

*Male:*

All right. Good afternoon everyone out in cyber land, or good morning to you out on the West Coast or potentially abroad, across the seas. This is Thomas Wenning with Oak Ridge National Lab. Real excited that many of you are joining us today for a webinar on the DOE's new MEASUR tool suite.

We're really excited to be presenting this and showing it off. This is a duplicate webinar. We held one, two weeks ago, so we're really excited that all of you were able to make it today. We will be recording it so if for some reason some of you have to jump off to run to a meeting, we will have a recording for later viewing pleasure.

So with that I'm actually going to turn it over for a little bit to our DOE Program Manager, Sandy Glatt. Sandy.

*Female:*

All right. Thank you, Tom. And again along with Tom I want to welcome everyone to this Introduction to the New DOE's Energy Assessment Tool Suite that we call MEASUR. Tom, you want to go to the next slide, please?

I'm presuming that most of the folks that are participating in this webinar have some background and history with the DOE Energy System Assessment Tools that we've had in what's now called the Advanced Manufacturing Program for in some cases pushing 20 years now.

If you aren't so familiar with those tools there might be some information that doesn't make a lot of sense, but for the most part, the majority of what you're going to see today in the introduction to the new tool suite will be just fine and you don't have to worry about it.

But just for some reference and background for those of you that have been engaged with us for in some cases many years, we currently host a variety of different software tools we've developed, and we host a variety of different software tools within the advanced manufacturing office.

We have a variety of tools that support our energy management functions and priorities. You can see that list on the left hand side. Those tools are not what we're going to be talking about today, and they are not included in the, at least for now they're not included in the MEASUR tools.

What we are focusing on is the list of tools that are on the right hand side. We've called these our energy system tools, or our energy system analysis tools. They are focused on the major systems.

Motors, pumps, fans, compressed air, steam, process heat, data centers, which is not hosted in this, but we've developed resources on and lived elsewhere that are available or these systems that exist in pretty much any manufacturing or industrial facility. So next slide.

So historically, that list of tools that I went over were developed starting back in the mid to late 90's and into the early 2000's. We are pretty proud of the work that was done in developing tools. They were developed by what we consider to be some of the best of the best, the experts in these system areas.

The tools were developed to primarily be able to do a system wide assessment of the energy use in the specific area, and to then identify opportunities to improve energy performance or increase energy efficiency, reduce consumption, however you want to put it, or to work towards energy optimization.

They were developed they said over about a ten year period initially. The IT technologies, those of you can think back to the early 2000's and late 90's was extraordinarily different than it is now. We had tools that were actually developed in DOS if I'm not mistaken originally.

But as I said, the content of the tools, they've been well received. They've been in many ways sort of the foundation of a lot of work we've done in AMO over the years, but the IT compatibility and the ability for these tools to work in the modern infrastructure has been denigrating for years now to the point where many of them are almost dysfunctional.

The content and how they look at the energy system, and deal with the energy system, and the algorithms for assessments, and identifying opportunities, and optimization are all continued to be very relevant. Most of the work we've been doing is in the IT area.

Although we have had the ability as we've worked through this to also enhance and relook at some of the algorithms and some of the other areas expand to some extent what some of these tools do. So that's the background. We started this two years ago. We intend to be completed in about a year. Next slide.

So again, what we have really focused on is two things in particular. One is to insure that these tools will work now and will continue to work in the modern IT space. And also to go into an open source environment. So pretty much within the federal government this is, you know, I don't want to call it a mandate.

But it's really a priority that when the government develops these kinds of resources that they land in what is now the open source world, which means that folks can come in. They can access the source code. They can take it and do things with it that we may not want to do with it, including translate it into different languages or do things, add feature.

To some extent if the features or the functionality is changed and added, and we like it and we think it enhances the tool, we can then modify the tool to include it. In many cases that won't happen, and in some cases it may.

But the users can take the source code and if they need to develop, they want to develop it and make modifications to do things that are better for them, or do things that maybe we're not particularly interested in that's now available.

Again we pride ourselves. These are no cost, low cost, unbiased means to identify how energy is used in these systems and the system wide approach. We don't favor any kind of vendor or any kind of, it's not focused on pieces of equipment or promoting vendors or specific resources.

It's to understand how the energy is used in the system, and to identify what things and changes can be made to use it better. Is there another slide?

And I can, I'm going to turn it over to Tom, but just again one slide that we don't have here, but what this tool now does is it works on MAC and Office, as well as Lenox systems.

So it should work on any kind of operating system that you have, as well as eventually while this is still in a download format it ultimately will also be online, because we realize that there reasons to have it in an online format, as well as a downloadable format.

And potentially useable on tablets and the kind of again, contemporary IT opportunities. And so with that I will turn it back over to Tom.

*Male:*

All right. Excellent. Thank you, Sandy. So I'm looking through the list and we have a lot of folks attending today. And some of you are, honestly all of you have some type of connection to the DOE programs it looks like, whether that's energy experts. Whether it's industrial assessment center or students, directors, or some of our better plants partners. I see a couple of names on our list.

For most of you, you know all about energy efficiency in the industrial environment, and so this slide is nothing new to you. This data is really based on some of the historical DOE events, so the ON energy saving assessments and IAC data.

And really, the message here is that within all these systems there is a lot of energy consumption. Right? But most importantly there is a lot of energy savings. These systems haven't improved or changed wildly or dramatically over the years. The best practices that we're, you know, best practices 20 years ago are still relevant today.

And so there is still a need. There is still a driver to have tools and resources to really enable and equip individuals, experts out in the field, to provide that tool vendor service agnostic type of information. Right? There is still really great energy savings to be had.

In some cases we need help finding where those opportunities are, and others we need help calculating. And really that's where this measured tool frame comes into play. Okay. So just to reiterate and hammer home some of the ideas and things that Sandy was mentioning.

This is a radically different tool suite that we're developing. So one of the big pushes is this open source component. A major push and we're really excited about it because it's going to enable many, many more capabilities for us going forward. And for some of you out there, this may be really beneficial to you.

Open source in a nutshell just means there is no more black box. Yeah, DOE kind of owns the source code, but at the end of the day the public owns the source code.

So all of you can potentially if you're interested, go in, look at the source code. You can take it. You can run with it. You can develop businesses with it if you would like. The only catch or gotcha is

that just give us a wink or a nod that hey, we got it from the DOE. Okay?

Another really important component that Sandy was mentioning is this desktop, Web, mobile capability. We're developing all of this in a framework that's really going to help open the door for a vast array of individuals and end users. Okay. And again, the real purpose of all of this is to provide that technology and vendor agnostic information.

A couple more slide here. Just bear with me, and then we'll get into the real fun stuff, the real guts of today's stuff.

On training, many of you know and have been involved in some of the previous training efforts of the DOE. This is an area that's I would say still a bit in the flux. We're trying to figure out the right game plan.

But what we do know is that there are going to be a number of online resources, videos, things that are built specific for the tool and some videos potentially for helping end users to understand how to collect information to feed into the tool.

Through one of the DOE's technical partnership program, the Better Plants Program, we do still run some in person trainings through the Better Plants Program, and they're called in plant trainings. We only do maybe a dozen to two dozen of these events a year.

And really, it's like it's a combination of energy assessment plus training on how to do an energy assessment. Okay. We're pulling this new tool into that environment.

And then really the third area, which some of you are really familiar with, the old qualified specialist activities. We've really moved away from those and we're starting to look more towards market based solutions for those going forward.

So as an example, the Compressed Air and Gas Institute and the Compressed Air Challenge is really picking up and developing some certified practitioner work in that area. The Hydraulic Institute doing the same thing on the pump system certification.

We have some things to figure out I think in our fuel fire systems, but we're really looking for those market based solutions at that expert level, so really some more details to come here.

All right. Coming back to the tool just a bit more. Again, this is designed in an environment that is going to be extremely flexible. So for most of you you're either watching this on a Windows machine, or MAC machine. For the two percent of you that are out there that run a Linux, this new tool is going to work on that front, as well.

As Sandy mentioned, right now it's all downloadable. So it's everything is saved to your computer. It's run as a file from your local machine. However, at some point here in the near future we're going to flip a switch and the entire tool will get mirrored online.

So you can it through the internet. You can hit it from your iPhone or your iPad out in the field. We're working on some of those capabilities. It's to come. Right.

Again, this open source, we really want to keep pushing that because we want to work with folks, especially for some of you that may be a bit more on the coding side of the world. This may be really exciting for you. On that side, on the coding side of the world we do have everything available on our GitHub repository.

For most of you, you might be familiar with say Dropbox or Google Drive. GitHub is an analogous system for the coding world, where coders from everywhere around the world programmers can share code, contribute together. It's just an excellent platform for sharing that information.

For some of you engineers that are out there, if you really just want to see some of the code and algorithm that's built and baked into the tool, that's the place that we're going to direct you to.

And then a couple of last things as far as the technical aspects of this tool. We do have it set up so it's a common software engine library. Again, this is to get us more flexibility going forward into the future. And we have this auto update capability, which I think we're going to find is real exciting going forward in time to just make our lives much simpler. I'll touch a little bit on this later.

And then really, we're moving to a framework where there is going to be a consistent look and feel across all the DOE tools. So some of you may have used one or two of the old DOE software tools and you probably noticed that they look radically different and you use them in a radically different way.

We're really trying to streamline that so it's a simple, it's an intuitive process to move through the software. All right. Hang with me, with this death by Power Point stuff. We have one last slide, and then we're going to jump into the good stuff.

One more item that we really want to know, and we want to hear from you all. You all are experts. We want engagement. We worked with a number of you, but we really want to increase our stakeholder engagement. We really want your feedback. So even today's webinar, I want it to be more of a dialogue, a conversation. Maybe today is just a start of that dialogue and conversation.

We want to know what's working in the tool, what's not working. Is there any bugs? We want to know that, but more importantly some of the functionality built into the tool.

Sandy mentioned we had, we're working on replicating all of the existing capabilities of the old tools, but since we're doing that we're trying to build in new whiz bang features. Things that will make your life easier. And so as we're working through this, we do want feedback.

The tool that I'll show, while we think it's really great, it's not locked in stone yet. I would say it's still fluid. If there are things that's missing we want to know because there might be an opportunity that we could integrate and include some of those ideas.

So engagement. We really do want to engage. Please reach out if you're using the tool and you run into issues or things that we haven't thought of previously.

So I'm going to jump out of our presentation here and I'm actually going to jump over to, well I'm not going to jump to the tool yet. What I'm going to do is show all of you how we're going to get to the tool. And what better way than starting with Google. Google, I don't know, the start for many of us.

So if you're like me and you're looking for this, the new DOE software tool, and you're out in the facility it's as simple as DOE software tools. And for most of you it will pop up as probably the first, one of the first couple links here. So in this case, it's the one that's highlighted by our friendly Google folks.

I'll go over to the DOE site and it might, there we go. My computer is working a little bit better today. Here is our landing page that you can access all of the Department of Energy's energy management, energy efficiency software tool for industry.

So towards the top you can see we have our MEASUR tool, but below that we have some of the energy management tools for doing utility data analysis, for working towards an ISO certification system. And we have all of the Legacy tools still linked on this page. So a great resource for many of you.

If we click into some of these we'll go to the MEASUR tool and we'll wait for that to pop up. Man, it's so quick today. This is good. Here is our MEASUR landing page, and if you scroll down through it we have information and links to other resources. So if you're interested in that open source, but you forgot the link to the GitHub it's right in here.

But if we keep scrolling down, if we keep scrolling down all the way to the bottom we have an area for the downloads. Currently we have three separate downloads, depending on if you're a Windows user, a MAC user, or a Lenox user. So depending on which system you're on, you would download the appropriate one for you.

We do have a basic user manual on the Web page that you can also look at to help get started, or to help understand how to implement it and install it on your system. We will have some fact sheets and some other resources posted hopefully in the near future. Again, just more background information to help folks along.

So with that said, now I'm going to jump over. So assuming that you've gone to the DOE website. You installed the tool. You click on the icon and this is what comes up. Welcome to our new MEASUR tool. As you can see, it's already a little bit different.

What we tried to do with the tool is actually build in some self help and self directed guidance within the tool. So at the very first page it's going to just orient you a little bit, and it's really basic stuff. So where to go, where to click. So that way when I'm not looking over your shoulder you can figure out how to use this tool still. So again, trying to make this much more user friendly.

All right. Now we've worked through the quick intro and we're into the actual MEASUR software tool. This is the landing page that you're going to come to really every time you open the software



tool. To orient ourselves a little bit, most of the really important stuff is all in the middle here.

And on the left hand side we have Creating Assessments and under there we have the ability to create or links to create specific assessments. And this is going to be the most similar for those of you that have used the old pump system assessment tool, or the process heat assessment survey tool, or the fan system assessment tool. These are the links that jump into those.

On the right hand side we have Property and Equipment Calculators. So not a full system analysis capability, but really some of the quick hit calculators for specific things. We have them built out for a number of areas right now, and I'll jump into these here in just a little bit.

And then as far as an orientation for this page, most of our navigation is right here in the middle, but it's also mirrored on the left hand side. And so you can create an assessment from the center of the page, or we can come over and do it on the left hand side of the page.

So I think what I'm going to do is a quick intro. Let's create an assessment and I'll show you just how quick this can be in a general setup. So I'm going to just add my own assessment here. It's going to be a pump assessment. I'm going to set it up and first thing it brings me to is setting up our current system. Okay.

So really it's a guided approach through the software tool. Right now we have just one tab at the very top highlighted, the System Setup. This is our as is system. This is the as is equipment out in the field that we're looking to set up initially. We have the ability to come through and change many of our units, our units of measure that we're going to use for the tool.

We can come through and you can see that on the second line is where we're actually navigating and including some of the basic information about our system. Some of this is already pre-populated, but it's all user defined. You can change it to match and meet your system.

There are other areas of the tool where we don't necessarily have anything preloaded, but we try to make it very simple and intuitive as to what you need to fill out. And you can even see that some of the colors are changing, as I'm stepping through this, for information that's needed.

So this is really good and to spare all of you just a little bit, I'm going to jump into an already created example for our pumps, just so you can see the general process. So it again, imagine we're setting up our system here. Everything is green. That means we're good to go in all of these different system areas.

So that's under this first tab, this System Setup. Up at the top there are several other tabs. That first one again is the As Is System. The Assessment tab on the other hand is where we jump into the scenarios, where we jump into doing the what if analysis to evaluate what are our energy saving opportunities?

And again, so the second line, the second row does change depending on where we're at and what we're doing. Within the assessment one capability that we've headed into the tool across all system areas is the ability to navigate through the tool really depending on your level of expertise.

So on the far left hand side we have this Explore Opportunities Novice View. Underneath here it's really a fairly basic and simplified approach to creating an opportunity scenario. So you can see there is a bunch of check boxes of simple and standard opportunities.

Many of these are based off of the historic DOE experiences from assessments from the trainings, but really it's a guided approach for novice users. So you can see in this case we're going to modify our efficiency class for the motor and we're going to go from a standard to a premium. So it's right in front of us and pretty simple.

If you're not an ops user, and I'm looking at the attending list. There is quite a few experts out there. You don't want to be constrained to this view, so we have this Modify All Conditions expert view in front of us. And from this expert view we do get a third row in here where we can look at and see all of the data that we had input.

So we can really quickly just kind of see that side by side, in which you are noticing as I'm clicking through here, some of these data points are color coded, and they, the colors are going to mean something different in each part of the software, but it's a visual cue. It's a visual way to really help users to understand what's going on in the tool, or quickly be able to scan across.

P set is a little bit more simplistic, but in a bit I'll jump over to the fast tool, and the fast tool is much more complex and so you'll really see the benefits of having the visual cues filled in.

One thing I do want to mention from this page though is I'm going to click through just a couple of these different input boxes. As I do, assuming my computer is keeping up with me, the right hand text is changing, so we have dynamically changing help text just to help users understand what we're looking for, what some of the recommended data points may be.

This is an area that we are building out, as we continue to build the tool. Ultimately, we'll likely end up linking some video tutorials in here, as well. Video tutorials to help users understand how to enter data into the tool or where to enter data into the tool, but maybe some video tutorials on how to collect some of the data from the field that will then feed into this area.

So this is really pretty exciting, in my mind. The other thing I want to draw your attention to on this right hand side, right now we have the Help text click, but analogously we also have a Results tab where we can see the data in front of us. So as we change some of the numbers the information will change, and so we can just really quickly see what's going on.

And then the last thing over on this right hand side we have this Results. We have Help and we have Notes. So we do have the ability in here to enter field notes.

So for some of you that are out there in the field doing energy assessments and trying to develop reports for clients, here is an area where you can enter in some of your field notes to make sure that you just capture everything in one place. And you'll see in a little bit that this will actually feed into a report for us, and hopefully we'll make many of your lives much simpler, much simpler.

One more thing that I do want to mention on this page in terms of the orientation. Within the tool here we do have the capabilities to add multiple scenarios. That's super exciting for us. In the past for many of you that have used the historic viewing tools, it's an either or option. You create a baseline, and then you create one modified case, and so you can only compare the baseline to the modified case.

Now we actually have the ability to add multiple scenarios. So on the right hand side of the screen again in this second row, I'm going to click to view our other scenarios.

So in this case right now I have four other or three other scenarios also built into the tool. If we'd like, we can continue to add scenarios pretty quickly, and so we can do a little bit of the side by side analysis. So this is pretty fascinating, at least for us. We really like it.

Okay. So with that said, once we've created our assessment and set it up, set up the As Is system, the in field system, and once we've gone through our Assessment tab at the top and created our what if scenarios to evaluate energy efficiency opportunities, now we can really jump over to the meat of it.

What are the results? What are the savings? How can I view a report? So I'm going to click View A Report. And what we've done with the tools so far is we've built the summary report right into the tool so we can quickly scan across the Energy Saving Opportunities.

And we've set it up such that you can access or ideally see most of the information, if not all the information that you input and that's being spit out for us in a fairly standardized format across all the system tools.

So in this case right now we're just looking at high level results data, but we have some graphics built in to visually see what's going on and visually show our management what's going on with our energy consumption. We have some other diagrams, a **Sanky** diagram built in. Again just another way to visually energy flows.

We have information on our input data that we can save and quickly scan through to see what the differences are. And then some facility information. So this is really neat. Right? One of the nice things though is that we can print this report and if we were to print it, it actually lets us dynamically select what we want to print from the tool itself.

And so we can select everything. We can just get the results. We can just go for the graphs. This is pretty powerful. Okay. And I'm not going to print it right now. What I'll do is actually just pull down an example report.

Because you're all watching me, my computer will go slow creating the report, but what we've done for all these areas you can print the report for that assessment and get all that information so you can really just drop it into your own report, or in some of the cases if you do put in detailed notes, the notes will actually show up within these reports, as well.

So again, trying to make it a bit easier for you to get to the information. Okay. Again and that was from printing on the right hand side. Right now we have another export functionality with the CSB grade out. We're working on that functionality.

So for some of you tried and true engineers that love Excel, you'll be able to export over to an Excel environment to modify some of the results and everything depending on who you want to show this information to.

So this is the report for Assisting Assessment. Drawing our attention back up to the very top row you can see that some of that same information that was in the report is also linked within these tabs. So we do have diagram for our pumps. Again, to just help those of us that are very visual and to see this stuff in front of us.

We have the links to the Sanky diagrams to again show the energy flows, and then we actually have a number of links to system specific or equipment specific calculators, so real exciting.

Up on the right hand side I'm going to navigate back over to our homepage and just for the fun of it I'm going to jump into our furnace study, one of our processed heat assessments. And already you can see that it's much busier. We have quite a few more tabs and in the process of developing a full furnace model.

There is just a lot more moving parts. There is a lot more data input that needs to happen. And so that's where these visual indicators I think really are going to come in and help. So in this case I'll even hover over this little tag that we have in that third row from the top.

And it'll indicate in this case blue is just different from the baseline. If we were to go over to a green one, all is good. Right. And if I jump over, let's say I screw something up. One of the things that we've built in, again more of these visual indicators it's if you're missing data it will turn red and our little badge up at the top will respond analogously.

If for some reason we put in just really bizarre data, something that just doesn't seem like it's going to work the tool won't necessarily stop you, but it will warn you that hey user, something seems really off with your data entry. And we'll give you some of the built in warnings. So again that's this is really powerful, we think.

Same exact setup as the pump tool we were just looking at. We have the ability to come in and view multiple scenarios and build multiple scenarios. From these multiple scenarios we can actually copy them.

So if you've gone through one and you made a couple of changes and you want to look at well, what if I change the flue gasket, plus I did something to the wall, plus I did something else. Instead of having to create each one from scratch we can just create a copy, and then just continually work from there.

So this is really powerful stuff. Again, on the right hand side we have our three tabs for results, for our help text and for our notes. So again, that ability to dynamically put in your information. The top navigation bar is set up the same, so the As Is system, the what if scenarios, the Assessment. And then we have our diagram. We have our report and Sanky tool, as well as all the calculators.

So maybe one thing I will mention within our process heat tool, there is a lot more data entry. We do have a bit more information listed in here, but again same general setup.

So we can go through and be looking across all the various scenarios that we've developed and again, just trying to help make your lives a little bit easier when it comes time to report results to management or your client, whoever it might be. Okay.

All right. So I'm going to come back real quick and now what I'm going to do is just kind of moving through our stuff. That, the information I just showed was to create an assessment. And the fan tool, if we run into the fan tool it will be structured the exact same way as the others, but those are our system assessment models.

Not always do we need to do a full system analysis. In some cases you just want to do a quick maybe equipment calculation or you need a property for steam, whatever it might be. We have a number of property and equipment calculators set up. So again, we can access this from the right hand center part of the screen or over in that left hand navigation bar.

I'm going to jump into this real quick. Currently, we have over 40 calculators built in here across these multiple systems, motors, pumps, fans, processed heat, steam, compressed air. I'll actually scroll down, just so you can kind of see the breadth of some of these.

Some of them are really basic and high level, and others really do get a bit technical. And then that they really at the bottom we also have some general calculators. I think we some pre-assessment screening items, unit converters. But all these are areas that we're looking to continue to build out.

And what I'll do is I'm going to jump into one of them just so I can show you. So I just click into our motor performance calculator. Many of you may have seen this from the old motor master data, or from the old pump system assessment tool. This stuff was built in there.

This allows, for this specific calculator you can come in and check out the motor performance data for any motor that's five horsepower and up. And we can start looking at the performance data. You know, current draw, power factor, efficiency for that motor.

And one of the things that we've tried to build in throughout the tool is to make it pretty slick, and so you can see I'm actually clicking on a couple of different points here and it's creating a table down below where we can capture that information and you can export it. You can export the data, as well as the graph to use for your own purposes, whatever that might be.

We do have a functionality where we can blow the graphs up in terms of size, so again we can see this stuff a little bit better. But these are really useful, really slick tools we think in calculators. But again, we're looking to continue to build them out. We have a quite a few calculators in here that hopefully many of you will find real useful.

Now coming back to our homepage here, one more functionality that we do have built in here that is really nice and exciting is our file management structure. So on the left hand side you can actually see this All Assessments folder and then there is some individual assessments listed underneath it.

This is our folder structure and we can get to our dashboard either from that All Assessments, or down below we can actually do this

View All Assessments. Now this is where things I think get even more fun, because in the past if depending on which tool you use, you were stuck to that tool.

There is one file for that and it was just kind of stuck in a silo. That tool didn't communicate with any of the other tools, and especially for the results. Just for some of you energy managers or consultants, if you want to do a quick summary, you'd have to export everything into maybe Excel and roll things up.

Within the tool here we've actually simplified that in a big way. Down below on this bottom half right now we have this card view where we have different either assessments or facilities. So this example item right here that I'm highlighting, this could be a facility or a department with different assessments that were built in under it.

We can view this stuff in different ways. For some of you that don't like that card view we have a list view where you can come in and look at data. And what you'll see, as I jump down into one of these plants – think of it as a plant – are summary information at the top of the page will dynamically change and it will update.

So in this case we have a fan, a furnace and a pump all in here and we can set some of our settings so that when you create an assessment you save it within that facility it will affect and really inherit all the properties from these. So again, you can do a quick analysis for a facility and go back to present to management.

The other I guess really nice thing that this tool does is that now if you were interested in collaborating with colleagues or you need to share some of this data with others we have the ability to do that fairly quickly and dynamically.

So up at the top I'm just going to click through a couple of these here. We have the ability to export this data and send this to some of your colleagues. And then they can download it and import it right into their tool.

An example of this that I'll show you, you know, assume that one of my colleagues sent me a file. I'm just going to go out and I'm going to grab the file that they sent over to me. I'm just going to import it really quick. And while this imports what you'll see is it does populate quite a few of the assessments that my colleague has done previously.



And now if I want to manipulate or I want to jump into these things I can, and I can just jump right into the assessment, or alternatively, if I just want to do some of the high level reporting I can generate a report of all of these, or some subset of these items.

And so as an example I'm going to generate a report for us real quick and as this builds I'll tell you that it is in some ways similar to the equipment level report that's developed, but with a few more capabilities to quickly scan through some of the various systems. So it's taking a little bit. That's again because all of you are watching and my computer is really nervous.

So we built our report. Again, this is dynamically built. And in this case we have a lot of data. We have a lot of assessments that were built in. Up at the top we have a summary of all the system areas, so we have pumps, we have furnaces and fans currently in there.

And you can even see from some of the badges we have five pumps. We have four furnaces and three fans. In those cards at the top will give us a really quick high level what our annual cost savings. What's the annual cost? What's the energy consumption? If we're interested we can actually click on one of these cards.

And I'll click on the furnace card here and it will pull up data and really a summary view with some graphics of the equipment that's built in for this dynamic summary.

Coming back and looking towards the bottom this is really a replication of all the system level reports. It's the same structure results data. We have our report graphs, our diagrams. Really interesting and good stuff in here.

One of the really nice slick features that we have here is that we can select and even right here, we can select which of these opportunities we want to roll out to show to management. And so if I didn't like the first scenario I can click over and the cost savings and everything that gets rolled up will automatically update for us. It's really interesting good stuff here.

Now from this in a very similar way we can also print this whole thing, and again it will print as a PDF. To kind of save all of you a little bit I'll just pull in the summary report that would get generated for this guy. In this case it's a fairly hefty one because we have all of those assessments built in.

And so there is a lot of details in here that you can pull out, use for your own reports. We'll potentially use this report. Okay. Now the one last thing I do want to mention from this page here, we do have flexibility built in, in terms of our units. So for many of you, you're working in imperial or metric, but the individuals that you may report to don't want that.

Maybe you're working in the US, but you're reporting to someone across the pond, over in Europe. You don't want to use a million BTUs. You want to use something else, maybe gigajoules. You can quickly change those results within here, and so it'll just really, in a really fast way you can start to communicate with people all over.

Now jumping back to the homepage here, we've gone through and I've shown you the system assessments. I've shown you the equipment calculators, and then finally this dashboard functionality. The last thing I do want to mention is on the bottom left hand side of the screen here, within our Settings.

We have this really it's kind of a catchall area, but Settings, Customer Materials, Tutorials. I'll jump in here real fast. Under our Settings we have the ability to globally change all the units that we're using.

So again, for some of you that don't like **MMB2** if you want to use SI units you can globally change that to report everything and import data in a different unit system. So that's a nice flexibility built in the tool.

We do have some tutorials built in here. Similar to that first tutorial that we see on the very first page we have some very similar ones built for some of the various areas of the tool. Right now they're just linked on this tutorial page, but going forward as we continue to finalize the different areas, these will automatically build in.

So the first time you hit some of the different areas it will prompt you and show you okay, look over here. Look over there. That's a really nice way of going about things. And then at the very bottom here what I do want to also point out is this right now we have this versioning and data information at the bottom.

I mention it early on, right now we do have the ability to push updates. So once you download the tool once, as long as you're connected to the internet you'll be able to go back and see when there is an update available.

So as we roll out the steam system assessment tool, the compressed air style, motors, as long as you have the tool originally downloaded and you're connected to the internet you'll see some of those notifications.

So similar to your iPhone, you know, and Facebook, or Google, or whoever rolls out with a newer version it'll prompt you, hey do you want to download the latest and greatest? So that's a really nice feature, as well.

So really that's a full run through of our tool here. What I think I'm going to do is just bounce back real quick. I have just a couple slide here that I do want to jump into just real fast, as a little bit of an acknowledgement here.

So we have several of the systems built in. This process heat pumps and fans. We're working on steam and compressed air, as well as motors. None of this is completely locked in. Please take a look at the tool. Please let us know what you think. Are we missing capabilities? Are there bugs?

We really do want to know. We want to work with you to make this tool really a great investment of your taxpayer dollars and mine. And again, we also want to stress this open source component, this open source aspect. We really think there is a lot of potential in the future that that can be leveraged.

Potentially built into real-time systems to help do some of the physics based, calculation based checking with the real world data. I think there is a lot of really great potential on that front. So I can't stress that open source component enough.

And then the last thing that I do want to mention is really give a shout out to some of the experts that we've worked with. A number of these names may look familiar to some of you, so Don Casada, who has been instrumental in the original P set and F set programs. Arvin Vechty on the process heating assessment survey tool, is just phenomenal.

We also have Vern and Ron Roblusky that have contributed on the fan tool. And then we have a slew of engineers and programmers that have been working on this. I'd love to add more names to this. Really we want to work with people. We want this tool to be valuable and useful to all of you.

So with that said, we're at the we're getting close to the end of the hour, but I want to encourage dialogue and fortunately with as many people that are on this webinar I'm not going to just un-mute all of you so you can talk. That'll be a disaster, but I do want to hear from you.

So if you have questions you can type them into the chat box. For most of you it's probably on the right hand side of your screen. Alternatively, if some of you are interested in speaking up, having your voice heard, electronically raise your hand and we'll un-mute you and we can have a little bit of a dialogue that way.

So with that said, I do see a number of questions rolling in, and Sandy, did I miss anything before we get to the questions?

*Female:* No. I think the only thing I want to point out I think is more self evident to folks is that our goal here today was not to train you on doing one of the system area assessments, but rather to introduce the tool.

So either the future opportunities, you know, and to give more information specifically around how to utilize each of the tools, but for now this is really the introduction to the new resource.

*Male:* Yeah.

*Female:* And I guess the first thing to address is, there is well I don't know where the link was that was giving a wrong link. We did just update our Web page to add the tool name MEASUR, and so I think there was a issue. People actually were trying to download or look at the tool while we were speaking and were having some problems.

So I want to make sure that wherever they were directed, I don't know which slide it was where they were directed, but there was something incorrect. One of you guys can cover that.

*Male:* Yeah. I'll definitely cover that here. So yeah, the DOE, we recently did just change the URL for it, and so it's slightly different but again, if you go back to the Google and just DOE software tool it'll pull right up. But really it's just replacing the integrated tool suite with MEASUR and that'll do it.

So answering some of the other questions that are rolling in here. We have a few minutes, so please type them in and we'll try to get to as many as possible. For Air Masters we have a question on

when it will be updated. We're hoping to do that or start that process in the next couple of months and completing that sometime next year, hopefully early to mid next year.

We are currently working on the steam tool and integrating that functionality, the full system model or into the tool. And then after that we have motors and beyond that who knows. Well we might eventually get the process cooling where we're looking at chillers and cooling tower type systems. Time and budget obviously will tell in what we can accomplish.

Another question that is coming in here, do the calculators have the ability to calculate payback periods? So the answer to that is yes, actually. Within the tool, within each one of the system level tools we have an area where you can, it's an optional field, where you can enter your estimated cost, and it will roll that into a simple payback calculation that gets spit out in the reports.

Now for the implementation cost, that is completely on you, on the expert, to figure out and enter in but that capability is in there so we can get some of the basic information out.

So another question here, let's see, will the tool be open for international use? So for some of you that have international facilities, the tool is built to have multiple units. So again, I think we mentioned the English versus FI. We do have some custom units in there that you can include.

Going forward in the future we are working to have the framework that the tool can be translated. So for some of your sister facilities that may be in different parts of the world, ideally we'll have that ability built in, in the future that they can use it in their own local language, as well.

Let's see here, what other questions do we have? So some of these are really extra technical, and we're going to try to get to them. Maybe we'll do it offline, but we did have. Okay. So here is a question, what's the anticipated release date for the steam assessment tool?

Ideally we're looking hopefully at the end of September, having the initial version out, but we're working hard on it. Right now we have a lot of the calculators built in, but we're working hard to do the full steam modeler.

With that said, we're really at the end of the hour. I know there is questions still rolling in and we'll try to answer those offline and get back to each one of you, but again I really want to thank everyone for your time today. Again, this was just a really brief overview.

I want to stress again, we really want to engage. I want to add all of your names if possible to that contributors slide. We want to work with you closely. Let us know if there are bugs, if there are issues, if you have questions. Feel free to reach out to Sandy, myself, or my colleague, Gina.

And really with that, I want to say thanks to everyone, and please be in touch and have a great day. Goodbye.

*Female:*

And before you go, Tom, before you go we will be this was recorded and hopefully we'll be hosting this on the DOE website and you can also, as well as copies of the slide.

*Male:*

Excellent. Thanks Sandy. Thanks everyone else out there. Take care. Bye-bye.

*[End of Audio]*