Webinar

Water Wise Development Coalition Meeting 11

Date: November 19, 2025

00:01:00 --> 00:01:00: Hello, everyone.
00:01:00 --> 00:01:01: Welcome.
00:01:01 --> 00:01:03: Thank you for joining us today.
00:01:03 --> 00:01:06: While we're waiting for people to log in, if you
00:01:06 --> 00:01:10: don't mind sharing your name, title, organization, and where you're
00:01:10 --> 00:01:12: calling in from in the chat box, we'd love to
00:01:12 --> 00:01:13: know who's here.
00:01:49 --> 00:01:50: Hello everyone, welcome.
00:01:52 --> 00:01:55: If you're just joining us, we'd love for you to
00:01:55 --> 00:01:57: introduce yourself in the chat box.
00:01:58 --> 00:02:01: People are putting in their name, title, organization, and where
00:02:01 --> 00:02:02: they're calling in from.
00:02:08 --> 00:02:12: And if you don't mind muting muting yourself or I,
00:02:12 --> 00:02:14: I can mute you too.
00:02:31 --> 00:02:33: All right, welcome, everyone.
00:02:33 --> 00:02:35: Thank you for joining us today for the Water Wise
00:02:35 --> 00:02:37: Development Coalition meeting.
00:02:37 --> 00:02:39: I'm Marianna Big.
00:02:39 --> 00:02:41: I'm the senior director of resilience for the Urban Land
00:02:41 --> 00:02:42: Institute.
00:02:44 --> 00:02:47: If you're new to you and I, we are a
00:02:47 --> 00:02:52: global nonprofit that's focused on responsible land use and sustainable
00:02:52 --> 00:02:53: development.
00:02:55 --> 00:02:59: We have over 48,000 members worldwide that includes a broad
00:02:59 --> 00:03:03: range of professionals active in real estate and land use
00:03:03 --> 00:03:03: sectors.
00:03:04 --> 00:03:08: We work globally, nationally, regionally, and locally, and we have
00:03:08 --> 00:03:11: over 70 district and national councils, which is what we

00:03:11 --> 00:03:13: call chapters all around the world.

00:03:16 --> 00:03:19: I work for Utilize Urban Resilience program which is focused

00:03:20 --> 00:03:23: on how buildings, cities and communities can be more resilient

00:03:23 --> 00:03:27: to the impacts of climate change and other environmental vulnerabilities.

00:03:27 --> 00:03:31: We do this by advancing industry understanding of resilience, cultivating

00:03:32 --> 00:03:37: champions for resilience, and catalyzing resilience partnerships and supporting communities

00:03:37 --> 00:03:39: and becoming more climate resilient.

00:03:41 --> 00:03:46: We recently produced this report called Water Wise Strategies for

00:03:46 --> 00:03:50: Drought Resilient Development, and due to the success of this

00:03:50 --> 00:03:55: report, we created this Water Wise development coalition to enable

00:03:55 --> 00:03:59: implementation of all the strategies that are in here and

00:03:59 --> 00:03:59: others.

00:04:01 --> 00:04:05: If you're joining us because you're just interested in water

00:04:05 --> 00:04:08: in general, we have many resources related to flooding as

00:04:08 --> 00:04:09: well.

00:04:09 --> 00:04:13: These are two of those resources, harvesting the value of

00:04:13 --> 00:04:17: waters, about green infrastructure and surges, about coastal resilience.

00:04:17 --> 00:04:20: And we have many other resources as well, all available

00:04:20 --> 00:04:23: for free, publicly accessible with these QR codes.

00:04:27 --> 00:04:30: If you're new to the coalition, we have partnered with

00:04:30 --> 00:04:34: the Alliance for Water Efficiency, the Sonoran Institute, and the

00:04:34 --> 00:04:38: Water Now Alliance to convene land and real estate professionals

00:04:38 --> 00:04:41: with public sector decision makers, all with the goal of

00:04:41 --> 00:04:45: advancing water smart real estate development and supportive policies.

00:04:46 --> 00:04:48: We have quarterly virtual meetings.

00:04:48 --> 00:04:52: Anyone is welcome to attend and participants have a say

00:04:52 --> 00:04:55: in upcoming meeting topics which we'll discuss at the end.

00:04:57 --> 00:05:01: We have a jam packed agenda today as usual.

00:05:01 --> 00:05:05: We have 4 speakers, which is more than usual.

00:05:05 --> 00:05:06: The 1st is Anne Castle.

00:05:06 --> 00:05:10: She's a senior fellow of the Getches Wilkinson Center for

00:05:10 --> 00:05:14: Natural Resources, and she might correct me if I mispronounce

00:05:14 --> 00:05:14: that.

00:05:15 --> 00:05:19: At the University of Colorado Law School, I'm John Bergman,

00:05:19 --> 00:05:24: who's the regional policy manager with Healthy Rivers at Western

00:05:24 --> 00:05:25: Resource Advocates.

00:05:25 --> 00:05:29: Ken Ransford, who's the secretary to the Colorado Basin Roundtable.

00:05:30 --> 00:05:33: He's also a lawyer and Sarah Porter, director with the

00:05:33 --> 00:05:38: Kyle Center for Water Policy at Arizona State University's Morrison

00:05:38 --> 00:05:40: Institute for Public Policy.

00:05:40 --> 00:05:42: And I was informed that most of these people are

00:05:42 --> 00:05:43: actually lawyers.

00:05:44 --> 00:05:47: So we're going to be hearing a lot about law

00:05:47 --> 00:05:52: and how the Colorado River negotiations that are currently underway

00:05:52 --> 00:05:56: are are related to law and their potential implications for

00:05:57 --> 00:05:57: land use.

00:05:58 --> 00:06:02: We'll end with some group discussion and resource sharing, but

00:06:02 --> 00:06:05: if you have questions throughout any of these presentations, we

00:06:05 --> 00:06:08: do encourage you to use the chat box.

00:06:08 --> 00:06:11: And our speakers will not only be able to answer

00:06:11 --> 00:06:14: questions during the open Q&A at the end, but they

00:06:14 --> 00:06:16: can also answer questions in the chat box.

00:06:16 --> 00:06:18: So we do encourage discussion there.

00:06:18 --> 00:06:21: With that, I'm going to turn it over to our

00:06:21 --> 00:06:22: first speaker, Anne Castle.

00:06:25 --> 00:06:29: Thanks Marianne and welcome to all of you.

00:06:30 --> 00:06:35: We're going to be talking today about the Colorado River,

00:06:35 --> 00:06:40: which has been greatly in the news recently because there

00:06:40 --> 00:06:45: are some high level negotiations going on about what our

00:06:45 --> 00:06:50: next set of operating rules is going to look like.

00:06:51 --> 00:06:54: And in order to set the stage for our later

00:06:54 --> 00:07:00: discussion and the the negotiations and how that all effects

00:07:00 --> 00:07:04: land use, you really have to know about the legal

00:07:04 --> 00:07:10: underpinnings that we're dealing with right now and the hydrological

00:07:11 --> 00:07:14: situation that we find ourselves in.

00:07:14 --> 00:07:17: So I'm going to try to lay that foundation for

00:07:17 --> 00:07:18: the other speakers.

00:07:19 --> 00:07:22: So first we start with a map of the Colorado

00:07:23 --> 00:07:23: River basin.

00:07:25 --> 00:07:31: This grade area, the grade outline show its geographical

extent
00:07:31 --> 00:07:33: of the basin.
00:07:33 --> 00:07:37: So you can also see that the map has some
00:07:37 --> 00:07:43: Red Cross hatched areas that are outside of that geographical
00:07:43 --> 00:07:44: basin.
00:07:44 --> 00:07:49: Those are areas that depend on water from the Colorado
00:07:49 --> 00:07:50: River.
00:07:50 --> 00:07:54: So you can see that this whole area of the
00:07:54 --> 00:08:00: Colorado Front Range, the Arkansas River Valley down here in
00:08:00 --> 00:08:05: New Mexico, this is the Rio Grande River Valley.
00:08:05 --> 00:08:09: All of these areas get some of their water from
00:08:09 --> 00:08:13: the Colorado River system, and one of the biggest areas
00:08:13 --> 00:08:18: is over here in the Southern California coastal plain and
00:08:18 --> 00:08:23: the areas in the Mexicali Valley and Tijuana in Mexico.
00:08:23 --> 00:08:28: So it's interesting because about 90% of the visible use
00:08:28 --> 00:08:33: of the Colorado River's water is outside of the geographical
00:08:33 --> 00:08:34: basin.
00:08:35 --> 00:08:39: One important point in the the whole system here is
00:08:39 --> 00:08:43: called Lee Ferry, which is on the river a little
00:08:43 --> 00:08:48: bit about 15 miles downstream of Glen Canyon Dam, which
00:08:48 --> 00:08:51: is the dam that creates Lake Powell.
00:08:52 --> 00:08:56: And Lee Ferry is kind of the dividing point between
00:08:56 --> 00:09:00: the upper basin of the Colorado River up here, which
00:09:01 --> 00:09:06: includes the states of Colorado, Wyoming, Utah and New Mexico,
00:09:06 --> 00:09:11: and the lower basin, which includes Arizona, Nevada and California.
00:09:12 --> 00:09:16: So Lee Ferry is that pivot point on the river
00:09:16 --> 00:09:18: between the two basins.
00:09:19 --> 00:09:25: So when we start talking about the Colorado River system,
00:09:25 --> 00:09:31: we always start with the 1922 Colorado River Compact.
00:09:31 --> 00:09:35: So over 100 years old, those seven states that were
00:09:35 --> 00:09:39: on the map came together and forged an agreement about
00:09:39 --> 00:09:43: how to allocate the water in the Colorado River.
00:09:44 --> 00:09:48: And this is the document that still frames a lot
00:09:48 --> 00:09:53: of the operations and decision making about management of the
00:09:53 --> 00:09:54: river today.
00:09:55 --> 00:09:57: So what did it do?
00:09:57 --> 00:10:00: Well, you hear often or read in the press that
00:10:01 --> 00:10:05: the river was divided equally between the upper Basin and

00:10:05 --> 00:10:08: the lower Basin, and that's kind of true.
00:10:09 --> 00:10:12: There's some qualifications to that.
00:10:12 --> 00:10:17: But the Compact provides that both the upper Basin and
00:10:17 --> 00:10:21: the lower Basin get 7 and a half million acre
00:10:21 --> 00:10:23: feet of the river's flows.
00:10:24 --> 00:10:28: Then it says the lower Basin gets 7 1/2, but
00:10:28 --> 00:10:32: it also gets an extra 1,000,000 acre feet to use
00:10:32 --> 00:10:36: and the upper basin gets seven and a half million
00:10:36 --> 00:10:37: acre feed.
00:10:37 --> 00:10:42: But there's there's a big qualification to the upper basins
00:10:42 --> 00:10:46: allocation that I'll show you on the next slide.
00:10:47 --> 00:10:51: And then another provision that is impacting how we think
00:10:51 --> 00:10:55: about the river today is in 1922, we didn't have
00:10:55 --> 00:11:00: an agreement with Mexico about their share of the Colorado
00:11:00 --> 00:11:05: River, but the framers of the compact anticipated that there
00:11:05 --> 00:11:09: might be an agreement with Mexico in the future.
00:11:09 --> 00:11:13: And if there was and deliveries were required, the compact
00:11:13 --> 00:11:18: says that that obligation would be split equally between the
00:11:18 --> 00:11:20: upper Basin and the lower Basin.
00:11:21 --> 00:11:25: So here's some of the specific language and, and this
00:11:25 --> 00:11:27: becomes important later.
00:11:28 --> 00:11:31: There's a portion to the upper basin and the lower
00:11:31 --> 00:11:34: basin, the exclusive use of seven and a half million
00:11:34 --> 00:11:35: acre feet per year.
00:11:35 --> 00:11:37: So that's the equal division part.
00:11:38 --> 00:11:42: Then it says lower basin is given the right to
00:11:42 --> 00:11:44: increase by a million acre feet.
00:11:44 --> 00:11:46: So not quite equal.
00:11:47 --> 00:11:50: And then here's the qualification on the upper Basin.
00:11:50 --> 00:11:54: The upper basin will not 'cause the flow of the
00:11:54 --> 00:11:58: river at Lee Ferry, that division point to be depleted
00:11:58 --> 00:12:02: below 75,000,000 acre feet over any period of 10 years.
00:12:03 --> 00:12:07: So 75,000,000 / 10 years average of seven and a
00:12:07 --> 00:12:09: half million per year.
00:12:10 --> 00:12:14: People have been arguing about what that particular sentence means
00:12:14 --> 00:12:18: for over 100 years and we still haven't resolved it.
00:12:18 --> 00:12:24: There's never been a judicial determination of exactly what that
00:12:24 --> 00:12:24: means.
00:12:24 --> 00:12:30: And and it's a current timely topic right now in
00:12:30 --> 00:12:34: the negotiations that are going on.

00:12:36 --> 00:12:41: So just to kind of recap, the 1922 Compact provides
00:12:41 --> 00:12:45: for 7 1/2 for the upper basin, 7 1/2 +
00:12:45 --> 00:12:47: 1 for the lower basin.
00:12:47 --> 00:12:51: That gives us 16,000,000 acre feet that was allocated in
00:12:51 --> 00:12:52: the compact.
00:12:53 --> 00:12:57: Then in 1944, we did reach a treaty with Mexico
00:12:57 --> 00:13:02: and that treaty guarantees delivery of one and a half
00:13:02 --> 00:13:05: million acre feet every year to Mexico.
00:13:06 --> 00:13:09: So you add that on to the 16,000,000 acre feet
00:13:09 --> 00:13:13: and you come up with a total of 17 and
00:13:13 --> 00:13:15: a half million that was allocated.
00:13:16 --> 00:13:20: And then even in 1922, we knew that in order
00:13:21 --> 00:13:26: to fully utilize the waters of the Colorado River, we'd
00:13:26 --> 00:13:28: need some big reservoirs.
00:13:29 --> 00:13:32: And when you have reservoirs, you're gonna have evaporation from
00:13:32 --> 00:13:33: the surface.
00:13:33 --> 00:13:35: And we've done that.
00:13:35 --> 00:13:39: There is evaporation and it adds up to about another
00:13:39 --> 00:13:42: million and a half acre feet a year.
00:13:42 --> 00:13:44: You add that on top.
00:13:44 --> 00:13:48: So the legal plus the physical allocations add up to
00:13:48 --> 00:13:50: 19,000,000 acre feet.
00:13:51 --> 00:13:55: So just keep that 19,000,000 number in mind as we
00:13:55 --> 00:13:57: look at the hydrology.
00:13:59 --> 00:14:02: So this is a busy slide I know, but this
00:14:02 --> 00:14:07: represents the natural flow at Lee Ferry again that division
00:14:07 --> 00:14:11: point between the basins over the past more than 100
00:14:11 --> 00:14:15: years back to when we started having good records.
00:14:16 --> 00:14:21: So each blue bar represents the the amount of flow
00:14:21 --> 00:14:24: that year in millions of acre feet.
00:14:25 --> 00:14:28: And you can see it's a really volatile system.
00:14:29 --> 00:14:32: Some of the low points like here and here in
00:14:32 --> 00:14:36: 2002 are only 1/4 of the amount of some of
00:14:36 --> 00:14:40: the high flows that we got in really wet years.
00:14:41 --> 00:14:46: But even with this volatility, there are some trends and
00:14:46 --> 00:14:50: this shows the flows from the 20th century.
00:14:50 --> 00:14:55: So from 19 O 6 to 1999, the average was
00:14:55 --> 00:14:57: 15.2 million acre feet.
00:14:58 --> 00:15:02: But then if you look at the 21st century up
00:15:02 --> 00:15:06: till today, the flows on average are a lot lower,
00:15:06 --> 00:15:08: only 12.3 million acre feet.

00:15:09 --> 00:15:14: That's a decrease of almost 20% and it really is
00:15:14 --> 00:15:20: impacted for the most part by warming temperatures.
00:15:21 --> 00:15:25: So we've got less flow in the 21st century, but
00:15:25 --> 00:15:31: there's even more reason to think about the hydrology because
00:15:31 --> 00:15:35: we've seen some shorter periods of time with even lower
00:15:36 --> 00:15:38: flows like 2000 to 2004.
00:15:38 --> 00:15:40: That five year.
00:15:40 --> 00:15:44: Only averaged out to 9 and a half million acre
00:15:44 --> 00:15:48: feet and in the past six years things have been
00:15:48 --> 00:15:48: dry.
00:15:49 --> 00:15:52: We had a wet year in 2023, but other than
00:15:52 --> 00:15:56: that it's been pretty dry only 10.8 million acre feet
00:15:56 --> 00:15:57: on average.
00:15:58 --> 00:16:01: So just think about those numbers in the context of
00:16:02 --> 00:16:05: that 19,000,000 acre feet that we saw in the legal
00:16:05 --> 00:16:09: allocations and and you start to get a feel for
00:16:09 --> 00:16:10: the problem.
00:16:12 --> 00:16:15: This is what we call a mass balance it it's
00:16:15 --> 00:16:19: really just like a monthly bank statement.
00:16:19 --> 00:16:21: It shows inflows and outflows.
00:16:22 --> 00:16:24: And this shows natural flow.
00:16:25 --> 00:16:27: And I should have said, let me go back.
00:16:28 --> 00:16:32: This is natural flow at Lee Ferry, that that midpoint
00:16:32 --> 00:16:36: natural flow is actually a calculated number.
00:16:37 --> 00:16:41: It's a number that represents how much flow there would
00:16:41 --> 00:16:44: be in the system if there were no humans around.
00:16:44 --> 00:16:48: So the way they get that number is they measure
00:16:48 --> 00:16:51: the flow at Lee Ferry, the flow as it exists
00:16:51 --> 00:16:55: every year, and then they add back in all the
00:16:55 --> 00:16:58: upstream diversions and changes in storage.
00:16:58 --> 00:17:01: So you're trying to get a number that tells us
00:17:01 --> 00:17:05: how much water is in the system before we take
00:17:05 --> 00:17:06: it out and use it.
00:17:07 --> 00:17:10: So again, this is natural flow.
00:17:10 --> 00:17:15: This is not at Lee Ferry, It's at the the
00:17:15 --> 00:17:19: end of the system in the United States.
00:17:19 --> 00:17:23: So this is all the the natural flow in our
00:17:23 --> 00:17:28: country, 11.6 million acre feet and then we have outflows
00:17:28 --> 00:17:33: upper basin use four to four and a half million
00:17:33 --> 00:17:35: lower basin main stem use.
00:17:35 --> 00:17:39: That's water that's withdrawn out of the main stem of

00:17:39 --> 00:17:43: the Colorado River, mostly from Lake Mead down in Nevada.
00:17:45 --> 00:17:48: That's six to seven and a half million acre feet.
00:17:48 --> 00:17:51: Lower Basin evaporation talked about that before.
00:17:51 --> 00:17:53: That's one and a half million acre feet.
00:17:53 --> 00:17:57: And then Mexico 1.4 to 1.5.
00:17:59 --> 00:18:04: The deliveries to Mexico are reduced in certain circumstances.
00:18:04 --> 00:18:07: So it's not always exactly 1.5 million acre feet.
00:18:08 --> 00:18:12: Anyhow, if you add up all the numbers in yellow,
00:18:12 --> 00:18:16: you get to 12.9 to 15,000,000 acre feet.
00:18:17 --> 00:18:20: You compare that to the natural flow over the past
00:18:20 --> 00:18:23: six years and you can see we've got a math
00:18:23 --> 00:18:23: problem.
00:18:24 --> 00:18:29: We have a deficit and that deficit is somewhere between
00:18:30 --> 00:18:34: 1.3 to 3 1/2 ish million acre feet per year.
00:18:35 --> 00:18:40: And just like your checking account, you can only overspend
00:18:40 --> 00:18:44: your income if you've got a good savings account.
00:18:45 --> 00:18:49: And our savings accounts are our big reservoirs.
00:18:49 --> 00:18:53: Those are the water savings account that we draw on
00:18:53 --> 00:18:56: when we're using more water than Mother Nature supplies.
00:18:57 --> 00:19:02: And this is what has happened to our savings account
00:19:02 --> 00:19:04: over the past 25 years.
00:19:05 --> 00:19:08: This is like Powell and Lake Mead, it's combined contents
00:19:09 --> 00:19:11: and they're both really big reservoirs.
00:19:11 --> 00:19:15: They both hold about 25,000,000 acre feet, the two biggest
00:19:15 --> 00:19:17: reservoirs in the country.
00:19:17 --> 00:19:21: They were pretty much full at the beginning of the
00:19:21 --> 00:19:24: 21st century, in the year 2000.
00:19:24 --> 00:19:28: And you can see what's happened to the contents over
00:19:28 --> 00:19:28: time.
00:19:29 --> 00:19:33: We lost a lot of storage in the first five
00:19:33 --> 00:19:36: years of this century.
00:19:36 --> 00:19:41: Then we kind of bumped along kind of going down,
00:19:41 --> 00:19:44: coming up every once in a while.
00:19:44 --> 00:19:49: But in recent years particularly we've seen some significant downward
00:19:49 --> 00:19:53: trends and this line here a little below below 10
00:19:54 --> 00:19:58: million acre feet that represents the levels in the reservoirs
00:19:59 --> 00:20:04: below which the Bureau of Reclamation who operates these reservoirs,
00:20:04 --> 00:20:08: they've told us they don't want to go below that
00:20:08 --> 00:20:08: line.
00:20:09 --> 00:20:13: So you can see that we're getting pretty close to

00:20:13 --> 00:20:17: the the level at which we can't draw any more
00:20:17 --> 00:20:20: water out of these reservoirs.
00:20:21 --> 00:20:24: And that has been a result of the fact that
00:20:24 --> 00:20:28: we have a deficit between supply and demand every year.
00:20:30 --> 00:20:34: So this is just kind of an interesting visual of
00:20:34 --> 00:20:40: the different uses that are made of Colorado River water.
00:20:41 --> 00:20:44: So on the left you see all of the different
00:20:44 --> 00:20:45: kinds of views.
00:20:46 --> 00:20:53: Agriculture is the largest municipal, commercial and industrial, 18%.
00:20:53 --> 00:20:58: The green section of the pie is riparian and wetland
00:20:58 --> 00:21:01: evaporate evapotranspiration.
00:21:01 --> 00:21:05: That's use of water that would occur whether or not
00:21:05 --> 00:21:07: there were any humans around.
00:21:07 --> 00:21:12: So that's riparian vegetation, wetlands that are soaking up water,
00:21:12 --> 00:21:15: and then we have reservoir evaporation.
00:21:16 --> 00:21:20: But if you look just at the human use at
00:21:20 --> 00:21:24: the the pie chart on the right, you can see
00:21:24 --> 00:21:29: that agriculture is almost 3/4 of the overall use of
00:21:29 --> 00:21:33: the river and the M and I is about 1/4.
00:21:33 --> 00:21:40: And interestingly, the agricultural use is the majority of it
00:21:40 --> 00:21:46: is for cattle feed, for grass hay, alfalfa hay, that
00:21:46 --> 00:21:48: kind of forage crop.
00:21:50 --> 00:21:53: So what have we done to address this gap that
00:21:53 --> 00:21:56: we've got between supply and demand?
00:21:56 --> 00:22:01: Well, there's a lot that has been done over the
00:22:01 --> 00:22:01: years.
00:22:03 --> 00:22:06: We have guidelines to operate the river that provide for
00:22:06 --> 00:22:06: reductions.
00:22:06 --> 00:22:10: We've reached agreements with Mexico that we call minutes to
00:22:10 --> 00:22:12: decrease deliveries there.
00:22:13 --> 00:22:15: There are drought contingency plans.
00:22:15 --> 00:22:19: There have been emergency efforts from the Department of the
00:22:19 --> 00:22:22: Interior and the Bureau of Reclamation.
00:22:23 --> 00:22:27: And I'm not going to go into any of those
00:22:27 --> 00:22:31: in any detail, but they all share some common features.
00:22:31 --> 00:22:36: They all make cuts to the allocations of water to
00:22:36 --> 00:22:40: the lower basin based on elevations in Lake Mead.
00:22:40 --> 00:22:45: So as elevations drop in Lake Mead, that big reservoir,
00:22:45 --> 00:22:50: the lower basin, gets less water delivered to it in

00:22:50 --> 00:22:55: an effort to slow that decline in reservoir storage.
00:22:56 --> 00:22:59: There are also cuts in deliveries to Mexico provided in
00:22:59 --> 00:23:01: some of those agreements.
00:23:02 --> 00:23:05: We have ways of balancing the contents of Lake Mead
00:23:05 --> 00:23:08: and Lake Powell so those two lakes don't get out
00:23:08 --> 00:23:10: of whack with each other.
00:23:10 --> 00:23:16: And then there are significant provisions for conservation that is
00:23:16 --> 00:23:18: voluntary and compensated.
00:23:19 --> 00:23:22: But another common feature is all of these deals, all
00:23:23 --> 00:23:27: of these agreements expire next year and they've all made
00:23:27 --> 00:23:27: it better.
00:23:28 --> 00:23:34: They've all stemmed the the decrease in our storage availability,
00:23:34 --> 00:23:39: but they haven't, they haven't solved the problem.
00:23:39 --> 00:23:44: They haven't completely addressed that gap between supply and demand.
00:23:45 --> 00:23:48: So because they all expire next year, there has been
00:23:48 --> 00:23:52: a process underway to determine what our future operations are
00:23:53 --> 00:23:54: going to look like.
00:23:55 --> 00:23:58: And John Bergman will talk next about how that's going.
00:23:59 --> 00:24:03: But one thing I wanted to call your attention to
00:24:04 --> 00:24:06: is the possibility of litigation.
00:24:07 --> 00:24:11: That's also been a lot in the news lately because
00:24:11 --> 00:24:16: we haven't been able to come up with an agreement
00:24:16 --> 00:24:20: among all the seven basin states about how they would
00:24:21 --> 00:24:25: like to see the river operated in the future.
00:24:25 --> 00:24:29: There been significant discussions, but so far no agreement.
00:24:30 --> 00:24:35: So there are concerns that there could be litigation over
00:24:35 --> 00:24:36: the compact.
00:24:37 --> 00:24:40: And just to to give you sort of a high
00:24:40 --> 00:24:45: level picture of what that might look like, remember back
00:24:45 --> 00:24:49: on the the second slide, it says that the upper
00:24:50 --> 00:24:54: Basin won't cause the flow at Lee Ferry to be
00:24:54 --> 00:24:58: depleted below 75,000,000 acre feet every 10 years.
00:24:59 --> 00:25:02: So the compact requires that 75,000,000 acre feet.
00:25:03 --> 00:25:07: And it also says that half of the obligation to
00:25:07 --> 00:25:10: Mexico will be absorbed by the Upper Basin.
00:25:11 --> 00:25:14: We now know that the obligation to Mexico is 1
00:25:14 --> 00:25:16: 1/2 million acre feet.
00:25:16 --> 00:25:19: Half of that would be 750,000.
00:25:20 --> 00:25:23: If you multiply that by 10, you get 7 and

00:25:23 --> 00:25:26: a half million acre feet over 10 years.
00:25:26 --> 00:25:31: Add that to 75,000,000 acre feet and you get 82
00:25:31 --> 00:25:35: and a half, 82 and a half million acre feet
00:25:35 --> 00:25:36: every 10 years.
00:25:37 --> 00:25:43: There's a lot of argument about what those various provisions
00:25:43 --> 00:25:48: in the compact mean, how they should be interpreted, but
00:25:48 --> 00:25:52: one plausible explanation of what they mean is 82 and
00:25:52 --> 00:25:56: a half million acre feet have to pass Lee Ferry
00:25:56 --> 00:26:00: every 10 years, and we call that the tripwire.
00:26:01 --> 00:26:06: We've never gone below that, but this graph shows what
00:26:06 --> 00:26:08: our trajectory is.
00:26:08 --> 00:26:13: So this is showing millions of acre feet over a
00:26:13 --> 00:26:14: 10 year.
00:26:14 --> 00:26:19: So this is cumulative and this is where we are
00:26:19 --> 00:26:20: like right now.
00:26:21 --> 00:26:25: So we've been coming down and this is all dependent
00:26:25 --> 00:26:28: on how much water is released from Lake Powell.
00:26:28 --> 00:26:32: We have operational rules that determine that and we're on
00:26:32 --> 00:26:35: this trajectory including this orange line.
00:26:36 --> 00:26:40: So the tripwire is triggered at 82 and a half
00:26:40 --> 00:26:45: million acre feet, which is the red dotted line and
00:26:45 --> 00:26:51: we're gonna trigger that tripwire next year or early in
00:26:51 --> 00:26:51: 2027.
00:26:52 --> 00:26:58: So that can prompt litigation over the compact if we're
00:26:58 --> 00:27:03: not able to reach an agreement that satisfies all the
00:27:04 --> 00:27:10: states sufficiently so that they agreed to waive or postpone
00:27:10 --> 00:27:12: any compact litigation.
00:27:13 --> 00:27:17: But in order to make that happen, each of the
00:27:17 --> 00:27:23: states has to be sufficiently satisfied with the agreement, whatever
00:27:23 --> 00:27:27: that looks like, that they are induced to waive their
00:27:27 --> 00:27:31: compact rights at least for the period of time that
00:27:32 --> 00:27:34: the agreement is in effect.
00:27:34 --> 00:27:36: So far that hasn't happened.
00:27:37 --> 00:27:40: So the the prospect of litigation is one that I
00:27:40 --> 00:27:43: think concerns a whole bunch of people.
00:27:45 --> 00:27:49: So John Bergen is going to talk next about the
00:27:49 --> 00:27:55: negotiations and and the kinds of operating alternatives that are
00:27:55 --> 00:27:57: being analyzed right now.
00:27:59 --> 00:28:00: Thank you so much, Anne.
00:28:05 --> 00:28:06: All right.

00:28:06 --> 00:28:08: Well, thank you, Anne and thank you, Mary Anne and
00:28:08 --> 00:28:09: welcome everybody.
00:28:09 --> 00:28:12: As Anne just mentioned, I'm going to go into a
00:28:12 --> 00:28:15: bit on the actual negotiations themselves, where things stand and
00:28:15 --> 00:28:17: where we can expect them to go.
00:28:19 --> 00:28:20: My name is John Bergen.
00:28:20 --> 00:28:22: I work for an organization called Western Resource Advocates.
00:28:23 --> 00:28:25: And I, I had to include a whole bunch of
00:28:25 --> 00:28:28: pictures from a river trip that Anne Castle and I
00:28:28 --> 00:28:30: were a part of last year in Cataract Canyon.
00:28:30 --> 00:28:33: So you might even see a familiar face or two
00:28:33 --> 00:28:34: in some of the pictures.
00:28:35 --> 00:28:37: So I work for Western Resource Advocates.
00:28:37 --> 00:28:40: We're a regional nonprofit in the seven interior western states,
00:28:40 --> 00:28:43: work on a variety of clean energy western land, and
00:28:43 --> 00:28:45: I'm a part of our Healthy Rivers program.
00:28:47 --> 00:28:51: So the the process for these new guidelines, it is
00:28:51 --> 00:28:56: a federal NEPA process because these are big federal reservoirs.
00:28:56 --> 00:28:59: It's a major federal action and therefore triggered NEPA, which
00:28:59 --> 00:29:02: the federal government officially kicked off a couple years ago.
00:29:03 --> 00:29:06: And I thought it might be helpful just to take
00:29:06 --> 00:29:08: a step back and look at the what they, what
00:29:08 --> 00:29:10: they set out to do with the set of new
00:29:10 --> 00:29:13: guidelines and what they're hoping to get out of these
00:29:14 --> 00:29:14: negotiations.
00:29:15 --> 00:29:18: And so in October 2023, they put out the purpose
00:29:18 --> 00:29:21: and need statement, which is basically why are we, we,
00:29:21 --> 00:29:24: why are we embarking on this process?
00:29:24 --> 00:29:27: And why are we renegotiating the new guidelines?
00:29:27 --> 00:29:29: And it laid out a number of things, including that
00:29:30 --> 00:29:33: the Department of the Interior is legally required to coordinate
00:29:33 --> 00:29:35: operations of, of Lakes Powell and Lake Mead.
00:29:36 --> 00:29:40: It acknowledged that the 2007 interim guidelines are expiring, as
00:29:40 --> 00:29:41: Anne had mentioned.
00:29:41 --> 00:29:45: And importantly, it said that 2007 interim guidelines were insufficient,
00:29:45 --> 00:29:46: as Anne noted.

00:29:46 --> 00:29:49: You saw that decline in, in the, in the storage

00:29:49 --> 00:29:51: of Lake Powell and Lake Mead over the last 20

00:29:52 --> 00:29:54: years and all the steps in between that we had

00:29:54 --> 00:29:57: to take to keep the system from crashing.

00:29:57 --> 00:29:59: So they, they weren't enough.

00:29:59 --> 00:30:04: The continued and worsening supply and demand imbalances were significant,

00:30:04 --> 00:30:08: are significant and every big reason why we're renegotiating these

00:30:08 --> 00:30:12: new guidelines, they acknowledge that more conservation is needed across

00:30:13 --> 00:30:16: the basin kind of help with that supply and demand

00:30:16 --> 00:30:16: imbalance.

00:30:16 --> 00:30:18: We're going to need to conserve more.

00:30:18 --> 00:30:22: And it also importantly the need to address tribal needs

00:30:22 --> 00:30:25: was acknowledged as as one of the reasons for these

00:30:25 --> 00:30:26: new set of guidelines.

00:30:27 --> 00:30:30: So that's what they were hoping or that's the reason

00:30:30 --> 00:30:32: they want to do this, and that's what they're hoping

00:30:32 --> 00:30:34: to see addressed in the new set of guidelines.

00:30:36 --> 00:30:39: So just a little updates in the process.

00:30:40 --> 00:30:41: There's been a bunch of steps along the way.

00:30:41 --> 00:30:45: But earlier this year, Reclamation released what they call the

00:30:45 --> 00:30:49: alternatives report, which is basically laid out the alternatives they're

00:30:49 --> 00:30:51: going to analyze as part of the draft EIS, which

00:30:51 --> 00:30:54: is one of the steps in this NEPA process.

00:30:54 --> 00:30:56: And Marianne was wondering if I could kind of go

00:30:56 --> 00:30:58: through what they're looking at.

00:30:58 --> 00:31:01: And I should say, since this alternatives report came out

00:31:01 --> 00:31:04: in early January, some of the alternatives have been modified

00:31:04 --> 00:31:06: or updated or, or changed.

00:31:06 --> 00:31:10: So I'll go with what the most recent public understanding

00:31:10 --> 00:31:14: of the five alternatives that Reclamation is currently considering and

00:31:14 --> 00:31:18: analyzing so required by NEPA is that they look at

00:31:18 --> 00:31:19: a no action alternative.

00:31:19 --> 00:31:22: Basically, if they didn't do anything, what what how would

00:31:22 --> 00:31:23: the system operate?

00:31:24 --> 00:31:27: And, and so for the Colorado River, because the O

00:31:27 --> 00:31:29: 7 guidelines, the original guidelines were in URMA nature.

00:31:30 --> 00:31:33: Once they expire, if we don't replace them, we revert

00:31:33 --> 00:31:36: to pre 2007 management of the system, which is very

00:31:36 --> 00:31:39: limited, doesn't do enough and, and pretty much everyone agrees

00:31:39 --> 00:31:41: this would crash the system.

00:31:41 --> 00:31:43: So if we did nothing, it would not be good

00:31:43 --> 00:31:45: for the Colorado River.

00:31:46 --> 00:31:49: There is what they're calling the federal contingency alternative.

00:31:50 --> 00:31:53: And what this is, is if it's basically what the

00:31:53 --> 00:31:57: Bureau of Reclamation thinks they have the legal authority to

00:31:57 --> 00:32:01: do without new authorities or without a new new agreements.

00:32:01 --> 00:32:05: Basically, if the seven basin states don't have an agreement

00:32:05 --> 00:32:09: to build upon, the federal contingency is what Reclamation thinks

00:32:09 --> 00:32:10: it can do.

00:32:10 --> 00:32:12: It does have some lower basin shortages.

00:32:12 --> 00:32:15: It has a Lake Powell release curve, but I think

00:32:15 --> 00:32:19: most folks would agree it might not do enough to

00:32:19 --> 00:32:23: fully protect the system given the hydrologies that we expect

00:32:23 --> 00:32:23: to see.

00:32:24 --> 00:32:26: But if that's all the authority they have, that's what

00:32:26 --> 00:32:27: Reclamation would go forward with.

00:32:29 --> 00:32:32: There's what they're calling the enhanced coordination alternative, and this

00:32:32 --> 00:32:34: is more of what Reclamation would like to do if

00:32:34 --> 00:32:36: it had additional authorities.

00:32:36 --> 00:32:40: This would protect critical infrastructure and it would protect some

00:32:40 --> 00:32:44: key resources and developed in coordination with the Park Service

00:32:44 --> 00:32:47: and Fish and Wildlife Service, also with some input from

00:32:47 --> 00:32:50: some tribes and the hydropower industry.

00:32:50 --> 00:32:53: So this is another version of what the federal government

00:32:53 --> 00:32:56: might be able to do if they had a little

00:32:56 --> 00:32:56: more authority.

00:32:58 --> 00:33:02: There's another alternative called the maximum operation, maximum operational flexibility

00:33:02 --> 00:33:03: Alternative.

00:33:04 --> 00:33:07: This was developed by a group of NGONGOS, myself included.

00:33:07 --> 00:33:10: So as Western resource advocates and six other Ng OS,

00:33:10 --> 00:33:13: we put together an alternative that we thought had some

00:33:13 --> 00:33:15: good ideas that we wanted reclamation to to look at

00:33:15 --> 00:33:18: and they took the alternative and it's actually one of

00:33:18 --> 00:33:19: the alternatives being analyzed.

00:33:21 --> 00:33:23: We came up with some different ways to manage the

00:33:23 --> 00:33:25: reservoirs that we think better respond to climate change.

00:33:25 --> 00:33:31: We thought about ways to embed environmental stewardship into operations.

00:33:31 --> 00:33:33: So how when you're considering your Lake Powell releases, can

00:33:33 --> 00:33:36: you can you think about environmental conditions and and try

00:33:36 --> 00:33:37: and help benefit some of those?

00:33:38 --> 00:33:41: We propose a new conservation tool, which is basically if

00:33:41 --> 00:33:44: folks conserve water and it ends up in a accounting

00:33:44 --> 00:33:47: pool in Lake Power Lake Mead, let's take advantage of

00:33:47 --> 00:33:49: that water and use it for environmental benefits.

00:33:50 --> 00:33:54: And then we also ensure the continued negotiations over the

00:33:54 --> 00:33:56: Colorado River Delta were being included.

00:33:56 --> 00:33:59: So I will say we did not call it the

00:33:59 --> 00:34:01: maximum operational flexibility alternative.

00:34:01 --> 00:34:05: That's what the name the reclamation came up with.

00:34:05 --> 00:34:09: And then finally, there's a supply driven alternative, which this

00:34:09 --> 00:34:13: was based on the seven basin states in their negotiations

00:34:13 --> 00:34:18: were considering this type of of management system, which basically

00:34:18 --> 00:34:21: would split the basin in 2 based on some percentage

00:34:21 --> 00:34:23: of the natural flow.

00:34:23 --> 00:34:26: So Anna mentioned the natural flow numbers and you take

00:34:26 --> 00:34:29: some recent period of history, they were looking at three

00:34:29 --> 00:34:32: or five years and you average what the natural flow

00:34:33 --> 00:34:33: was.

00:34:33 --> 00:34:36: And then you kind of split the basin by some

00:34:36 --> 00:34:40: #50 sixty, 65% and that's how you would manage the

00:34:40 --> 00:34:40: system.

00:34:40 --> 00:34:43: It does sound like the basin states are less focused

00:34:43 --> 00:34:46: on a supply driven alternative now, but it's still one

00:34:46 --> 00:34:49: of the alternatives being analyzed in the draft EIS.

00:34:50 --> 00:34:52: So where do things stand?

00:34:52 --> 00:34:57: Reclamation is moving forward with publishing the draft EIS.

00:34:58 --> 00:35:02: They expect that to be out sometime next month.

00:35:02 --> 00:35:03: They were hoping to get it done by the end

00:35:03 --> 00:35:04: of the year.

00:35:04 --> 00:35:06: And so we will see that it'll be a full

00:35:07 --> 00:35:10: analysis of those five alternatives, how they perform, and we'll

00:35:10 --> 00:35:11: get to see that.
00:35:11 --> 00:35:13: And this is one of those friendly faces.
00:35:13 --> 00:35:15: You might see Anne chatting with folks on the boat
00:35:15 --> 00:35:16: right there.
00:35:17 --> 00:35:18: That was a very fun trip.
00:35:19 --> 00:35:21: So just in terms of the timeline for this whole
00:35:21 --> 00:35:24: process, like I said bolded here in the current is
00:35:24 --> 00:35:27: where is Reclamation is developing that draft EIS.
00:35:27 --> 00:35:30: They're going to publish it later this year, sometime next
00:35:30 --> 00:35:31: spring, summer.
00:35:32 --> 00:35:35: They'll have a final EIS with a preferred alternative, which
00:35:35 --> 00:35:38: is what it will be, the new set of guidelines,
00:35:38 --> 00:35:41: and then have a record of the decision, which is
00:35:41 --> 00:35:42: the actual policy.
00:35:42 --> 00:35:45: All that in place so that they can start Water
00:35:45 --> 00:35:49: year 2027, which begins October 1st, 2026 with the new
00:35:49 --> 00:35:51: set of guidelines.
00:35:51 --> 00:35:53: So it's a bit of a crunch and there's a
00:35:53 --> 00:35:55: whole bunch of stuff that happens as well.
00:35:55 --> 00:35:57: It's a bit of a crunch time frame, but that's
00:35:57 --> 00:35:58: what they're hoping to do.
00:36:01 --> 00:36:03: So I've been mentioning or we've been alluding to, and
00:36:03 --> 00:36:06: Anne too was talking about the state's negotiations and some
00:36:06 --> 00:36:07: of the challenges they're facing.
00:36:07 --> 00:36:10: Folks might have seen there was a lot of media
00:36:10 --> 00:36:13: coverage last week around this November 11th deadline, which was
00:36:13 --> 00:36:17: basically the federal government had given the basin states until
00:36:17 --> 00:36:20: November 11th to come up with a high level framework
00:36:20 --> 00:36:23: for how for their agreement, for their seven state agreement.
00:36:25 --> 00:36:26: And that was the goal.
00:36:26 --> 00:36:28: And as you might have read in the media, the
00:36:28 --> 00:36:30: states did not have an agreement.
00:36:30 --> 00:36:33: They weren't able to to put together a high level
00:36:33 --> 00:36:33: framework.
00:36:34 --> 00:36:36: And I thought it might be just helpful for folks
00:36:36 --> 00:36:38: to see what they actually said.
00:36:38 --> 00:36:40: This is the press release that they put out last
00:36:40 --> 00:36:43: Tuesday when they did not have an agreement.
00:36:43 --> 00:36:46: And I'll just point out the the second paragraph down
00:36:46 --> 00:36:48: there, they say more work needs to be done.

00:36:48 --> 00:36:51: Some progress has been made, although we're not quite sure

00:36:51 --> 00:36:51: what that is.

00:36:52 --> 00:36:54: And continued cooperation and coordinated action.

00:36:55 --> 00:36:57: There's a commitment to ensuring long term.

00:36:57 --> 00:36:58: So sustainability.

00:36:58 --> 00:37:00: In other words, they're going to keep moving forward.

00:37:00 --> 00:37:05: They did not meet this deadline and they're going to

00:37:05 --> 00:37:06: keep keep at it.

00:37:08 --> 00:37:12: So they're like I said, they're still negotiating around A7

00:37:12 --> 00:37:16: state alternative and now they're facing a a new deadline,

00:37:16 --> 00:37:20: which is February 14th, which the federal government gave for

00:37:20 --> 00:37:23: them to have the details of their agreement.

00:37:23 --> 00:37:25: So November 11th was the high level framework.

00:37:25 --> 00:37:28: February 14th is when the feds are hoping to see

00:37:28 --> 00:37:30: the details of the agreement.

00:37:32 --> 00:37:35: I will say that, you know, Anne mentioned some of

00:37:35 --> 00:37:38: the legal challenges and, and why they're having such a

00:37:38 --> 00:37:39: hard time finding agreement.

00:37:40 --> 00:37:44: Disagreements over compact interpretation, disagreements over what the number should

00:37:44 --> 00:37:44: be.

00:37:44 --> 00:37:48: And there's major, major disagreements over who's going to take

00:37:48 --> 00:37:50: what shortages and when and whether or not those are

00:37:50 --> 00:37:52: mandatory or, or voluntary shortages.

00:37:52 --> 00:37:56: So there's kind of fundamental differences of opinion between the

00:37:56 --> 00:37:59: base and the states is and why they're having such

00:37:59 --> 00:38:01: a hard time finding an agreement.

00:38:03 --> 00:38:05: So just in terms of next steps in that kind

00:38:05 --> 00:38:08: of what that whole process looks like, Reclamation has been

00:38:08 --> 00:38:11: pretty clear this whole time that they're not going to

00:38:11 --> 00:38:14: take just one of those alternatives from the five that

00:38:14 --> 00:38:14: I I presented.

00:38:14 --> 00:38:18: They're going to kind of piece piece 1 piece of

00:38:18 --> 00:38:22: preferred alternative together based on various alternatives.

00:38:22 --> 00:38:26: Sometimes it's called Frankensteining or bolting together an alternative.

00:38:26 --> 00:38:29: So if the states do have a agreement, then you

00:38:30 --> 00:38:32: can take that and you can bolt on what the

00:38:32 --> 00:38:33: feds want to do.

00:38:33 --> 00:38:37: And then from my perspective, hopefully bolt on some of
00:38:37 --> 00:38:42: those environmental components that we put together in our alternative
00:38:42 --> 00:38:47: to create the new comprehensive guidelines as the preferred alternative
00:38:47 --> 00:38:48: next year.
00:38:49 --> 00:38:51: So just to wrap up, I think there is some
00:38:51 --> 00:38:54: important context to all of this and, and definitely did
00:38:54 --> 00:38:56: a good job of of laying it out.
00:38:56 --> 00:38:58: But just to put another chart to it, this is
00:38:58 --> 00:39:01: the Bureau of Reclamation puts out what's called a 24
00:39:01 --> 00:39:05: month study every month, basically projecting what they think Lake
00:39:05 --> 00:39:08: Powell and Lake Mead are going to do storage wise
00:39:08 --> 00:39:10: in the next two years.
00:39:10 --> 00:39:13: And so it's really helpful to see where they think
00:39:13 --> 00:39:14: storage is going to go.
00:39:14 --> 00:39:17: I won't go into the details of this chart, but
00:39:17 --> 00:39:19: just know that the the blue dotted line is the
00:39:19 --> 00:39:20: maximum probable.
00:39:20 --> 00:39:22: So like if things get really wet, what would Lake
00:39:22 --> 00:39:23: Powell do?
00:39:23 --> 00:39:25: And this is Lake Powell elevation.
00:39:25 --> 00:39:29: The green line is most probable, basically what reclamation thinks
00:39:29 --> 00:39:32: will happen with Lake Powell elevations and the red dotted
00:39:32 --> 00:39:34: line is minimum probable.
00:39:34 --> 00:39:36: So if things got pretty bad in the next year
00:39:36 --> 00:39:38: or two, what would Lake Powell do?
00:39:38 --> 00:39:41: And I just wanted to point this out because given
00:39:41 --> 00:39:44: climate change, given what we know, given what the hydrology
00:39:44 --> 00:39:47: is done, given what and showed with the natural flows,
00:39:47 --> 00:39:50: the most probable that green line actually isn't, hasn't been
00:39:51 --> 00:39:53: super telling in the last couple years in terms of
00:39:53 --> 00:39:56: where they think we're going to go and where we
00:39:56 --> 00:39:56: end up going.
00:39:57 --> 00:40:00: The red line is actually been more telling in terms
00:40:00 --> 00:40:01: of where we can expect to go.
00:40:01 --> 00:40:04: And I'll just point out that that red line gets
00:40:04 --> 00:40:05: pretty low.
00:40:06 --> 00:40:07: This is that minimum power pool.
00:40:07 --> 00:40:10: This is what Anne was talking about that that Reclamation

00:40:11 --> 00:40:12: wants to protect at all costs.
00:40:12 --> 00:40:15: And that red line sometime about a year from now
00:40:15 --> 00:40:16: gets below that.
00:40:16 --> 00:40:20: And so all these ongoing negotiations, all these challenges.
00:40:20 --> 00:40:23: The NEPA process, the basin states in the meantime, we
00:40:23 --> 00:40:26: have a, a really potential scary set of hydrologies coming
00:40:26 --> 00:40:28: out of this in the next couple years.
00:40:28 --> 00:40:32: So I just wanted to point out that context, what
00:40:32 --> 00:40:34: makes this such a challenge?
00:40:35 --> 00:40:36: And then of course, I have to include a picture
00:40:36 --> 00:40:38: of my daughter with a humpback chub.
00:40:38 --> 00:40:39: So I add that at the end.
00:40:40 --> 00:40:42: And with that, I'll turn over to the next speaker.
00:40:45 --> 00:40:46: Thank you so much, Todd.
00:40:48 --> 00:40:51: See I'm share my slides for our next speaker, Ken.
00:40:57 --> 00:41:01: OK, Ken, take it away.
00:41:03 --> 00:41:04: Hello everyone.
00:41:04 --> 00:41:08: So I've been the secretary and the recreation representative to
00:41:09 --> 00:41:11: the Colorado Basin Roundtable.
00:41:11 --> 00:41:15: And in 2005 Colorado passed the Colorado for the 21st
00:41:15 --> 00:41:19: Century Act to develop to create 9 roundtables.
00:41:19 --> 00:41:22: There are permanent roundtables in nine basins around the state.
00:41:22 --> 00:41:24: There are four on the West slope.
00:41:25 --> 00:41:28: And I am the secretary and represent and rec Rep
00:41:28 --> 00:41:30: to the Colorado Basin Roundtable.
00:41:30 --> 00:41:34: So that's the main donor basin to both diversions to
00:41:34 --> 00:41:38: the Front Range and also to the to Lake Powell.
00:41:39 --> 00:41:42: And I've been attending these meetings for the past 20
00:41:42 --> 00:41:42: years.
00:41:42 --> 00:41:45: And what I'm going to hope to do in my
00:41:45 --> 00:41:49: presentation here is get a little more granular and to
00:41:49 --> 00:41:54: explain what the West slopes perspective in this this round
00:41:54 --> 00:41:58: table process and what could happen with a decrease in
00:41:58 --> 00:42:00: river flows in the future.
00:42:00 --> 00:42:03: So this first slide that I have here is a
00:42:03 --> 00:42:07: timeline that shows you want to go to the next
00:42:07 --> 00:42:09: slide, please, Marianne.
00:42:09 --> 00:42:13: This is a timeline at the top shows the appropriation
00:42:14 --> 00:42:18: date of several big Trans Basin diversions over to the
00:42:18 --> 00:42:19: Front Range.
00:42:19 --> 00:42:22: And so we go from left to right from the

00:42:22 --> 00:42:27: oldest water rights, 1881 to the youngest water rights, the
00:42:27 --> 00:42:31: Frying Pen Arkansas project that was appropriated in 1956.
00:42:31 --> 00:42:33: That was the year I was born.
00:42:33 --> 00:42:37: So in 1881, the West slope of Colorado is called
00:42:37 --> 00:42:42: Indian Territory until August, and then the utes were escorted
00:42:42 --> 00:42:44: into northeastern Utah.
00:42:45 --> 00:42:49: The Ute Native Americans, and so the West slope became
00:42:49 --> 00:42:51: free reign for western settlers.
00:42:51 --> 00:42:57: So the first agricultural irrigation water rights date back to
00:42:57 --> 00:43:01: that date and the average from 2016 through 2020 in
00:43:01 --> 00:43:04: Colorado was 1500 and 98,000 acre feet.
00:43:04 --> 00:43:09: So that's the highest priority in the Colorado River Basin
00:43:09 --> 00:43:12: where the Colorado Basin Roundtable is.
00:43:12 --> 00:43:17: In 1921, the Moffett Tunnel diversion was appropriated and that
00:43:17 --> 00:43:21: diverts 66,500 acre feet to Denver and Denver water through
00:43:21 --> 00:43:25: the Moffett Tunnel, which goes in a gross reservoir on
00:43:25 --> 00:43:29: South Boulder Creek and over to the Front Range.
00:43:29 --> 00:43:32: In 1922, we have the Colorado River Compact and as
00:43:32 --> 00:43:35: Anne and John and both talked about, that gives 7
00:43:35 --> 00:43:38: and a half million acre feet to the lower basin
00:43:38 --> 00:43:39: states.
00:43:39 --> 00:43:44: I've listed here 8,242,000 acre feet because that's the average
00:43:44 --> 00:43:48: diversion according to the Colorado Water Conservation Board that goes
00:43:49 --> 00:43:52: out of Colorado Rivers and ultimately into Lake Powell.
00:43:53 --> 00:43:57: And then we have later Front Range Trans Basin diversions,
00:43:57 --> 00:44:01: the Independence Pass tunnel from Aspen over to the Arkansas
00:44:01 --> 00:44:02: Basin, 38,000 feet.
00:44:02 --> 00:44:05: The big one is the next one, 1935 is the
00:44:05 --> 00:44:09: Colorado Big Thompson project that diverts in an average year
00:44:09 --> 00:44:10: 206,000 acre feet.
00:44:11 --> 00:44:15: So if there was a compact call, then first the
00:44:15 --> 00:44:19: 1881 agricultural water rights are superior to that, so they
00:44:19 --> 00:44:21: would not get called out.
00:44:22 --> 00:44:25: And then the Moffett Tunnel 1921 right of 66,500 acre
00:44:25 --> 00:44:28: feet also would not get called out.
00:44:28 --> 00:44:32: But all of the five diversions to the right side
00:44:32 --> 00:44:35: are at risk of being called out.
00:44:35 --> 00:44:40: So and in total these show that 458,500 acre feet

00:44:40 --> 00:44:44: in an average year is diverted to the Front Range
00:44:44 --> 00:44:48: from the primarily Colorado River basin.
00:44:48 --> 00:44:50: So next slide please, Marion.
00:44:52 --> 00:44:55: So in 2015, the Interbase and Compact Committee developed a
00:44:55 --> 00:44:58: conceptual framework to talk about what if there was another
00:44:58 --> 00:45:01: Trans Mountain diversion to the Front Range.
00:45:01 --> 00:45:06: The IBCC is a subset of these of this roundtable
00:45:06 --> 00:45:07: process.
00:45:07 --> 00:45:11: They were created by the same 22,005 statute and there
00:45:11 --> 00:45:15: includes 2 representatives from each of the nine round tables
00:45:15 --> 00:45:18: plus a variety of government appointees.
00:45:18 --> 00:45:21: So they came up with 7 criteria for if we
00:45:21 --> 00:45:24: had another Trans Mountain version from the West slope to
00:45:24 --> 00:45:25: the Front Range.
00:45:26 --> 00:45:28: And so that the first one I list here in
00:45:28 --> 00:45:32: yellow is that the Front Range would accept hydrologic risk.
00:45:32 --> 00:45:35: And that means that if, if the new reservoirs that
00:45:35 --> 00:45:39: they built did not fill, they're subject to that risk
00:45:39 --> 00:45:40: and not the West slope.
00:45:40 --> 00:45:44: But I will call out the provision for here talks
00:45:44 --> 00:45:48: about an insurance policy which must be in place at
00:45:48 --> 00:45:52: the lower Basin makes a compact call and we pretty
00:45:52 --> 00:45:57: much have assumed that agricultural fallowing on the West slope
00:45:57 --> 00:46:00: would create that insurance policy.
00:46:01 --> 00:46:03: So next slide please, Marianne.
00:46:07 --> 00:46:10: So this is my best guess to explain to you
00:46:10 --> 00:46:14: how would a compact call work to call out Front
00:46:14 --> 00:46:16: Range municipalities.
00:46:16 --> 00:46:19: And so I've listed here and each each row is
00:46:19 --> 00:46:22: one of those water rights, one of those Trans mountain
00:46:22 --> 00:46:24: diversion water rights we looked at earlier.
00:46:25 --> 00:46:28: And the oldest priority is at the top.
00:46:28 --> 00:46:31: That's the Independence Pass diversion from 1930.
00:46:31 --> 00:46:35: Going down to the lowest priority in this particular collection
00:46:35 --> 00:46:38: is the Frying Pen Arkansas project, which in 1956 you
00:46:39 --> 00:46:42: got an appropriation right for 60,000 acre feet per year.
00:46:42 --> 00:46:46: So there are a number of Trans Mountain diversion projects
00:46:46 --> 00:46:48: on the drawing board here in Colorado.
00:46:48 --> 00:46:51: 1 is a project by that's put forward by a
00:46:51 --> 00:46:55: person named Aaron Million and that is the Flaming Gorge

00:46:55 --> 00:46:59: diversion where they would divert, I'm saying here on average

00:46:59 --> 00:47:03: 150,000 acre feet each year from Flaming Gorge over to

00:47:03 --> 00:47:05: the Front Range in Colorado.

00:47:05 --> 00:47:08: Flaming Gorge is a reservoir on the border between Wyoming

00:47:08 --> 00:47:09: and Utah.

00:47:09 --> 00:47:14: So suppose they diverted 150,000 acre feet for each year

00:47:14 --> 00:47:16: from 2025 through 2029.

00:47:17 --> 00:47:20: That would total up to 750,000 acre feet.

00:47:20 --> 00:47:22: That is not going into Lake Powell.

00:47:23 --> 00:47:26: Well, if there was a compact call for 400,000 acre

00:47:26 --> 00:47:30: feet in 20-30, meaning that the Upper Basin had to

00:47:30 --> 00:47:33: start reducing its water rights in order to in order

00:47:33 --> 00:47:37: to deliver more water to Lake Powell, then then here's

00:47:37 --> 00:47:40: the water rights that would get satisfied to meet that

00:47:40 --> 00:47:41: call.

00:47:41 --> 00:47:44: First you have 60,000 coming out of the Fry Arc

00:47:44 --> 00:47:48: project and 23,000 from the Homestead project and so on

00:47:48 --> 00:47:52: as and so the Colorado Big Thompson project would lose

00:47:52 --> 00:47:56: 206,000 acre feet and 38,000 acre feet in the Independence

00:47:56 --> 00:47:57: Pass project.

00:47:57 --> 00:48:02: So all these water trans mountain diversions would in theory

00:48:02 --> 00:48:06: get cut out and then if again and 20202031 we

00:48:06 --> 00:48:10: had another 325,000 acre foot compact call and again these

00:48:11 --> 00:48:15: water rights working from the bottom up would get called

00:48:15 --> 00:48:16: out serially.

00:48:17 --> 00:48:19: And then back in then in 2032, if there was

00:48:19 --> 00:48:23: enough water, then the Flaming Gorge project would get another

00:48:23 --> 00:48:25: 150,000 acre foot diversion.

00:48:25 --> 00:48:28: The point I'm trying to make in this graph is

00:48:28 --> 00:48:33: that a new diversion, which is this Flaming Gorge diversion

00:48:33 --> 00:48:36: could put historic water rights that are much older at

00:48:36 --> 00:48:37: risk.

00:48:37 --> 00:48:40: And this is what we talked about when we when

00:48:40 --> 00:48:41: we talk about risk.

00:48:41 --> 00:48:44: Now, there's a couple of caveats to this.

00:48:44 --> 00:48:47: First, Colorado would not be the only state that would

00:48:47 --> 00:48:49: have to meet a compact call.

00:48:49 --> 00:48:52: So Utah, Wyoming and New Mexico might also have to

00:48:52 --> 00:48:53: bear some of that.

00:48:54 --> 00:48:57: And I the second caveat here, let's go to the

00:48:58 --> 00:49:02: next slide please, Marianne is that is that in the
00:49:02 --> 00:49:07: Colorado Constitution domestic water use is given a priority over
00:49:07 --> 00:49:13: agricultural water use, which is given a priority over manufacturing
00:49:13 --> 00:49:14: water uses.
00:49:14 --> 00:49:18: So that Front Range interests could claim that Front Range
00:49:18 --> 00:49:22: diverters could claim that they're using their water for domestic
00:49:22 --> 00:49:27: use, and that might cause the Westlope agricultural interest to
00:49:27 --> 00:49:28: suffer that compact call.
00:49:29 --> 00:49:32: My personal belief is I would be shocked if we
00:49:32 --> 00:49:36: cut off these major E slope Trans Mountain diversions because
00:49:37 --> 00:49:40: so many people on the Front Range rely upon them.
00:49:41 --> 00:49:45: So but but that's just to illustrate to the listeners
00:49:45 --> 00:49:49: how a compact call could work and ultimately that's what
00:49:49 --> 00:49:54: all the parties to the 2026 negotiations are hoping to
00:49:54 --> 00:49:56: avoid as a compact call.
00:49:57 --> 00:50:01: This graph here is a hydrograph of the Fraser River.
00:50:01 --> 00:50:04: And the Fraser River is on the it's on the
00:50:05 --> 00:50:09: north side of Berthod Pass, about 60 miles West of
00:50:09 --> 00:50:09: Denver.
00:50:10 --> 00:50:13: And this blue line is what the river would look
00:50:13 --> 00:50:15: like under natural flow conditions.
00:50:15 --> 00:50:18: The black line in the middle is what it looks
00:50:18 --> 00:50:21: like now, and the red line is what it's going
00:50:21 --> 00:50:25: to look like after the Moffett Firming project that is
00:50:25 --> 00:50:29: going to divert another 18,000 acre feet on average over
00:50:29 --> 00:50:30: to the Front Range.
00:50:30 --> 00:50:34: That's what the Fraser River will look like, and it's
00:50:34 --> 00:50:37: basically going to have 1/8 of its natural flow and
00:50:37 --> 00:50:40: get down to 13 cubic feet per second, which is
00:50:40 --> 00:50:43: almost the flow level that would allow you to walk
00:50:43 --> 00:50:46: across that river without getting your feet wet.
00:50:46 --> 00:50:49: The Fraser River is one of the two most head
00:50:49 --> 00:50:53: water of all the tributaries into the Colorado River and
00:50:53 --> 00:50:57: it's one of the biggest diversion, one of the biggest
00:50:57 --> 00:50:58: head water basins.
00:50:58 --> 00:51:01: And yet this red line shows what would be left
00:51:01 --> 00:51:04: of it if we once the the Moffett farming project
00:51:05 --> 00:51:05: comes on.

00:51:06 --> 00:51:09: So, so this is somewhat what we have been concerned
00:51:09 --> 00:51:12: about at the Colorado Basin round table is that this
00:51:12 --> 00:51:15: could be what this this could be a future hydrograph
00:51:15 --> 00:51:18: for the typical rivers on the West slope.
00:51:18 --> 00:51:21: And of course, the West slope is where the Front
00:51:21 --> 00:51:23: Range, the east slope likes to go to recreate.
00:51:23 --> 00:51:26: So this will have statewide implications.
00:51:26 --> 00:51:28: So next slide please, Marianne.
00:51:32 --> 00:51:35: This is a slide that shows the upper basins attempt
00:51:35 --> 00:51:39: to conserve water in order to leave more water in
00:51:39 --> 00:51:40: the Colorado River.
00:51:40 --> 00:51:45: And so in 2023 and 2024, the upper division states
00:51:45 --> 00:51:50: had what they call the system conservation pilot program and
00:51:50 --> 00:51:55: system here means the entire Colorado River system.
00:51:55 --> 00:51:58: So it's all of the upper basin tributaries in the
00:51:58 --> 00:52:00: Colorado River, main stem itself.
00:52:00 --> 00:52:05: And conservation means that they're going to that the current
00:52:05 --> 00:52:09: diverters will divert less water out of the stream.
00:52:09 --> 00:52:13: And pilot programming, this means this is a pilot program
00:52:13 --> 00:52:17: where irrigators will get paid to follow their fields.
00:52:17 --> 00:52:21: And the federal government was paying these funds, but it
00:52:21 --> 00:52:23: wasn't very popular in the upper basin.
00:52:23 --> 00:52:28: You can see what the four states contributed and in
00:52:28 --> 00:52:32: 2023 the total was 31,356 acre feet.
00:52:32 --> 00:52:35: There was a little more than double that in 2024,
00:52:35 --> 00:52:39: but together these two years total less than 100,000 acre
00:52:39 --> 00:52:39: feet.
00:52:39 --> 00:52:43: And compare that to the roughly 3,000,000 acre feet that
00:52:43 --> 00:52:46: goes down the that, excuse me, that the four upper
00:52:46 --> 00:52:49: basin states consume in agriculture each year.
00:52:49 --> 00:52:55: So they're they're this program was protecting was conserving less
00:52:55 --> 00:52:58: than 2% of the water that was being used in
00:52:58 --> 00:53:02: agricultural consumption in 23 and 24.
00:53:02 --> 00:53:06: The Upper Basin was not crazy about this program and
00:53:06 --> 00:53:10: they did not reauthorize it in 2025 S going into
00:53:10 --> 00:53:15: the 2026 negotiations, the Upper Basin has in my opinion,
00:53:15 --> 00:53:20: tried to go into those negotiations showing as robust water
00:53:20 --> 00:53:21: use as possible.
00:53:22 --> 00:53:26: So I'd now like to just conclude with a few
00:53:26 --> 00:53:31: remarks and what my what I'm getting out of this
00:53:31 --> 00:53:37: presentation is that agricultural lion dry is the likely future

00:53:37 --> 00:53:42: here in Colorado and that's both on the Front Range,
00:53:42 --> 00:53:47: the east slope and on and on the West slope
00:53:47 --> 00:53:47: as well.
00:53:48 --> 00:53:52: And I say that because it's unlikely that these trans
00:53:52 --> 00:53:57: basin diversions over to the Front Range will get called
00:53:57 --> 00:53:58: out there.
00:53:58 --> 00:54:00: The Front Range is continuing to grow.
00:54:00 --> 00:54:02: Their water needs are going to grow.
00:54:02 --> 00:54:05: So I'm, I'm anticipating that if there's going to be
00:54:05 --> 00:54:08: additional water transferred to the Front Range, it's likely to
00:54:08 --> 00:54:11: come out of agriculture either on the West slope or
00:54:11 --> 00:54:12: on the east slope.
00:54:15 --> 00:54:19: My opinion is that, let me say right now, these
00:54:19 --> 00:54:20: are my opinions.
00:54:20 --> 00:54:24: This is not a presentation by the Colorado Basin Roundtable.
00:54:24 --> 00:54:24: I haven't.
00:54:26 --> 00:54:28: All of this is my are my opinions.
00:54:28 --> 00:54:32: This is not how the Roundtable would have spoken publicly
00:54:32 --> 00:54:32: on these issues.
00:54:33 --> 00:54:38: I think the existing Colorado River Compact will more likely
00:54:38 --> 00:54:42: than not continue to require Colorado to keep delivering the
00:54:42 --> 00:54:45: same amount of water into Lake Powell as it has
00:54:45 --> 00:54:50: been the upper basins position and particularly Colorado's is that
00:54:50 --> 00:54:54: hydrology has changed and show that in her slide where
00:54:54 --> 00:54:58: she showed that the water uses are the natural river
00:54:58 --> 00:55:01: flow got has gotten down to 10 million acre feet
00:55:01 --> 00:55:03: in the 2000 to 2004.
00:55:03 --> 00:55:07: And then this breed we're in right now 2001 to
00:55:07 --> 00:55:09: 2000 or 2021 to 2025.
00:55:09 --> 00:55:12: So we're down to roughly 10 million acre feet of
00:55:12 --> 00:55:13: a natural flow.
00:55:14 --> 00:55:17: The upper basin is saying that look, hydrology has changed
00:55:17 --> 00:55:20: and our delivery requirements should be relaxed.
00:55:20 --> 00:55:24: I'm anticipating that there might be some relief there, but
00:55:24 --> 00:55:29: I'm also expecting that the upper Basins delivery requirement will
00:55:29 --> 00:55:32: still cause the upper Basin to use less water.
00:55:34 --> 00:55:37: In theory, one and a half million acre feet of
00:55:37 --> 00:55:41: West Slope irrigation water consumption could be diverted to the
00:55:41 --> 00:55:44: Front Range and to do that they would effectively dry
00:55:44 --> 00:55:46: up West Slope agriculture.

00:55:46 --> 00:55:50: So that's that's a scenario and it's going to be
00:55:50 --> 00:55:54: up to the state and up to the local municipalities
00:55:54 --> 00:55:57: and regions to prevent that from happening.
00:55:57 --> 00:56:00: But that's that is at risk right now.
00:56:01 --> 00:56:06: Front Range municipalities are already achieving high water efficiency.
00:56:06 --> 00:56:09: One of the main themes that we kept promoting at
00:56:09 --> 00:56:12: the Colorado Basin round table in our statewide water meetings
00:56:12 --> 00:56:15: was that the Front Range needed to adopt high municipal
00:56:15 --> 00:56:16: conservation.
00:56:16 --> 00:56:21: Well from 2005 to now it is a 20 year.
00:56:21 --> 00:56:23: And and that is that is coming to pass that
00:56:24 --> 00:56:27: first there was a lot of resistance to adopting high
00:56:27 --> 00:56:29: municipal conservation standards.
00:56:29 --> 00:56:32: But I'll call out the Sterling Ranch project in near
00:56:32 --> 00:56:35: Chatfield Reservoir on the Front Range.
00:56:35 --> 00:56:39: That is I believe their average per person consumptive use
00:56:39 --> 00:56:42: is under 100 gallons per person per day, which is
00:56:42 --> 00:56:45: way lower than the numbers we saw 10 or 15
00:56:45 --> 00:56:46: years ago.
00:56:46 --> 00:56:50: So the Front Range municipalities are already achieving high water
00:56:50 --> 00:56:51: efficiency.
00:56:51 --> 00:56:55: My last comment I'll make is that I think personally
00:56:55 --> 00:56:59: that open space preservation is really a key to maintaining
00:56:59 --> 00:57:02: a high quality of life on both the West Slope
00:57:02 --> 00:57:03: and the slope.
00:57:03 --> 00:57:06: In my past, I was on the board of the
00:57:06 --> 00:57:07: Aspen Valley Land Trust.
00:57:07 --> 00:57:09: I'm familiar with conservation easements.
00:57:10 --> 00:57:12: Colorado has one of, in my opinion, has the best
00:57:12 --> 00:57:16: conservation easement tax credit program in the country.
00:57:16 --> 00:57:20: We're up to 1.5 million in tax credits can be
00:57:20 --> 00:57:24: awarded each year to a landowner who can serves their
00:57:24 --> 00:57:26: that their property.
00:57:26 --> 00:57:30: So I think we have the tools to, we have
00:57:30 --> 00:57:34: as robust tools as any state in the country has.
00:57:34 --> 00:57:38: But if we want to I I think it's I'm
00:57:38 --> 00:57:43: I'm fearful that continued by and dry is our future.
00:57:43 --> 00:57:46: But I think conservation easements and is our best tool
00:57:46 --> 00:57:47: to prevent that.
00:57:49 --> 00:57:49: Thank you.

00:57:54 --> 00:57:56: Thank you so much, Ken.
00:57:56 --> 00:57:59: So Ken was representing the Upper Basin and our final
00:57:59 --> 00:58:02: speaker, Sarah will be talking about the Lower Basin.
00:58:07 --> 00:58:08: Well, thank you.
00:58:08 --> 00:58:09: It's very nice to be with you all.
00:58:09 --> 00:58:14: I am hopefully achieving sharing.
00:58:14 --> 00:58:17: I'm going to put my presentation into slideshow format.
00:58:19 --> 00:58:20: Are you seeing the?
00:58:21 --> 00:58:22: Yep, looks good.
00:58:22 --> 00:58:22: Go ahead.
00:58:22 --> 00:58:23: OK, great.
00:58:24 --> 00:58:26: So it's a pleasure to be with you all.
00:58:26 --> 00:58:30: And I'm, I'm really gonna not get into the nitty
00:58:30 --> 00:58:36: gritty aspects of the lower basin's position, not even into
00:58:36 --> 00:58:40: a lot of details about how shortage to date has
00:58:40 --> 00:58:44: impacted the Lower basin because you're Uli.
00:58:44 --> 00:58:48: And so I'm gonna talk about land use with you
00:58:48 --> 00:58:52: and how Arizona stands to be impacted by by shortage
00:58:52 --> 00:58:54: on the Colorado River.
00:58:55 --> 00:58:58: A note about me, I'm the director of the Kyle
00:58:58 --> 00:59:02: Center for Water Policy at Asus Morrison Institute for Public
00:59:02 --> 00:59:03: Policy.
00:59:04 --> 00:59:07: What makes us different from other water experts in Arizona,
00:59:08 --> 00:59:10: not all of them but almost all of them, is
00:59:10 --> 00:59:13: that we come at water policy issues from a neutral
00:59:14 --> 00:59:15: and nonpartisan perspective.
00:59:15 --> 00:59:19: We don't represent a stakeholder and we publish a lot
00:59:19 --> 00:59:23: of analysis related to the Colorado River and other water
00:59:23 --> 00:59:29: issues, including pending or tribal water settlements, top water affordability,
00:59:29 --> 00:59:33: groundwater data centers more recently, and we have a tool
00:59:33 --> 00:59:36: that may be of interest to some of you.
00:59:36 --> 00:59:40: The Arizona Water Blueprint is a is an online hub
00:59:40 --> 00:59:44: of information about water resources and policy in Arizona.
00:59:44 --> 00:59:49: And we have several tools available on the Blueprint that
00:59:49 --> 00:59:54: will that show how Colorado River shortage may impact different
00:59:54 --> 00:59:55: water users.
00:59:56 --> 00:59:59: So my goal here is to give you a little
00:59:59 --> 01:00:03: bit of of context about water and the Colorado River
01:00:03 --> 01:00:07: in Arizona, and then I'll talk about how it may
01:00:07 --> 01:00:09: impact patterns of land use.

01:00:10 --> 01:00:14: Particularly focusing on the Phoenix to Tucson area, which is
01:00:14 --> 01:00:16: really where most of the growth is.
01:00:16 --> 01:00:20: About 85% of Arizonans live in that area.
01:00:20 --> 01:00:24: So first of all, when I think about Colorado River
01:00:24 --> 01:00:28: water in Arizona, I think about the fact that the
01:00:28 --> 01:00:31: water is used in two major parts of Arizona.
01:00:33 --> 01:00:38: Colorado River water is used by water users, tribes, cities,
01:00:38 --> 01:00:43: and agriculture along the main stem of the river along
01:00:44 --> 01:00:48: the western border of the state, and then even in
01:00:48 --> 01:00:51: if there's no shortage, even more.
01:00:51 --> 01:00:57: Colorado River water is transported via the Central Arizona Project
01:00:57 --> 01:01:03: Canal to serve tribes, historically agriculture, cities and industry in
01:01:04 --> 01:01:07: the three county service area of the CAP.
01:01:08 --> 01:01:13: That would be Maricopa County where Greater Phoenix exists.
01:01:13 --> 01:01:17: Pinal County, little bit of greater Phoenix is bleeding over
01:01:17 --> 01:01:20: into Pinal County now, but that's really been at more
01:01:21 --> 01:01:24: of an agricultural base for water users as well as
01:01:24 --> 01:01:26: tribal, very significant tribal use there.
01:01:26 --> 01:01:33: And then finally, Pima County where Tucson is located and
01:01:33 --> 01:01:40: Colorado River shortage impacts are, let's say, most poignant for
01:01:40 --> 01:01:46: the CAP service area because in the Lower Basin, Central
01:01:46 --> 01:01:53: Arizona Project users are considered lower priority by agreement.
01:01:53 --> 01:01:57: Essentially CAP, the users along the CAP are the state
01:01:57 --> 01:02:01: of Arizona agreed that the users of CAP water would
01:02:01 --> 01:02:05: take the first cuts in the case of shortage.
01:02:05 --> 01:02:09: I actually went to a law conference about two weeks
01:02:09 --> 01:02:12: ago that laid out the lower basin position on the
01:02:12 --> 01:02:16: current negotiations in the Colorado River, and there was a
01:02:16 --> 01:02:21: very interesting presentation on why it's actually not quite accurate
01:02:21 --> 01:02:24: to say that CAP water users have lower priority for
01:02:24 --> 01:02:28: the That's the first time I'd ever heard that.
01:02:28 --> 01:02:30: I thought it was a pretty compelling argument.
01:02:30 --> 01:02:33: I won't go into it now, but I feel uncomfortable
01:02:33 --> 01:02:35: saying what I've been saying for so many years as
01:02:35 --> 01:02:38: a result of watching that presentation.
01:02:39 --> 01:02:43: But this map developed by my team shows who's relying
01:02:43 --> 01:02:45: on Colorado River supplies.

01:02:46 --> 01:02:49: The Colorado River isn't the only source of supply for
01:02:49 --> 01:02:51: the greater Phoenix area or Tucson.
01:02:51 --> 01:02:54: We have in state surface water and you can see
01:02:54 --> 01:02:55: the blue BLOB.
01:02:55 --> 01:02:58: That's the area of greater Phoenix that's served by the
01:02:58 --> 01:03:02: in state surface water system, affectionately known as the Salt
01:03:02 --> 01:03:05: River Project or SRP, relies on water from the Verde
01:03:05 --> 01:03:06: and the Salt Rivers.
01:03:07 --> 01:03:11: There has been, you know, historically a lot of reliance
01:03:11 --> 01:03:12: on groundwater.
01:03:12 --> 01:03:16: The pink areas on this map are groundwater reliant areas.
01:03:16 --> 01:03:19: And then it's the yellow areas that grew up in
01:03:19 --> 01:03:21: reliance on Colorado River water.
01:03:22 --> 01:03:25: Now these are this map is showing, I should have
01:03:25 --> 01:03:30: said what cities are relying, what community water systems are
01:03:30 --> 01:03:32: relying on Colorado River water.
01:03:32 --> 01:03:37: It doesn't show the green areas are tribal reservations and
01:03:37 --> 01:03:42: this map doesn't show water reliance by tribes, although the
01:03:42 --> 01:03:47: tribes, the tribal areas that you see in this map
01:03:47 --> 01:03:50: all have allocations of Colorado River water.
01:03:51 --> 01:03:56: But what I'm really trying to show in this map
01:03:56 --> 01:04:01: is that the first CAP deliveries began in 1985 and
01:04:01 --> 01:04:08: those deliveries sparked significant municipal growth in reliance on Colorado
01:04:09 --> 01:04:13: River water supplies imported via the CAP.
01:04:14 --> 01:04:19: In fact, particularly in the Phoenix area cities, we're trying
01:04:19 --> 01:04:24: to show, you know, a commitment to not using groundwater
01:04:24 --> 01:04:30: because of course, in Arizona groundwater is a non renewable
01:04:30 --> 01:04:31: water supply.
01:04:31 --> 01:04:34: So bringing in the CAP was part of a big
01:04:34 --> 01:04:37: plan to shift the region from reliance on a non
01:04:37 --> 01:04:41: renewable water supply to a renewable water supply.
01:04:41 --> 01:04:44: And so those cities as part of this big shift
01:04:44 --> 01:04:49: made significant investments in surface water treatment plants that would
01:04:49 --> 01:04:52: take delivery of Colorado River water and treat it and
01:04:52 --> 01:04:54: deliver it out to users.
01:04:54 --> 01:04:58: And so much growth has occurred in reliance on these
01:04:58 --> 01:04:59: new supplies.
01:05:00 --> 01:05:03: And, and then there was essentially a shift from previous

01:05:03 --> 01:05:07: reliance on groundwater to the Colorado River supplies.

01:05:09 --> 01:05:14: And the for a little more context, since around the

01:05:14 --> 01:05:20: 2020 growth on groundwater has been constrained in the Greater

01:05:20 --> 01:05:22: Phoenix area.

01:05:22 --> 01:05:26: In 2019, the Department of Water Resources issued a a

01:05:26 --> 01:05:31: new groundwater report and said there could be no more

01:05:31 --> 01:05:36: essentially urban growth subdivision development on groundwater in the area

01:05:36 --> 01:05:40: that we call the Pinal Active Management Area.

01:05:40 --> 01:05:43: That would be that southeastern part of Greater Phoenix.

01:05:43 --> 01:05:46: And then in 2023 the department issued a similar model

01:05:46 --> 01:05:48: for the Greater Phoenix area.

01:05:48 --> 01:05:52: So there can be no more new subdivision development reliant

01:05:53 --> 01:05:54: on groundwater.

01:05:54 --> 01:05:55: So that's our context.

01:05:56 --> 01:06:02: As far as the negotiations go, I have greatly appreciated

01:06:02 --> 01:06:09: my fellow panelists presentations, the clarity, the the special insights.

01:06:09 --> 01:06:13: I would say that the position of Central Arizona is

01:06:13 --> 01:06:20: essentially great uncertainty, great vulnerable, understanding that that there's a

01:06:20 --> 01:06:25: vulnerability because of lower priority in the system, great uncertainty

01:06:26 --> 01:06:31: because the negotiations so far haven't shown a clear direction.

01:06:31 --> 01:06:34: But I think most people assume that there will be

01:06:34 --> 01:06:37: a pretty significant cut in Colorado River supplies.

01:06:38 --> 01:06:43: I was with the Department of Water Resources director and

01:06:43 --> 01:06:49: Aerosmith's principal in Colorado River negotiations yesterday and he said

01:06:49 --> 01:06:54: at least 27% cut or greater, many entitlement holders to

01:06:54 --> 01:06:58: Colorado River water in the CAP along the CAP don't

01:06:58 --> 01:07:01: use all of their supplies.

01:07:01 --> 01:07:05: So they can they can sustain some degree of cuts

01:07:05 --> 01:07:09: without having it impact the availability of water to meet

01:07:09 --> 01:07:11: demand at the tap.

01:07:11 --> 01:07:14: But when we get to 27 percent or greater, we

01:07:14 --> 01:07:18: start getting to that point where we're cutting into the

01:07:18 --> 01:07:21: buffer zone that that the cities have enjoyed.

01:07:22 --> 01:07:27: So that's our context, very significant constraints on on water

01:07:27 --> 01:07:33: supply availability for both growth and for current users.

01:07:34 --> 01:07:36: So what about water and growth in Arizona?

01:07:37 --> 01:07:41: This graphic divided that's been developed by our state department

01:07:41 --> 01:07:44: of water resources tells this really happy story, kind of

01:07:44 --> 01:07:47: reminiscent of Ken, what you were saying about per capita

01:07:47 --> 01:07:48: water use.

01:07:48 --> 01:07:52: This is a a comparison of water demand and population

01:07:52 --> 01:07:56: and economic growth in Arizona from the mid 1950s until

01:07:56 --> 01:07:57: 20/19.

01:07:58 --> 01:08:01: And what you see is that while water demand today

01:08:01 --> 01:08:06: is this is statewide, water demand today is slightly below

01:08:06 --> 01:08:10: where it was statewide in where it was in the

01:08:10 --> 01:08:11: mid 1950's.

01:08:11 --> 01:08:16: The population has grown almost 6 times and the economy

01:08:16 --> 01:08:20: has grown over 20 times since that time much.

01:08:20 --> 01:08:23: So this this is kind of shows that we've decoupled

01:08:23 --> 01:08:27: water demand and economic and population growth.

01:08:27 --> 01:08:29: It's not a complete decoupling.

01:08:30 --> 01:08:34: Municipal water demand has increased, particularly in the Phoenix area

01:08:35 --> 01:08:37: with the growth of cities in, you know, one of

01:08:38 --> 01:08:41: the fastest growing counties in in the nation over and

01:08:41 --> 01:08:44: over again is Maricopa County where Phoenix is.

01:08:45 --> 01:08:50: But it does show that we can sustain considerable population

01:08:50 --> 01:08:55: growth and economic growth without necessarily having to go out

01:08:55 --> 01:08:57: and get additional water supplies.

01:08:58 --> 01:09:01: So it's it's like one of the most hopeful, you

01:09:01 --> 01:09:04: know, realities that we live with.

01:09:06 --> 01:09:11: And here's this, a similar graphic from the city of

01:09:11 --> 01:09:17: Phoenix showing again to Ken's point, a great decline in

01:09:17 --> 01:09:22: G GPCD gallons per capita per day from 1990 to

01:09:22 --> 01:09:22: 2023.

01:09:23 --> 01:09:26: And you know that this enables this decline in per

01:09:26 --> 01:09:30: capita use has enabled many of the older cities with

01:09:30 --> 01:09:36: robust water supplies to essentially use the efficiency and conservation

01:09:36 --> 01:09:40: that's occurring to be the water supply for the growth

01:09:40 --> 01:09:42: that they're expecting.

01:09:42 --> 01:09:48: So even without all the constraints on Colorado River water,

01:09:48 --> 01:09:54: constraints on groundwater, there has been a trend in Arizona

01:09:55 --> 01:09:59: to shift to lower water use per capita to having

01:09:59 --> 01:10:04: lower or more more bang for the buck, more dollars

01:10:04 --> 01:10:08: per gallon in terms of economic capacity.
01:10:10 --> 01:10:14: And what I foresee given the constraints that we are
01:10:14 --> 01:10:20: currently experiencing is a continued move toward higher density development
01:10:20 --> 01:10:24: in the greater Phoenix area and all the way down
01:10:24 --> 01:10:25: to Tucson.
01:10:26 --> 01:10:29: Our pattern of growth has been predominated at least half
01:10:29 --> 01:10:32: and and in many years more of the growth if
01:10:32 --> 01:10:35: you measure it by for example new housing units, it
01:10:35 --> 01:10:37: it has been single family homes.
01:10:38 --> 01:10:41: We have lots and lots of cities that have zoned
01:10:41 --> 01:10:44: at 90% or more of their land for single family
01:10:44 --> 01:10:48: homes and that pattern means outward growth.
01:10:48 --> 01:10:53: It means what some people call sprawl, that as water
01:10:53 --> 01:10:58: becomes more expensive and less available, it will be 1
01:10:58 --> 01:11:03: of the factors that pushes the pattern to change.
01:11:03 --> 01:11:07: While some of that outward exurban growth will continue to
01:11:07 --> 01:11:11: happen and is continuing to happen, there will be less
01:11:11 --> 01:11:14: of that kind of growth and water or there will
01:11:14 --> 01:11:18: be more upward, inward higher density growth and water will
01:11:18 --> 01:11:21: be one of the factors driving that, but certainly not
01:11:21 --> 01:11:22: the only factor.
01:11:23 --> 01:11:27: Projections from Oh and, and I thought you might be
01:11:27 --> 01:11:31: interested if you decide to do more investigation later to
01:11:31 --> 01:11:33: see a map that we've created.
01:11:33 --> 01:11:37: It's on the Arizona water blueprint that shows the water
01:11:37 --> 01:11:37: use intensity.
01:11:38 --> 01:11:41: In other words, how much water per acre of all
01:11:41 --> 01:11:45: of the community water systems in the three county service
01:11:45 --> 01:11:47: area of the Central Arizona Project.
01:11:48 --> 01:11:51: And what you see is that a lot of the
01:11:51 --> 01:11:55: many, many areas are able to grow on much less
01:11:55 --> 01:11:59: water per acre than has historically been the case, indeed,
01:11:59 --> 01:12:03: where we see a high amount of water use per
01:12:03 --> 01:12:03: acre.
01:12:03 --> 01:12:06: And that would be the bluer areas on this map
01:12:06 --> 01:12:09: mostly with the exception of Paradise Valley.
01:12:09 --> 01:12:13: I have to say what we're seeing is the historic
01:12:13 --> 01:12:17: agricultural lands in the SRP service area that were where
01:12:18 --> 01:12:23: the municipal urbanization occurred on top of historic agriculture.
01:12:23 --> 01:12:26: And and that's one of the reasons why.

01:12:26 --> 01:12:30: So we have higher water use in those areas because

01:12:30 --> 01:12:33: they they settled on top of farm lands and had

01:12:33 --> 01:12:38: an abundant water supply when that development occurred and the

01:12:38 --> 01:12:42: pressures to be lower water use per acre weren't very

01:12:42 --> 01:12:44: strong when that development occurred.

01:12:46 --> 01:12:50: It's interesting to see projections by the Maricopa County Association

01:12:50 --> 01:12:55: of Governments, which was an intergovernmental association that does all

01:12:55 --> 01:12:59: kinds of important of planning, mostly around transportation, but some

01:12:59 --> 01:13:00: other issues too.

01:13:00 --> 01:13:03: Their projections are for increasing density.

01:13:04 --> 01:13:08: And I just have a a click through of projections

01:13:08 --> 01:13:12: for increasing density in the sort of greater Phoenix area.

01:13:13 --> 01:13:16: So again, red is higher density and the lightest blue

01:13:16 --> 01:13:18: is lowest density.

01:13:18 --> 01:13:21: And what we see this is 20, we saw 2020,

01:13:21 --> 01:13:22: this is 20-30.

01:13:22 --> 01:13:28: You can see yellow and orange increasing, red increasing all

01:13:28 --> 01:13:30: the way out to 2060.

01:13:30 --> 01:13:37: The projections are for increasing density and certainly increasing density

01:13:37 --> 01:13:42: is not only what I would expect from less water

01:13:42 --> 01:13:48: availability, more expensive water supplies in the future, but I

01:13:48 --> 01:13:53: also regard increasing density as one of the big solutions

01:13:53 --> 01:13:57: in a time of water supply scarcity.

01:13:58 --> 01:14:02: Here's a slide that could be a desalina tion plant.

01:14:02 --> 01:14:06: I've I've toured ocean desal plants in Israel could be

01:14:06 --> 01:14:10: an ocean water desalina tion plant that you might see

01:14:10 --> 01:14:13: in in Southern California at the Carlsbad plant or in

01:14:14 --> 01:14:15: the Middle East.

01:14:15 --> 01:14:15: But it's not.

01:14:15 --> 01:14:19: This is a desalina tion plant that the city of

01:14:19 --> 01:14:21: Scottsdale built.

01:14:21 --> 01:14:25: They built this plant to take reclaimed water in, in

01:14:25 --> 01:14:31: other words, effluent from their wastewater treatment plant and desalinate

01:14:31 --> 01:14:31: it.

01:14:32 --> 01:14:36: And initially they have used these supplies to mix in

01:14:36 --> 01:14:42: with water that's sent to golf courses because untreated reclaimed

01:14:42 --> 01:14:44: water is just too brackish.

01:14:44 --> 01:14:49: It's too, it's too salty for those tender green fairways.

01:14:50 --> 01:14:54: But this plant has is ready to go for Scottsdale

01:14:54 --> 01:14:58: should they need to take the step to advanced water

01:14:58 --> 01:14:59: purification.

01:15:00 --> 01:15:04: The Department of Environmental Quality in Arizona has finally.

01:15:04 --> 01:15:07: It was some about a year ago, but it has

01:15:07 --> 01:15:13: finalized water quality standards to to permit advanced water purification.

01:15:13 --> 01:15:18: And indeed, the city of Phoenix, the suburb of Peoria

01:15:18 --> 01:15:24: and are are taking concrete steps toward ramping up advanced

01:15:24 --> 01:15:29: water purification as one step as one measure to respond

01:15:29 --> 01:15:35: to the water supply issues created by Colorado River shortage.

01:15:36 --> 01:15:40: And you know, this is an example of how density

01:15:40 --> 01:15:45: goes hand in hand with other with technology to provide

01:15:45 --> 01:15:46: water resilience.

01:15:46 --> 01:15:51: The more people don't put water out on their yards,

01:15:51 --> 01:15:55: on their landscaping, but instead the more of their water

01:15:56 --> 01:15:59: use occurs where it goes down the drain or is

01:15:59 --> 01:16:04: flushed, the more the water provider can recapture the water

01:16:04 --> 01:16:06: and re reuse it.

01:16:06 --> 01:16:09: And at this point, you know, we are, we have

01:16:09 --> 01:16:13: communities in the in central AZ that are really becoming

01:16:13 --> 01:16:15: prepared to do this.

01:16:17 --> 01:16:23: We're, you know, there are, there's been they're deliberate efforts

01:16:23 --> 01:16:28: to push water efficiency and conservation in greater Phoenix.

01:16:29 --> 01:16:33: Most cities have rebate programs for retiring grass, for example,

01:16:33 --> 01:16:38: replacing it with lower water use landscaping to replace inefficient

01:16:38 --> 01:16:39: fixtures.

01:16:39 --> 01:16:42: And so the the messages about conservation are louder and

01:16:42 --> 01:16:44: stronger than ever.

01:16:44 --> 01:16:49: But conservation will not be sufficient to backfill Colorado River

01:16:49 --> 01:16:50: supply cuts.

01:16:51 --> 01:16:54: As Anne pointed out, 25% of the water use, you

01:16:54 --> 01:16:59: know, human use of water somewhere around there is used

01:16:59 --> 01:17:03: by cities and industry and 75% is used by agriculture.

01:17:03 --> 01:17:05: Cities and industry can't.

01:17:05 --> 01:17:10: They simply don't generate enough use of Colorado River water

01:17:10 --> 01:17:14: to make up for to to be able to conserve

01:17:14 --> 01:17:17: their way out of the cuts that we expect.

01:17:18 --> 01:17:22: And conservation and efficiency will not supply water for those

01:17:22 --> 01:17:26: pink areas on that map I showed you originally the

01:17:26 --> 01:17:30: the groundwater, the areas that have no renewable supply of

01:17:30 --> 01:17:34: water that those places I expect will grow in a

01:17:34 --> 01:17:38: way that is remarked, you know, markedly more water efficient

01:17:38 --> 01:17:41: than the oldest parts of greater Phoenix.

01:17:41 --> 01:17:44: But when you don't have a water supply to start

01:17:44 --> 01:17:47: with, you can't conserve your way out of your water

01:17:47 --> 01:17:49: scarcity problem.

01:17:49 --> 01:17:53: So there are steps being taken, in addition to advanced

01:17:53 --> 01:17:58: water purification, to ensure additional water supplies to backfill Colorado

01:17:58 --> 01:18:02: River supplies and to provide a water supply for continued

01:18:02 --> 01:18:06: growth in areas that don't currently have a renewable supply.

01:18:06 --> 01:18:11: Some of those steps might include a new tribal water

01:18:11 --> 01:18:11: leases.

01:18:11 --> 01:18:15: There are already a number of cities that are in

01:18:15 --> 01:18:20: mutually voluntary leases with tribes, and there are other opportunities,

01:18:20 --> 01:18:25: particularly with the Colorado River Indian tribes on the main

01:18:25 --> 01:18:28: stem who have very, very high priority water.

01:18:29 --> 01:18:34: If the proposed Northeastern Arizona Indian Water Rights Settlement agreement

01:18:34 --> 01:18:39: is finalized, that would settle the Navajo Nation, Hopi Tribe

01:18:39 --> 01:18:43: and San Juan Southern Paiute Tribes water rights claims.

01:18:43 --> 01:18:47: And that could free up another supply of water should

01:18:47 --> 01:18:52: the the tribes, particularly the Navajo Nation, choose to lease

01:18:52 --> 01:18:56: water and and generate some revenue, at least for a

01:18:56 --> 01:18:57: time and just today, so.

01:18:58 --> 01:19:01: Do you have maybe a minute left?

01:19:01 --> 01:19:03: We're over time, but I can give you a minute

01:19:03 --> 01:19:03: to.

01:19:03 --> 01:19:03: OK.

01:19:03 --> 01:19:04: OK.

01:19:04 --> 01:19:07: I would just say that just today Arizona has taken

01:19:07 --> 01:19:10: a concrete step in, in developing new water supplies.

01:19:10 --> 01:19:12: So those are my conclusions.

01:19:13 --> 01:19:16: I think water is becoming a more a bigger determine
01:19:16 --> 01:19:18: of growth and how cities grow in Arizona.
01:19:20 --> 01:19:22: It isn't the only driver, but it will be a
01:19:22 --> 01:19:25: driver particularly in the most populous areas.
01:19:25 --> 01:19:25: Thanks.
01:19:26 --> 01:19:27: Wonderful.
01:19:27 --> 01:19:29: Thank you so much, Sarah, and thank you to all
01:19:29 --> 01:19:30: of our speakers.
01:19:30 --> 01:19:35: We have an up to 10 minutes for Q&A.
01:19:35 --> 01:19:38: I'd love for people to just unmute or you can
01:19:38 --> 01:19:41: raise your hand and we can get an order of
01:19:41 --> 01:19:41: questions.
01:19:41 --> 01:19:45: Does anyone have any questions for any of our speakers?
01:19:48 --> 01:19:50: OK, I'm not seeing any, so I'll go ahead and
01:19:50 --> 01:19:51: ask a question.
01:19:51 --> 01:19:53: So can you refer to a compact call?
01:19:54 --> 01:19:56: I'd love for any of the speakers to talk about
01:19:56 --> 01:19:58: like what does that entail?
01:19:58 --> 01:19:59: What's what is a compact call?
01:20:00 --> 01:20:01: Why would it happen?
01:20:02 --> 01:20:02: That sort of thing.
01:20:05 --> 01:20:09: So a compact call would occur if the lower basin
01:20:09 --> 01:20:12: was not receiving the 82.5 million acre feed every 10
01:20:12 --> 01:20:16: years that Anne Castle was mentioning earlier that so far
01:20:16 --> 01:20:20: we've basically met that target every 10 years.
01:20:20 --> 01:20:24: But we also learned in this these presentations it but
01:20:24 --> 01:20:27: as early as next year, 2027, we might be underneath
01:20:28 --> 01:20:28: that.
01:20:28 --> 01:20:31: And that would mean there's less water in Lake Powell,
01:20:31 --> 01:20:32: less water to deliver to Lake Mead.
01:20:33 --> 01:20:36: And the lower basin states could claim that the upper
01:20:36 --> 01:20:40: basin wasn't delivering its 82.5 million acre feed obligation each
01:20:40 --> 01:20:41: 10 years.
01:20:41 --> 01:20:43: So that would be what a compact call would be.
01:20:44 --> 01:20:47: And there's never been one in the past.
01:20:47 --> 01:20:51: And we all kind of shake our heads.
01:20:51 --> 01:20:54: We say we don't know what would happen if there
01:20:54 --> 01:20:55: was a compact call.
01:20:55 --> 01:20:58: I was just trying to illustrate, you know, what the
01:20:58 --> 01:21:02: Front Range trans basin divergent diverter fears are in my
01:21:02 --> 01:21:02: graph.

01:21:02 --> 01:21:04: But I think it's fair to fall back to.

01:21:04 --> 01:21:06: We don't know what would happen if there was a

01:21:06 --> 01:21:07: compact call.

01:21:12 --> 01:21:14: Again, if anyone has any questions, feel free to raise

01:21:14 --> 01:21:15: your hand.

01:21:15 --> 01:21:16: Unmute.

01:21:16 --> 01:21:18: Put your question in the chat box.

01:21:26 --> 01:21:28: All right, I'm not seeing any which what a quiet

01:21:28 --> 01:21:29: group.

01:21:31 --> 01:21:34: And I, I have a question, I'm new to this

01:21:34 --> 01:21:36: group, first meeting today.

01:21:36 --> 01:21:37: Thanks for allowing me to sit in.

01:21:38 --> 01:21:40: I think this may be mainly for for Sarah, but

01:21:40 --> 01:21:43: as you were talking about Arizona and and growth in

01:21:43 --> 01:21:47: the cities there, you're talking about more of that centralized

01:21:47 --> 01:21:51: approach to water reuse and advanced water purification projects.

01:21:51 --> 01:21:53: But I was curious in this, you know, when you

01:21:53 --> 01:21:57: look into the future, do you also see decentralized water

01:21:57 --> 01:22:01: reuse systems like this on site water reuse systems, either

01:22:01 --> 01:22:03: the building level or campus level?

01:22:04 --> 01:22:07: Do you see that factoring in considerably into development and

01:22:07 --> 01:22:09: water management strategies over time?

01:22:11 --> 01:22:16: I think there are places where decentralized reuse makes sense,

01:22:16 --> 01:22:19: but when, When you, I would say the region has

01:22:19 --> 01:22:23: shown a a pretty strong preference for centralized reuse and,

01:22:23 --> 01:22:26: and it has, it has a very high reuse.

01:22:26 --> 01:22:30: All the wastewater treatment plants in central Arizona are reclaiming

01:22:30 --> 01:22:32: every drop of water they can.

01:22:32 --> 01:22:35: Many of them are using that reclaimed water to recharge

01:22:36 --> 01:22:36: aquifers.

01:22:36 --> 01:22:39: We have a cap and trade system on groundwater in

01:22:39 --> 01:22:42: the greater Phoenix area and in the CAP service area.

01:22:42 --> 01:22:48: And so the water providers are, I would say, incentivized

01:22:48 --> 01:22:54: to discourage decentralized reuse where nobody can accrue long term

01:22:54 --> 01:22:58: storage credits for recharging aquifers.

01:22:59 --> 01:23:01: But there are times when there's a use case for

01:23:01 --> 01:23:02: that.

01:23:02 --> 01:23:05: And in those instances, I think it would be embraced.

01:23:06 --> 01:23:06: OK.
01:23:06 --> 01:23:08: Thanks for sharing that perspective.
01:23:09 --> 01:23:10: Thank you.
01:23:10 --> 01:23:13: Mike, do you want to unmute and ask your question?
01:23:15 --> 01:23:15: Sure.
01:23:15 --> 01:23:16: Thanks, Marianne.
01:23:17 --> 01:23:18: Yeah, I was just curious.
01:23:18 --> 01:23:21: You know, we just went through a federal government shutdown.
01:23:22 --> 01:23:27: It appears if the stopgap legislation passes, it would kick
01:23:27 --> 01:23:30: that can down the road till late January where we
01:23:30 --> 01:23:33: could be facing another shutdown again.
01:23:35 --> 01:23:39: Do federal government shutdowns affect any negotiations or any progress
01:23:39 --> 01:23:41: on a negotiation?
01:23:43 --> 01:23:45: I can take a shot at that.
01:23:46 --> 01:23:50: So far, I think the answer is no.
01:23:50 --> 01:23:54: But with qualifications, you know, the, the agencies have the
01:23:54 --> 01:23:59: ability to designate what they call essential personnel who keep
01:23:59 --> 01:24:02: working even though without pay during a shutdown.
01:24:03 --> 01:24:06: And most of the people at the Bureau of Reclamation
01:24:06 --> 01:24:10: and the Department of the Interior who have been working
01:24:10 --> 01:24:15: on these negotiations with the state, States and, and developing
01:24:15 --> 01:24:19: models and trying to analyze the impacts of various different
01:24:19 --> 01:24:24: operating schemes, They've been deemed essential personnel and have continued
01:24:24 --> 01:24:26: to work without pay.
01:24:27 --> 01:24:30: Now they're getting paid again and now they're getting back
01:24:30 --> 01:24:31: pay.
01:24:31 --> 01:24:38: But there's a larger effect because reclamation in particular has
01:24:39 --> 01:24:45: lost a lot of people during this administration because of
01:24:45 --> 01:24:51: the doge cuts and, and, you know, frankly a loss
01:24:51 --> 01:24:52: of morale.
01:24:53 --> 01:24:57: So a lot of people have retired and that has
01:24:57 --> 01:25:03: affected overall the ability of the agency to respond quickly
01:25:03 --> 01:25:08: and to put the the expertise, the institutional knowledge that
01:25:09 --> 01:25:13: has been gained over years and decades to work in,
01:25:13 --> 01:25:18: in helping the states to, to come to some sort
01:25:18 --> 01:25:20: of consensus agreement.
01:25:20 --> 01:25:22: So there has been an impact.

01:25:22 --> 01:25:26: It's been, I think more more systemic and, and less
01:25:26 --> 01:25:29: as a direct result of the government shutdown.
01:25:29 --> 01:25:29: Great.
01:25:34 --> 01:25:37: We have maybe time for one more question or multiple
01:25:37 --> 01:25:39: if you put them in the chat box.
01:25:39 --> 01:25:40: Go ahead, Kevin.
01:25:42 --> 01:25:44: Thank you very much, Marianne, And this is for anyone
01:25:44 --> 01:25:45: in the group.
01:25:45 --> 01:25:46: Just give me a little background.
01:25:47 --> 01:25:50: I lived most of my life in California, did some
01:25:50 --> 01:25:54: research on Desalina Tion back when I was still in
01:25:54 --> 01:25:57: college or my master's degree.
01:25:58 --> 01:26:03: And desalina tion was, of course, the entire technology developed
01:26:03 --> 01:26:07: in Southern California, in San Diego in the 1960s.
01:26:07 --> 01:26:10: Since then, there's been a handful of cities that have
01:26:10 --> 01:26:11: tried desalina tion.
01:26:11 --> 01:26:13: They've gone back and forth and back and forth.
01:26:14 --> 01:26:20: The Carlsbad plant that you referenced earlier serves 300,000 people.
01:26:21 --> 01:26:24: One plant OK at a cost of about a billion
01:26:24 --> 01:26:24: dollars.
01:26:25 --> 01:26:30: The state of California is now wasting somewhere between 165
01:26:30 --> 01:26:34: billion and 225 billion on a low speed train to
01:26:34 --> 01:26:35: nowhere.
01:26:36 --> 01:26:40: You could build dozens of desalina tion plants serve the
01:26:40 --> 01:26:45: entire state of California from desalina tion, including inland counties
01:26:45 --> 01:26:48: because the salt and sea is 200 and some odd
01:26:48 --> 01:26:49: feet below sea level.
01:26:50 --> 01:26:53: You could pump seawater directly into Salton Sea, raise the
01:26:53 --> 01:26:58: level of that, cure that entire environmental disaster, put desalina
01:26:58 --> 01:27:00: tion plants at the North and South end, and have
01:27:01 --> 01:27:04: plenty of water to irrigate Imperial Valley, Yuma Valley as
01:27:04 --> 01:27:06: well, and most of inland California.
01:27:07 --> 01:27:08: Well, currently.
01:27:08 --> 01:27:09: Why has?
01:27:09 --> 01:27:13: Yeah, farmers in Yuma are paying about $17.00 per acre
01:27:13 --> 01:27:18: foot for their Colorado River water and the water coming
01:27:18 --> 01:27:22: out of the Carlsbad plant is 3050 something dollars per
01:27:22 --> 01:27:23: acre foot.

01:27:23 --> 01:27:26: That's really their desalina tion.
01:27:26 --> 01:27:30: In fact, the San Diego County Water Authority is has
01:27:30 --> 01:27:33: too much a problem of too much water right now
01:27:33 --> 01:27:37: and they're facing costs upward over $7000 per acre foot
01:27:37 --> 01:27:38: in the 20 forties.
01:27:38 --> 01:27:42: This is just way beyond what people are having to
01:27:42 --> 01:27:43: pay for water now.
01:27:44 --> 01:27:47: So in time, I would not be surprised if there
01:27:47 --> 01:27:51: were more desalination plants and if some of the other
01:27:51 --> 01:27:55: entities in the basin benefited through exchanges, not by piping
01:27:55 --> 01:27:57: that water over to them.
01:27:58 --> 01:28:01: But right now, any lower cost options?
01:28:01 --> 01:28:05: Will they need to be deployed before that?
01:28:05 --> 01:28:08: That's the view my view from central AZ.
01:28:08 --> 01:28:12: There are many, many options and, and, and certainly that's
01:28:13 --> 01:28:16: no one would disagree with that and that's and but
01:28:16 --> 01:28:19: that doesn't mean that the next choice is to run
01:28:19 --> 01:28:22: out and build a, a desal plant.
01:28:22 --> 01:28:26: But there are the WIFA announcement today that I mentioned
01:28:26 --> 01:28:29: includes two or three out of the four projects they
01:28:29 --> 01:28:32: chose a two or three of them are desal plants.
01:28:33 --> 01:28:35: So it's just that if you're going to buy, you
01:28:35 --> 01:28:38: know, I don't, I don't see desalina tion being a
01:28:38 --> 01:28:42: solution for agriculture because it's just so expensive.
01:28:43 --> 01:28:47: And while we have lower cost alternatives available, it is
01:28:47 --> 01:28:49: unlikely that cities will turn to desal.
01:28:50 --> 01:28:52: And a case in point is the city of Phoenix
01:28:52 --> 01:28:57: investing billions of dollars in advanced water purification to treat
01:28:57 --> 01:29:00: a very reliable supply of water, and that's wastewater, rather
01:29:01 --> 01:29:04: than trying to get into a relationship with an entity
01:29:04 --> 01:29:07: that has a coastline, which isn't the easiest thing to
01:29:07 --> 01:29:10: do, And to make a desalina tion plant happen.
01:29:10 --> 01:29:13: Maybe someday, but right now it is not the first
01:29:13 --> 01:29:14: choice.
01:29:15 --> 01:29:15: Thank you.
01:29:15 --> 01:29:17: Great question and great answer.
01:29:17 --> 01:29:18: Thank you.
01:29:18 --> 01:29:21: I'm going to wrap up with some announcements and resources
01:29:21 --> 01:29:24: available to you all one second while I pull this

01:29:24 --> 01:29:27: up, but if you have any other questions, please put
01:29:27 --> 01:29:29: them in the chat box and our speakers will answer
01:29:29 --> 01:29:30: them there.
01:29:30 --> 01:29:33: I'm going to turn it over to our partners, the
01:29:33 --> 01:29:37: Alliance for Alliance for Water Efficiency to make a couple
01:29:37 --> 01:29:40: announcements and then I have some after them all.
01:29:42 --> 01:29:43: Right.
01:29:43 --> 01:29:44: Thanks, Marianne.
01:29:45 --> 01:29:46: Can you all see and hear me OK?
01:29:47 --> 01:29:47: Go ahead.
01:29:48 --> 01:29:48: Great.
01:29:48 --> 01:29:50: First of all, fantastic presentation.
01:29:50 --> 01:29:51: It's really interesting.
01:29:51 --> 01:29:51: Thanks everyone.
01:29:52 --> 01:29:53: Really quick.
01:29:54 --> 01:30:00: Aligns for water Efficiency, just finalized and published in partnership
01:30:00 --> 01:30:02: with the Water Research Foundation.
01:30:02 --> 01:30:07: Our latest project focused on peak water demand management and
01:30:07 --> 01:30:10: an assessment of peak demand management strategies.
01:30:10 --> 01:30:14: I'll drop the link to the Water Research Foundation's page
01:30:14 --> 01:30:15: here in the chat.
01:30:16 --> 01:30:20: And we also have an upcoming WRF webcast on December
01:30:20 --> 01:30:22: 9th at 3:00 PM Eastern.
01:30:22 --> 01:30:26: So keep your eyes peeled for registration details for that,
01:30:26 --> 01:30:26: go ahead.
01:30:26 --> 01:30:28: Next slide, Marianne.
01:30:29 --> 01:30:34: And then very timely given the discussion that we were
01:30:34 --> 01:30:37: just having, but a WE is wanting to explore the
01:30:37 --> 01:30:43: relationship and ability to marry Water Reese and efficiency practices
01:30:43 --> 01:30:44: effectively.
01:30:45 --> 01:30:49: So we are working to develop a research project focus
01:30:49 --> 01:30:49: on this.
01:30:50 --> 01:30:52: And you can see here on the slides what we're
01:30:52 --> 01:30:53: hoping to do with that research.
01:30:53 --> 01:30:56: But for the sake of time, if you are interested,
01:30:56 --> 01:31:00: please reach out to my colleague Joanna Dakota Smith, who's
01:31:00 --> 01:31:02: leading this effort at AWE.
01:31:02 --> 01:31:05: And I'm happy to also drop her information in the
01:31:05 --> 01:31:06: chat as well.

01:31:07 --> 01:31:08: Thanks, Marianne.
01:31:09 --> 01:31:10: Thank you so much, Amanda.
01:31:10 --> 01:31:14: Some updates for our water wise initiative at ULI.
01:31:14 --> 01:31:17: We are going to be convening local events in Colorado
01:31:17 --> 01:31:21: to help bridge the gap between public sector and private
01:31:21 --> 01:31:24: sector professionals working on land use.
01:31:24 --> 01:31:28: Our aim with this is to develop better water wise
01:31:28 --> 01:31:30: policies and their implementation.
01:31:30 --> 01:31:33: So if this sounds interesting to you or might be
01:31:33 --> 01:31:36: interesting to anyone you know, please reach out to me.
01:31:36 --> 01:31:38: My emails on the side at the bottom.
01:31:38 --> 01:31:41: We're also going to be working on documenting the business
01:31:41 --> 01:31:44: case for water wise land uses and their strategies.
01:31:45 --> 01:31:47: So if you know of case studies that do this
01:31:47 --> 01:31:51: particularly well, especially water reuse, which we find to be
01:31:51 --> 01:31:54: very expensive as Sarah Porter mentioned.
01:31:54 --> 01:31:56: But if there are cases where you know it's really
01:31:56 --> 01:31:59: working financially, we'd love to hear about those.
01:32:00 --> 01:32:03: We're also doing a new article series in Urban Land
01:32:03 --> 01:32:04: magazine.
01:32:04 --> 01:32:06: If there are any topics that you feel you would
01:32:06 --> 01:32:09: be an expert on and would like to author or
01:32:09 --> 01:32:13: co-author an article related to water wise strategies, please reach
01:32:13 --> 01:32:14: out to me.
01:32:14 --> 01:32:15: We'd love to hear from you.
01:32:16 --> 01:32:20: These are some of our upcoming topics for meetings.
01:32:20 --> 01:32:23: The next one will be on data center water use
01:32:23 --> 01:32:28: and industry best practices, but we have some flexibility for
01:32:28 --> 01:32:31: the topics after the data center topic.
01:32:32 --> 01:32:35: So if you have ideas or thoughts about topics or
01:32:35 --> 01:32:39: speakers, please either put them in the chat or e-mail
01:32:39 --> 01:32:40: me after.
01:32:40 --> 01:32:42: I'd love to hear from you since we're kind of
01:32:42 --> 01:32:44: running out of time right now.
01:32:46 --> 01:32:50: Just a quick pitch, We host an annual Resilience Summit
01:32:50 --> 01:32:54: every year in coordination with our Global Spring Meeting.
01:32:54 --> 01:32:57: This year it'll be in Nashville, TN on May 8th.
01:32:57 --> 01:33:00: It's a day long climate adaptation event that convenes industry
01:33:01 --> 01:33:04: leaders in real estate and resilience from around the world
01:33:04 --> 01:33:08: to address challenges and harness opportunities posed by climate risks.

01:33:08 --> 01:33:10: We hope to see you there.
01:33:10 --> 01:33:12: If you're going to be at Spring meeting anyway, it's
01:33:12 --> 01:33:13: a great add on.
01:33:15 --> 01:33:18: We also would love to hear from you in terms
01:33:18 --> 01:33:22: of, you know, your thoughts and ideas for this coalition.
01:33:22 --> 01:33:25: So please feel free to either use this link or
01:33:25 --> 01:33:26: the QR code.
01:33:26 --> 01:33:28: It should be a really quick survey.
01:33:30 --> 01:33:33: Thank you all so much for joining us today.
01:33:34 --> 01:33:36: My emails here if you'd like to reach out.
01:33:36 --> 01:33:39: And yeah, we really hope that you have a wonderful
01:33:39 --> 01:33:43: holiday season coming up, and we look forward to seeing
01:33:43 --> 01:33:45: you again in early 2026.
01:33:45 --> 01:33:47: And a huge round of applause for our speakers.
01:33:47 --> 01:33:48: Thank you all.
01:33:50 --> 01:33:50: Thanks so much.
01:33:51 --> 01:33:51: Thanks, Marianne.
01:33:51 --> 01:33:53: Everyone thanks Marianne.
01:33:53 --> 01:33:54: Thank you.
01:33:54 --> 01:33:54: It was great.
01:33:54 --> 01:33:55: Thank you.
