

# **Sustainability and Resiliency on the CU Anschutz Medical Campus**

## Toolbox Series Video Transcript

Okay. Welcome, everyone. I'm going to go ahead and kick us off for this month's lunch and learn.

So as I just as a quick reminder, there is Jimmy John's sandwiches out there.

Chips, water. So if you did not grab something before you came in, please make sure you do grab something when you leave here today.

Again, this is our monthly, , Educational Toolbox series, and I'm Debbie Lammers.

I'm the assistant vice chancellor for learning and development, and my team gets the great pleasure of helping to support this every month.

And this month, we have, the group from facilities here with us today to talk about sustainability and resilience on the campus.

And so we've got three remarkable speakers here with us today to talk about this topic for you.

And so I'm going to go to I'm just going to do a really quick introduction of the three gentlemen that are with us today.

First we have Jay Campbell, who joined the Anschutz Facility Management team in 2015.

He now serves as the associate vice chancellor of facilities management and planning.

he's been blessed to lead the team of 276 dedicated professionals that keep the campus facilities and grounds running smoothly and looking great, 24/7, 365 days a year, and you do have to admit, our campus is an amazing looking campus.

And so it's a great feat for them to be able to keep that going.

And then we have Gregory Gibson with us as well. He joined the CU Anschutz facilities management team in 2020.

He's now serving as the executive director for building maintenance and operations,

and he's focused on providing the highest levels of customer service and facilities maintenance for the university community.

And then last but not least, we have Jarret Smith with us as well.

And he is the sustainability manager for the campus.

And he works across disciplines to facilitate sustainability, culture and operations on campus.

His central role is planning greenhouse gas reduction strategies and waste diversion efforts.

He has two children and he likes to be outdoors, so I am I am going to turn it over to the three of them and,

have them do their presentation for you. We will have questions at the end for both our online audience,

because we do have some folks that are online as well of those of you here joining us today.

So I'm going to turn it over to you all. Thank you. , thank you so much, Debbie.

And and to you and your entire staff that put this together. They got the food set up outside.

They make sure the rooms are all booked, all the communications go out, all the work that goes into planning this, just give them a thank you and a nice round of applause for all the support that they give us.

So. Oh, there we go. Look at that. It works. All right, well, thank you, everybody, for showing up.

I'm jay. I'll I'll kick off the presentation here, and then Greg and Jarret myself are going to kind of rotate between some of the topics and some of the slides.

So, this is meant to be an interactive presentation.

I know the folks online throw something into the chat. We have an administrator here that's monitoring that.

If you have questions or comments, you can you can certainly do so, people in the room here, please don't hesitate, interrupt.

Shout out to say, hey, what about this? If you have a question, if you have a suggestion.

So this is meant to be an interactive thing. But, so we're here to talk about sustainability and resilience.

The first thing I like to do is what does sustainability mean for you?

Anybody in the audience here shout out what does sustainability mean to you?

Or I'll put people on the spot if I have to, because half of my teams in here.

So. What does it mean?

Driving electric vehicles? Having clean water.

Clean air. That's a good one. Important. Go ahead.

Shout it out. Recycling? Yes. Very important.

Reduce, reuse. Yeah, that's a strategy around waste diversion and waste management.

Anything else. Resource management.

Yep, that could possibly encompass everything around sustainability as being good stewards of our resources.

So all right. Those are a good couple comments there.

Well, that would be the wrong one. I did it.

Okay. So the EPA defines sustainability as this.

Sustainability is based on a simple principle.

Everything that we need for our survival and well-being depends either directly or indirectly on our natural environment.

To pursue sustainability is to create and maintain the conditions under which humans and nature can exist in productive harmony, to support present and future generations. That's a nice way of saying we need to take care of our planet.

We need to take care of the people around us. We need to take care of our community because they take care of us.

Right. All right. So in the context of sustainability and what we're trying to achieve on campus here, that's kind of the lens that we're doing it in.

All right. How about resiliency? What does resiliency mean to you?

I mean, what do we do here on campus? We're an academic medical center.

We support education, research and clinical care that are changing lives and improving the world.

Right? I mean, we have an awesome mission that we're trying to achieve.

But we can't do that if our facilities and everything that we use in the process of doing that education,

research and clinical care isn't topnotch, isn't reliable, isn't sustainable.

So resiliency in the context of Anschutz. What does that mean?

Yep. Things that work. They work when they need to. In the cases of the hospitals, it means they work all the time, no matter what.

Without fail. Right. I'd hate to go into an O.R. and the power goes out, right?

Here on campus. Some of the research, some of the more critical research that we do, there is not an end to it.

It is going 24/7, 365. We have researchers in here all the time, day and night.

Animal care. We have a very important piece of that that also supports that mission.

Okay. So resilience basically in the context is this means the capacity to recover quickly from difficulties.

Toughness. That's the Merriam-Webster dictionary definition of it.

So while sustainability looks at how current generations can meet their needs without compromising the ability for future generations, resilience considers a system's ability or our campuses ability to prepare for threats,

to absorb impacts, and to recover and adapt after a disruptive event.

Who was here during the floods in 2013? Right.

That was a pretty big impact to the campus, right? Not nearly as bad as Boulder and in other places around the state, but it was a severe impact.

I mean, we had an entire loading dock and part of the hospital that was underwater,

but that compromised the ability to to provide critical care for patients.

Same with the campus that we that we maintain here. So. So resiliency sustainability is how we become better stewards.

Resiliency is how we do it reliably, safely and without fail.

So that's how those two tie together. That's kind of what I wanted to start this with.

All right, I'll turn it over to Jarrett. He'll talk about some of the history of sustainability that we've done on campus,

what got us to where we are right now, and what's important to us today.

Thanks, Jay. And , thanks everyone again for for taking the time to be here.

And I'm sure the free lunch didn't have anything to do with that.

But, we appreciate you coming in to listen to some information we've got to offer and, , information that we hope is valuable.

So I just wanted to kind of frame what sustainability means on our campus and beyond.

And when I talk about sustainability, I'm talking about kind of this three, this Venn diagram here where we talk, we call it the triangle or the three legged stool of sustainability, or where these things are tied together in such a way that every one affects the other.

So no matter how good the environment is, there has to be equity among people.

Everybody needs to have a chance to get a leg up, right. And then the economy has to work for everybody.

And if we're doing all of those things, then we're succeeding.

Right, now, we specifically are talking more about environmental sustainability today because we're talking a lot about greenhouse gas emissions.

everybody knows this term. Everybody knows that climate change is a thing.

It's happening. It's real. we know what causes it. And now it's time to do something about it.

It's been time to do something about it. But it's not just addressing climate change.

We're we're addressing a lot of other things that also fall underneath greenhouse gas emissions,

because the things that we do over at our central utility plants, where we burn natural gas to produce steam

to heat our buildings and the hospitals and to produce hot water, and the electricity that we're buying from Excel,

those are our biggest contributors, our biggest contributors to climate change, to greenhouse gas emissions.

Right. But there are lots of other things that happen on campus, what we call scope three emissions that contribute to climate change.

and I'll just back it up a little further. So when we talk about greenhouse gas emissions, we're talking about carbon dioxide, right?

That's the biggest one. But we're talking about six other gases that are also contributing to climate change, including refrigerants.

And the big one is methane. Methane is 26 more times power, more powerful and concentrated as a greenhouse gas than carbon dioxide.

But it's not quite as big. So we talk about greenhouse gas emissions.

We're talking about carbon dioxide equivalent.

When we measure this stuff, we measure all of the gases that are contributing to climate change.

Carbon. Carbon dioxide is where we can affect the most change, because that's what we're producing when we burn and when we buy electricity.

But scope three emissions, these are the things that happen on our campus that we don't directly control.

Okay. So this is commuting to campus. We don't tell you how to get to campus.



This is business travel. We don't tell you you have to take a bus to California for a conference.

you're probably going to take an airplane. That's part of our scope three emissions.

These are some of the things that we don't control, but we can affect how they're done,

and we can measure them, and we can find ways to give you other options.

The big thing we're doing on campus right now, we'll get into this more in a minute

is waste on campus. Because waste, there's so much waste that comes into and goes off of our campus,

and we want to have a little bit more control on that, both upstream and downstream.

We'll talk about that more in a minute. And water use is another big part of that.

We started accounting for our greenhouse gas emissions.

I worked with a student group in 2008. We did our first our first ever inventory.

for greenhouse gas emissions. , for CU Anschutz and CU Denver at the time.

and we we went back all the way to 2006. That's the furthest back that we could gather data for all of our energy production or utility bills.

And we started from there. And our scope one and two emissions that we just talked about were at about 112,000 metric tons.

And today we're just over half of that.

So we've made some significant strides and we've had some help with that. And we'll talk about that in a minute as well. But we've been doing this for a while,

and we realized immediately when we did this that facilities was going to be the big deal for us.

How we cool, how we light and how we heat our buildings are the biggest things as far as our emissions that we can directly control.

And one of the things that we came across early on, that I came across early on, we have wonderful research complex one.

Does anybody here? Anybody here, a researcher that works in that building or staff that works in that building?

No, it was our first really big research facility.

Right. And it's a great research facility. It's designed really well.

But when it was being constructed, funding was an issue.

And during that project, there was a process to, perform called value engineering.

And unfortunately with that project, they took all of the energy efficiency stuff out of that because it cost more money to put that stuff in.

Well, now we've spent, that building we call an energy hog.

And it's more than that. I don't know what's bigger than a hog, a water buffalo or something like that.

Yeah. So it's. I know right here that it's energy use intensity, which is how we measure energy per square foot in a building.

is 352. Well, it used to be closer to 500 before we started doing projects in the building.

So we've been doing energy conservation measures in that building since 2011.

We've spent over \$12 million so far. We're about to spend 5 million more dollars, to do some projects that were leftover from that initial batch.

So we're still doing the projects just to get this, just to get the research one facility to be as efficient as we'd like it to be.

So the lesson learned with that is that we build better first, right?

And we've done a good job with that since that building was constructed.

Research 2 uses much less energy, even though it's a comparable facility.

And the new building, the HSV building, Anschutz Health Sciences Building is way, way more efficient.

Because of the way it is designed, because of the energy systems and the lighting in that building,

and because of the processes of research that have changed over the past 10 to 20 years.

So we've learned along the way, but we also figured out that we've got to do long term planning for this type of stuff.

Right? So it's not just long term planning for what facilities are going to go on campus, or what academic programs are going to facilitate on campus.

But we've got to do long term planning for how we will power, how we will find energy,

how we will produce energy, how we will distribute energy, and also how we deal with those carbon emissions.

And that's what we're in the process of doing right now. Jay is going to talk to you a little bit more about some of the exciting, projects that we've got going on that are dealing with long term planning, and I call it cathedral building.

You know, when when people in the Renaissance were building this cathedrals,

they knew that they would design them and start construction on them, but they wouldn't be finished until well after they were dead.

They knew that it was a long term project to make this happen.

And that's kind of how I view this is like we're just setting us up for a very successful future,

but most of us will be gone by the time a lot of this is implemented.

We want to see a lot of action now, but we're trying to think long term, right?

And one of the things that's assisting us with kind of moving, moving the needle forward a little bit on some of this is the state has gotten much more aggressive in its,

kind of mandates to to say you're going to do these things with energy performance,

with energy efficiency and conservation, and with greenhouse gas emissions reductions.

And these are just some of the the legislation that we're looking at,

the energy performance for buildings and the one on the bottom, the greenhouse gas emissions reductions.

Those are the big ones that are really helping us. we're incorporating into our our long term planning, and those are helping us as we move along.

And, just more about that one. I kind of went over what greenhouse gas emissions are. I think everybody knows what that is. But that's that's what we're working toward.

And these are our goals. By 2050, we hope to be at zero.

We hope that technology exists by that time to get us there.

We've got an incremental plan to get us there along the way.

And these plans that Jay's about to talk about are, are are supposed to help us get there.

Jay? Great.

Thanks, Jer. So Jer talked a little bit about how we power and how we move energy around the campus.

Right. So when we think about 65,000 metric tons of CO<sub>2</sub> greenhouse gas emissions,

he said all that comes from either gas we burn in the utility plant to provide steam to the to the hospitals,

into the campus,

or through the power that powers the lights in this projector and this microphone and everything throughout all of our buildings that we use.

Right? But we can be better at how we do that, right?

We don't control Xcel and how they create the energy that we consume on campus.

They're doing a pretty good job from a utility standards utility provider standpoint on greening up their grid as fast as possible.

And they're really close partner with the state of Colorado because they are pretty much the monopoly, within a state for the for the power producing. They're doing a pretty good job of greening up their resources.

Quicker than than a lot of other places.

Right? So we have the benefit of ample sun and a little bit of wind here in Colorado.

They're able to to put green resources in there together. But what we do on campus, we have to consciously

figure out how we're going to power the campus in the future. Not on electricity side, but on the steam and the hot water side more specifically.

Right. So our utility plant. We burn gas to make steam.

We ship it through pipes. That goes to every single university building and both of the major hospitals,

children's hospital and university hospital, that provides all of their heat, virtually all of their heat.

Again, we talked resilience earlier. The hospitals can never shut down or have a loss of service.

A great portion of our campus can never shut down and never have a loss of service.

So how do we sustainably produce that heat in the future?

That's what the Energy Master plan, which we just undertook, what, 3 or 4 months ago in earnest, honestly.

So we did a campus master plan refresh last year that gave us a ten year window of

what the campus development and the future of the campus is going to look like.

The very next step in that was we need to figure out the next 30 plus years of the utility plant and how we power and heat the campus.

So that's what this energy master plan is meant to do. It's going to look at everything comprehensively within the university.

We also have our hospital partners involved because we can't make a change on our end without affecting them.

So they're also part of the conversation. But we're putting our heads to it.

We have the best consultants that money can possibly buy, helping us try to figure out this problem.

And it's probably going to be the end of this calendar year, maybe the first quarter of 2025,

when we really have a comprehensive plan that we'll be able to present to the to the Regents, the president, the campus community, that will tell us what that roadmap to 2050 looks like.

And so that is by far the most important thing that we're doing currently is this energy master plan.

And I will note, the campus community will have opportunities to weigh in and provide feedback on those plan.

There will be community sessions that take place over the next 6 to 9 months.

So keep an eye out for those communications and if you're interested, please please contribute.

Right after the energy master plan, I mean, work.

We're already starting to work on this as well, in tandem, but, a lot of what comes out of the energy master plan will inform the changes to our climate action plan. For the Climate Action Plan.

Jarrett mentioned there are so many other things around sustainability, not just energy or natural gas, that we burn.

There's the transportation to and from campus, the waste diversion on campus.

Our water usage is a major one which which will attack,

We'll try to attack in both the energy master plan and the climate Action plan.

So we're doing work in conjunction with this, but this one is also so important that it's going to take a dedicated, concentrated effort in that master plan from the energy side will feed into it. So we'll kick off immediately into that exercise once the energy Master plan is delivered next year.

And this will be the first refresh we've had of this since 2010.

So we're really excited for that. This one, this one.



I actually think we'll have much more community input and much more, consensus around the, around the campus community when we go to do this.

Both of these are equally important, and both of them will really give us our roadmap to 2050 and beyond on sustainability.

So look out for more more information there.

So in order to do this and to kind of build a culture of sustainability within the CU Anschutz Medical Campus,

we knew we needed to do more because prior to a 3 or 4 months ago, Jarrett was the sustainability guy.

If anybody had a sustainability question, they'd reach out to Jar.

He was our only single FTE that was dedicated 100% of his time to sustainability.

Now, that doesn't say we didn't have a lot of other effort in there.

We probably have a dedicated group of about 15 or 20 folks just within facilities who it's part of their everyday job too.

They just have other duties as assigned. Right. But they contribute the energy master plan.

They contribute to energy purchasing. We have a whole team that works in the cup that produces the most reliable and efficient energy as possible.

So we have a lot of resources there, but we knew we needed to organize it better,

communicate it better, and basically bring in more of the Anschutz community to help us out.

So that's where we came up with our sustainability Council structure, which we have recently rolled out, and we're using to kind of usher this energy master plan through the process.

And we'll continue to have this governance structure in this work structure to sustainability on campus.

So you see here there's kind of three circles of influence, right?

We'll start in the middle, I believe the Sustainability Council.

So this is this is the most visible sustainability, group that most people will hear about throughout the course of the next few years.

Here is the Sustainability Council.

So this is comprised of unit leaders that have both the accountability and the authority to make changes within their various work units.

It has representatives from student governments, faculty, governments and staff governance on it.

And it has other various community members in there that make sure we have a comprehensive, well-rounded thought process around sustainability.

And so what they're doing is all the work from the Energy Master plan gets ushered in to this sustainability council,

where we do visioning sessions, where we do, many of the reviews of what the the implementation team and the consultant group wants to do, and we kind of put the, the, the thought checks to it to make sure it still fits Anschutz.

It's feasible and sustainable with the resources that we're dealing with.

And that's something that we know leadership is going to be excited about and endorse as well. So, that council in the middle there is kind of the driver of that.

But the initiative group, the implementation team, the bigger one down at the bottom, that's where that's where Jarrett.

And in that group of 15 to 20 dedicated folks I was talking about earlier really hit the road with all the implementation solutions, the actual projects that come out of our various consultants and the work groups that are doing this type of work.

So these are the people that are doing the projects that are initiating the work, that are driving the results from those different things.

And so they feed up into the Sustainability Council, and then the Sustainability Council takes that basically to the Chancellor and his cabinet, and they get executive sponsorship and sign off on it. Right.

So if there's going to be a policy change or a major resource request, like millions of dollars to do a project,

obviously they're going to be the ones that are gonna want to sign off on it, and they're the ones that have to endorse it and make sure that they're driving from the leadership level down,

that sustainability is vitally important to what we do as a campus, and that the efforts we're taking are worthwhile.

So luckily, we have that support and and it seems to be going really well now.

I'll I'd be remiss to say we completely stole this from Boulder, so I don't like admitting that very often.

But recently they made some governance changes around sustainability.

And to be honest, they are one of the leaders in the nation around sustainability at a higher education campus.

Boulder is a shining star on the Hill that we look to strive towards.

And, Jarrett is going to talk about Green Labs later, and he's going to talk a lot about Green Labs, actually.

And we're looking to to use their model as a roadmap to help us get there.

So the council's work is really focused on four things. He had the three pillars of sustainability.

These are the four pillars of sustainability on our campus, right.

How do we build our buildings? How do we operate them? How do we maintain them and how do we power them?

Right. And so those four different buckets, although they intersect, are the various areas that the Sustainability Council and implementation team are working on.

And we'll help drive that. Obviously, Jarrett mentioned R1.

If we build it right the first time, then it is a lot easier to maintain over the lifespan of that building.

It's a lot more efficient when we do it and we can use our resources elsewhere to attack

problems and and improve sustainability efforts and energy improvement where they need to.

So if you build it right first, that's the best way to do it.

A prime example of that, the new police facility just across the street over here, the solar panels,

we put the 277 kilowatt solar panel system on the roof and on the canopies over the parking area.

That just so happens to be the exact amount of power that building uses over the course of the year.

So when that system is turned on and active, in theory, it should negate all the energy use in the building.

It basically becomes a net zero building. So the energy reusing we're offsetting by solar production.

And so in theory the the greenhouse gas emissions for that building will be zero at the end of the day when all that's working right.

We build it right the first time we make a bigger impact. The new campus safety and emergency preparedness facility.

The police facility right across the street. yeah. The how we power piece is the energy master plan.

That's what we're working on. Greg, will talk a little bit about how we maintain and how we operate, and we'll continue to do that.

But no matter what the most important piece of all this. Is how we communicate and educate, right?

That's why we're here today. That's why we put the Sustainability council and governance structure in place.

That's why you've seen a lot more communications lately about sustainability.

That's why we've put much more focus and intensity. And it is because we realized that we were our own worst enemy around sustainability.

We had a lot of good stuff going on. Nobody knew about it. Right?

We were, we just weren't very good at communicating it. So that's what we're striving to be.

Okay, Greg, you want to take this one to me? All right, so this is the operate piece Greg is going to talk about to maintain piece.

So these are just some examples of how we operate better and more sustainably around campus.

So the the central utility plant was built in 2000 when we were just starting to build facilities out here on the campus.

It was the most efficient design it could have been at the time. Yes we did.

We did do our due diligence, and we reused some of the Army boilers that were left over here when we took the campus from them.

So we did that. I mean, that's a, that's a bonus on reuse and recycle, right?

We use an existing asset that still had available life in it and we put those in there.

We have since added newer, much more efficient boilers to the operation.

And overall the operation is much more efficient than it used to be.

But at the time, for what we knew, we were building out here at the campus in the two hospitals,

that was the most efficient and the most energy, the most energy efficient and the most cost efficient way to heat all the buildings.

Right. We could have put individual heating units in every single building and burn gas to create heat and every single building, which a lot of people do, but it's not the most efficient way to do it. The cup is by far the most efficient way to do it.

But our ENP goals, knowing that we have to strive for zero at 2050 requires a different approach, right?

We have to move towards electrification of operations on campus wherever possible.

Because as a as excel greens their energy supply. If we are electrifying more of our product,

then that will naturally lead to more or less emissions over time in the development of large scale, sustainable and resilient energy sources.

Now that could be wind power. It could be solar power.

It could be buying into a solar power partnership with our our other sister campuses in the CU system,

and coming up with some really radical idea of putting a solar farm somewhere else and having it be in a campus asset.

Those are all being explored in the Energy Master plan. So just know that we're looking at all those future options for that.

One small piece is the electrification of building 534.

Most of you probably don't even know where building 534 is. Right. So it's attached to building 500.

It's it's one of the, the metal offshoots to the northeast side of that building where they have, they have MRI machines and they do imaging and various things for research and clinical care.

But they just had old residential units that heated that building and they burn propane.

So if you'll notice when you walk by next time, there are a couple of propane tanks sitting right outside that building.

What we're going to do is basically just move to electric heating. So we're going to put high efficiency heat pumps in there.

More commercial electric heating units, get rid of the propane altogether, make it a much more state of the art system.

We'll be able to support that building without burning any fossil fuels.

That's the one example of a small project, but it'll make a big difference for that facility.

There's a lot of movement around electric vehicles and electrification of our fleet assets.

So we in facilities have a lot of vehicles that we drive around campus.

You'll notice that a lot of those are golf carts, which are electric, or even larger carts, and some smaller vans that are electric as well.

So you should notice the old F-150 and Dodge Ram pickup trucks slowly start to phase out.

You'll have more and more electric vans, more and more electric trucks, more and more carts being used.



So we will slowly transition our fleet to an electric fleet fully at some point. We obviously do light rail shuttle where we go around and pick up people from the Fitzsimmons light rail station and bring them into campus and go back and forth when needed.

We always try to promote that more. We're trying to promote the use of RTD and mass transit much more.

So that's a strategy. But in order to do that, we have a lot of work to do on our infrastructure.

It's hard to have a lot of electric cars come to campus when we don't have the charging infrastructure to support it.

Right now, we have 58 charging stations on campus, but Jarrett is actively working every single day to get more.

I think we just got approved for eight more that we're getting ready to to install,

and you'll start to see some of those pop up within the gated parking lots throughout campus as well.

Right now, it's pretty much exclusively in the Henderson parking garage. And then in this overflow lot right outside the building here to the east of us. So more, more good changes coming to that and something that our, our grounds team and support services team has already done, they've fully phased out.

Gas powered hand tools. So basically anything that's smaller than one of the big riding riding mowers that they have.

So any push mowers, they have any of the leaf blowers they have any of the hedge trimmers, those types of things.

They pretty much phased out gas and gone fully electric on that. And we are actually ahead of the game.

We knew Colorado was thinking about banning those things for state agencies, which they did.

But we got ahead of the game and did it before they told us to. All right. Those are some of the ways that we're operating better and smarter and more efficiently around sustainability.

So now Greg will come up and talk to you about how we maintain more efficiently.

Hello, everyone. How are you? How do we maintain. It all begins with our people.

We have some talented, enthusiastic, conscientious facilities maintenance staff and personnel that are focused on making sure that you have the most wonderful campus that you can have when you go to work. Your elevator should run. You know, the buildings should cool all of these things.

It's their clear focus. And so I'm just want to remind the university community that our team is here for you.

And I just want to give a quick shout out for them and their hard work. I'm just a guy that's privileged enough to speak to it.

So, here we have, what's called a facilities condition audit.

This is how we begin to get our arms around the sustainability.

We use an annual review cycle and essentially assessing all the facilities on the Anschutz campus.

How do, what do we do with that information? Well, we kind of rank it into the next bullet, which is called the facilities condition index.

You see a chart at the bottom.

And we're going to do a quick bit of math here, where you have the total cost of deficiencies over the current building replacement value.

When we talk about the value of building the building today versus the deficiencies within the building,

that's how we get our FCI and through our annual review.

This is how we begin to determine where we are, how well we're doing and where our challenges are.

So the chart on the bottom kind of indicates a rough ranking system, and we make our decisions for sustainability and maintenance projects based upon the most

relevant and meaningful impact for GHG and EUI reduction, as well as trying to minimize our carbon footprint for this campus.

Well, what do we maintain? Buildings, obviously. Here's a couple of examples of some of the work that we do.

So if you're not really in the world of gross square footage, the that we are, the average sized target is about 135,000ft<sup>2</sup>.

So this gives you some order of reference for the size of the buildings that we're dealing with.

I'm going to speak to some of the, proud accomplishments of our team with the Henderson parking garage,

fully retrofit that building, the perinatal research facility.

Again, a complete lightning retrofit. The home of our facilities team in building 1036.

Recently completed a lighting retrofit for all the shop area. And to the north, it's a five story building.

We've completed, , lighting retrofits on the first couple of floors at two South.

Again, a five story building. Again, lighting retrofits on the first couple of floors and in the Fitzsimmons buildings

we've replaced some really old chillers. What else do we maintain as well as our buildings?

We take a big interest in the campus infrastructure. So campus exterior lighting.

Here are just a list of what's recently been done.

As far as, again, additional lighting retrofits from the various parking lots that we have around campus and sidewalk areas accordingly.

The picture that you're seeing is along the Henderson Drive area right next to the Henderson garage, and you can see how well lit this area is.

This is part of this is we were able to accomplish with using LED fixtures to replace

any compact fluorescent or metal headlight pfixtures that we had existing at the time.

So these are all on LED platform at this point in time. As we try and quantify our facilities impact upon sustainability, we put some metrics together to try and speak to the work that we've done. So for the Henderson Garage, we've had an annual energy savings of almost \$60,000.

The return on investment from the lightning retrofit was less than a year and a half.

The metric ton saved from the GSE emissions by doing these lighting retrofits from the previous existing lights that were in the garage would be the equivalent of 41,786 miles driven by a passenger vehicle. Just by doing these retrofits. For the campus parking lots,

there's 37 pull fixtures done. This would be an equivalent of 3.3 metric tons diverted to recycling versus the waste stream.

And for the East Rock lot, this would be the equivalency of having 1.2 acres of US forest protecting our oxygen and carbon dioxide.

This is the work that we've done. This is not the work that we're going to.

We still have work to do, still have work to be accomplished. Some of the additional lighting improvements that we have moving forward.

The Red Cross memorial, we're going to install lighting there.

And this is again going to be on an LED platform. By the way, who in here knows what LED means. We throw that term out a lot. Sir.

What is that? The electrician does not get to answer the question. That's exactly correct.

And the way that we get the light from the LED is when you put voltage to it, it glows.

This also works when we are looking to minimize our lighting pollution to the environment.

So there's something called the Dark Skies Initiative, where if you looking at us from five miles up in the air, you don't see spray of light everywhere.

It's essentially a dark looking campus. This is because the LED tends to force a light down in the cone versus a light spray.

So as we talk in terms of lighting improvements we often involve our tremendously talented campus architect to ensure that we're putting the right solution in the right area.

So some of the future lighting improvements will include a over by the Red cross, a memorial, installing some poles, the parade area over towards I think that's Quintin and 70th court over in that area bringing additional lighting there.

But, you know, it's not just about lighting.

You know, when we're doing our campus assessments, we often find that from our mechanical systems, there's tremendous gain to be made there.

So, as we continue with our building improvements, we're also focused on the large scale mechanical systems that we can accomplish to either in-house funding or through state controlled maintenance.

When we're talking about greening our fleet, we have to continue to build out our EV infrastructure.

I think that we've converted three vehicles from exclusively fossil fuel to electric.

So we were going to continue that as we continue to have our electric infrastructure built up.

So, that's what I have to share. Jarrett has a lot more to talk about.

Because we are only the tip of the spear. But Jarrett's got some really exciting things that he wants to share as well.

Thanks for your time.

All right.

So a lot of times when we talk about sustainability and a lot of the stuff that we're doing,

especially with the energy master plan, there's only for the general.

It's hard for the general campus to be involved. Like we write.

We want everybody to know what's happening. We want to be as transparent about everything that we're doing.

But you only have so much control over your building or your office space.

So I want to talk to you about some things that you can have control over.

Right. And one of the biggest things that you can have control over on campus is stuff.

Stuff, and I alluded to this earlier, is a huge issue for us on campus.

Anybody with a p card or procurement card can pretty much buy anything they want, as long as they follow the rules,

bring it onto campus, use it how they want, and then either throw it in the trash or throw it in the recycling bin.

Probably most of that stuff is not going to get composted. But we need to do a better job of how we manage our stuff.

And that's what a big focus of ours is going to be from here on out. We kind of have this unlimited flow coming on to campus, especially in the labs.

Labs are super resource intensive, and we'll get to more of that in just a minute.

But we really want to have this renewed focus on materials flow.

And we're going to, we've got some new resources to help with that, which is exciting.

That's the bottom bullet. We have two new full time employees who are coming on board to help us with that.

And and I'll explain more about that in a minute. We, and I just wanted to mention one of the things about how we, you know, stuff is also the stuff that we keep. Legacy equipment, stuff to save space. Again, this happens a lot in research labs. People like to have control of their space and to save that space.

and the School of Medicine last year, that was is now two years ago, did a huge project,

the space utilization project, to free up about 40,000 square feet of new lab space.



but just getting rid of old equipment, moving some things around, becoming more efficient, just looking at the way that that space is used.

And that allows us, allows them, to bring more researchers on and more grant money for that research into those facilities.

It also helps us to not have to build another research facility.

And that's the most important part, because research areas are the most expensive to build and the most expensive to operate.

So that's a huge thing. It's so it was such a huge thing that they won an award or they, and I say School of Medicine,

Cody and Vanessa are here because they led that project.

but the environmental health and safety was a huge part of that project as well as facilities management.

So this award is shared with all three of those groups. A lot of people were involved.

A lot of people pitched in. But the International Institute for Sustainability and Laboratories gave them the space utilization award

for that particular thing. And it's in it's in Cody and Vanessa's office.

Feel free to go take a look at some point. But we're really proud of that.

And that's how I'd love to see us operating moving forward.

And that's how we'd all like to see. Space utilization is such a huge thing.

Instead of building more facilities, contributing more energy use and more greenhouse gas emissions.

Space utilization is such an effective way to manage those resources.

I think we've already talked about this. We've got a lot of chargers on campus.

We're going to get more, that's going to keep growing.

And one of the questions that we have is about more EVs coming onto campus.

We'll get to that in a minute. I think we covered all this except for the glove recycling program that's now,

Kimberly-Clark is offering recyclable nitrile gloves, and we have over 30 labs that are participating in that program right now.

It's growing very quickly. They're making it very easy to do that.

If you're in a research lab, please inquire. You can check out our website.

We've got more information on it there. And I can point you in the right direction if you want to have your lab involved, if they are not already.

I'm going to just mention our website four more times and then I'll move on.

We've spent a lot of time and effort trying to keep this thing updated, and really grow it as a place for everybody to collect the information that they need.

You can just Google CU Anschutz Sustainability. It'll take you right there.

It's got a lot of information on the programs that we're doing, programs that including the Energy Master plan,

the Climate Action plan, legislation that's affecting us all, how to be involved, events on campus, all of that kind of stuff is there.

So I hope you'll check it out. And, we hope it gets better as time goes on.

So the website that's the that's the website.

All right. Thanks. The two full time employees that we're bringing on. Super excited because, like Jay said, I'm the only I've been the only full time employee dedicated sustainability for a number of years, and I won't tell you how many. But we have a green. We've got some new resources to put towards these positions, which is just amazing. It's going to make a big difference on campus, , with what we're doing with regards to sustainability, waste diversion, energy management, space utilization that I just talked about. But this Green Lab's program coordinator is going to be a huge part of all of that. I know that the, REH&S is super excited it. H&S folks are super excited to have this person come on. I know that school of medicine folks, school of pharmacy folks are very excited to have this person come on in and join. I'm going to talk more about what that program entails. You can kind of see some of the day to day stuff that that person will be doing. And I'll talk more about the program in a minute. We've got a sustainability resources and waste diversion coordinator. Turns out there's a lot of money out there right now for sustainability and for climate action projects. Through the Inflation Reduction Act and the Infrastructure Act, there's just there's a ton of stuff out there.

The problem with that money is that it's not that it's hard to find.

It's hard to dig through the many layers you have to do to find where those grants and funding opportunities are.

And we're bringing on this person specifically to focus on that, which it will be huge, for our campus in order to secure more resources for.

We've got a lot of great ideas about stuff. We even have projects written down that we want to do.

That if we could just find more funding for it, we'd be ready to move forward with.

So we're excited about that. This person will also be our waste diversion coordinator on campus.

And so they're going to be digging even deeper all across campus to make sure we can increase our diversion rates,

limit what goes to the landfill, increase our composting on campus.

You've probably seen composting over here at Wood Grain.

We've got it in the Fitzsimons building, and we've got it in R2, and we're going to be constantly expanding that.

It's also, compost is also showing up at events now.

We're very excited to have that. We have a local local woman owned company called Wompost who is our partner in composting on this campus that we've been very excited to work with.

And we are hoping that they're going to grow with us as we grow our compost programs, but it'll go way beyond compost.

You know, we want to see more, more recycling done on campus.

We want to see those processes get better. And we know that it will, since we'll have a person just dedicated to that.

So we're very excited about these positions. I do want to spend some time with the, just about the lab stuff.

The reason we need this position, this this Green Labs person.

We've done a lot of work in labs. We have a lot of facility folks who spend time fine tuning the Hvac in our labs, lighting in our labs.

But you can see just by this, like, research is such a huge part.

And this is actually. CU Boulder's. I'm not going to take credit, but ours would look similar.

Because research areas use a ton of energy and resources.

Just because the amount of air that's flowing through there, the amount of water that's being used,

the amount of lighting that is used, and people are there all the time.

Right? If you're a researcher, you want to have availability to be there conducting your research.

24/7. Right. So these facilities run full time, but you can see it, like I said, this is Boulder,

but ours would look similar, except we don't have housing, thankfully.

Right now, but you can see how research

takes up a big a big chunk of that. So, they're super intensive.

And they're expensive to build and support, as I mentioned before.

So we are bringing in a person just to focus on green labs.

And this is going to be a program, the program that will be building out, that involves everybody on campus. We'll have EH&S.

We'll have the different schools involved. Any school that has research going on, which is almost everybody.

Right, facilities management will be a part of this.

We've got national, international collaborators. I mentioned the, International Institute for sustainability in labs.

That'll be a big part of what we do. We don't have an environmental center, but we do have recycling.

research, innovation. And our procurement will be a big part of everything that we're doing in these labs.

But you can see we're going to be working in the areas of energy conservation, water conservation, solid waste.

These are some of the kind of lab specific recycling water savings.

As we know, we use a lot of water in these areas. And then energy will be a big one.

This is a very busy slide. I know, but we're going to be looking at freezers.

We're going to be looking more shared equipment.

we're going to have programs that bring this to people instead of having, people having to search it out for themselves.

And I keep saying it, but very excited to have this.

So and the most important thing will be is that people in the labs are going to be involved and running these programs

we're going to have this coordinator will make sure that everybody's communicating and helping to organize programs.

But we really want to reach out and make sure that everybody feels like they can be a part of this.

So back to my earlier comment about how are you involved?

And, you know, we hope that this idea reaches further than just the labs, because we know a lot of stuff happens in these education, education buildings as well.

With our events, we want to make sure that everybody feels like they can be involved, especially with the with the stuff aspect of campus.

So, that's that. And again, if you have questions, all my information's on our website, our website.

You can go back to that and I'm happy to answer any questions specific to this stuff,

but we just want to take some time right now with the last ten minutes.

And did I missed anything there that you want to do, either of you? And answer some questions.

And these are some that we've already received. And, you know, I hope that we've covered some of this, but I did want to touch on a couple of these. With the third one about efforts to events and large gatherings.

We are actively working to make sure that our events are covered more with our waste diversion efforts.

Again, I mentioned that already. But we also need help with our vendors on campus to participate, to make sure that they're carrying the right stuff to go on the recycling and the compost

moving forward. And this this is all a discussion we're having.

This will also be a big part of our climate action plan that we're beginning work on right now with some of these policies, with what comes on the campus, what moves off of campus.

Right. This was a very interesting question.

With the parking structures being able to handle the the additional vehicle weight, because EVs are very heavy.

Right? So, a Tesla weighs more than an F-150 by 1,500, 2,000 pounds or something.

So they are heavy. Those batteries are heavy. Now, the garage is all these parking garages are, well, overbuilt to handle the weight.

So that's not as big of an issue as you might think it is the bigger problem, and this is the problem all around campus,

is do we have the electricity supply for all the energy, all the electric vehicles that will be coming on the campus in the future years?

We're trying to build out this infrastructure as we can.

We're replacing transformers we're upsizing transformers and putting more electric panels on campus so that we can put in these EV charging units.

But right now, we're kind of limited in the places that they can go. But we're hoping to, you know, come up as part of our long term plan,



come up with a better infrastructure program, for EV because the parking garage right now,

we can't even put any more vehicle charging in there right now without doing some major upgrades to the electric supply to that building.

And that the preserving green space will facilitate.

Great. That's such an important question, and I am excited to say that that is such a huge part of our facilities master plan, and all of our planning is to preserve green space on campus as much as possible.

There are no plans for any green space that I'm aware of. To have a facility built on them. Now, parking lots, all of the parking lots could be a future place for a facility to be constructed.

But all of our green space is not. And we're hoping to get better with how we build our green space.

If you notice the landscaping around the new, research building at AHSB and the Campus Services building,

it's all super low water native plants that have been planted in those areas trying to cut down on our water use on campus.

And that will be our M.O. from here on out. So, .

I'm going to just open up for people here to ask some questions. And Jay has all the answers.

So. Go for it.

We do.

And actually, Fisher, Thermo Fisher and Kimberly Clark are really supporting this program.

So you basically collect the gloves in your lab, and then there is a central, like, collection facility that's in research 2.

Cody. Is that right? And on the dock and research 2 where you go dump those gloves and then when.

Yep. And then when that fills up, they ship them off to the recycling facility.

And you do, there's like six different styles of gloves

I think that you can purchase, to go with those that are all, a part of that program.

There has to be somebody in the lab dedicated to making sure that happens.

I know that Raul Hernandez, who is the Thermo Fisher rep is very happy to help and facilitate that.

And I can I can share his information.

They are comparable. I will not say that they're the same price, but they are comparable.

So I, and that's the deal. It has to still fit in your budget.

Right. And I think I think that it will.

Thanks. Hello. , thank you for this information. This is really awesome.

And it's great efforts going on on the campus. I'm just wondering if there's any, metrics in terms of, like, due dates, compliance by the state, punitive measures if you don't comply, that kind of thing.

And I'm not trying to be sarcastic. I'm actually kind of being serious. Yeah. Let's go back a little bit. So we don't have, like, there's nothing coming from like the Regents that says do this by this time, right.

They've allowed us to plan as, as we can as an institution.

But the state has given us these mandates for different incremental times for greenhouse gas emissions reductions and energy use intensity reductions.

And those start in 2026 is actually the first date for that.

And then 2030, there is a much like bigger reduction goal that is due by that time.

And we spent, our energy engineer has been incredibly busy over the past few years.

And some of this legislation has come through just putting all of our historical data and all of our current data into this Energy Star portfolio manager, which is how we are tracking all of our energy and greenhouse gas emissions at this point.

And that is something it's good. It's been super intensive for him.

But it's great because it puts everybody on the same playing field.

Everybody in the state of Colorado is required to do that, and that's how they go in and see if you're meeting your goals for this 2026 goal.

Your 2030 goal is actually a goal for GHG emissions to be dropped every five years, going out until 2050.

So there's not been, what I've seen yet, a kind of fiduciary or monetary penalty.

For meeting these goals as of yet. There is one for the hospitals, though, right?

Yeah, that's that's a public private thing. So the state agencies are exempted from the penalty portion of it.

So, you know, legislature is really good at imposing things and not having themselves have to do it.

So anyway, it's basically an unfunded mandate for the state.

So they realize they're not going to provide billions and billions and billions of

dollars for all of the state agencies around the around the state to meet these goals.

It's going to be on us to do that. So the little civil penalty piece of it is taken out.

So doesn't mean we're not doing it. We're still held to the same standards as everybody else is.

It does go up to the regions. It does go up to the president. It is obviously public information.

We're talking about it very openly. But as far as the the penalty piece of it, no, we are not subject to that.

Yeah. Were there any chat questions?

Nope. Not yet. All right. Well, we we're almost out of time.

Anybody else in the room have anything else? All right.

Not seeing anything. Well, thank you all so much for attending. We really appreciate it. Thank you Jarret.

Thank you Greg. Thank you Debbie I appreciate it.

So. And we will. We'll also put this presentation up on our website for everybody.

You can go and look afterwards.

There's actually quite a few more slides that we didn't have time to get through that talks about smart building and space conservation, how it translates into actual dollars and cents in energy, which are really, really informative too.

So please go visit the website. The website.