Webinar

Water Wise Development Coalition Meeting -12

Date: February 11, 2026

00:00:09 --> 00:00:10: Hello, everyone.
00:00:10 --> 00:00:11: Welcome.
00:00:11 --> 00:00:13: Thank you for joining us today.
00:00:14 --> 00:00:15: My name is Marion Epig.
00:00:15 --> 00:00:18: I'm the Senior Director of Resilience for ULI.
00:00:18 --> 00:00:20: And it's my pleasure to welcome to you to the
00:00:21 --> 00:00:23: Water Wise Development Coalition meeting today.
00:00:24 --> 00:00:26: It's on data center best practices.
00:00:26 --> 00:00:28: While I do some intro remarks.
00:00:28 --> 00:00:31: You're welcome to just add your name, organization and where
00:00:31 --> 00:00:33: you're calling in from into the chat box.
00:00:34 --> 00:00:36: We'd love to just see who all is participating today.
00:00:41 --> 00:00:44: For those of you who are new here, You will
00:00:44 --> 00:00:47: Lie or The Urban Land Institute is a global nonprofit
00:00:47 --> 00:00:51: focused on responsible land use and sustainable developments.
00:00:53 --> 00:00:57: We have over 46,000 members, including a broad range of
00:00:57 --> 00:01:00: professionals active in real estate and land use.
00:01:01 --> 00:01:04: We work globally, nationally, regionally and locally, and we have
00:01:05 --> 00:01:08: over 70 district and national councils, which is what we
00:01:08 --> 00:01:10: call chapters all around the world.
00:01:13 --> 00:01:17: I work for Utilize Urban Resilience Program, which is focused
00:01:17 --> 00:01:20: on how building cities and communities can be more resilient
00:01:20 --> 00:01:25: to the impacts of climate change and other environmental vulnerabilities.
00:01:25 --> 00:01:29: We do this by advancing industry understanding of resilience, cultivating
00:01:29 --> 00:01:34: champions and catalyzing partnerships and supporting communities directly and becoming
00:01:34 --> 00:01:36: more climate resilient.
00:01:38 --> 00:01:41: We have many reports that are available for free on

00:01:41 --> 00:01:45: our website on all sorts of resilience related issues.
00:01:45 --> 00:01:48: We hope that you find these, and if you have
00:01:48 --> 00:01:50: any questions about these, we'd love to hear from you
00:01:50 --> 00:01:51: as well.
00:01:53 --> 00:01:56: One report in particular that's relevant to this coalition is
00:01:57 --> 00:01:58: our Water Wise Development Report.
00:01:59 --> 00:02:04: This report introduces the challenges associated with limited freshwater availability,
00:02:04 --> 00:02:07: and it provides best practices for real estate and land
00:02:07 --> 00:02:10: use professionals across sectors to address them.
00:02:10 --> 00:02:12: You can access it for free via this QR code
00:02:13 --> 00:02:15: and I believe my colleague will be sharing some links
00:02:15 --> 00:02:16: in the chat as well.
00:02:20 --> 00:02:23: For those of you who are also interested in the
00:02:23 --> 00:02:27: issues related to too much water, we also have resources
00:02:27 --> 00:02:28: along those lines.
00:02:29 --> 00:02:32: The Harvesting the Value of Water report is about green
00:02:32 --> 00:02:36: infrastructure and the Surge report is about coastal resilience and
00:02:36 --> 00:02:39: how we can enhance our coastal resilience through real estate.
00:02:40 --> 00:02:43: These reports and many others are available for free on
00:02:43 --> 00:02:45: our website and we hope that you grab them.
00:02:49 --> 00:02:52: Also, for those of you who are new here, the
00:02:52 --> 00:02:56: Water Wise Development Coalition convenes land use and real estate
00:02:56 --> 00:03:00: professionals with public sector decision makers to advance water smart
00:03:00 --> 00:03:03: real estate development and supportive policies.
00:03:03 --> 00:03:07: It's free to participate in the coalition's quarterly virtual meetings
00:03:07 --> 00:03:10: and participants have a say in meeting topics, speakers and
00:03:11 --> 00:03:11: efforts.
00:03:11 --> 00:03:13: We hope you'll stay until the end to be part
00:03:13 --> 00:03:14: of those discussions.
00:03:18 --> 00:03:20: To set the stage for our speakers today, I've been
00:03:20 --> 00:03:22: asked to provide a bit of context.
00:03:22 --> 00:03:26: As I'm sure many of you know, there are big
00:03:26 --> 00:03:31: investments in data center development that are under way to
00:03:31 --> 00:03:36: meet the growing demand, and data centers use significant amounts
00:03:36 --> 00:03:38: of energy and water.
00:03:42 --> 00:03:45: Here's some projections of how water and energy used by

00:03:45 --> 00:03:47: data centers is expected to grow.
00:03:47 --> 00:03:50: By around 20-30 U.S.
00:03:50 --> 00:03:53: data centres alone are expected to at least double their
00:03:53 --> 00:03:56: energy and water use within the next five years, but
00:03:56 --> 00:03:58: the numbers may become much higher.
00:04:03 --> 00:04:06: Along these lines, I think it's important to note that
00:04:06 --> 00:04:08: there are trade-offs between water and energy use.
00:04:09 --> 00:04:13: Water cooled data centres generally use less energy, while data
00:04:13 --> 00:04:18: centers that employ water efficient dry cooling systems have higher
00:04:18 --> 00:04:19: energy demands.
00:04:20 --> 00:04:24: Given these trade-offs, the Western resource advocates in particular advocates
00:04:24 --> 00:04:27: that the type of cooling system should be evaluated and
00:04:27 --> 00:04:30: selected on a case by case basis depending on the
00:04:30 --> 00:04:32: location of that data center.
00:04:35 --> 00:04:38: All in all, communities are afraid and are pushing back,
00:04:38 --> 00:04:39: which many of us already know.
00:04:41 --> 00:04:43: So we would like to know how do we employ
00:04:43 --> 00:04:47: best practices to minimize impacts on and even support communities
00:04:47 --> 00:04:50: that host data centers so that we can meet in
00:04:50 --> 00:04:51: the middle.
00:04:54 --> 00:04:57: With that, we have a fantastic line up of speakers
00:04:57 --> 00:05:00: for you today, all of whom will discuss best practices
00:05:00 --> 00:05:03: for data centers, especially related to water since this is
00:05:03 --> 00:05:07: the Water Wise Development Coalition, but also with respect to
00:05:07 --> 00:05:08: energy.
00:05:08 --> 00:05:12: Our speakers include Howard, New Craig, and I'm sure he'll
00:05:12 --> 00:05:14: correct me, I'm on the pronunciation.
00:05:14 --> 00:05:18: And Bretton McCloskey from the Water Center at Penn.
00:05:18 --> 00:05:20: They are part of the Water AI Nexus Center of
00:05:20 --> 00:05:24: Excellence, and they're going to be talking about principles for
00:05:24 --> 00:05:26: sustainable water use by data centers.
00:05:26 --> 00:05:28: We'll then have Laura Metters from Apple.
00:05:29 --> 00:05:31: She's going to be talking about the many best practices
00:05:31 --> 00:05:33: employed by Apple, which is wonderful.
00:05:34 --> 00:05:36: And Sarah Welton from the GRAS Foundation is going to
00:05:37 --> 00:05:40: be talking about the standards that they're currently developing for
00:05:40 --> 00:05:41: data centers.

00:05:41 --> 00:05:44: And we'll end with group discussion and resource sharing, and

00:05:44 --> 00:05:46: we hope that you stay with us until the end.

00:05:47 --> 00:05:49: With that, I'll turn it over to our first set

00:05:49 --> 00:05:51: of speakers, Howard and Brendan.

00:05:54 --> 00:05:55: Hi, everybody.

00:05:55 --> 00:05:57: Brendan, if we get the slides up, please.

00:05:57 --> 00:05:59: Yes, doing that right now.

00:06:01 --> 00:06:04: Welcome everyone and thank you to Marianne and Uli for

00:06:04 --> 00:06:06: putting together this webinar.

00:06:06 --> 00:06:07: This is really great.

00:06:07 --> 00:06:10: My name is Howard New Krug and I'm the executive

00:06:10 --> 00:06:11: director of the Water Center at Penn.

00:06:12 --> 00:06:15: In a few minutes you will hear from my colleague

00:06:15 --> 00:06:16: Brett McCluskey.

00:06:17 --> 00:06:19: We couldn't have picked a better time for this conversation.

00:06:19 --> 00:06:22: As Marianne indicated, the race to build data centers is

00:06:22 --> 00:06:25: and I just, you know, I just have to say

00:06:25 --> 00:06:27: this and put an excuse my the race for building

00:06:27 --> 00:06:29: data centers is really heating up.

00:06:30 --> 00:06:33: And we hear a lot about a is promises, its

00:06:33 --> 00:06:36: risks and its impacts on the workforce.

00:06:36 --> 00:06:40: And of course, we can't overlook the physical realities and

00:06:40 --> 00:06:44: that's these systems require massive amounts of land, energy and

00:06:44 --> 00:06:44: water.

00:06:45 --> 00:06:49: And while data centers might represent a small fraction of

00:06:49 --> 00:06:53: water use globally, the impact is felt intensely at the

00:06:53 --> 00:06:53: local level.

00:06:54 --> 00:06:58: That is, when a facility moves into a community, water

00:06:58 --> 00:07:01: scarcity is no longer a theory, it's an emergency.

00:07:01 --> 00:07:04: So our goal is to provide a road map for

00:07:04 --> 00:07:05: water sustainability.

00:07:06 --> 00:07:10: The Water AI Center of Excellence Excellence has just released

00:07:10 --> 00:07:14: a landmark report called Principles for Sustainable Water Use by

00:07:14 --> 00:07:15: Data Centers.

00:07:15 --> 00:07:18: It is a must read for anyone in this space.

00:07:18 --> 00:07:21: And in a few minutes, my colleague Brent McCluskey will

00:07:21 --> 00:07:24: present the key findings from that report.

00:07:24 --> 00:07:25: Next slide, please.

00:07:27 --> 00:07:29: First of all, a little bit about the water center

00:07:29 --> 00:07:29: at Penn.

00:07:29 --> 00:07:33: It is the University of Pennsylvania's hub for regional and

00:07:33 --> 00:07:36: global leadership in water leadership and policy.

00:07:36 --> 00:07:39: We are shaping the future of water during these times

00:07:40 --> 00:07:43: of great climate, economic and political uncertainties.

00:07:43 --> 00:07:46: And our work is our work is focusing on designing

00:07:46 --> 00:07:51: resiliency in this rapidly changing world, advancing new technologies, policies

00:07:51 --> 00:07:55: and practices, and most importantly to me, is building the

00:07:55 --> 00:07:57: next generation of water leadership.

00:07:58 --> 00:07:59: Next slide, please.

00:08:01 --> 00:08:05: So last October, 4 organizations joined in partnership to form

00:08:05 --> 00:08:07: the Water AI Nexus Center of Excellence.

00:08:08 --> 00:08:12: Water Environment Federation is a technical and educational nonprofit with

00:08:12 --> 00:08:16: more than 30,000 water quality professionals and brings its deep

00:08:16 --> 00:08:18: expertise and water sector transformation.

00:08:19 --> 00:08:23: Amazon, Amazon Web Services, I think we all know they

00:08:23 --> 00:08:26: have the this cloud and AI expertise and tangible examples

00:08:26 --> 00:08:30: of how data center development can occur sustainably.

00:08:31 --> 00:08:35: Leading utilities of the world is Global Water Utility gives

00:08:35 --> 00:08:39: us a global water utility perspectives from eighty of the

00:08:39 --> 00:08:43: most progressive water utility leaders in the world and give

00:08:43 --> 00:08:46: us help in shaping practical AI applications.

00:08:47 --> 00:08:50: And finally, the Water Center at Penn, we contribute the

00:08:50 --> 00:08:55: academic rigor, the research leadership, the the neutral convening location

00:08:55 --> 00:08:56: and policy insights.

00:08:57 --> 00:09:00: We believe our mission is that we believe that sustainable

00:09:00 --> 00:09:04: water management and digital infrastructure can reinforce each other in

00:09:04 --> 00:09:06: very positive ways.

00:09:06 --> 00:09:09: We call this duality water for AI and AI for

00:09:09 --> 00:09:10: water.

00:09:10 --> 00:09:13: Water for AI, which is what we're gonna touch on

00:09:13 --> 00:09:18: today is ensuring it's sustainable and resilient water practices that

00:09:18 --> 00:09:21: are a key element in citing building and operating data

00:09:21 --> 00:09:22: centers.

00:09:22 --> 00:09:25: And second, AI for the water industry, where the promise

00:09:26 --> 00:09:29: of AI will help transform the water industry worldwide.

00:09:30 --> 00:09:30: Next slide, please.

00:09:32 --> 00:09:35: So with that, I'm going to bring in Brenton McCluskey
00:09:35 --> 00:09:37: to do the heavy lifting and give us give us
00:09:37 --> 00:09:40: the results of the reports that was just produced.
00:09:40 --> 00:09:40: Brenton.
00:09:41 --> 00:09:42: Thanks, Howard.
00:09:42 --> 00:09:43: Really appreciate that.
00:09:43 --> 00:09:43: Hi, everybody.
00:09:43 --> 00:09:47: I'm Brenton McCluskey, Director of Strategic Development Communications at the
00:09:47 --> 00:09:48: Water Center.
00:09:48 --> 00:09:52: I lead a few few things at the water center,
00:09:52 --> 00:09:55: one being the AI initiatives at the center.
00:09:55 --> 00:09:58: And we're so excited to be part of the the
00:09:58 --> 00:10:01: water AI Nexus and to be diving into some of
00:10:01 --> 00:10:04: the issues around water and AI.
00:10:04 --> 00:10:05: And as Howard mentioned, AI for water.
00:10:06 --> 00:10:10: We obviously know we're not the only, you know, organization
00:10:10 --> 00:10:13: focusing on these types of issues, but we're excited to
00:10:13 --> 00:10:16: be part of the team that is is is very
00:10:16 --> 00:10:20: deeply committed to finding solutions for the communities in which
00:10:20 --> 00:10:21: we work.
00:10:23 --> 00:10:24: And again, my apology.
00:10:24 --> 00:10:27: I just want to say my apologies for the way
00:10:27 --> 00:10:28: the PowerPoint looks.
00:10:28 --> 00:10:30: This is the only way I could get my notes
00:10:30 --> 00:10:31: on the side of the screen as well.
00:10:31 --> 00:10:33: So hopefully you can.
00:10:33 --> 00:10:37: I do trust that everybody can see the entire screen,
00:10:37 --> 00:10:37: though.
00:10:39 --> 00:10:42: So first, as Howard had noted, just wanted again to
00:10:42 --> 00:10:46: reiterate that this Insight report was published at the end
00:10:46 --> 00:10:47: of September last year.
00:10:47 --> 00:10:50: It was doing the announcement of the Water AI Nexus
00:10:50 --> 00:10:51: Center of Excellence.
00:10:52 --> 00:10:55: It lays out a practical framework for how data centers
00:10:55 --> 00:10:59: and really large water and energy intensive developments I think
00:10:59 --> 00:11:03: can be better stewards of water as digital infrastructure scales.
00:11:05 --> 00:11:09: The four principles aren't meant to be abstract sustainability goals,

00:11:09 --> 00:11:13: but rather their decision guides for citing design, operations, community

00:11:13 --> 00:11:14: engagement.

00:11:15 --> 00:11:18: And together they move the conversation from how do we

00:11:18 --> 00:11:21: reduce harm to how do we align digital growth and

00:11:22 --> 00:11:24: water smart, resilient development.

00:11:25 --> 00:11:29: So I'll walk through each principle briefly, focusing on what

00:11:29 --> 00:11:34: it means in practice for developers, utilities, public sector partners,

00:11:34 --> 00:11:38: and where this creates both risk reduction and long term

00:11:38 --> 00:11:38: value.

00:11:39 --> 00:11:42: I just also want to note that that the audience

00:11:42 --> 00:11:45: here as part of the ULI Water Wise Development Coalition,

00:11:45 --> 00:11:49: looks at promoting water efficient development and policies.

00:11:50 --> 00:11:52: And also note that I'm not a development professional, but

00:11:52 --> 00:11:55: come from the water practitioner viewpoint.

00:11:55 --> 00:11:57: So I apologize in advance for any confusion on what

00:11:58 --> 00:12:00: I've translated into development terms.

00:12:00 --> 00:12:02: So hopefully I don't butcher that too much.

00:12:03 --> 00:12:06: So first I really just want to jump into the

00:12:06 --> 00:12:10: first principle, which is improving design and and citing practices.

00:12:11 --> 00:12:15: This is really about treating data centers and large projects

00:12:15 --> 00:12:17: in general as infrastructure, not just buildings.

00:12:18 --> 00:12:22: I think sighting and cooling choices are long term climate

00:12:22 --> 00:12:26: and water and asset risk decisions that affect things like

00:12:26 --> 00:12:28: zoning, environmental permits, finding.

00:12:28 --> 00:12:32: I think maybe the development space refers to that as

00:12:32 --> 00:12:36: entitlements, but financing and community acceptance as well.

00:12:38 --> 00:12:39: The question isn't what's the cheapest land?

00:12:39 --> 00:12:42: I think what it is, what actually makes sense in

00:12:42 --> 00:12:44: this watershed and on this grid.

00:12:45 --> 00:12:49: And sometimes the right development decision is to shift intensity

00:12:49 --> 00:12:51: or phase differently or or not build at all.

00:12:52 --> 00:12:55: So just wanted to note a couple of of points

00:12:55 --> 00:12:57: here within this principle.

00:12:57 --> 00:13:00: 1, is this plan data centers as part of a

00:13:00 --> 00:13:04: larger water, energy and climate systems, not just a stand

00:13:04 --> 00:13:05: alone facilities.

00:13:05 --> 00:13:09: I think siding and cooling are long term resilience and

00:13:09 --> 00:13:11: asset risk decisions as well.

00:13:12 --> 00:13:15: The second move from efficiency to impact.

00:13:15 --> 00:13:18: I think for example, measuring water and energy use per

00:13:18 --> 00:13:22: unit of computing and place, placing workloads where resources are

00:13:22 --> 00:13:25: most sustainable I think is important to note.

00:13:26 --> 00:13:28: And finally choose locations for shared value.

00:13:28 --> 00:13:31: I think sometimes choose not to build to avoid stranded

00:13:31 --> 00:13:35: assets and reduce long term environmental and community risks.

00:13:36 --> 00:13:38: So this really wraps up principle one.

00:13:38 --> 00:13:42: I just wanted to highlight a few examples here of

00:13:42 --> 00:13:44: of how this principle could be applied.

00:13:44 --> 00:13:48: I think you know, using watershed flood risk and grid

00:13:48 --> 00:13:51: capacity screening early in site selection, not after the land

00:13:51 --> 00:13:54: is already tied up, I think is important.

00:13:55 --> 00:13:58: Design campuses for phase or modular growth so development can

00:13:58 --> 00:14:00: track infrastructure capacity.

00:14:00 --> 00:14:01: Another example.

00:14:01 --> 00:14:04: And finally, maybe shift non time critical uses or building

00:14:04 --> 00:14:07: phases to lower stress regions or sites within a particular

00:14:08 --> 00:14:08: portfolio.

00:14:10 --> 00:14:14: Moving on to principle 2, reduce water consumption.

00:14:15 --> 00:14:19: This isn't just about better equipment, I think it's about

00:14:19 --> 00:14:24: managing water like a core performance and and entitlement risk

00:14:24 --> 00:14:24: metric.

00:14:25 --> 00:14:27: I'm thinking of all the permitting and things that need

00:14:27 --> 00:14:27: to happen.

00:14:28 --> 00:14:32: The water use effectiveness is a starting point but really

00:14:32 --> 00:14:32: matter.

00:14:32 --> 00:14:35: But what really matters is where water and energy per

00:14:35 --> 00:14:36: unit of activity.

00:14:36 --> 00:14:39: Especially as buildings and campuses get more energy intensive.

00:14:39 --> 00:14:40: I I think that's important to note.

00:14:42 --> 00:14:45: With modern controls and data developers and operators, they can

00:14:45 --> 00:14:48: now optimize water use in real time and make smarter

00:14:48 --> 00:14:51: trade-offs between water power and costs.

00:14:52 --> 00:14:56: And just a few pieces from this particular principle.

00:14:56 --> 00:15:00: One is is managing water like a core performance metric,

00:15:00 --> 00:15:01: not a by product.

00:15:01 --> 00:15:03: I think we need to optimize water per unit of

00:15:03 --> 00:15:07: computing work, for example using real time data sensors and

00:15:07 --> 00:15:08: AI driven operations.

00:15:09 --> 00:15:13: The other piece is designed for smart trade-offs, not single

00:15:13 --> 00:15:13: metrics.

00:15:13 --> 00:15:17: Hybrid and adaptive cooling can can sometimes cut total system

00:15:17 --> 00:15:20: impacts across both water and and energy.

00:15:21 --> 00:15:23: And I think the third piece here set reduction targets

00:15:24 --> 00:15:25: to drive innovation.

00:15:25 --> 00:15:28: Upscale is important thinking of small water use efficiency gains

00:15:28 --> 00:15:33: compounded into massive water savings across hyperscale infrastructure.

00:15:34 --> 00:15:36: Just a few examples here for this particular principle.

00:15:37 --> 00:15:40: I think setting project level water intensity targets tied to

00:15:40 --> 00:15:44: local water stress and utility constraints could be something useful

00:15:44 --> 00:15:46: here to think about how this is applied.

00:15:47 --> 00:15:51: Maybe using a hybrid or adaptive cooling and building systems

00:15:51 --> 00:15:54: that respond to weather, occupancy and grid conditions.

00:15:54 --> 00:15:56: Isn't is another way this could be utilized?

00:15:57 --> 00:16:00: Or comparing total system impacts before choosing no on site

00:16:00 --> 00:16:03: water designs that may strain the grid or upstream water

00:16:04 --> 00:16:04: supplies.

00:16:04 --> 00:16:06: Isn't is another way this could be applied?

00:16:09 --> 00:16:13: Moving on to the third principle, reuse and and sustainability

00:16:13 --> 00:16:15: and sustainably sourced water.

00:16:15 --> 00:16:19: So this is about keeping water in circulation instead of

00:16:19 --> 00:16:22: treating it as a one time input to a building

00:16:22 --> 00:16:23: or district for real estate.

00:16:25 --> 00:16:28: Translating as real estate, I think this is as protecting

00:16:28 --> 00:16:32: drinking water supplies, maximizing on site and district scale reuse

00:16:32 --> 00:16:37: and leaning into drought resilient sources like recycled water, especially

00:16:37 --> 00:16:41: for large water intensive developments is important to keep in

00:16:41 --> 00:16:41: mind.

00:16:42 --> 00:16:44: And again, just some of the highlights of this particular

00:16:45 --> 00:16:45: principle.

00:16:46 --> 00:16:48: Keep water in circulation, not in a straight line.

00:16:48 --> 00:16:53: Maximizing reuse through higher cycles of concentration, closed loop liquid

00:16:53 --> 00:16:55: cooling and on site treatment.

00:16:55 --> 00:17:01: For example, prioritize non potable and drought resilient sources.

00:17:02 --> 00:17:05: So expanding use of recycled municipal water and rainwater to

00:17:05 --> 00:17:09: protect community drinking supplies is is important here.

00:17:10 --> 00:17:12: And and finally cascade water to its next best use.

00:17:12 --> 00:17:16: So reuse, for example, reuse spent cooling water for irrigation

00:17:16 --> 00:17:20: or other purposes to cut waste energy and infrastructure cost.

00:17:21 --> 00:17:25: Some examples of how we envision some of this being

00:17:25 --> 00:17:26: applied.

00:17:27 --> 00:17:30: Design projects to use recycled or non potable water for

00:17:30 --> 00:17:33: cooling, irrigation and other non potable demands.

00:17:34 --> 00:17:37: Add on site treatment or district systems to increase reuse

00:17:37 --> 00:17:39: and reduce freshwater demand.

00:17:40 --> 00:17:45: Capture and reuse condensate or rainwater where it pencils out

00:17:45 --> 00:17:48: and supports storm water goals, for example.

00:17:49 --> 00:17:53: And again, I know some of these examples that I'm

00:17:53 --> 00:17:57: sharing are already being implemented in in citing and design

00:17:57 --> 00:18:00: practices and how water is being reused as cooling in

00:18:01 --> 00:18:02: in closed loop systems.

00:18:04 --> 00:18:08: And finally, the 4th principle, which is engaged with communities.

00:18:08 --> 00:18:10: This is something that the water center at Penn is

00:18:10 --> 00:18:11: deeply committed to.

00:18:11 --> 00:18:14: I think you know, our role as an applied Research

00:18:15 --> 00:18:19: Center is, is really working with communities to better understand

00:18:19 --> 00:18:23: their water infrastructure needs and how we can assist them

00:18:23 --> 00:18:27: through technical expertise, financing and and other sort of hand

00:18:27 --> 00:18:31: holding that we can do to really help them along

00:18:31 --> 00:18:34: in terms of how they're improving or re evaluating their

00:18:34 --> 00:18:36: water infrastructure.

00:18:37 --> 00:18:40: So this particular principle, it's about being a long term

00:18:40 --> 00:18:44: neighbor and infrastructure partner, not just getting a project approved.

00:18:45 --> 00:18:49: I think early engagement with utilities, municipalities and communities reduces

00:18:50 --> 00:18:52: risks, speeds, approvals and surfaces.

00:18:52 --> 00:18:56: Shared investment opportunities and replenishment shouldn't be treated like an

00:18:56 --> 00:18:57: offset.

00:18:57 --> 00:18:59: It should be part of the core development and infrastructure

00:18:59 --> 00:19:00: strategy.

00:19:00 --> 00:19:03: So just a couple pieces of this of of this

00:19:03 --> 00:19:06: principle I want to share is plan with communities and

00:19:06 --> 00:19:07: utilities, not around them.

00:19:07 --> 00:19:11: So use early ongoing engagement to understand local water stress

00:19:11 --> 00:19:12: and infrastructure constraints.

00:19:13 --> 00:19:17: The second piece here, treat replenishment as a core infrastructure

00:19:17 --> 00:19:18: strategy, not an afterthought.

00:19:18 --> 00:19:23: I think investing in watershed restoration, wash and system efficiency

00:19:23 --> 00:19:27: to return water to communities and ecosystems is important.

00:19:28 --> 00:19:32: And finally, focus on measurable durable impact, select projects carefully

00:19:32 --> 00:19:35: that use credible methods and monitor outcomes over time.

00:19:36 --> 00:19:39: So just a few examples of how we envision this

00:19:39 --> 00:19:40: being applied.

00:19:40 --> 00:19:43: I think 1 would be coordinating early with water and

00:19:43 --> 00:19:46: wastewater utilities, capacity and timing and needed upgrades.

00:19:46 --> 00:19:49: I think we're hearing a lot of that through shared

00:19:49 --> 00:19:53: benefit agreements and community partnerships between tech companies and and

00:19:53 --> 00:19:54: communities.

00:19:54 --> 00:19:57: I think there is not a standardized policy of how

00:19:57 --> 00:19:58: this is being applied.

00:19:58 --> 00:20:01: So it's important to think of how we can can

00:20:02 --> 00:20:07: create a standard policy where there is actionable engagement between

00:20:07 --> 00:20:12: the data center sitting and in the communities itself and

00:20:12 --> 00:20:14: their shared water resources.

00:20:15 --> 00:20:18: I think another example would be Co invest in projects

00:20:18 --> 00:20:23: like leak detection, stormwater management, or watershed restoration tied to

00:20:23 --> 00:20:24: growth areas.

00:20:25 --> 00:20:29: Another use measurable transparent methods to show how projects return

00:20:29 --> 00:20:31: water benefits to the community.

00:20:32 --> 00:20:35: So those are the, those are the four principles we

00:20:35 --> 00:20:39: just really wanted to quickly outline that I think to
00:20:39 --> 00:20:42: help shape the conversation today.
00:20:43 --> 00:20:47: Again, some of these are being already implemented.
00:20:47 --> 00:20:49: I think a lot of the communities and partners that
00:20:49 --> 00:20:52: we're working with, you know, these are being embedded in
00:20:52 --> 00:20:55: those in those conversations and best practices that they're that
00:20:55 --> 00:20:56: they're doing.
00:20:56 --> 00:20:59: So I just want to recognize that these aren't, these
00:21:00 --> 00:21:01: aren't all new.
00:21:01 --> 00:21:03: These are, these are things that that are happening.
00:21:03 --> 00:21:06: But I think there are Nuggets here that are important
00:21:07 --> 00:21:10: that we keep in mind as we build data centers
00:21:10 --> 00:21:14: and site and, and better understand the water usage issues.
00:21:14 --> 00:21:16: So at that, I'll, I'll leave it.
00:21:17 --> 00:21:19: Our contact information is here.
00:21:20 --> 00:21:21: Would love to to hear from you all.
00:21:21 --> 00:21:24: If there's any questions or how how the Water center
00:21:24 --> 00:21:27: at Penn can be of assistance, please let us know.
00:21:28 --> 00:21:30: Thank you so much, Brenton and Howard.
00:21:30 --> 00:21:34: I'm wondering, Brenton, if you don't mind sharing the link
00:21:34 --> 00:21:36: to the report in the chat box so that people
00:21:36 --> 00:21:37: can easily grab it?
00:21:38 --> 00:21:41: And in the interest of time, we're going to go
00:21:41 --> 00:21:43: to the next speaker, but I would love for people
00:21:43 --> 00:21:47: to put their questions for speakers as they're going in
00:21:47 --> 00:21:49: the chat box or you could use the Q&A box,
00:21:49 --> 00:21:52: but I think the chat box might be the easiest
00:21:52 --> 00:21:52: here.
00:21:54 --> 00:21:57: And then speakers are welcome to respond in the chat
00:21:57 --> 00:21:59: box, or we can hold on to them until the
00:21:59 --> 00:22:01: end and have a group discussion about them.
00:22:02 --> 00:22:03: Thank you, guys.
00:22:03 --> 00:22:04: OK.
00:22:04 --> 00:22:08: Our next speaker is Laura Metters from Apple.
00:22:08 --> 00:22:10: Laura, would you like me to share your slides?
00:22:11 --> 00:22:13: Yeah, I was thinking that would be great.
00:22:13 --> 00:22:16: I am not confident in my ability for my system
00:22:16 --> 00:22:17: to work with Zoom.
00:22:18 --> 00:22:19: So that sounds good.
00:22:21 --> 00:22:22: Is this full screen for you?
00:22:23 --> 00:22:24: No, that's it's not.

00:22:25 --> 00:22:27: OK one SEC while I fix this.
00:22:28 --> 00:22:30: Now it's full screen, but it was one ahead.
00:22:31 --> 00:22:32: Yeah, one SEC.
00:22:39 --> 00:22:39: About that.
00:22:39 --> 00:22:40: Yeah, there we go.
00:22:40 --> 00:22:41: That's perfect.
00:22:42 --> 00:22:44: So thank you for having me.
00:22:44 --> 00:22:45: I'm Laura Metters.
00:22:45 --> 00:22:48: I'm the Global Sustainability Program's lead here at Apple and
00:22:48 --> 00:22:52: excited to talk about advancing water stewardship and data centers.
00:22:52 --> 00:22:54: So next slide.
00:22:58 --> 00:23:00: So it's it's funny, I used to sort of present
00:23:00 --> 00:23:03: this slide and you know, it would be a surprise
00:23:03 --> 00:23:06: to everyone why water had anything to do with Apple.
00:23:06 --> 00:23:08: I think now in the last couple of years and
00:23:08 --> 00:23:11: the amount of attention that data centers and water it
00:23:11 --> 00:23:14: and energy issues have gotten, it's no longer a surprise.
00:23:14 --> 00:23:18: But in the last sort of three or four years,
00:23:18 --> 00:23:21: we've really brought water to more of a forefront in
00:23:21 --> 00:23:25: terms of the environmental issues that we're looking at and
00:23:25 --> 00:23:27: and developing strategies for.
00:23:27 --> 00:23:28: At Apple.
00:23:28 --> 00:23:32: We moved upstream obviously into developing our own chips and
00:23:32 --> 00:23:35: then we've got a number of services now that run
00:23:35 --> 00:23:37: out of our data centers as well as Kolos and
00:23:37 --> 00:23:39: and cloud services.
00:23:39 --> 00:23:43: So water has become something now you know, equivalent to
00:23:43 --> 00:23:46: energy in terms of things that we plan for and
00:23:46 --> 00:23:49: and develop responsible strategies for.
00:23:50 --> 00:23:52: So next slide please.
00:23:55 --> 00:23:57: But how we use water is different throughout our value
00:23:57 --> 00:23:57: chain.
00:23:57 --> 00:24:00: So I think we're one of the few tech companies
00:24:00 --> 00:24:04: that actually has an enterprise level water strategy.
00:24:04 --> 00:24:07: So we manage water both in our supply chain and
00:24:07 --> 00:24:10: have a clean water program there that we work with
00:24:10 --> 00:24:14: our suppliers on as well as in our corporate facilities.
00:24:14 --> 00:24:15: And that's the world that I look after.
00:24:15 --> 00:24:20: So our data centers, our corporate offices, retail stores and

00:24:20 --> 00:24:21: distribution centers.
00:24:21 --> 00:24:25: And if you click one more, hopefully a little things
00:24:25 --> 00:24:26: should show up.
00:24:26 --> 00:24:27: There we go.
00:24:27 --> 00:24:29: So, so that is my world.
00:24:29 --> 00:24:32: And the way that we use water there is different
00:24:32 --> 00:24:34: from how we use it in the supply chain in
00:24:34 --> 00:24:37: so far as it tends to be more consumptive.
00:24:37 --> 00:24:39: So in our supply chain, it's processed water.
00:24:39 --> 00:24:42: We can get a lot of benefit out of reuse
00:24:42 --> 00:24:47: and we're not losing a lot of water through evaporation.
00:24:47 --> 00:24:50: It's different obviously in data centers and the rest of
00:24:50 --> 00:24:51: our corporate facilities.
00:24:52 --> 00:24:53: Next slide.
00:24:56 --> 00:25:00: Our overarching goal is really to improve water security in
00:25:00 --> 00:25:02: the places that we operate and we focus on three
00:25:02 --> 00:25:03: elements of that.
00:25:04 --> 00:25:08: We're looking at water, freshwater availability, which is, you know,
00:25:08 --> 00:25:11: does a site to have her or region have enough
00:25:11 --> 00:25:14: water for both nature and for people.
00:25:14 --> 00:25:17: And then quality, which is, is that water fit for
00:25:17 --> 00:25:17: purpose?
00:25:17 --> 00:25:20: And are we using water that is maybe, you know,
00:25:20 --> 00:25:24: clean to a higher degree than we really need for
00:25:24 --> 00:25:25: what our uses?
00:25:25 --> 00:25:26: And then lastly, access.
00:25:26 --> 00:25:29: You can have water availability, you can have good water
00:25:29 --> 00:25:33: quality, but you can still have communities that lack access
00:25:33 --> 00:25:33: to that water.
00:25:34 --> 00:25:38: And that's neither good for, you know, the community or
00:25:38 --> 00:25:39: our operations.
00:25:40 --> 00:25:40: Next slide.
00:25:43 --> 00:25:47: So the way that we approach our overall water strategy
00:25:47 --> 00:25:49: is through 5 pillars.
00:25:50 --> 00:25:52: And I tend to think about this as really on
00:25:52 --> 00:25:55: the left side here, moving from inside the fence line
00:25:55 --> 00:25:57: to on the right side outside the fence line.
00:25:58 --> 00:26:01: So when I started the corporate water program about 10
00:26:01 --> 00:26:04: years ago now at Apple, one of the first things
00:26:04 --> 00:26:07: I did was introduce a water risk analysis into our
00:26:07 --> 00:26:08: design phase.

00:26:08 --> 00:26:10: So our site selection that was, you know, one of
00:26:10 --> 00:26:12: the things that we would look at in addition to
00:26:12 --> 00:26:15: all the other things that that we typically look at
00:26:15 --> 00:26:16: in site selection.
00:26:16 --> 00:26:19: And that includes everything from, you know, is there water
00:26:19 --> 00:26:22: available, Is there a service provider?
00:26:22 --> 00:26:26: But also are you going to be a significant portion
00:26:26 --> 00:26:30: of a basin or a or municipalities water demand and
00:26:30 --> 00:26:33: is that going to cause other issues?
00:26:34 --> 00:26:36: Is that, you know, going to put a target on
00:26:36 --> 00:26:38: your back or being outsized use?
00:26:38 --> 00:26:41: So those are the types of things that we kind
00:26:41 --> 00:26:42: of consider at that early stage.
00:26:42 --> 00:26:46: And then for our existing facilities, we're always looking to
00:26:46 --> 00:26:50: improve our efficiency, look for new conservation opportunities, bring an
00:26:51 --> 00:26:54: alternative sources where we can that's, you know, an ongoing
00:26:54 --> 00:26:55: process.
00:26:55 --> 00:26:59: The third pillar site water stewardship is that inflection point
00:26:59 --> 00:27:02: between inside the fence line and outside the fence line.
00:27:02 --> 00:27:05: And this is when we start to engage with other
00:27:05 --> 00:27:08: water users in the basins that we're operating in and,
00:27:08 --> 00:27:11: you know, understand what their concerns are.
00:27:11 --> 00:27:14: And then begin to move into the 4th and the
00:27:14 --> 00:27:18: 5th pillars where we look at, well, what investments can
00:27:18 --> 00:27:21: we make or what engagement can we have in the
00:27:21 --> 00:27:24: community to help address shared water concerns.
00:27:25 --> 00:27:30: And then our final pillar is leadership and advocacy, which
00:27:30 --> 00:27:33: is where we then try to engage in helping to
00:27:33 --> 00:27:38: develop standards or local policies, you know, state or even
00:27:38 --> 00:27:42: national level policies, if that really ever becomes much of
00:27:42 --> 00:27:43: an opportunity.
00:27:45 --> 00:27:47: And we've we've also done a little bit of work
00:27:47 --> 00:27:51: around sharing best practice as to how we've approached our
00:27:51 --> 00:27:54: water strategy and even some white papers that we put
00:27:54 --> 00:27:58: out around sort of how you think about doing replenishment
00:27:58 --> 00:27:59: projects, for example.
00:28:00 --> 00:28:01: Next slide.
00:28:04 --> 00:28:07: So we have three public water goals that we've announced
00:28:07 --> 00:28:08: in our environmental progress reports.
00:28:10 --> 00:28:13: One is to certify all of our owned and operated

00:28:13 --> 00:28:18: data centers to Alliance for Water Stewardship standard by 2025.

00:28:18 --> 00:28:21: I'll talk a little bit about that today because that's

00:28:21 --> 00:28:23: kind of really the framework for how we approach water

00:28:23 --> 00:28:24: stewardship in our data centers.

00:28:25 --> 00:28:28: And then the other two are replenishing 100% of our

00:28:28 --> 00:28:32: freshwater withdrawals in high stress locations by 20-30.

00:28:32 --> 00:28:34: So we're we're well on our way there.

00:28:34 --> 00:28:38: And then our supply chain, we're aiming to achieve a

00:28:38 --> 00:28:41: 50% reuse rate rate along those suppliers.

00:28:42 --> 00:28:43: Next slide.

00:28:45 --> 00:28:50: So shifting to data center specifically, how do we think

00:28:50 --> 00:28:51: about them?

00:28:51 --> 00:28:53: And I think you can probably click one more here.

00:28:54 --> 00:28:58: Sorry, there's some animation that was built in here, maybe

00:28:58 --> 00:28:59: it's not.

00:29:00 --> 00:29:00: Can you go back one?

00:29:05 --> 00:29:07: OK, well you were supposed to see locations of data

00:29:08 --> 00:29:08: centers here.

00:29:09 --> 00:29:12: We have 8 owned and operated data centers.

00:29:12 --> 00:29:15: So I know people, you know, often think about Apple

00:29:15 --> 00:29:16: as one of the hyper scalers.

00:29:16 --> 00:29:18: We're not actually in the same way.

00:29:18 --> 00:29:21: We're not out there building, you know, 10's and hundreds

00:29:21 --> 00:29:22: of new data centers.

00:29:23 --> 00:29:27: We have five data centers owned and operated data centers

00:29:27 --> 00:29:30: in the US and then three internationally, 2 in China

00:29:30 --> 00:29:32: and one in Denmark.

00:29:32 --> 00:29:35: And we have tended to have a strategy where we

00:29:36 --> 00:29:40: invest significantly in a in a location, in a community

00:29:40 --> 00:29:43: and then grow on that site for many years.

00:29:43 --> 00:29:45: So that, that's the pattern that we've seen.

00:29:46 --> 00:29:49: But data centers in particular are discrete water users.

00:29:49 --> 00:29:55: They're often in highly stressed water locations and they are

00:29:56 --> 00:29:59: often also in remote locations.

00:29:59 --> 00:30:03: So they're, they're quite visible and they're significant parts of

00:30:03 --> 00:30:03: a basin.

00:30:03 --> 00:30:07: So when we were developing our overall strategy, we knew

00:30:07 --> 00:30:11: that data centers needed a particular focus and and something

00:30:11 --> 00:30:15: maybe beyond what we were doing for the rest of

00:30:15 --> 00:30:16: our real estate portfolio.

00:30:18 --> 00:30:18: Next slide.

00:30:22 --> 00:30:26: So to Howard and and Bretton's comments earlier about, you

00:30:26 --> 00:30:29: know, what sort of framework or standard can you use

00:30:30 --> 00:30:31: to approach this work?

00:30:31 --> 00:30:34: We looked at what guidance was out there to help

00:30:34 --> 00:30:38: us approach responsible water stewardship in our data centers and

00:30:38 --> 00:30:41: we landed on the Alliance for Water Stewardship as really

00:30:41 --> 00:30:46: the most robust, holistic, internationally recognized certification standard.

00:30:46 --> 00:30:49: We'd actually begun working with the standard on our supply

00:30:49 --> 00:30:52: chain side of the house a few years earlier and

00:30:52 --> 00:30:55: had gotten a number of our suppliers to achieve certification.

00:30:56 --> 00:30:58: So we thought, you know, we should really understand how

00:30:58 --> 00:31:01: to do this ourselves and, and decided to apply it

00:31:01 --> 00:31:03: to one of our data centers and see what the

00:31:03 --> 00:31:05: process was like and what it would teach us.

00:31:06 --> 00:31:09: And the standard has sort of five steps that you

00:31:09 --> 00:31:10: work through.

00:31:10 --> 00:31:13: They're, you know, kind of what you would expect to

00:31:13 --> 00:31:17: basically gather data through to develop a plan, implement it,

00:31:17 --> 00:31:19: evaluate and then report on it.

00:31:20 --> 00:31:23: But it also what we liked about it was that

00:31:23 --> 00:31:27: it has five outcomes that you're really seeking to address

00:31:27 --> 00:31:32: and they're good water governance, maintaining a sustainable water balance,

00:31:32 --> 00:31:38: improving water quality, maintaining good water quality, protecting important water

00:31:38 --> 00:31:42: related areas, and then ensuring safe water sanitation and hygiene

00:31:42 --> 00:31:43: for all.

00:31:43 --> 00:31:46: So you're really hitting the things that are the drivers

00:31:46 --> 00:31:47: of water stress.

00:31:49 --> 00:31:53: And we learned from our experience with suppliers that certifying

00:31:53 --> 00:31:57: to AWS was really helpful to demonstrate to external parties,

00:31:57 --> 00:32:01: including governments and and other stakeholders that we understand the

00:32:01 --> 00:32:03: the environment that we're operating in.

00:32:03 --> 00:32:06: We're engaged with water issues and and stakeholders there and

00:32:06 --> 00:32:09: that we have a plan to address our own water

00:32:09 --> 00:32:11: challenges as well as those in the watershed.

00:32:11 --> 00:32:15: So it helps build both physical and reputational resilience

where
00:32:15 --> 00:32:16: we operate.
00:32:17 --> 00:32:18: Next slide.
00:32:20 --> 00:32:23: So we began in 2020 with our Prime Bill data
00:32:23 --> 00:32:25: center as our test case.
00:32:25 --> 00:32:27: It took us about a year to go through the
00:32:27 --> 00:32:30: process and then we got a system in place.
00:32:30 --> 00:32:34: We developed some replicable materials and we then over the
00:32:34 --> 00:32:37: course of the last few years have been able to
00:32:37 --> 00:32:41: certify all of our owned and operated data centers to
00:32:41 --> 00:32:45: the standard that actually Waukee should be June 2025.
00:32:45 --> 00:32:49: I'm just realizing not 2026, but we did achieve that
00:32:49 --> 00:32:52: in 2025, which is our goal and we learned a
00:32:52 --> 00:32:54: lot along the way.
00:32:54 --> 00:32:55: Next slide.
00:32:58 --> 00:33:01: So after we did this at, at all of those
00:33:01 --> 00:33:05: sites, we realized that the the principles to I think
00:33:05 --> 00:33:10: having a successful holistic water strategy, we're really starting with
00:33:10 --> 00:33:15: a water risk evaluation, understanding how much water is available,
00:33:15 --> 00:33:17: what purposes it's used for in the basin.
00:33:19 --> 00:33:20: And as I said earlier, you know how much of
00:33:20 --> 00:33:22: the basin use you're going to be.
00:33:23 --> 00:33:26: We use large models like WR, Aqueduct and then we
00:33:26 --> 00:33:31: go deeper on using local consultants or models to understand
00:33:31 --> 00:33:34: really what's going on in a basin.
00:33:34 --> 00:33:37: And I'll just share a couple of examples where we
00:33:37 --> 00:33:41: started with a high level model like like Aqueduct and
00:33:41 --> 00:33:44: we thought that one driver was going to be the
00:33:44 --> 00:33:45: issue.
00:33:45 --> 00:33:49: Prineville for example, we thought overall water scarcity was going
00:33:49 --> 00:33:50: to be our issue there.
00:33:50 --> 00:33:53: And then actually as we moved into the sort of
00:33:53 --> 00:33:57: second pillar here, engaging stakeholders, we found that in fact
00:33:57 --> 00:34:00: it wasn't so much overall water scarcity, it was the
00:34:00 --> 00:34:04: seasonality of water use and data centers, particularly in kind
00:34:04 --> 00:34:08: of high desert environment, like they're use water in the
00:34:08 --> 00:34:11: summer, but they don't use much water the rest of

00:34:11 --> 00:34:12: the year.
00:34:12 --> 00:34:15: So our use was kind of compounding with the rest
00:34:15 --> 00:34:16: of the summer peak.
00:34:16 --> 00:34:19: And so we ended up addressing that issue, not the
00:34:19 --> 00:34:22: issue we thought maybe we would be addressing before we
00:34:22 --> 00:34:23: did this process.
00:34:24 --> 00:34:28: Conversely, in Maine, North Carolina, which I'll do a little
00:34:28 --> 00:34:31: bit of a deep dive on next, we found that
00:34:31 --> 00:34:34: Aqueduct had identified it as an area of high water
00:34:34 --> 00:34:35: scarcity as well.
00:34:36 --> 00:34:39: And as we started talking with stakeholders, we realized actually
00:34:39 --> 00:34:43: it's a very highly regulated water system water basin.
00:34:43 --> 00:34:44: It's managed for energy.
00:34:44 --> 00:34:49: And so, and even in our municipality, the municipalities needing
00:34:49 --> 00:34:52: like 50% less water today than they were in the
00:34:52 --> 00:34:52: 1980s.
00:34:52 --> 00:34:55: So, you know, there it was really actually about water
00:34:55 --> 00:34:57: quality that was the issue.
00:34:57 --> 00:35:00: And so we shifted gears and, and our replenishment work
00:35:00 --> 00:35:04: has really, you know, been oriented in that direction.
00:35:04 --> 00:35:06: So a lot of learning is that that we got
00:35:06 --> 00:35:10: from the engaging stakeholders, even though it wasn't necessarily the
00:35:10 --> 00:35:13: most comfortable thing, you know, to start doing to to
00:35:13 --> 00:35:17: go beyond the typical water service providers and municipalities that
00:35:17 --> 00:35:19: you might usually talk with.
00:35:21 --> 00:35:24: And then third, you know, we developed water stewardship plans
00:35:24 --> 00:35:27: for all of our sites and they're pretty specific.
00:35:27 --> 00:35:30: They essentially have a target related to each of the
00:35:30 --> 00:35:31: outcomes for AWS.
00:35:31 --> 00:35:33: So we're not trying to do everything.
00:35:33 --> 00:35:36: We're just trying to focus in on what's most important
00:35:36 --> 00:35:39: and have specific metrics that we can evaluate year on
00:35:39 --> 00:35:41: year and see how we're doing.
00:35:41 --> 00:35:45: And then finally, you know, doing that annual evaluation, resetting
00:35:45 --> 00:35:48: your your plan every year and reporting out helps build
00:35:48 --> 00:35:52: transparency and trust just, you know, with the communities that
00:35:52 --> 00:35:55: we're operating in as well as publicly when we report

00:35:55 --> 00:35:57: that in our environmental progress report.

00:35:58 --> 00:36:01: And so I think that's just continued to to bolster

00:36:01 --> 00:36:04: our relationships and reputation and ability to work in the

00:36:04 --> 00:36:06: places where we have data centers.

00:36:08 --> 00:36:09: And then next slide.

00:36:12 --> 00:36:15: So finally, I just wanted to share an example of

00:36:15 --> 00:36:18: what this looks like in practical terms.

00:36:18 --> 00:36:21: And I picked our main North Carolina data center.

00:36:21 --> 00:36:25: It's one of our older data centers, oldest maybe it's

00:36:25 --> 00:36:27: been online since 2012.

00:36:27 --> 00:36:30: And so a lot of decisions about, you know, site

00:36:30 --> 00:36:33: selection and all that, they were already made, but we

00:36:33 --> 00:36:35: do continue to grow at this site.

00:36:35 --> 00:36:38: And so, you know, we looked at on site water

00:36:38 --> 00:36:43: management, we found the opportunities that we could affect by

00:36:43 --> 00:36:48: you know, improving our cooling controls, cooling approach, using rainwater

00:36:48 --> 00:36:53: harvesting for supplemental water, use of toilet flushing and things

00:36:53 --> 00:36:54: like that.

00:36:54 --> 00:36:59: And then we implemented A sphagnum Moss based water treatment

00:36:59 --> 00:37:03: project that helped reduce the chemical inputs that we were

00:37:04 --> 00:37:07: using for bio science and things like that.

00:37:07 --> 00:37:09: So we address water quality on site.

00:37:10 --> 00:37:13: Then we as a result of our stakeholder engagement, we

00:37:14 --> 00:37:18: got connected with the Catawba Watery Water Management Group, which

00:37:18 --> 00:37:22: is this sort of organic basin management group that exists

00:37:22 --> 00:37:26: there that is looking at all of the water concerns

00:37:26 --> 00:37:27: in the region.

00:37:27 --> 00:37:30: We joined their advisory committee to really, you know, learn

00:37:30 --> 00:37:31: what they were concerned about.

00:37:32 --> 00:37:37: We ended up supporting their source water protection program, which

00:37:37 --> 00:37:41: is really responsible for identifying what the water challenges are

00:37:41 --> 00:37:45: and you know, what areas of land need protection or

00:37:45 --> 00:37:49: what opportunities might improve water quality in the basin.

00:37:50 --> 00:37:54: And we partner with them to look for replenishment projects.

00:37:54 --> 00:37:57: So we essentially bet all the replenishment projects that we're

00:37:57 --> 00:37:59: looking to do through them to say, is this meeting

00:37:59 --> 00:38:01: an overall base and goal or not?

00:38:01 --> 00:38:03: And that's been a great partnership.

00:38:04 --> 00:38:06: And we've actually ended up doing 2 projects that that

00:38:06 --> 00:38:08: so far that we've run through that.

00:38:09 --> 00:38:13: And then we also went kind of outside the replenishment

00:38:13 --> 00:38:17: project work that we're doing to help collaborate with the

00:38:17 --> 00:38:23: local Research Triangle Institute, world class research institution where we

00:38:23 --> 00:38:27: help them translate their local, it's called a waterfall model,

00:38:28 --> 00:38:31: their hydrological model into how that would be used to

00:38:32 --> 00:38:36: generate or to sorry to evaluate volumetric water benefits, which

00:38:36 --> 00:38:41: is what corporates use to kind of quantify their replenishment

00:38:41 --> 00:38:41: projects.

00:38:42 --> 00:38:45: And and that was very useful to kind of validate

00:38:45 --> 00:38:48: the projects that we were looking at as well as

00:38:48 --> 00:38:51: ended up giving a grant to the Catawba River keepers

00:38:51 --> 00:38:55: who were looking to just monitor ongoing water quality in

00:38:55 --> 00:38:55: the basin.

00:38:56 --> 00:38:58: So a lot of work in the in that strategic

00:38:58 --> 00:39:00: partnerships and engagement.

00:39:00 --> 00:39:03: And then finally, as I said, we've actually invested in

00:39:03 --> 00:39:07: a number of impactful water replenishment projects there and are

00:39:07 --> 00:39:08: continuing to look for more.

00:39:09 --> 00:39:12: So I particularly like this location in this case study

00:39:12 --> 00:39:16: because we have been able to have that 360 view

00:39:16 --> 00:39:17: and approach.

00:39:17 --> 00:39:20: And you know, hopefully this is something that we can

00:39:20 --> 00:39:22: replicate in other basins too.

00:39:23 --> 00:39:26: So the last slide is just my closing slide.

00:39:27 --> 00:39:29: Thank you, you know very much for having me and

00:39:29 --> 00:39:30: happy to answer any questions.

00:39:34 --> 00:39:35: Thank you so much, Laura.

00:39:36 --> 00:39:39: I think in the interest of time again, we're going

00:39:39 --> 00:39:42: to have people put their questions in the chat box

00:39:42 --> 00:39:45: and then our speakers are welcome to respond to those

00:39:45 --> 00:39:47: either in the chat box or we can save those

00:39:47 --> 00:39:49: questions for the group discussion.

00:39:50 --> 00:39:53: Laura, I'm wondering if you don't mind sharing the link

00:39:54 --> 00:39:57: to the Apple Water strategy that came out in 2025

00:39:57 --> 00:40:00: and that way if people are interested in more details,

00:40:00 --> 00:40:03: they can find those in the water strategy?

00:40:04 --> 00:40:04: Yeah, I'll do that.
00:40:05 --> 00:40:05: Excellent.
00:40:05 --> 00:40:06: Thank you.
00:40:08 --> 00:40:11: Our final speaker today is Sarah Walton with the GRISP
00:40:11 --> 00:40:12: Foundation.
00:40:14 --> 00:40:15: You've seen my screen?
00:40:16 --> 00:40:17: My slide?
00:40:17 --> 00:40:19: Yep, looks like the acoustic.
00:40:19 --> 00:40:19: Terrible.
00:40:19 --> 00:40:21: Do I still sound like I'm drowning?
00:40:22 --> 00:40:23: No, it's it sounds fine.
00:40:23 --> 00:40:24: Go ahead.
00:40:24 --> 00:40:27: OK, well, that was it was I was, this is
00:40:27 --> 00:40:27: intentional.
00:40:27 --> 00:40:30: I wanted to be on brand like I was underwater.
00:40:30 --> 00:40:32: You can just pretend like I am a, I'm a
00:40:32 --> 00:40:35: mermaid as my children would, would wish.
00:40:35 --> 00:40:38: Well, I, I kind of feel like I'm not adding
00:40:38 --> 00:40:41: a whole lot of value because Brenton said sort of
00:40:41 --> 00:40:44: all the right things and then Laura followed up with
00:40:44 --> 00:40:46: all the way to execute all the right things.
00:40:46 --> 00:40:50: So I'm hopefully just kind of reiterating a lot of
00:40:50 --> 00:40:54: the, the messages that have already been been shared.
00:40:55 --> 00:40:58: But you know, with that said, I, I'll walk you
00:40:59 --> 00:41:02: guys through kind of three parts to kind of the
00:41:02 --> 00:41:06: background to the, the data center standard that that is
00:41:07 --> 00:41:11: under development where I sit within the Gres Foundation and
00:41:11 --> 00:41:15: kind of what led to this standard and the fruition
00:41:15 --> 00:41:16: of the standards.
00:41:17 --> 00:41:20: And then if I've haven't put you, if I haven't
00:41:20 --> 00:41:22: drowned you, if I haven't put you to sleep by
00:41:23 --> 00:41:26: then I can give you a few pieces of information
00:41:26 --> 00:41:29: to kind of string you, string you along like I've
00:41:29 --> 00:41:31: hook and hook and hook and sinker.
00:41:31 --> 00:41:32: Is that what it is?
00:41:32 --> 00:41:33: Anyway, that's fine.
00:41:33 --> 00:41:34: Obviously, I don't finish.
00:41:35 --> 00:41:39: So the governance, we at the Graves Foundation felt like
00:41:39 --> 00:41:43: it was really important to have strong governance around this
00:41:43 --> 00:41:44: standard.
00:41:44 --> 00:41:49: Obviously, data centers bring a lot of sensitivity as it

00:41:49 --> 00:41:54: relates to sort of stakeholder engagement and making sure that

00:41:54 --> 00:41:57: you have that community involved.

00:41:57 --> 00:42:00: Because as many of us have have seen, there can

00:42:00 --> 00:42:04: be cases where the community says no and it becomes

00:42:04 --> 00:42:07: a no go, which if we're thinking about how to

00:42:07 --> 00:42:10: make progress, we want to make progress in a in

00:42:10 --> 00:42:12: an effective and collaborative way.

00:42:12 --> 00:42:15: And so again, adding to the validity behind the standard

00:42:15 --> 00:42:17: was really important to us.

00:42:17 --> 00:42:21: So I sit over the Griz Foundation, which is an

00:42:21 --> 00:42:27: independent nonprofit organization led by the industry, created for the

00:42:27 --> 00:42:28: industry.

00:42:28 --> 00:42:33: So we our intention is to create constructive dialogue between

00:42:33 --> 00:42:38: investors and managers so that again we can make progress

00:42:38 --> 00:42:42: in a, you know, in a really effective and thoughtful

00:42:42 --> 00:42:43: way.

00:42:43 --> 00:42:47: We're LED primarily by real asset investors for the lived

00:42:48 --> 00:42:52: experience that Gross has had is that investors, the asset

00:42:52 --> 00:42:57: owners, these large pension funds in particular are creating that

00:42:57 --> 00:43:02: derived demand for standard standardization around asset investment.

00:43:03 --> 00:43:07: And then lastly, it's important to denote, to note that

00:43:07 --> 00:43:10: the Gres Foundation is globally representative.

00:43:11 --> 00:43:15: We've got, it's probably nearing 150 volunteers at this juncture,

00:43:15 --> 00:43:19: but we've got representation from around the world.

00:43:19 --> 00:43:22: And as you can see on the right hand side

00:43:22 --> 00:43:26: were made-up by a foundation board that overseas standards committees.

00:43:26 --> 00:43:30: And then we've got ERT expert research group members as

00:43:30 --> 00:43:34: well as working group members that again stand behind win

00:43:34 --> 00:43:37: the standards and help us to iterate and improve and

00:43:37 --> 00:43:40: evolve the standards year over year.

00:43:42 --> 00:43:43: So why are we here?

00:43:43 --> 00:43:46: What's, what's the problem we're trying to solve?

00:43:47 --> 00:43:52: As you can probably sort of hear you've, you've, you've

00:43:52 --> 00:43:55: read as we've, we've seen the, the heating up of

00:43:56 --> 00:43:57: data center industry.

00:43:59 --> 00:44:02: You know, the data center managers want investors to ask

00:44:02 --> 00:44:04: and this isn't exclusive to data centers.

00:44:04 --> 00:44:05: This is all real assets.

00:44:06 --> 00:44:11: Managers want investors to ask questions that make sense and

00:44:11 --> 00:44:16: that they can answer and that again, are productive investors.

00:44:16 --> 00:44:19: In turn, I want to know what they're talking about.

00:44:19 --> 00:44:21: And so we want to have a shared language because

00:44:21 --> 00:44:25: it's not very productive to be talking about apples and

00:44:25 --> 00:44:27: then someone asks you about oranges.

00:44:27 --> 00:44:30: You want to be using a shared language and you

00:44:30 --> 00:44:33: want to be answering the questions that are important and

00:44:33 --> 00:44:37: that are driving the the investment decision useful conversations.

00:44:38 --> 00:44:41: So both of these groups want a common language to

00:44:41 --> 00:44:44: have comparability and the option to be able to look

00:44:44 --> 00:44:48: at not only today and what's happening and what are

00:44:48 --> 00:44:51: we designing today, but what does that look like year

00:44:51 --> 00:44:55: over year or in other cases at different, at different

00:44:55 --> 00:44:59: points when you're investing, when you're fundraising, when you're acquiring,

00:45:00 --> 00:45:01: when you're developing.

00:45:01 --> 00:45:04: So at those junctures, you want to be able to

00:45:04 --> 00:45:07: have a shared language and be able to talk, talk

00:45:07 --> 00:45:11: about the performance that you were expecting and where you,

00:45:11 --> 00:45:14: you know, you maybe not hitting the mark and how

00:45:14 --> 00:45:16: you can improve to hit the mark.

00:45:17 --> 00:45:21: So I talked about this, you know, there's, there's sort

00:45:21 --> 00:45:24: of points in time on the, on the right hand

00:45:24 --> 00:45:27: side, but really thinking about these, these points in time

00:45:28 --> 00:45:31: that effectively money is, is changing hands, right?

00:45:31 --> 00:45:35: Or that there's a, there's a financial decision happening within

00:45:35 --> 00:45:35: the asset.

00:45:36 --> 00:45:39: So the solution that we're we're hopeful to provide is

00:45:39 --> 00:45:44: a shared global language for that constructive engagement and then

00:45:44 --> 00:45:47: a framework to look at the opportunities and also the

00:45:47 --> 00:45:50: risks and to be able to mitigate the risks and

00:45:51 --> 00:45:54: then create and really take advantage of the opportunities.

00:45:54 --> 00:45:59: And again, benchmark where you are against, against the targets

00:45:59 --> 00:46:03: and see where you can make improvements over time.

00:46:06 --> 00:46:08: So I won't stay sort of too long, but only

00:46:08 --> 00:46:11: so you can kind of digest the, the names at
00:46:11 --> 00:46:12: the bottom.
00:46:12 --> 00:46:15: These are the, this is a snapshot of people who
00:46:15 --> 00:46:19: participated in the early launch of the pilot, which I
00:46:19 --> 00:46:21: believe closed December.
00:46:21 --> 00:46:25: So two months ago we had several investors provide sort
00:46:26 --> 00:46:29: of the the stage and say, you know, these are
00:46:30 --> 00:46:32: the issues that are material.
00:46:32 --> 00:46:37: And you know, Brittany, you highlighted reducing, you know, water
00:46:37 --> 00:46:41: consumption and sort of thinking about it as a core
00:46:41 --> 00:46:44: metric and identifying how are we aiming to how are
00:46:45 --> 00:46:49: we sort of evaluating the, the sensitivity or the resilience
00:46:49 --> 00:46:52: around the, the resource of water?
00:46:52 --> 00:46:55: And also how are we thinking about how we're sourcing
00:46:55 --> 00:46:59: it in a, in a sustainable and hopefully reusable way?
00:46:59 --> 00:47:03: And then how are we engaging with the communities so
00:47:03 --> 00:47:07: that that there's not only an understanding of that you're
00:47:07 --> 00:47:11: doing the right thing, but that that that is perceived
00:47:11 --> 00:47:15: to be true because you can be doing all the
00:47:15 --> 00:47:16: right things.
00:47:16 --> 00:47:19: But if the, if the community thinks that something else
00:47:19 --> 00:47:22: is going on and, and you're telling them, oh, just
00:47:22 --> 00:47:26: trust me, I'm doing the right thing, that's not going
00:47:26 --> 00:47:29: to lead to a very constructive or useful conversation.
00:47:29 --> 00:47:32: If you haven't sort of created that underlying trust and
00:47:32 --> 00:47:36: you don't have quite frankly, the, the evidence to back
00:47:36 --> 00:47:36: it up.
00:47:37 --> 00:47:40: So providing it as a core, a core factor.
00:47:40 --> 00:47:44: And then we solicited input from managers and developers to
00:47:44 --> 00:47:47: sort of say, can you provide this information?
00:47:47 --> 00:47:48: Is this accessible to you?
00:47:48 --> 00:47:50: Like, are we asking the right questions?
00:47:50 --> 00:47:51: Are we asking this in the right way?
00:47:52 --> 00:47:55: And then we're really grateful for, you know, some of
00:47:55 --> 00:47:59: the consultants in the list who are able to see
00:47:59 --> 00:48:00: kind of a broader scope.
00:48:00 --> 00:48:04: And so they work with many different data center developers
00:48:04 --> 00:48:07: and operators and can sort of be the forest for
00:48:07 --> 00:48:09: the trees and and in some ways validate a lot
00:48:09 --> 00:48:11: of the questions that we're asking.
00:48:13 --> 00:48:18: So mentioned before four set of materials, water is one

00:48:18 --> 00:48:19: of the material issues.
00:48:19 --> 00:48:23: And I'm just highlighting the two bullets where they show
00:48:23 --> 00:48:26: up within the standard in in summary.
00:48:26 --> 00:48:30: But again, water as one of of the core issues
00:48:30 --> 00:48:34: and thinking about it from both a design standpoint.
00:48:35 --> 00:48:37: So again, and, and Laura, you talked about this also
00:48:37 --> 00:48:40: sort of thinking about it across your pillars like we
00:48:40 --> 00:48:43: have, we develop a strategy and, and thinking about the
00:48:43 --> 00:48:47: ways that we're going back to that strategy and evaluating
00:48:47 --> 00:48:48: ourselves sort of along the way.
00:48:49 --> 00:48:53: So in the design and then also in, in operation
00:48:53 --> 00:48:54: as well.
00:48:54 --> 00:48:57: And you can see, and I actually, I have to
00:48:57 --> 00:49:00: admit, I modified my slides while you guys were talking
00:49:00 --> 00:49:03: because I had only sort of highlighted where there was
00:49:03 --> 00:49:06: where was explicitly water was mentioned, but wanted to highlight
00:49:06 --> 00:49:07: that it does show up.
00:49:08 --> 00:49:11: And I this is probably not even doing it justice
00:49:11 --> 00:49:14: there, but really noting where these concepts come up and
00:49:14 --> 00:49:18: where the conversation that happens around water as well as
00:49:18 --> 00:49:19: other resources.
00:49:19 --> 00:49:23: Again, it's, you know, we're here to, to speak about
00:49:23 --> 00:49:24: that, about this issue.
00:49:24 --> 00:49:29: But again, it, it extends beyond and it's also worth
00:49:29 --> 00:49:35: thinking about the, the sensitivities and the resilience kind of
00:49:35 --> 00:49:38: evaluation differs in different spaces.
00:49:39 --> 00:49:42: I was telling a story previously about a, a data
00:49:42 --> 00:49:47: center design sort of evaluation in Louisiana and several stakeholders
00:49:47 --> 00:49:51: said, you know, we're worried about water, but it's actually
00:49:51 --> 00:49:54: not our top issue because we feel like we have
00:49:54 --> 00:49:56: access to clean water, right?
00:49:56 --> 00:49:59: I'm not here to, to say whether that's the right
00:49:59 --> 00:50:02: or the, the wrong perception, but it just depends on
00:50:02 --> 00:50:02: where you are.
00:50:03 --> 00:50:06: And then again, to think about, I'm actually at a
00:50:06 --> 00:50:10: conference today and somebody mentioned that as the world heats
00:50:10 --> 00:50:13: up, data centers are actually one of the most vulnerable
00:50:13 --> 00:50:15: asset classes to heat stress.
00:50:16 --> 00:50:18: And we talked about sort of that trade off between
00:50:18 --> 00:50:22: energy efficiency and, you know, trying to cool off the

00:50:22 --> 00:50:25: data center and sort of how that may have implications
00:50:25 --> 00:50:26: on water function.
00:50:26 --> 00:50:30: So the conversation is not stagnant and it's also depends
00:50:30 --> 00:50:36: on locations, geographies and quite frankly who the stakeholders are
00:50:36 --> 00:50:38: and what information they have.
00:50:38 --> 00:50:40: And I got back to that, that trust issue.
00:50:40 --> 00:50:44: Do they trust what you're saying or do you need
00:50:44 --> 00:50:48: to, you know, provide additional evidence or or sort of
00:50:48 --> 00:50:52: lead with more support to begin with so that you
00:50:52 --> 00:50:54: can sort of build that trust?
00:50:56 --> 00:50:58: So hopefully I haven't put you to sleep just yet
00:50:58 --> 00:51:01: and that you are you are hooked and interested in
00:51:01 --> 00:51:04: in sort of understanding where we're going to go from
00:51:04 --> 00:51:04: here.
00:51:04 --> 00:51:07: This is just a quick snapshot of, you know, I
00:51:07 --> 00:51:11: mentioned before we, we piloted this, we're actually going to
00:51:11 --> 00:51:15: launch, launch the, the pilot standard to the, the broader
00:51:15 --> 00:51:18: public in the, in the next couple of months.
00:51:19 --> 00:51:21: And then we'll sort of go back and be able
00:51:21 --> 00:51:23: to benchmark that, that broader public.
00:51:23 --> 00:51:27: And then eventually the, the, the OR excuse me, the
00:51:27 --> 00:51:31: standard will graduate and again evolve on a, on a
00:51:31 --> 00:51:32: regular cycle.
00:51:32 --> 00:51:36: We are also, we produced a white paper six months
00:51:36 --> 00:51:39: ago that sort of talked about where we, how we
00:51:39 --> 00:51:40: got here.
00:51:40 --> 00:51:44: And there will be another white paper published I believe
00:51:44 --> 00:51:44: in March.
00:51:45 --> 00:51:47: So in, in about a month that sort of talks
00:51:47 --> 00:51:51: about these, these elements and how again, the, the pilot
00:51:51 --> 00:51:54: continues for the standard continues to evolve.
00:51:55 --> 00:51:58: And with that, I say thank you and hopefully I
00:51:58 --> 00:52:00: have been under, I think I'd hit 15 minutes.
00:52:00 --> 00:52:02: So Marianne's smiling.
00:52:02 --> 00:52:03: She's not mad at me.
00:52:03 --> 00:52:04: I'm, I've done, I've done well.
00:52:05 --> 00:52:08: And I will, I'm open to any and all questions.
00:52:08 --> 00:52:10: Thank you guys so much for your time.
00:52:10 --> 00:52:10: I really appreciate it.
00:52:11 --> 00:52:12: Thank you so much, Sarah.
00:52:12 --> 00:52:15: So I think you can stop sharing your screen and

00:52:15 --> 00:52:16: then we'll see everybody.
00:52:17 --> 00:52:20: And I'd love to just kick off the group discussion
00:52:20 --> 00:52:23: here because we had two different speakers talk about standards.
00:52:23 --> 00:52:26: I mean, they're all kind of talking about standards in
00:52:26 --> 00:52:26: some ways.
00:52:27 --> 00:52:30: But I'd love to just maybe kick off the discussion
00:52:30 --> 00:52:33: talking about these some things that I noticed that the
00:52:33 --> 00:52:37: Alliance for Water Stewardship is really just about water, and
00:52:37 --> 00:52:39: it's not specific to data centers.
00:52:39 --> 00:52:43: It's really a broad certification process for anyone who wants
00:52:43 --> 00:52:45: to use it, but it's available right now.
00:52:45 --> 00:52:49: And then the GRASP and I Mason standards are currently
00:52:49 --> 00:52:53: in development, but they include many material factors, not just
00:52:53 --> 00:52:56: water, but water is like a core component.
00:52:57 --> 00:53:00: And that will be coming within 2026.
00:53:00 --> 00:53:01: Is that right, Sarah?
00:53:05 --> 00:53:05: Oh, we can't hear you.
00:53:09 --> 00:53:10: I was double muted.
00:53:11 --> 00:53:13: I'm on my phone, so it's double muted just for
00:53:13 --> 00:53:13: extra precautions.
00:53:14 --> 00:53:16: Yes, I want to say June 1st but don't although
00:53:16 --> 00:53:19: we are recorded, but you so you probably can hold
00:53:19 --> 00:53:22: me to that, but that's the that's the target.
00:53:23 --> 00:53:24: Great.
00:53:25 --> 00:53:27: So and then I'd also just love to open up
00:53:27 --> 00:53:30: the discussion by talking about with all of these standards,
00:53:31 --> 00:53:33: what is the interplay between water and energy?
00:53:33 --> 00:53:38: Are you seeing these trade-offs work out?
00:53:38 --> 00:53:38: How?
00:53:38 --> 00:53:41: How does that how does it all work out with
00:53:41 --> 00:53:43: the standards and anyone is welcome to answer.
00:53:48 --> 00:53:50: So I don't have a long response other than no,
00:53:50 --> 00:53:53: no, Laura, you'll have something much more profound than me
00:53:53 --> 00:53:53: to say.
00:53:54 --> 00:53:56: But again, it, it's just, it's a balance, right?
00:53:56 --> 00:53:58: And it depends on geography.
00:53:58 --> 00:54:00: It depends on sort of the, the specifics.
00:54:00 --> 00:54:03: So I'm not here to say sort of how to
00:54:03 --> 00:54:08: do the balance, but again, providing that transparency to let
00:54:08 --> 00:54:12: the stakeholders make that evaluation on their own.

00:54:12 --> 00:54:16: So that's, that's all I have to, yeah.
00:54:16 --> 00:54:20: And, and I would say sort of from practical experience
00:54:20 --> 00:54:23: and having those conversations, you know, the right answer is
00:54:23 --> 00:54:26: it depends on what context you're in.
00:54:26 --> 00:54:28: So it depends on if you're in a water stressed
00:54:28 --> 00:54:31: area, what that driver of water stress is and the
00:54:31 --> 00:54:34: scale of the data center and all of that.
00:54:35 --> 00:54:37: But when I talk to our data center team, the
00:54:37 --> 00:54:41: concerns they have and we only have eight data centers.
00:54:41 --> 00:54:44: So I can only imagine some of our peers and
00:54:44 --> 00:54:47: other companies up there who have hundreds of them or
00:54:47 --> 00:54:51: over 100 is that there's also a need for consistency
00:54:51 --> 00:54:54: and for, you know, ordering equipment that can be used
00:54:54 --> 00:54:59: in multiple data centers, not building something that's bespoke for
00:54:59 --> 00:55:00: every single place you are.
00:55:00 --> 00:55:02: So there's that tradeoff.
00:55:02 --> 00:55:05: And I think that's getting more real as the data
00:55:05 --> 00:55:09: center industry grows and as companies portfolios grow.
00:55:09 --> 00:55:13: And then but but I'll say, you know, the principle
00:55:13 --> 00:55:16: that we come back to is once when we're looking
00:55:16 --> 00:55:19: at that energy water trade off, if we are in
00:55:19 --> 00:55:23: a place that's water stressed and we're looking to go,
00:55:23 --> 00:55:27: you know air cooled for example, instead we have been
00:55:27 --> 00:55:31: 100% renewable since 2018 and continued to maintain that.
00:55:31 --> 00:55:33: And now that's part of our broader Apple 2030 carbon
00:55:34 --> 00:55:34: neutral goals.
00:55:35 --> 00:55:38: And so even if there is an impact on, you
00:55:38 --> 00:55:41: know, using more energy at the facility, we are supplying
00:55:41 --> 00:55:45: that energy with 100% renewable energy, which does not use
00:55:45 --> 00:55:48: water if we're doing wind or solar, which is the
00:55:48 --> 00:55:49: vast majority of what we do.
00:55:49 --> 00:55:52: So there are ways to to kind of address that
00:55:52 --> 00:55:54: trade off if you do have to make it and
00:55:54 --> 00:55:57: mitigate further impacts both for climate impacts as well as
00:55:58 --> 00:56:00: you know specifically water impacts.
00:56:02 --> 00:56:04: It's great to hear Bretton and Howard.
00:56:04 --> 00:56:06: I don't know if you want to add anything, go
00:56:06 --> 00:56:06: ahead.
00:56:06 --> 00:56:10: Yeah, I agree with everything I'm hearing here and it's
00:56:10 --> 00:56:11: a great conversation.

00:56:11 --> 00:56:12: Thank you all.
00:56:12 --> 00:56:15: And yes, and I, I just had, it's not just
00:56:15 --> 00:56:18: about energy and water, it's also about money and that's,
00:56:18 --> 00:56:22: and how do you balance those three and and whose
00:56:22 --> 00:56:25: money are we talking about if you do use more
00:56:25 --> 00:56:27: energy in order to use less water?
00:56:27 --> 00:56:30: It's a, it's a whole complicated balance here.
00:56:30 --> 00:56:34: That is as I think it's everyone's concerned, it's really
00:56:34 --> 00:56:37: a site by site issue on a global issue and
00:56:37 --> 00:56:38: global basis.
00:56:38 --> 00:56:41: I think we're all OK with water and AI, but
00:56:41 --> 00:56:44: in terms of a specific location, there are a lot
00:56:44 --> 00:56:46: of different variables at stake.
00:56:46 --> 00:56:46: Well.
00:56:50 --> 00:56:51: Said thank you.
00:56:52 --> 00:56:55: So we'd love for anyone in the audience to submit
00:56:55 --> 00:56:56: their questions.
00:56:56 --> 00:56:58: Because there's so many people, it might be easiest for
00:56:58 --> 00:57:00: everyone to just put their questions in the chat box.
00:57:01 --> 00:57:03: You know, the questions that I've been seeing come in
00:57:03 --> 00:57:04: so far have been responded to.
00:57:04 --> 00:57:07: But if you would like to open up any of
00:57:07 --> 00:57:10: those to group discussion, feel free to raise your hand
00:57:10 --> 00:57:13: and you can unmute and ask your question to the
00:57:13 --> 00:57:14: full group, speaker group.
00:57:16 --> 00:57:17: We'd love to hear from you.
00:57:23 --> 00:57:27: And I included the white paper, well, the data assessment
00:57:27 --> 00:57:30: link, which includes the white paper, by the way.
00:57:31 --> 00:57:32: Thank you so much, Sarah.
00:57:34 --> 00:57:37: There is a, there was a question, I think it
00:57:37 --> 00:57:42: was mostly answered, but it was about Prince George's County
00:57:42 --> 00:57:45: and which I know is a very hotspot for for
00:57:45 --> 00:57:48: data centers and what's going to happen there.
00:57:49 --> 00:57:53: And you know, I'm talking about having doing this on
00:57:53 --> 00:57:56: a brownfield site and just just how you place the
00:57:56 --> 00:57:57: question.
00:57:57 --> 00:58:00: I think it's really important and I think the most
00:58:00 --> 00:58:03: important thing that that all parties need to do is,
00:58:03 --> 00:58:06: is ask the question to themselves is how does this
00:58:06 --> 00:58:09: project improve the lives, improve the lives of the people
00:58:09 --> 00:58:10: who live next door to it.

00:58:10 --> 00:58:13: And I think that that'll take you a long way
00:58:13 --> 00:58:16: into helping you be able to solve or at least
00:58:16 --> 00:58:19: know how to approach community on these very many issues.
00:58:20 --> 00:58:25: Noise pollution, air pollution, water pollution, heat pollution, everything else.
00:58:25 --> 00:58:26: It's it's vast.
00:58:26 --> 00:58:29: I hate that, you know, I am the water center,
00:58:29 --> 00:58:30: so I have, I'm focusing on water.
00:58:30 --> 00:58:32: But I recognize that when you speak to community, it's
00:58:33 --> 00:58:34: about all these issues together.
00:58:37 --> 00:58:40: And I just want to highlight that an example of
00:58:40 --> 00:58:41: making communities better.
00:58:41 --> 00:58:45: Apple's doing a great job of developing water reuse, water
00:58:45 --> 00:58:49: treatment and reuse centers, not just for themselves, but for
00:58:49 --> 00:58:52: communities, which I think is really exciting.
00:58:53 --> 00:58:55: And Joshua has a question along those lines.
00:58:55 --> 00:58:57: Joshua, do you want to unmute and ask?
00:59:04 --> 00:59:04: Yes.
00:59:05 --> 00:59:06: Can you hear me go?
00:59:07 --> 00:59:07: Ahead.
00:59:07 --> 00:59:08: Yes.
00:59:08 --> 00:59:11: So I work in land development and I know there's
00:59:11 --> 00:59:15: a lot of trade-offs when building projects and land, right.
00:59:15 --> 00:59:20: So I typically see the city's agencies, there's like these
00:59:20 --> 00:59:25: opportunities where you can help the city or the water
00:59:25 --> 00:59:30: agency to build some infrastructure or IT or add dollars
00:59:30 --> 00:59:34: to that a fund to help the project be viable.
00:59:34 --> 00:59:37: And so you're helping the community while also, you know,
00:59:37 --> 00:59:38: building your project.
00:59:39 --> 00:59:42: What are the, I mean, I assume there's some good
00:59:42 --> 00:59:46: opportunities out there to like help these cities and agencies
00:59:46 --> 00:59:50: where they don't, they're underfunded, right, To do some of
00:59:50 --> 00:59:53: these projects that they want to do aside from the
00:59:53 --> 00:59:54: data center, right?
00:59:54 --> 00:59:56: Just that they, they need to do, but they don't
00:59:56 --> 00:59:57: have the funds to do it.
00:59:57 --> 01:00:01: Is there opportunities that we're looking at like that to
01:00:01 --> 01:00:04: help these cities and agencies do these projects so that
01:00:04 --> 01:00:08: the data center is actually improving the agencies and the
01:00:08 --> 01:00:09: cities that they're in?
01:00:13 --> 01:00:17: I'll, I'll start with an answer there and just to

01:00:17 --> 01:00:21: point out that there sometimes there's a conflict between the
01:00:21 --> 01:00:25: cities and the, and the communities immediately surrounding the area.
01:00:25 --> 01:00:29: And those need to be really recognized by everyone who's
01:00:29 --> 01:00:32: involved with these projects that yes, they might be a
01:00:32 --> 01:00:35: great tax revenue coming to a city, but you really
01:00:35 --> 01:00:38: have to also focus on the people in the immediate
01:00:38 --> 01:00:41: community that are, that are surrounding there.
01:00:43 --> 01:00:45: And, and then there are great things that can be
01:00:45 --> 01:00:45: done.
01:00:45 --> 01:00:48: I mean, you know, we, we have, we talked about
01:00:48 --> 01:00:51: the, you know, the problems of heat, but there's also
01:00:51 --> 01:00:54: the opportunity of heat and capturing the waste heat and
01:00:54 --> 01:00:58: using it in a community for, for community heating and
01:00:58 --> 01:00:58: distribution.
01:00:59 --> 01:01:00: So that's one way.
01:01:00 --> 01:01:03: Another way is that, that I, as a water utility
01:01:03 --> 01:01:06: person love is we have a lot of water everywhere
01:01:06 --> 01:01:10: and it's coming out of our wastewater plants and going
01:01:10 --> 01:01:14: into our rivers and streams and the recycling of that
01:01:14 --> 01:01:18: water, that treating that water to quality that is suitable
01:01:18 --> 01:01:21: for cooling is a, is a great opportunity for the
01:01:21 --> 01:01:25: environment and for the municipality and for the utility and
01:01:26 --> 01:01:27: for the developer.
01:01:28 --> 01:01:29: That's 2 examples.
01:01:31 --> 01:01:33: Those are sorry.
01:01:33 --> 01:01:35: I was going to add another perspective.
01:01:35 --> 01:01:38: I mean, I would say to the cities are one
01:01:38 --> 01:01:41: stakeholder of multiple stakeholders in a area.
01:01:41 --> 01:01:45: You've got the city, you know, being government, municipal government,
01:01:45 --> 01:01:48: obviously you have the the community and people who live
01:01:48 --> 01:01:48: there.
01:01:48 --> 01:01:51: You also have the environment and you know, not a
01:01:51 --> 01:01:55: lot of people speak for the environment, but usually nature
01:01:55 --> 01:01:58: is who gets short shrift in water planning and, and
01:01:58 --> 01:02:00: extracted water allocation.
01:02:00 --> 01:02:02: So that's another thing to consider.
01:02:02 --> 01:02:06: And you know, an example that I can share was
01:02:06 --> 01:02:09: for our Prine field data center many years ago.
01:02:10 --> 01:02:12: You know, we were when we thought water scarcity was
01:02:12 --> 01:02:14: overall water scarcity was the big problem.

01:02:15 --> 01:02:19: We were exploring doing a wastewater treatment and reuse facility

01:02:19 --> 01:02:20: with the city.

01:02:20 --> 01:02:23: And you know, the problem is we only use water

01:02:23 --> 01:02:25: there for two or three months out of a year.

01:02:25 --> 01:02:28: So what do you do with this facility that is,

01:02:28 --> 01:02:32: you know, needs to produce this, this waste treated wastewater

01:02:32 --> 01:02:36: the rest of the time and the economics just didn't

01:02:36 --> 01:02:39: really work out given that that seasonal impact.

01:02:39 --> 01:02:42: And so we started exploring other options and, and talking

01:02:42 --> 01:02:46: to other stakeholders and, you know, we eventually realized that

01:02:46 --> 01:02:49: really we had to address that seasonal problem.

01:02:49 --> 01:02:53: And that doing an I saw somebody asking the questions

01:02:53 --> 01:02:57: about enhanced aquifer recharge or managed aquifer recharge, we ended

01:02:57 --> 01:03:01: up identifying that this is a place that we could

01:03:01 --> 01:03:03: do aquifer recharge and storage.

01:03:03 --> 01:03:05: And so, you know, it may end up making a

01:03:05 --> 01:03:06: lot more sense.

01:03:06 --> 01:03:10: The city could actually store, you know, small amounts of

01:03:10 --> 01:03:13: water throughout the year, but put it in to the

01:03:13 --> 01:03:16: aquifer and then withdraw that up where the data centers

01:03:16 --> 01:03:17: are.

01:03:17 --> 01:03:20: And we are not the only data center in that

01:03:20 --> 01:03:23: area and kind of isolate that peak need from the

01:03:23 --> 01:03:24: rest of the community.

01:03:24 --> 01:03:27: So it helped shore up the wells in the basin

01:03:27 --> 01:03:31: area where the rest of the community and the city

01:03:31 --> 01:03:35: withdraw were, and that met that that seasonal need.

01:03:35 --> 01:03:38: And the overall water benefit from doing that was I

01:03:38 --> 01:03:40: think four to five times what it would have been

01:03:41 --> 01:03:44: if we had just done that wastewater treatment facility that

01:03:44 --> 01:03:46: really would have only served us.

01:03:46 --> 01:03:51: So it's worth having those broad stakeholder conversations to get

01:03:51 --> 01:03:54: at solutions that aren't immediately obvious.

01:03:56 --> 01:03:57: Great.

01:03:57 --> 01:03:59: So we have a lot of questions coming in.

01:03:59 --> 01:04:00: Josh did that.

01:04:00 --> 01:04:01: I saw you unmuted.

01:04:01 --> 01:04:01: Did you want to?

01:04:02 --> 01:04:03: Oh no, I was just saying going to say thank
01:04:03 --> 01:04:03: you.
01:04:04 --> 01:04:06: Now that helps because I know there's solutions out there
01:04:06 --> 01:04:08: just I was just trying to see what the solutions
01:04:08 --> 01:04:09: you guys have been using.
01:04:11 --> 01:04:12: Great.
01:04:12 --> 01:04:14: So we have a lot of questions coming in, so
01:04:14 --> 01:04:17: I'm going to try and do them in chronological order.
01:04:17 --> 01:04:21: Ariel's actually was really on on point to this current
01:04:21 --> 01:04:22: conversation.
01:04:22 --> 01:04:26: So I'm going to have her go first and then
01:04:26 --> 01:04:30: Harold, Jim, TJ, Mike, Annabelle and Marielle.
01:04:32 --> 01:04:33: So in that order.
01:04:33 --> 01:04:34: And then I can call on you again if we
01:04:34 --> 01:04:35: forget the order.
01:04:36 --> 01:04:37: And then, Christine?
01:04:38 --> 01:04:39: All right, so should I start?
01:04:40 --> 01:04:40: Go ahead.
01:04:41 --> 01:04:42: OK, thanks so much.
01:04:43 --> 01:04:46: Yeah, On the topic of recycled water, what I've seen,
01:04:46 --> 01:04:50: so I'm in California and I just recently was aware
01:04:50 --> 01:04:53: of a project where recycled water was available to the
01:04:53 --> 01:04:54: project site.
01:04:54 --> 01:04:55: That was not the issue.
01:04:56 --> 01:04:58: But when they did the due diligence on it, they
01:04:58 --> 01:05:02: discovered that it would actually require treatment above and beyond
01:05:02 --> 01:05:04: how it was delivered.
01:05:04 --> 01:05:07: And so there were feasibility and cost constraints around using
01:05:07 --> 01:05:10: the recycled water for the evaporative cooling at that data
01:05:10 --> 01:05:11: center.
01:05:11 --> 01:05:14: And so the result was they're not using recycled water.
01:05:15 --> 01:05:19: And I, I think that's an area of like increased
01:05:19 --> 01:05:23: interest is how can we better utilize recycled water, water.
01:05:24 --> 01:05:26: What are the existing technological constraints?
01:05:26 --> 01:05:27: What are the cost constraints?
01:05:27 --> 01:05:29: I don't have a technical background.
01:05:29 --> 01:05:29: I'm a lawyer.
01:05:29 --> 01:05:31: So I just see it when it comes up in
01:05:31 --> 01:05:33: the entitlement and environmental review process.
01:05:33 --> 01:05:36: But there's a lot of really great technical people on
01:05:36 --> 01:05:36: this call.

01:05:36 --> 01:05:39: So I'd love to just hear from the panelists and
01:05:40 --> 01:05:43: anyone else like what are, what are you seeing as
01:05:43 --> 01:05:44: the constraints?
01:05:44 --> 01:05:47: What might be coming down the pipeline in terms of
01:05:47 --> 01:05:51: additional technologies or things that might make this a little
01:05:51 --> 01:05:52: bit easier?
01:05:55 --> 01:05:57: I, I can, I can start there and just just
01:05:57 --> 01:05:59: say really it's not a, it's not a technology issue
01:05:59 --> 01:06:00: at this point.
01:06:01 --> 01:06:01: As a matter of fact.
01:06:01 --> 01:06:05: And you're, if you're in California and this is something
01:06:05 --> 01:06:08: happened in the past, it's probably recycled water for agricultural
01:06:08 --> 01:06:09: use, probably.
01:06:10 --> 01:06:13: So it's, you know, yes, it would have to be
01:06:13 --> 01:06:14: treated more than that.
01:06:14 --> 01:06:18: And the, the amount of treatment that's needed is, is
01:06:18 --> 01:06:20: very much on a, on a full band.
01:06:20 --> 01:06:24: And what we're seeing now all over the world is,
01:06:24 --> 01:06:26: is going to toilet to tap.
01:06:26 --> 01:06:28: So you're making this water, you can make this water
01:06:29 --> 01:06:32: significant, significantly improved to the quality that you can, you
01:06:32 --> 01:06:34: can put it into the tap water and and drink
01:06:35 --> 01:06:38: it directly from the wastewater plant with additional treatment.
01:06:39 --> 01:06:41: So it is possible, but so it's not really the
01:06:41 --> 01:06:44: technology, but you are absolutely right, it is really the
01:06:44 --> 01:06:47: cost and that's the balance that we're all going to
01:06:47 --> 01:06:51: have with again mentioned before energy and water, how much
01:06:51 --> 01:06:53: you use more energy, it's very expensive.
01:06:54 --> 01:06:57: Use better higher quality water, it's very expensive.
01:06:57 --> 01:07:02: But that's what we're dealing with is something that that
01:07:02 --> 01:07:03: is of high cost.
01:07:03 --> 01:07:06: And the question to all of us is going to
01:07:06 --> 01:07:08: be what's the value of AI, what's the value of
01:07:08 --> 01:07:10: water, what's the value of energy?
01:07:10 --> 01:07:12: And how do you balance all that?
01:07:12 --> 01:07:14: And it's going to be very site specific.
01:07:14 --> 01:07:17: And yeah, I would find it hard to believe that
01:07:17 --> 01:07:20: a data center on its own would want to treat
01:07:21 --> 01:07:25: municipal wastewater to the degree that's needed for for cooling

01:07:25 --> 01:07:27: in the data center.

01:07:27 --> 01:07:31: But there's more and more recite total recycling facilities being

01:07:31 --> 01:07:33: built all over the world right now.

01:07:34 --> 01:07:36: The technology is there, but it's expensive.

01:07:38 --> 01:07:41: And you know, I'd add that there are new going

01:07:41 --> 01:07:42: to the cost piece.

01:07:42 --> 01:07:45: I mean one obviously we we all know if we're

01:07:45 --> 01:07:48: dealing with water, water has been a highly or heavily

01:07:48 --> 01:07:50: underpriced subsidized for a long time.

01:07:50 --> 01:07:53: So it's value, it's cost is not reflect it's value

01:07:53 --> 01:07:55: that is changing in a lot of places.

01:07:55 --> 01:07:57: And and you know, I know a lot of places

01:07:57 --> 01:08:01: especially in California we're seeing double digit growth in rates.

01:08:02 --> 01:08:06: So it is catching up, but also there are new

01:08:06 --> 01:08:11: finance approaches to to making systems like this work.

01:08:11 --> 01:08:14: So the additional polishing and treatment that you might have

01:08:14 --> 01:08:17: to do on site at a data center to get

01:08:17 --> 01:08:20: recycled water from a municipality up to the level where

01:08:21 --> 01:08:23: you can use it in cooling towers or in in

01:08:23 --> 01:08:25: a cooling system, you can do that.

01:08:25 --> 01:08:27: You can either owner and operate that.

01:08:27 --> 01:08:28: That's expensive.

01:08:28 --> 01:08:31: There's risk involved in that or you can look to

01:08:31 --> 01:08:35: some service providers out there who are doing water processing

01:08:35 --> 01:08:38: agreements and so de risk it a little bit and

01:08:38 --> 01:08:41: and kind of spread that out over time as well

01:08:42 --> 01:08:45: given the data centers or facilities with you know, 2530

01:08:45 --> 01:08:46: year lifespans.

01:08:47 --> 01:08:49: So it's it's changing definitely.

01:08:51 --> 01:08:53: So Next up is Harold.

01:08:53 --> 01:08:55: I just want to quickly note we have around 9

01:08:55 --> 01:08:57: minutes and eight questions left.

01:08:57 --> 01:09:00: So we're going to be speedy with these Q and

01:09:00 --> 01:09:00: As.

01:09:00 --> 01:09:01: But Harold, go ahead.

01:09:02 --> 01:09:04: Yeah, I was just, I miss in the swimming pool

01:09:04 --> 01:09:07: industry and I have actually created a reuse system for

01:09:07 --> 01:09:10: swimming pool water when we're cleaning the filtration systems and

01:09:10 --> 01:09:12: we're using different types of media.

01:09:13 --> 01:09:16: And I'm not sure, I'm not familiar with cooling towers
01:09:16 --> 01:09:20: yet to where I understand if they're using side filters
01:09:20 --> 01:09:23: that we could capture the water and and reuse that
01:09:23 --> 01:09:23: water.
01:09:24 --> 01:09:27: But that's that's just one of the things that that's
01:09:27 --> 01:09:29: why I came into this call to sort of get
01:09:29 --> 01:09:31: educated to see what's what's being used out there.
01:09:32 --> 01:09:35: And I'm actually building a pool for a guy that
01:09:35 --> 01:09:38: actually maintains cooling towers over in Fremont, over in the
01:09:38 --> 01:09:39: area here in California.
01:09:39 --> 01:09:43: So just again, that's why I'm here.
01:09:43 --> 01:09:45: I'm just trying to find out, you know, what's being
01:09:45 --> 01:09:46: used and and how.
01:09:50 --> 01:09:51: Yeah, I can speak to that there.
01:09:51 --> 01:09:56: There is filtration that's used in in cooling towers.
01:09:56 --> 01:09:59: I mean you'll often hear about cycles of concentration, that's
01:09:59 --> 01:10:02: how much use you're getting out of the water before
01:10:02 --> 01:10:04: you have to discharge it.
01:10:04 --> 01:10:07: And then you know, there are other types of, of
01:10:07 --> 01:10:11: water based cooling systems like adiabatic systems, direct evap where
01:10:11 --> 01:10:15: you will have a filter media and you're essentially extracting
01:10:15 --> 01:10:18: any mineral content or anything like that on that filter
01:10:18 --> 01:10:22: media before it goes into the data Center for cooling.
01:10:22 --> 01:10:25: So munters media is, is one that's out there.
01:10:25 --> 01:10:28: I know there are many others, but that is something
01:10:28 --> 01:10:29: that that people use.
01:10:33 --> 01:10:33: Great.
01:10:34 --> 01:10:36: Should we go on to Jim's question?
01:10:43 --> 01:10:43: All right, if I might.
01:10:44 --> 01:10:44: Oh, Jim, go ahead.
01:10:46 --> 01:10:46: Hi there.
01:10:46 --> 01:10:49: Yeah, again, I think you sort of addressed it, but
01:10:49 --> 01:10:52: I'm really curious about technologies like enhanced stock for recharge
01:10:52 --> 01:10:55: and again, how this might be a system that can
01:10:55 --> 01:10:58: sort of offset some of these impacts with potential credits
01:10:58 --> 01:11:00: if anything like that's come up before.
01:11:00 --> 01:11:02: But yeah, Laura, I think you kind of addressed that
01:11:02 --> 01:11:02: well.
01:11:02 --> 01:11:04: So I took notes.
01:11:05 --> 01:11:05: Great.

01:11:05 --> 01:11:07: Yeah, it is definitely being used.

01:11:08 --> 01:11:12: Volumetric water benefits are the currency, if you will, of

01:11:12 --> 01:11:15: a lot of corporate water replenishment projects.

01:11:15 --> 01:11:20: So the there's a version two of the methodology that's

01:11:20 --> 01:11:20: out.

01:11:20 --> 01:11:25: It came out from World Resources Institute and some other

01:11:25 --> 01:11:29: partners in gosh, a year ago, maybe not not too

01:11:29 --> 01:11:29: long ago.

01:11:33 --> 01:11:35: Excellent, TJ, go ahead.

01:11:36 --> 01:11:37: Hi.

01:11:37 --> 01:11:38: Can you guys hear me OK?

01:11:39 --> 01:11:40: Perfect.

01:11:40 --> 01:11:43: So I just sat in earlier this afternoon at like

01:11:43 --> 01:11:44: 1:30 Eastern Standard Time.

01:11:44 --> 01:11:46: I sat in on a panel from the Urban Land

01:11:47 --> 01:11:50: Institute, which was kind of discussing like resiliency in communities

01:11:51 --> 01:11:54: and that was mostly discussing resiliency from the perspective of,

01:11:54 --> 01:11:58: you know, extreme weather events and that kind of concern.

01:11:58 --> 01:12:00: But something that sprang up out of that was the

01:12:00 --> 01:12:02: discussion of local collectives.

01:12:02 --> 01:12:06: So coalitions like the Altadena Collective kind of coming together

01:12:06 --> 01:12:09: after those, you know, emergencies happen and kind of advocating

01:12:09 --> 01:12:10: for communities.

01:12:10 --> 01:12:12: And I wanted to ask the panelists if they had

01:12:12 --> 01:12:16: seen just in the development of data centers, not necessarily,

01:12:16 --> 01:12:19: you know, emergency weather concerns, but in the development of

01:12:19 --> 01:12:22: data centers, if they had seen any sort of action

01:12:22 --> 01:12:25: or activity from these local kind of coalitions or kind

01:12:25 --> 01:12:26: of groups.

01:12:27 --> 01:12:31: And if adding or incorporating further standards and guidance that

01:12:31 --> 01:12:34: kind of improve water usage and and water guidance, if

01:12:34 --> 01:12:38: that's a kind of affected, you know, socio economic acceptance

01:12:38 --> 01:12:41: of data centers in those local communities.

01:12:49 --> 01:12:52: Well, I, I think you, I think data centers is

01:12:52 --> 01:12:56: a great way to create these local collaboratives because people

01:12:56 --> 01:12:59: get angry whether they should or not with the idea

01:12:59 --> 01:13:01: of having these data centers.
01:13:01 --> 01:13:03: So, so that's doing a good thing in my mind
01:13:03 --> 01:13:06: is, you know, getting people to think and understand this.
01:13:06 --> 01:13:10: And how do you reach an agreement between someone who
01:13:10 --> 01:13:13: wants to build a data center and someone who wants
01:13:13 --> 01:13:16: to live next door to A to a forest or,
01:13:16 --> 01:13:17: or a farm?
01:13:18 --> 01:13:22: That's, that's a lot of negotiation And, and the, and
01:13:22 --> 01:13:26: the trust is there and the trust needs time to
01:13:26 --> 01:13:26: be built.
01:13:27 --> 01:13:29: I'm sorry, sorry.
01:13:30 --> 01:13:32: I just muted Nadia.
01:13:32 --> 01:13:34: I think she OK unmuted.
01:13:36 --> 01:13:37: It's all about, it's all about the trust.
01:13:37 --> 01:13:40: Yes, you have all these numbers and you have independent
01:13:40 --> 01:13:42: experts and you have people for and people against.
01:13:42 --> 01:13:45: And it's a question of, you know, in my mind,
01:13:45 --> 01:13:49: coming in early and often and starting with the conversation
01:13:49 --> 01:13:53: and hopefully reaching some kind of, some kind of agreement,
01:13:53 --> 01:13:56: but you know, and, and finding out what the issues
01:13:56 --> 01:13:57: are going to be.
01:13:58 --> 01:14:00: Often times there are a lot of issues out there,
01:14:00 --> 01:14:03: a lot of reasons why people don't want a data
01:14:03 --> 01:14:06: center, such as they don't like a big black box
01:14:06 --> 01:14:09: with a fence around it that's hums and but they
01:14:09 --> 01:14:12: can't find any reason with their local ordinances to not
01:14:12 --> 01:14:13: do that.
01:14:13 --> 01:14:16: So they tack on and they focus on something like
01:14:16 --> 01:14:20: water, whether it's real or not and perceived or or
01:14:20 --> 01:14:21: not.
01:14:21 --> 01:14:24: It's, it's, you know, it's, it's a, it's a solution,
01:14:24 --> 01:14:27: you know, a solution to the community who's looking not
01:14:27 --> 01:14:30: to build it for reasons that they, they can't fight
01:14:30 --> 01:14:30: a.
01:14:31 --> 01:14:31: Lot of go.
01:14:33 --> 01:14:33: Go ahead, TJ.
01:14:34 --> 01:14:37: No, I actually, when I I'll send Mr.
01:14:37 --> 01:14:40: Neukroge, I, I'll actually send you an e-mail because I
01:14:40 --> 01:14:43: that touches on things like social capital that I've been
01:14:43 --> 01:14:44: doing my own research on.
01:14:44 --> 01:14:46: And I would really love to just discuss with you

01:14:46 --> 01:14:47: on that further because I definitely don't want to pull
01:14:47 --> 01:14:48: it from other questions.
01:14:51 --> 01:14:51: That's great, yeah.
01:14:51 --> 01:14:54: And, and people can put their questions in the chat
01:14:54 --> 01:14:57: box and hopefully they'll get responses as well if we
01:14:57 --> 01:14:58: run out of time.
01:14:58 --> 01:15:01: But I wanted to actually pair this question with Mike's
01:15:01 --> 01:15:05: question about the Colorado River negotiations because in the Western
01:15:05 --> 01:15:08: United States, TJI think this is really relevant to your
01:15:08 --> 01:15:09: question as well.
01:15:10 --> 01:15:11: We're seeing massive drought.
01:15:11 --> 01:15:15: And so these conversations are taking a different pitch than
01:15:15 --> 01:15:18: maybe other places in the US, even though groundwater is
01:15:18 --> 01:15:21: being overdrawn everywhere in the US and across the world.
01:15:21 --> 01:15:24: So you might be an issue everywhere, but it's most
01:15:24 --> 01:15:26: visible here in the Western United States.
01:15:26 --> 01:15:28: Mike, do you want to ask your question really quick?
01:15:30 --> 01:15:30: Sure.
01:15:30 --> 01:15:31: Thanks Marianne.
01:15:31 --> 01:15:32: Questions for Laura.
01:15:32 --> 01:15:36: Thanks Laura for joining the panel and and being here.
01:15:37 --> 01:15:41: Does Apple anticipate the outcome of the Colorado River Compact
01:15:41 --> 01:15:43: negotiations impacting any way the location?
01:15:44 --> 01:15:46: Planning for future data centers.
01:15:47 --> 01:15:48: Yeah, great question.
01:15:48 --> 01:15:51: I mean, we have a data center in Mesa, AZ,
01:15:51 --> 01:15:53: which you would have seen on my slide if it
01:15:54 --> 01:15:54: had worked.
01:15:54 --> 01:15:57: But so we're we're experiencing that today.
01:15:57 --> 01:16:02: And that particular data center was originally a manufacturing facility
01:16:02 --> 01:16:03: for another company.
01:16:03 --> 01:16:06: Then it was something for us for a little bit
01:16:06 --> 01:16:07: and then it became a data center.
01:16:07 --> 01:16:10: So it's kind of unique in our portfolio.
01:16:11 --> 01:16:12: It is water cooled.
01:16:12 --> 01:16:15: And so you know, we we very much kind of
01:16:15 --> 01:16:19: keep on top of what's happening with the Colorado River
01:16:19 --> 01:16:22: planning and post 2026, you know, now that we're in
01:16:22 --> 01:16:24: it, what happens there.
01:16:24 --> 01:16:27: I mean, I don't know that we anticipate citing more

01:16:27 --> 01:16:30: data centers in that area, but certainly, you know, we're
01:16:30 --> 01:16:32: we're keeping on top of it in terms of whether
01:16:32 --> 01:16:35: it's going to have any impact on existing operations.
01:16:35 --> 01:16:39: And we've done replenishment projects in the region.
01:16:39 --> 01:16:43: We did a very significant forest thinning project with SRP
01:16:43 --> 01:16:48: to improve, you know, water quality and help prevent against
01:16:48 --> 01:16:50: catastrophic fire damage.
01:16:51 --> 01:16:54: And you know, we just kind of try to to
01:16:54 --> 01:16:57: stay on top of what's happening there.
01:16:57 --> 01:17:02: So can't say for future planning, but it's definitely an
01:17:02 --> 01:17:02: issue.
01:17:04 --> 01:17:08: Pete, we've got Annabelle, Marielle, Christine and then Tyler.
01:17:08 --> 01:17:10: And we're going to be really quick because we're running
01:17:10 --> 01:17:10: out of time here.
01:17:11 --> 01:17:12: But sounds good.
01:17:13 --> 01:17:16: I'm Annabelle, I'm with EOR here in Minnesota.
01:17:16 --> 01:17:18: And so we do a lot of local planning and
01:17:18 --> 01:17:19: watershed management with our clients.
01:17:19 --> 01:17:22: And so we're on the client, the community side of
01:17:22 --> 01:17:25: things and they're trying to be very proactive with their
01:17:25 --> 01:17:29: comprehensive planning and identifying potential overlay districts.
01:17:29 --> 01:17:33: And I'm just, it's been very challenging to try to
01:17:33 --> 01:17:37: like help on that front and hear how responsibly you
01:17:38 --> 01:17:41: all are like thinking about development.
01:17:41 --> 01:17:44: And like that's doesn't seem to be the experience our
01:17:44 --> 01:17:48: communities are having with the developers who are coming in.
01:17:48 --> 01:17:50: And I think there's AI think it seems to be
01:17:50 --> 01:17:53: mainly more front end developers who are ready to like
01:17:53 --> 01:17:56: sell and so they don't have those long term interest
01:17:56 --> 01:17:56: in mind.
01:17:56 --> 01:17:58: And so I'm just any ideas you have on what
01:17:58 --> 01:18:02: like how to actually connect the community with the developers
01:18:02 --> 01:18:04: who are ready to do this responsibly?
01:18:04 --> 01:18:08: Because there really is quite a desire for that.
01:18:08 --> 01:18:11: It's just this is hard.
01:18:12 --> 01:18:13: And thank you for doing what you do.
01:18:17 --> 01:18:19: Yeah, I mean, I, I'm not sure maybe this is
01:18:19 --> 01:18:21: a good one for Sarah actually to answer.
01:18:21 --> 01:18:24: I would say I'm not sure quite how to influence
01:18:24 --> 01:18:26: what those front end developers are doing.

01:18:26 --> 01:18:29: But I hope, you know, everything we do, we try
01:18:29 --> 01:18:31: to do because it's the right thing to do, but
01:18:31 --> 01:18:34: also because it's that's an example for how others can
01:18:34 --> 01:18:34: approach it.
01:18:34 --> 01:18:37: And you know, once you hear about our power is
01:18:37 --> 01:18:39: in the collective, right.
01:18:39 --> 01:18:42: So, you know, once you hear about how we're approaching
01:18:42 --> 01:18:45: things and, and maybe some of our peers, then communities
01:18:45 --> 01:18:48: can begin asking those companies for these same sorts of
01:18:48 --> 01:18:49: things.
01:18:49 --> 01:18:52: So, yeah, you know, that that leadership and advocacy piece
01:18:52 --> 01:18:55: of things that I was talking about, I didn't talk
01:18:55 --> 01:18:58: about it in my slide, but we published a paper
01:18:58 --> 01:19:02: with Alliance for Water Stewardship talking about how we're doing
01:19:02 --> 01:19:03: this in data centers.
01:19:03 --> 01:19:07: And hopefully that, yeah, when the slides get shared, that
01:19:07 --> 01:19:09: link is in that slide, so you can see it.
01:19:10 --> 01:19:13: But hopefully that gets shared with communities and and with
01:19:13 --> 01:19:16: other developers and this begins to be something that's more
01:19:16 --> 01:19:17: widely adopted.
01:19:17 --> 01:19:20: That was our whole intent when we went to we
01:19:20 --> 01:19:24: were the first data center actually to get certified to
01:19:24 --> 01:19:25: the AWS standard.
01:19:25 --> 01:19:28: And then I think we're still the first data centers
01:19:28 --> 01:19:29: to be certified.
01:19:29 --> 01:19:32: So hoping that others pick it up too.
01:19:33 --> 01:19:34: Thank you, Sarah.
01:19:34 --> 01:19:34: I got.
01:19:34 --> 01:19:35: 100% thoughts on that?
01:19:35 --> 01:19:38: No, no, no, I mean you, you nailed it on
01:19:38 --> 01:19:39: the head.
01:19:39 --> 01:19:42: It's it's about that peer sort of pressure and making
01:19:42 --> 01:19:46: it really obvious that, you know, and again, it's, it's
01:19:46 --> 01:19:49: it's facilitating A constructive conversation.
01:19:49 --> 01:19:53: If the the developer says, Oh, we can't do that
01:19:53 --> 01:19:56: because XY and Z you're equipped with wait, so and
01:19:56 --> 01:19:59: so did it like this is that's actually not a
01:19:59 --> 01:20:03: valid, you know, reason because you can point to Apple
01:20:03 --> 01:20:06: or others, you know, and that have done these things.
01:20:07 --> 01:20:11: And so really making that that information publicly available.
01:20:12 --> 01:20:16: And you know, Greg doesn't doesn't make a score available

01:20:16 --> 01:20:19: or the the actual report, but you can see Oh
01:20:19 --> 01:20:23: so and so is is, you know, reporting to the
01:20:23 --> 01:20:24: standard and.
01:20:24 --> 01:20:26: Is and a lot of people are putting these things
01:20:26 --> 01:20:30: in their sustainability reports and again, getting back to the
01:20:30 --> 01:20:33: need for the authenticity behind those and the credibility of
01:20:33 --> 01:20:37: sort of third party validation of those statements is is
01:20:37 --> 01:20:39: in my opinion, it's quite necessary.
01:20:39 --> 01:20:41: You know, you can think about like an organic apple,
01:20:41 --> 01:20:44: you need that sticker to know that it's actually organic
01:20:44 --> 01:20:45: in the same way.
01:20:45 --> 01:20:49: But once we get more and more evidence of what's
01:20:49 --> 01:20:53: possible, it it, it sort of knocks away that argument.
01:20:53 --> 01:20:54: Oh, we can't.
01:20:54 --> 01:20:56: We can't because blah blah blah.
01:20:56 --> 01:20:57: Yeah, that.
01:20:57 --> 01:20:58: Thank you so much.
01:20:59 --> 01:21:00: That's amazing.
01:21:02 --> 01:21:03: Really good question.
01:21:04 --> 01:21:04: All right.
01:21:04 --> 01:21:07: We've got Marielle, Christine and Tyler.
01:21:10 --> 01:21:11: Right.
01:21:13 --> 01:21:13: Hi, go ahead.
01:21:14 --> 01:21:14: Hi.
01:21:14 --> 01:21:18: So again, as architects and engineers again we're working on
01:21:18 --> 01:21:24: large scale industrial developments and we're increasingly seeing water stewardship
01:21:24 --> 01:21:27: become a key consideration early in planning.
01:21:27 --> 01:21:31: So looking ahead five years, just wondering would you see
01:21:31 --> 01:21:36: the biggest water related constraints impacting data center growth and
01:21:36 --> 01:21:39: how should we as again designers be responding today to
01:21:39 --> 01:21:41: stay ahead of those limitations?
01:21:46 --> 01:21:47: Thank you.
01:21:47 --> 01:21:50: I heard water in the question, so I guess I'll,
01:21:50 --> 01:21:51: I'll start off.
01:21:51 --> 01:21:55: It's, it's, it's all again, it's all very local and
01:21:55 --> 01:21:59: there are places where you should not build a data
01:21:59 --> 01:22:04: center because of water scarcity and that you cannot find
01:22:04 --> 01:22:05: any relief for that.
01:22:06 --> 01:22:09: But that being said, you can take, you can take
01:22:09 --> 01:22:13: water from the middle of Pacific Ocean, you can desalinate

01:22:13 --> 01:22:16: it and send it anywhere in the world and use
01:22:16 --> 01:22:19: it for any possible use, including drinking.
01:22:19 --> 01:22:21: And so it's possible to do.
01:22:21 --> 01:22:24: And it's just a question of cost and are you
01:22:24 --> 01:22:26: willing to pay that cost?
01:22:26 --> 01:22:30: And unfortunately, as, as was said, I think Mary had
01:22:30 --> 01:22:33: mentioned this, is that water's been cheap.
01:22:34 --> 01:22:36: So people are not used to spending for water.
01:22:36 --> 01:22:39: People understand when they say they understand the electric bills
01:22:39 --> 01:22:41: are so high and cost so much money, but they're
01:22:41 --> 01:22:43: not used to seeing the same thing for water.
01:22:43 --> 01:22:45: And, you know, they're going to have to get used
01:22:45 --> 01:22:48: to that over time because water is going to get
01:22:48 --> 01:22:49: more and more expensive.
01:22:52 --> 01:22:54: Well, and I, I would maybe add that, you know,
01:22:54 --> 01:22:59: when you're thinking about designing data centers, I think particularly
01:22:59 --> 01:23:02: with, with the intensity and the density of AI demand,
01:23:02 --> 01:23:05: there is a trend toward going toward air cooled just
01:23:05 --> 01:23:08: to be able to handle those new additional loads.
01:23:08 --> 01:23:10: And so if you go air cooled, there may be
01:23:10 --> 01:23:13: an energy penalty, but that energy penalty can be dealt
01:23:13 --> 01:23:15: with through renewable energy.
01:23:15 --> 01:23:18: So, you know, water and energy are not distinct from
01:23:18 --> 01:23:20: one another in this case.
01:23:20 --> 01:23:23: And good water policy is good energy policy.
01:23:23 --> 01:23:25: So we should be thinking about it that way.
01:23:27 --> 01:23:27: Thank you.
01:23:29 --> 01:23:32: Energy, water and money.
01:23:33 --> 01:23:33: You know.
01:23:33 --> 01:23:34: How do you find that?
01:23:34 --> 01:23:45: That sweet spot, Arianne?
01:23:45 --> 01:23:46: You're on mute.
01:23:48 --> 01:23:48: Thank you.
01:23:49 --> 01:23:56: Chris, I was wondering if Christine is still here, Christine
01:23:56 --> 01:23:57: or Tyler.
01:23:57 --> 01:24:06: All right.
01:24:06 --> 01:24:08: Well, since I'm not hearing from either of you, I'm
01:24:09 --> 01:24:11: going to go into our our conclusion slides.
01:24:11 --> 01:24:14: Since we have 3 minutes left, we'd love to hear
01:24:14 --> 01:24:14: from you guys.

01:24:14 --> 01:24:17: If you have more questions, please put them in the
01:24:17 --> 01:24:17: chat box.
01:24:17 --> 01:24:19: The speakers are paying attention there.
01:24:20 --> 01:24:24: Let me get to the right slides.
01:24:28 --> 01:24:32: All right, some quick notes.
01:24:32 --> 01:24:34: Can you guys see my slides here?
01:24:37 --> 01:24:37: Great.
01:24:37 --> 01:24:38: OK.
01:24:38 --> 01:24:41: So UI is currently working on a report related to
01:24:41 --> 01:24:42: data centers.
01:24:42 --> 01:24:46: I think there this report is more focused on energy
01:24:46 --> 01:24:49: use, but our hope is that we're going to be
01:24:49 --> 01:24:53: talking about all sorts of resource constraints and data center
01:24:53 --> 01:24:56: impacts and best practices going forward.
01:24:57 --> 01:25:00: We have local round tables that we're going to be
01:25:00 --> 01:25:03: working on between the public and private sector in Colorado.
01:25:03 --> 01:25:06: If you are in Colorado, please reach out to us.
01:25:06 --> 01:25:08: We'd love to hear from you and work with you.
01:25:08 --> 01:25:11: These these are completely covered financially by the state of
01:25:11 --> 01:25:12: Colorado.
01:25:13 --> 01:25:16: We're also working on documenting the business case for water
01:25:16 --> 01:25:18: wise, land uses and real estate.
01:25:19 --> 01:25:21: If you know of case studies and we haven't talked
01:25:21 --> 01:25:23: to you already, please reach out to us.
01:25:23 --> 01:25:24: We'd love to hear from you.
01:25:26 --> 01:25:29: Here is the list of upcoming meeting topics.
01:25:30 --> 01:25:33: Since we're really running out of time, I would love
01:25:33 --> 01:25:36: for you to just put a message in the chat
01:25:36 --> 01:25:40: box and or e-mail me with topic ideas, speaker ideas.
01:25:40 --> 01:25:43: If you want to change the order of anything, that's
01:25:43 --> 01:25:44: totally fine.
01:25:44 --> 01:25:45: We want to hear from you.
01:25:45 --> 01:25:48: Our next meeting is on the Water Demand calculator.
01:25:48 --> 01:25:51: The reason why this is so exciting is because the
01:25:51 --> 01:25:55: water demand calculator can be used to reduce development tap
01:25:55 --> 01:26:00: fees and increase water conservation, which is wonderful so that
01:26:00 --> 01:26:02: that we have that to look forward to.
01:26:03 --> 01:26:07: The 2026 Resilience Summit is coming up on May 8th

01:26:07 --> 01:26:08: in Nashville, TN.
01:26:08 --> 01:26:13: It's a whole day all about different resilience topics including
01:26:13 --> 01:26:15: water and you can sign up with this QR code.
01:26:16 --> 01:26:19: It's in conjunction with ULI Spring Meeting so you can
01:26:19 --> 01:26:22: get all of this great content alongside your Spring Meeting
01:26:22 --> 01:26:22: content.
01:26:24 --> 01:26:26: Hey, Marianne, would you just mind going back a few
01:26:26 --> 01:26:27: slides really quick?
01:26:27 --> 01:26:29: I'm so sorry to that resources slide just for 30
01:26:29 --> 01:26:31: seconds for me to grab a shot of it.
01:26:31 --> 01:26:36: Yeah, go ahead, 123, OK.
01:26:38 --> 01:26:38: You're all good.
01:26:38 --> 01:26:39: You're all good.
01:26:39 --> 01:26:39: Thank you so much.
01:26:40 --> 01:26:41: Yep.
01:26:41 --> 01:26:43: And then, Beth, are you here?
01:26:44 --> 01:26:45: I am here do.
01:26:46 --> 01:26:48: You want to talk a little bit about this exchange
01:26:48 --> 01:26:48: of?
01:26:48 --> 01:26:49: Course Hi everyone.
01:26:49 --> 01:26:53: I'm Beth Nelson, I'm Marianne's colleague based here in Washington,
01:26:53 --> 01:26:56: DC and I manage a program here called the Lewis
01:26:56 --> 01:27:01: Center Sustainability Exchange, which is a bi monthly virtual discussion
01:27:01 --> 01:27:04: went to increase knowledge around areas that may not be
01:27:04 --> 01:27:09: familiar to us, but also to increase conversation and collaboration.
01:27:09 --> 01:27:10: So we would love for you to join.
01:27:11 --> 01:27:14: Our next session is on sustainable transportation on March 12th,
01:27:14 --> 01:27:17: and then we're actually going to be focusing on the
01:27:17 --> 01:27:21: report port that Marianne mentioned earlier on data centers and
01:27:21 --> 01:27:22: AI on May 21st.
01:27:22 --> 01:27:23: We hope you can join us.
01:27:24 --> 01:27:28: To sign up and learn more, go to uli.org/LC Exchange,
01:27:28 --> 01:27:30: which I just shared in the chat.
01:27:31 --> 01:27:33: I'll share it again since there are a lot of
01:27:33 --> 01:27:35: questions that came in after that.
01:27:35 --> 01:27:37: So you it's not lost, but we hope to see
01:27:37 --> 01:27:39: you there and please feel free to reach out to
01:27:40 --> 01:27:42: Marianne or myself For more information.

01:27:43 --> 01:27:43: Thank you, Beth.
01:27:43 --> 01:27:43: Beth.
01:27:44 --> 01:27:45: Where is the Lewis Center?
01:27:47 --> 01:27:50: So, so the Lewis Center is a global center and
01:27:50 --> 01:27:53: but we are most of the staff is based here
01:27:53 --> 01:27:57: in Washington, DC, but this is a virtual offering, OK.
01:27:58 --> 01:27:58: Yeah.
01:28:00 --> 01:28:02: All right, Amanda.
01:28:04 --> 01:28:04: I thanks.
01:28:04 --> 01:28:07: I'll I'll go through these quickly since I know we're
01:28:07 --> 01:28:11: at time I'm remembering the Christophe program Manager with Alliance
01:28:11 --> 01:28:12: for Water Efficiency.
01:28:12 --> 01:28:15: You can go ahead to the next slide I wanted
01:28:15 --> 01:28:16: to share.
01:28:16 --> 01:28:20: Relevant to today's meeting, AW partnered with Los Alamos National
01:28:20 --> 01:28:24: Laboratory and Metro North Georgia Water Planning District.
01:28:24 --> 01:28:28: We are developing a data center primer that's primarily going
01:28:28 --> 01:28:32: to be for local water providers and water utility professionals
01:28:32 --> 01:28:35: and we're planning to complete this primer in spring of
01:28:35 --> 01:28:35: 2026.
01:28:36 --> 01:28:37: So I wanted to spotlight that for the group.
01:28:39 --> 01:28:40: Next slide, please.
01:28:42 --> 01:28:44: Also wanted to share a save the date for AW
01:28:44 --> 01:28:49: BS 4th Annual Water Efficiency and Conservation Symposium that's happening
01:28:49 --> 01:28:51: August 4 through 6 in Chicago.
01:28:52 --> 01:28:55: We have a couple of call to actions for symposium.
01:28:55 --> 01:28:57: You'll go to the next slide, Marianne.
01:28:59 --> 01:29:00: Our call for abstracts.
01:29:00 --> 01:29:03: Is open right now through March 9th.
01:29:04 --> 01:29:07: The core topics that we're seeking are listed here on
01:29:07 --> 01:29:09: the slide and I will pop the link here in
01:29:09 --> 01:29:11: the chat and it's also linked on the slide if
01:29:11 --> 01:29:13: they're going to be sent later.
01:29:14 --> 01:29:17: So we welcome all abstracts relating to these topics.
01:29:18 --> 01:29:21: And then next slide, we are also calling for member
01:29:21 --> 01:29:25: nominated awards for the AW members who are on today's
01:29:26 --> 01:29:26: call.
01:29:26 --> 01:29:30: So definitely don't miss the opportunity to highlight the great
01:29:30 --> 01:29:33: work that's happening across the country and North America more

01:29:33 --> 01:29:34: broadly.

01:29:34 --> 01:29:38: In water conservation, we've got 4 awards, Innovation Excellence, Inequity,

01:29:38 --> 01:29:40: Up and Comer and Water Star.

01:29:42 --> 01:29:45: And then lastly, I also wanted to share an upcoming

01:29:45 --> 01:29:50: webinar that we are hosting in partnership with EPA Watersense

01:29:50 --> 01:29:54: that's part of our yearly outdoor water use webinar series.

01:29:54 --> 01:29:58: This webinar will tackle the topic of integrative approaches for

01:29:58 --> 01:30:00: efficiency and storm water management.

01:30:00 --> 01:30:04: And we've got speakers from the Municipal Water District of

01:30:04 --> 01:30:08: Orange County, the Water Reclamation District of Greater Chicago, and

01:30:08 --> 01:30:09: Friends of the Chicago River.

01:30:10 --> 01:30:11: So we hope to see you all.

01:30:11 --> 01:30:13: There and again I'll put these links in the.

01:30:18 --> 01:30:18: Thank you.

01:30:18 --> 01:30:21: Amanda, do we have someone from Sonoran on the call?

01:30:27 --> 01:30:27: Right.

01:30:27 --> 01:30:29: I'm not hearing somebody, so I'll just pitch it for

01:30:30 --> 01:30:30: them.

01:30:30 --> 01:30:34: Growing Watersmart is a program through the Sonoran Institute in

01:30:34 --> 01:30:37: the Babbitt Center for Land and Water Policy.

01:30:37 --> 01:30:41: They have a meeting coming up on local policies for

01:30:41 --> 01:30:44: large water uses and I think what I'll do is

01:30:44 --> 01:30:47: I'll just follow in my follow up e-mail with the

01:30:47 --> 01:30:48: recording and links.

01:30:48 --> 01:30:50: I'll make sure to include the link for this event

01:30:50 --> 01:30:51: there as well.

01:30:52 --> 01:30:55: We would love to hear from you all about your

01:30:55 --> 01:30:59: experience with the Water Wise Development Coalition, this meeting, your

01:30:59 --> 01:31:02: ideas for upcoming topics and speakers.

01:31:02 --> 01:31:05: This is the way that you can provide that pretty

01:31:05 --> 01:31:06: easily.

01:31:06 --> 01:31:09: You're also welcome to e-mail me, but I will be

01:31:09 --> 01:31:12: out on maternity leave starting next week, so the survey

01:31:12 --> 01:31:14: is the best way to reach out.

01:31:16 --> 01:31:19: And I will also share my e-mail in the chat

01:31:19 --> 01:31:23: for anyone who wants to reach out to a live

01:31:23 --> 01:31:25: person in Marianne's absence.

01:31:26 --> 01:31:26: Thank you, Beth.
01:31:27 --> 01:31:29: Of course, that is all.
01:31:29 --> 01:31:32: Thank you all so much for taking the time to
01:31:32 --> 01:31:33: join us today.
01:31:33 --> 01:31:37: A huge thank you to our speakers who dedicated their
01:31:37 --> 01:31:40: time and effort to this meeting to talk to you
01:31:40 --> 01:31:42: all about data center best practices.
01:31:42 --> 01:31:46: And we will be following up with resources.
01:31:46 --> 01:31:48: So please stay in touch and thank you all again.
01:31:49 --> 01:31:50: Great.
01:31:50 --> 01:31:50: Thank you.
01:31:55 --> 01:31:56: Thank you again for the opportunity.
