treatment facility. The treatment facilities will then physically and chemically treat the water and balance it so it's at a potable level and will remove those harmful substances and pathogens. Treated water is then distributed through a system of pipes managed by your local utility, and then it will be sent to the point of use. That could be commercial, industrial, residential, right? They're all a part of this cycle. After that point of use, the raw water is collected, or your sewer water via a sewer system that is piped back to a wastewater treatment facility. This is where the raw water is treated to a level that is seen fit for environmental discharge and it'll go back to your local sources. At this point, you'll see the cycle begins again. Next slide, please.

So key components of your bills, right? You'll see that there are six main components here. These are pretty much on every single bill you're gonna see regardless of who they come from, the first being the meter number, and that number will correlate to what is on your meter itself. I'll talk a little more about that later. Your second is a meter reading, and that reading can be estimated, it can be an actual reading, but there'll be some volume on your bill to tell you how much you have consumed over the past billing period. On the right you'll see all the charges, so in this case you'll have a usage charge and a sewer charge. Those are based off the volume that is used at a facility or at a site of some sort. You may also have some miscellaneous fees, and I'll talk a little bit more about those fees.

You'll see here we have listed a metering fee, a fire line fee, and a storm drain fee. These can be riders or any miscellaneous fee that you'll have to pay, whether it be fixed or variable costs. And then finally you'll have your taxes, fees, and penalties, and the summation of those will be the total of your bill. Next slide.

So I'm gonna talk about some of the different parts of the bill, so some of the key portions. So the first is gonna be your consumption charge. You'll see here that your consumption or usage charge – either can be used on a bill – is the total volume used at your facility, whether that be residential, commercial, or industrial, right? Typically in the US we see this measured in gallons or cubic feet of some sort. So it might be 1,000 gallons, it might be 100 cubic feet, but those are typically the units you're gonna see. It's also important to note that not everyone has a sewer meter. So if you only have one meter, then that's measuring your incoming water. You're probably gonna be charged the same volume of water for what's exiting your facility, right? So they assume water in equals water out.

On this slide you'll also see that there are three different styles of meters that we typically see: analog, digital, and dials. All of these are very commonly used still. Each of these will show the exact same number. The analog is a rolling tick dial with the ones place reading with a sweeping hand. The digital will be just like reading a digital clock. And the dial is each tens place is read with one of those hands. Each of these will have a unit of some sort that tells you the gallons or cubic feet, a low-flow indicator, a meter number, and usually a meter size of some sort. Next slide.

The next most common charge you'll see on your bill will be your sewer charge. So again, like I said, without a sewer meter, water in equals water out. If you do use a lot of water, then we do recommend you ask about a sewer meter. So a facility that uses a lot of meter might be – or a lot of water might be industrial of some sort, so maybe you make beverages and you put it inside your product. Maybe you have a commercial kitchen and you do a lot of baking and you evaporate all that water, right? So if the water isn't going back into the sewer, you can either look into an evaporation credit, right, which you can calculate and prove how much is being evaporated, or you can look at getting a sewer meter to help actually meter the volume of water. Some other facilities may also be able to clean their own water and skip that wastewater treatment or be able to avoid the sewer treatment surcharges if the water is so dirty. Typically you see this in more industrial facilities

where they can clean the water themselves and then discharge it back into the source water. Next slide.

Speaking of industrial water and sewer, we like to point these out to the industrial customers 'cause sometimes they might not know about these options. So the first is gonna be industrial water. So industrial water is not as rigorously treated as regular municipal water that you receive at your home. It can be used for process water that is non-sensitive products. So maybe you're washing a product or you're washing parts and you don't need the top-tier cleanest water, right? Then we would recommend maybe looking into industrial water. This would cost less than municipal water, so this would actually save you money if you're able to use this type of water.

Industrial sewer on the other hand is the opposite. So industrial sewer would be the raw water leaving the facility. It is extra, extra dirty, right? So it's not like the typical water you would see leaving your home. This treatment process is longer, much more involved. It costs more money for the treatment facilities to do and it's used when the water is too contaminated for regular municipal treatment. And this will cost more than municipal water, so if you're able to clean your own water, you can avoid those problems. Industrial water and sewer is not always available, but you would have to talk to your utility provider to find out. Next slide.

The next part of the bill that we like to point out would be your riders and fees. So these are usually several charges listed on your bill. Riders are considered modifications to your rate structure, so they're something on top of your volume charges. Usually these are very descriptive and they serve a very specific purpose, right? So to change a tariff it's a big deal, so it's very descriptive what these charges go into. You'll see the four most common that we actually found were storm drain fees, which is used to upkeep the storm drains in the area. So the more you build, the higher your storm drain charge is gonna be because you're taking up more of the ground space that will absorb that water. The next was a fire line fee, so that guarantees water is available in case of a fire. Standby fee, which is similar to like a demand response in energy. And then finally was that sewer treatment surcharge. So if your water is extra, extra dirty, you're gonna be charged for that extra dirtiness. Next slide.

On your bill you might also see some non-water charges. So this has nothing to do with the water; it has nothing to do with the volume. These are just extra fees or charges that you might see on

your bill. Sometimes these are fixed, sometimes they're variable, and some of them can be avoided completely with a little planning. So these again are the most common that we saw. You might have a customer fee or a meter fee. Sometimes those are used interchangeably. Sometimes you might see late payments or insufficient funds. So when we say maybe a little planning could help avoid it, that's what we mean. Pay your bill on time and you would avoid that charge.

And then that final bucket there would be local taxes, state sales tax, other taxes that might be associated with your utility. Some states do allow for tax exemptions, particularly for manufacturers. So if you are a manufacturer, look it up. You might be able to completely avoid that tax charge altogether. Next slide, please.

So earlier I mentioned rate structures and how you are actually charged for your consumption. You'll notice that these are the five most-common rate structures that we saw for utility bills, particularly block structures for water. You'll see the top three are considered block rates. So the first is a uniform rate where, as you increase consumption, the unit cost would stay the same. Decreasing block rate, on the other hand, would be the unit cost of water decreases the more water you use. After that consumption tier is full, you'll move on to the next block, and that next block will be at a cheaper rate. Most often this rate is actually found in rural areas for agricultural use or in heavy industry where there's plenty of water available. An increasing block rate, on the other hand, is the opposite. So as you fill up that tier, the unit cost will become more and more expensive. Typically you see this in urban areas where there's not a large water supply and they want you to conserve or be more restrictive with your water usage.

In the water bills that we saw, we also saw some time of use pricing. The two most common we saw were drought rates and seasonal rates. Drought rates are just like they sound. In areas that are prone to droughts, they might experience them intermittently. When rainfall is limited, the water cycles lessen and it requires those regions to conserve that water. So to encourage that conservation, they will actually increase that unit cost during a time of drought. And that cost will actually be variable depending on how severe that drought is at the time. The other one we saw was seasonal rates, and that's very similar. So you might have an offseason and an on-season. Your on-season would be probably towards the winter where you have more precipitation, and your offseason would be – or your on-season, I'm sorry – would be in the summer where you don't have a lot of precipitation, right? So

your cost is going to increase. And typically that's an on or off and not variable like the drought is. Next slide.

The last thing I really want to point out about the bill here before we talk about cost saving opportunities is calendarization. So this is important for all sectors, but we find it's especially important for industrial partners. And what do I mean by calendarization, right? So the billing period on your bill might vary, right? It might not be from the first of the month to the thirtieth of the month. It could be from the fifteenth to the fifteenth, and that kind of skews your monthly water. So what we do is called calendarization and it's a normalizing process where you can actually shift that water and do a little math there and calculate what would be your total water usage from the first to the thirty-first. We do have a tool that can help with this. We're working on our utility tool Verify, and it will actually help you do this calculation. Next slide.

So here are some opportunities we have listed for cost, energy, and water savings here. You'll notice that I've gone over most of these, but you'll also notice that this has nothing to do with your volume of water. So this is just by analyzing your bill. The first is gonna be sewer water metering. So make sure you know how much is going to the sewer. Your evaporation credit might be an option to save you some money if your water's being evaporated. Make sure you're discharging the water to appropriate places. So if you don't need to use the industrial sewer, don't use it. And then make sure you have a suitable source of water, right? So use industrial water when you can. Next we have avoiding late fees, we have analyzing your water usage so you have a better idea where your water is going and how to focus your attention, tax exemption that I mentioned depending on your state, and then finally recreate your bills. And we mention recreate your bills 'cause you have one of three options there. You're gonna calculate it and it matches; we're all hunky-dory and we move on. Maybe you find out you're on the incorrect rate structure and then you can get that changed and save some money, or you might find a calculation error. So again, all of these are options that will save you money without changing your volume of water, so that was important there and we tried to focus our energy there.

So that's pretty much how to understand your bill and how to read a bill and cost saving opportunities that you might find just by analyzing your bill. So next – next slide please – analyzing your bill. You have an idea of what's on your bill. You have an idea of what your tariff is. So now we need to look a little bit more at the analysis side of things, right? So maybe you do want to save some

volume of water. What's the next step? So I'll be talking about the Plant Water Profile tool that we offer. Next slide.

The Plant Water Profiling tool, or PWP as we call it for short, is a Microsoft Excel tool, right? So we've made it easily accessible. You download it. It's an Excel sheet and it helps manufacturers or industry of any sort really perform a facility-level water assessment. So this can be used in commercial; this can be used in industrial. It was designed with manufacturers in mind, but it is completely applicable in other sectors as well. You'll see that we go through this three-step process for a facility-level water assessment, and then we will produce graphs and help you figure out what's going on with your water. I did include the links here and I think it's included at the end of the presentation as well. Next slide, please.

So I mentioned that the Plant Water Profile uses a three-step process for an assessment. So the first step is going to be baseline your water use and perform a water balance, so water in equals water out. In this case, water out might mean in a product, it might mean evaporated, it might be a loss of some sort, it might be recycled within your facility. The real focus here is you want to know where your water is going. So if you bring in water, what's happening? Is it being recirculated? What process is consuming the most? Is your commercial kitchen using all this water? Where is it going, right? The idea here is we want to match your bills, what comes in, what comes out, right? And if they're not matching, that means you have unknown losses or unaccounted for losses. So we really want to focus on figuring out where that water is going, and that way you can focus your attention on processes that might consume an enormous amount of water. Next slide, please.

So the second step after you baseline is to determine your true cost of water. This is an important step. By true cost of water, what I mean is you find the hidden fees associated with water that aren't a part of your bill, right? So you'll have a unit cost, but what about moving the water? What about pumping the water? What about heating the water or cooling the water, right? Each of those will actually put more money or energy into the water, and that needs to be accounted for on top of your bills, right? So we can help you do this through several calculators. Maybe you have a cooling tower and you need to figure out how much energy is being put into the water. We do have calculators built into the tool that will help you with this calculation. True cost of water is really a great tool when trying to figure out an ROI or a simple payback for water projects just because it gives you a better picture of what's

actually happening with that water cost. So it's a great management tool. It's a great tool to use when looking at other projects and assessing the capability. Next slide.

And then finally at the end of the tool we're gonna identify water efficiency opportunities, right? So you baseline, find the trust cost, find opportunities, right? That's why we're here: to save water, to save money. To do this we benchmark you with industry averages. So you tell us your NAICS code and then we'll compare you and your answers to a database of other sectors and industries that we have. We will also produce report graphs that can be very useful. I believe that graphs can speak a thousand words, right, especially when you're speaking to management and you're trying to get your point across or you're talking to someone who is not as familiar with water or energy. And then you can actually use it to show what you're talking about, right? And then finally we list possible saving opportunities, common opportunities you might find based on your answers, and just places for you to maybe look a little bit closer to save that water or save that cost.

And that's pretty much the tool, right? So I've simplified it into three steps. It does require a lot of data and a lot of information, but these three steps are really going to give you a self-assessment that is worth your time. I like to always say you get out what you put in, so if you get really good data and you put in really good data and real quality data, you're gonna get a better quality analysis out. So just keep that in mind as you look through this tool and you look at the example and walk through this with your own facility. Next slide.

So that's all I have today, talking about water bills and the tool itself. I've also included a link here to the Better Plants resource library. So if you're interested in any of our other resources, we do have them listed there for anyone to use again for completely free. Back to you, John.

John O'Neill:

Excellent. Thanks so much, Alex. I'm a huge fan of the Plant Water Profiler tool. We talk all the time about, you know, how saving water saves energy, and that tool really helps you quantify and understand just how much that is true.

Our next speaker is Don Nichols. Don Nichols is the chief development officer of Carlisle LLC. Carlisle LLC is a restaurant and hospitality business rooted in real estate development. Don began his career in manufacturing in 1978 after graduation from Memphis State University, also known as the University of

Memphis, with a bachelor's in engineering technology. He was instrumental in overseeing five manufacturing plant startups, and in 1998 he joined Carlisle. He has been a part of the growth from 43 Wendy's restaurants to the current 165 restaurants across eight states. Don has been married to his wife Sharon for 48 years and enjoys spending time with his children and grandchildren. Don, take it away.

Don Nichols:

I can do that. Good morning and thank you for having me this morning. I'm not sure why you invited me, but I'm gonna give it my best layman's shot and a cheerleader of water management as a resource as well as a cost avoidance. So again, thank you.

Let's talk – I thought it would be interesting and a bit humorous about putting – talking about water in a 12-step program, 'cause I think sometimes we are a bit in denial about water. I think it's becoming more and more on the forefront of just how sensitive a resource this is, as well as how costly water is becoming and its treatment. Next slide, please.

So I think that we have to decide is water really important and its conservation and protection. I've been on the soapbox for over 15 years now about water, not really as much about the importance of the resource as the cost. I believe if you went back and looked over at least the last ten years, water has been on a – water and its treatment has been on a rapid incline of seven and a half to ten percent increase. You know, it's a low-cost commodity and something just like air that we use. We breathe it, we don't think much about it, and everybody touches it. But it's expensive, and yes, we cover that cost with sales increases and taking price. But if you look at it as a percent increase commodity, it's a big ticket and it will continue to become a bigger ticket as this resource depleishes if we don't do something about it. You know, approximately 60 percent of our body is made up of it. We can't survive less than five days – five days or less without it. And it's just money. So we might as well decide if it's important to us. Next slide.

So you know, then we decide are we gonna denial and we're not gonna through 12 step or do we have a problem? Well, the problem hit really at home for us in our Wendelta Wendy's subsidiary in that the in the great state of Mississippi we have 73 Wendy's location restaurants. Jackson, Mississippi was national news about their infrastructure and the condition it was in and the impact that it was having on the water quality and water performance to the town. And so it hit federal news and federal is

still involved. And so every municipality across the nation's ears got pointed and decided that they'd better do something about it, and of course that's driving costs on the treatment side as well as the inflation of the water cost itself.

If we take a look at the resource itself, you know, areas that thought they were protected forever are now in distraught. Lake Mead – I mean, that is a scary example. And believe it or not, over here in the southeast where we would've thought we would've never experienced drought issues, you know, we're eight inches below this year and the Gulf Stream has changed. So, you know, water impacts everywhere. For the most part, the United States is not a desert and it, like other countries, doesn't struggle. But water is a serious business, I believe. Next slide.

So regardless of who you are, whether you're the homeowner or a retail operator or a commercial establishment or an industrial establishment, you know, jump in somewhere. You can immediately begin learning and making a difference. Next slide.

Start somewhere. Start looking at your bills. Start familiarizing yourself with the bills. Start collecting data. You can do it individually and you can move that collection to someone within your team. Let me speak real quickly to I have a tremendous team of folks that have joined in the – I've sprinkled some of them in water baptism and I have immersed some of them in water baptism. But this team can help you immensely as you raise the awareness, collect the data, identify the intensity of where you want to put your finger and what it is you want to do, in actions and in capital investment, and you will begin seeing the improvements of – the fruit of what you're harvesting, the difference you're making. Next slide.

With the data that you gain, set target goals. And I've been playing around with this for over 15 years, and I would tell you just go slow and don't try to take too large of bites because I think you blur your visions, whatever you – industrial or residential, either one. Celebrate those accomplishments. And then once you believe you've got control of that that you're on, which you never really will because so many people can impact the goals that it's a bit like water whack-a-mole. But celebrate those accomplishments, and then occasionally when there are setbacks, readjust and identify with your team how you're going to try to minimize those setbacks and keep pushing forward. Don't get discouraged. Next.

I love trend analysis. The more you get involved, the more data you get, the rolling 12, the rolling 24, the rolling 36, the gallons or cubic feet that you recognize are where you should be, or at least you should be in the stream of improvement of where you're going, is amazing stuff and great information to share with you and folks that haven't joined you yet so that they understand the impact and where you're going with this and what they could do to help you by putting their hands on the handles as well. You can't hit and miss at this. You've got to do it routinely. I'm not sure what that routine for you is. It could be quarterly. It needs to be at least monthly, and it could be better than that. But it's got to be routinely and it needs to be communicated consistently. Next slide.

Okay, number six – we're halfway there. But everybody that we talk to – remember one thing. There is no silver bullet. There is no one-button fix. There's no anybody you can hire that can do this for you the way you can do it for yourself. And even if you do, it's gonna be expensive. So if you just ease into the water, start biting that elephant a bite at a time, and adding to your team and making them become believers, show your boss the financial impacts that you're making, I promise you will be successful and you can celebrate nearly every month if not quarterly. Next slide.

Part of this program is getting familiar with your utility provider, gathering your account information so you can speak specifically to them, how the billings are measured, gallons, cubic feet, hundreds, thousands, who they are and whether or not they offer sewer credits when large losses occur, understanding that your billing partner – they make errors, too, and so do their meter readers. So no need to be shy about asking for a meter reread or telling them that your meter's not working or that they need to go out and check because something on the back side of your water line seems to be a problem that's not yours. So go ahead and start having someone become familiar with your water utility provider. Next slide.

Avoid sewer fees. Sewer fees is one of the ways that they are making – covering their costs for water. And they're anywhere from two to six times – my guess is somewhere in the United States they're even higher than six times the cost of the base water itself. So whenever you can segregate irrigation water, surface cleaning water, or any type of industrial use water out of the sewer source, then you're ahead of the bill by taking that off. You know, you've got to look at your taps, what those cost to put in, but normally segregated taps for process water and irrigation water over time are much less expensive than just allowing yourself to

combine your sewer into that domestic cost that you might be able to carve out. So go ahead and at least investigate it, and then do the math times ten years and figure out whether or not going to that upfront expense is worth it. Next slide.

Technology: there are tons of really good mouse traps out there, and I mean that in a respectful way. There's tons of things that will work for you, software and hardware. Some of them are very cost-effective; some of them are very expensive. But – and it's very – there's a lot out there and so you have to identify what works best for you and how that fits in your path towards resource importance. You've got to do your ROI math. You've got to do your resource importance math and whether or not those investment calculations on money and resource protection work for you. But there are things that help, but there are a lot of things out there and so many things that you can't watch them all at work. So you have to take a look at what is best for your organization. Next slide.

Most important: building a team, the awareness, the involvement, the acceptance, and then claiming that – and doing what needs to be done. Next slide.

You build a team. You take that data; you share it with everyone. Why everyone? Because everyone uses water. You know what? Because everyone uses toilets. And so you think everyone touches water. They touch the faucets. They touch the hoses without the nozzles. They touch the floats on the industrial washing baths, the valves, baths, they touch it all. So building that team and getting everyone aware is absolutely imperative to the control of water and its cost. Next slide.

Somebody's got to be the boss. Here at Carlisle, I happen to be known as the witchdoctor of water. Even though my title is CDO, you know, everybody knows me for asking and prodding them about water. Just in three years when we actually joined and began treatment, our water improvements are at 28 percent. This shows 25.9; we tweaked it a bit more. But we've been working in water for at least ten years, and so that just shows the amount of continued improvement if you can build a team and build awareness within that team and get a commitment and be a boss. That means you get to celebrate and praise meeting and beating goals, but you also have to be a bit lovingly punitive when in fact they take their eye off the ball. And that water whack-a-mole happens a lot everywhere, from residential to industrial, and it just does. And when it does, you need to be on your game, watching

your information, and ready to respond so that it doesn't happen again. Next slide.

Look, this BBC, DOE, and Wendy's has been extremely instrumental for us. It allows us to compare, compete, trade tricks with partners outside the organization. And just about the time we think we got it right, we have competitive neighbors that come in and show us just how much better they're doing certain things. So it's an unending quest to be better. It's an important project to protect our water resource and at the same time can be fun. It doesn't have to be – take up all your time. And by the way, once you start doing it for five or ten years, you save enough money and protect that resource that you can go in and tell your boss that he ought to pay you more because not only you're covering your salary, you're probably covering one or two of your members' salaries in those cost avoidances. I don't know how he'll take that, but the proof will be in the pudding and he'll be happy for it.

So with that, I don't think I have another slide – next slide? You know, come join us at Wendy's. We are in the southeast. We cover eight states and would love for you to come see us across the nation. But Dave Thomas says quality matters, treat people respect, and we want to do the right thing, and we believe that water is one of those right things. So with that, I thank you for your patience and your time and have a happy holiday and a Merry Christmas. Thank you.

John O'Neill:

Thanks so much, Don, and thanks to both of our panelists for their insightful presentations today. Before we transition to the Q&A, I want to encourage everyone to download the additional resources handout that was just shared in the Zoom chat box. This contains links to some of the resources from Better Buildings and from our speakers on today's topic, so hopefully you find this useful.

All right, we're gonna move on to the Q&A next, so if you haven't already, join us over at Slido.com with event code DOE. We're just gonna have time for maybe one or two very quick questions. The top-voted one it looks like: "Do you have any advice on jumpstarting communication with unresponsive water utilities?" Don, do you want to take a crack at answering that one?

Don Nichols:

Absolutely. And so it would be my suggestion that – when I reach out – covid had an impact on that for sure, but let's – post-covid, you know, you start with a phone call; you don't get response. You move it up to the supervisor; you get an e-mail contact. I'm dealing with one right now that I'm not having much luck, but I went out to

– I even went as far and went to a project engineer who had nothing to do with billing but gave me an inside contact. So you may have to end-around it, and all I can – the advice I can give you is do not allow their procrastination to cause you to quit. And so be persistent and you will get there. I promise you.

John O'Neill: Great, thanks, Don. And then maybe very quickly, Alex, if you want to take a crack at the next one? "Can you explain how submetering can influence tracking and reducing water usage?" If you've got a quick response to that?

Alex Botts: Yeah, absolutely. Well, in short, submetering itself doesn't save the water, right? So submetering will give you the data and the power and the information to make more informed decisions, but submetering itself will not save you that water, right? So it gives you the data to make that decision or maybe to find failures, to fill out that PWP tool. But at the end of the day, you have to use that data to better your water usage. So in short, that's what I've got, John.

John O'Neill: Great. Thanks, Alex. Just to wrap up really quickly here if we could move on to the next slide, thank you to everyone for your questions and to our panelists for their insightful responses and presentations today. This webinar was a part of 2022-2023 Better Buildings Webinar Series. As you can see, we've got a great lineup of presentations coming up for the next few months kind of going through March. Visit the Better Buildings Solutions Center to learn more and register. Next slide, please.

We hope you'll join us for the next one in the series, which is on December 13th and is titled Electrification Station: Decarbonizing City Buildings and Fleets. Join this one to learn from Better Climate Challenge partners about how electrification programs and strategies could make a difference in your community. Next slide, please.

I also want to remind everybody that the next Better Buildings, Better Plants Summit will be taking place on April 11th through 13th of 2023. This event will feature engaging and interactive sessions and opportunities for attendees to network with their fellow industry peers and experts. We'll be in person again this year in the heart of Washington DC. Registration is coming very, very soon, so visit the Better Buildings Solutions Center to learn more about that.

And with that, I would like to thank our panelists once more for taking the time to be with us today. Please feel free to contact the presenters directly with additional questions. I know we had several that we didn't get to today. Or if we could answer any questions, you could also reach out to us as well. I encourage you to follow the Better Buildings Initiative on LinkedIn and Twitter for all the latest news. You can find our handles on the left half of this slide. And you will also receive an e-mail notice when today's recording, slides, and transcript are available on the Better Buildings Solutions Center. Thank you so much, everybody, and have a great day.

[End of Audio]

The Thrill of Bills: Understanding Your Water Bills to Save Money and Energy

Additional Resources

Learn more about the topics discussed on the webinar by visiting the resources below.

Better Buildings Resources

- [Article](#) on Carlisle, LLC, a Better Buildings Challenge partner achieving water reduction goals
- Water Savings Network [webpage](#)
- Plant Water Profiler (PWP) [Tool](#)
- Better Buildings, Better Plants Water Savings Network Introduction [webinar](#) held September 30th, 2021
- Saving Money by Saving Water [webinar](#) held January 11th, 2022
- Better Plants [Resource Library](#)

Explore more resources on the [Better Buildings Solution Center](#)

Up Next in the 2022-2023 Better Buildings Webinar Series

Electrification Station: Decarbonizing City Buildings and Fleets

Tuesday, December 13th from 11am – 12pm ET

Cities are electrifying their municipal buildings and fleets to meet local greenhouse gas reduction goals. Learn from Better Climate Challenge partners about how electrification programs and strategies could make a difference in your community.

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