Forest Resilience Full Video

This webinar is a review of the first of its kind, Forest Resilience Bond, that was issued by a special purpose vehicle out in California in October of 2019, if I have my dates correct. And just sort of by way of context, why we are hosting this webinar and why EPA is particularly interested in this subject, you're all aware of EPA as a regulator. You're probably all aware of EPA as running major funding programs. State Revolving Fund is a sponsored program that has been operational for about 30 years. More recently is a direct funding program, operating out of EPA'S backyard that caters to larger utilities across the nation. But both programs are catering to the same kinds of projects; point source, non-point source, potable water et cetera.

But in the context of federal funding, we all recognize that federal funds is not the be all and end all when it comes to providing funding solutions to our water infrastructure challenges, both built infrastructure and natural infrastructure. And of course today, our focus is on natural infrastructure funding solutions.

So the Water Finance Center was stood up in 2015 to kind of operate at the intersect of federal and state funding programs. And the Water Finance sector writ large, and our focus has been to try and tease out the developments that are occurring within the water finance space generally. And again, in the context of public funding and private funding.

And so we have been in the business of identifying emerging water finance trends, emerging best management practices, what we might come to view is state of the art. And so we look for innovations that we can report out on. And of course the objective of our efforts is to put together reports, case studies if you will, that really teases out the technical aspects of these structures, basically how they work, and to try and offer local decision makers the opportunity to get a better feel for what these Water Finance opportunities present.

And so we authored a Forest Resilience Bond technical review of the efforts that were undertaken in California in October of 2019, basically reporting out the first of its kind structure related to forest resilience bond. And of course, we expect to see more of this emerge as we go down the road. So today's webinar, I'm going to pull into the background. We are going to leave it to the subject matter experts that really worked hard to pull this together.

And I'm going to pass the conversation off to Todd Gartner with the water resource-- Sorry, I'm sorry, the World Resources Institute, who is one of the concept developers that helped to pull together the concept and got it rolling and ultimately resulted in an actual financing occurring that is supporting forest restoration in the Tahoe National Forest out in California. So Todd, take it away.

Thanks so much Jim and good morning, good afternoon to all on the line. Next slide, please . A couple of just quick logistical things before we dive into the content. First, just wanted to let everyone know that this session is being recorded and will go up on the EPA website in the next couple of weeks. We also kindly ask that everyone please mute themselves and turn off your video. That would be greatly appreciated.

And as we work through the session, we will have a discussion component of the next 90 minutes. And we ask if you do have questions, we would love for you to please share them through the chat bar. Next slide, please.

Most of today's conversation will be sort of in a panel format, and it may be easiest and enhance your viewing pleasure if you go to the gallery view. Just a suggestion and recommendation. But with that, let's dive in. Next slide, please.

And so again, my name is Todd Gartner. I'm a director at the World Resources Institute and we were honored to be a co-developer of the Forest Resilience Bond, along with Blue Forest Conservation and the US Forest Service. I have the privilege of MCing this virtual panel today with an incredible roster of participants. All of the folks that you're going to hear from over the next hour plus, played a critical role in the development, launch, capitalization, and now the implementation of the first Forest Resilience Bond in northern California.

We're going to hear from Catherine Godschalk from Calvert Impact Capital, one of the lead investors for this first deal. Zach Knight, founder and CEO of Blue Forest, who really led the development, and was one of the folks who kind of helped take this from an early idea and ultimately put it into action. Willie Whittlesey from Yuba Water Agency. This would not have been possible without the leadership and foresight of the Yuba Water Agency, in understanding how proactive contributions to forest resilience and forest health could help them meet their water supply and hydro-electric priorities for their customers and stakeholders.

And then ultimately, Nathalie Woolworth from the US Forest Service. The National Partnership Office, and the Forest Service, both in DC and in region 5 in California, have been such incredible champions and supporters. And ultimately, this is happening on their land and we'll understand what it took to make that a reality.

The way that we're going to format today is start off by having Nathalie then Zach do about a 7-minute presentation with a few background slides, to get us all grounded in the geography on the structure of the deal, and ultimately, how this all came to bear.

From there, we're then going to move to a panel format, where each of the speakers is going to describe a little bit more in depth why their organization or entity was a part of this, what they've learned, how it's going, and ultimately, what's next. And that will ultimately allow us to transition into a more interactive discussion with the over 100 people that are on the line today. And again, you can pass your questions across via the chat box.

So with that, it's my great pleasure to pass it over to Nathalie and Zach, to help us understand what is the Forest Resilience Bond. Nathalie, Zach, take it away.

Great. Thank you so much, Todd. And thank you everyone for joining. As Todd said, I'm from the National Partnership Office at the US Forest Service, and really excited to be here today. I'm going to kick us off with some context on forest health challenges across the country, and specifically across the national forest system, which is the 193 million acres under Forest Service ownership. Next slide, please.

So I'm sure everyone on call is aware that wildfires are a big issue across the West. This map here, however, just provides a sense of the massive scale of fire risk that we face. And to put some numbers behind that, the Forest Service has identified 63 million acres of national forest system lands at risk of severe wildfire, which is just about 1/3 of our ownership.

We've also identified about 70,000 communities nearby national forests at high risk. And as you'd expect, there are a lot of different impacts associated with wildfire, and significant economic value that's attached to those impacts. So wildfires can impact water quality and treatment costs, when headwaters are damaged by fires. They can put property at risk, especially as we see more development pushing into forested areas, and there are certainly big health implications associated with wildfire smoke.

And the slide here shows the economic value associated with property and health risk specifically, which is pretty enormous, it's in the hundreds of billions of dollars here. And unfortunately, trends are not good.

We're seeing, on average, more fires, larger fires, and more severe wildfires across the West. So this is not a problem that's going away. Next slide, please.

So there are a few contributing factors to growing fire risk out West. Climate change is definitely a big driver as the West becomes more arid. But the factor we're going to focus on today is forest management, and the legacy of management that's focused on putting out wildfires at all costs. So this idea of fire suppression.

And fire suppression was Forest Service policy and the policy of most plan managers for most of the 1900s. Our understanding of the importance of natural fire regimes has really evolved in the last 30, 40 years, and we understand the importance of fire in promoting forest health much better now. And we've moved away from management focused on suppression, where decades of fire suppression have left forest really overgrown.

And so here you can see the difference in tree density, about 100 years apart in the Sierras, out in northern California. This set of photos is really representative of forests across the West, where humans have suppressed fire and thereby altered natural fire regimes that used to keep tree density under control. And so what that means now is that there are large forested areas that are getting drier because of climate change and ready to burn. And because they're overgrown, the fires are spreading quickly and burning larger and hotter, which is having growing impacts on clean water, clean air, property, et cetera. Next slide, please

A bit of good news is that there is a proven way to mitigate fire risk associated with large scale fires. And we broadly refer to the management activities that reduce fire risk as forest restoration. So this can include thinning forests that are overgrown so that the trees are spaced further apart. It can include reintroducing fire to landscapes through prescribed burning. It gets rid of small trees and underbrush that can burn easily. And then the other activities that are listed on this slide, which improve forest health broadly, make forest more resilient.

So these interest led, before I passed to Zach, they really present a big challenge as well as a proven solution, which I think poses the obvious question of what's missing to start implementing forest restoration at scale. And one thing that's missing, as Jim alluded to in his intro, is financial resources. And to give you a sense of scale in terms of the agency, depending on how you estimate the cost of addressing the backlogs of work across the national forest system, it's going to cost us anywhere from 60 to $90 billion to implement forest restoration where needed across the country. And in FY20, our budget was $5.7 billion. So there's a large gap to be filled. And that's really what brings us to the presentation and talking about the Forest Resilience Bond, which is a model that is helping the Forest Service to accelerate the pace and scale of restoration by bringing private capital to bear.

And with that, I will pass to Zach. Thanks.

Next slide, please. Thanks Nathalie for all that background. Now I'm going to provide a quick overview of the Yuba project, the pilot project of the Forest Resilience Bond, which is being hosted on the Tahoe National Forest. Next slide, please.

So to orient folks on the map here, you see Lake Tahoe in the lower right hand corner. The green outline is the Tahoe National Forest, the gray is the Yuba River Ranger district, and the project area is in red there at the top. And just one small correction to Jim, we close this $4 million financing at the end of October of 2018. And restoration work got underway in 2019 and the folks at the National Forest

foundation actually had a great season in 2020, despite COVID and obviously the worst fire season we've ever seen in California's history.

This project is designed to protect 15,000 acres by treating and restoring about 7,000 acres. And this truly was a public-private partnership. And now we have the federal government, the state government, and the local municipality supporting it with funding. In this transaction, our market-rate investors, who you'll see in just a couple of slides, are on a 4% rate of return. And we have concessional investors foundations providing program-related investments that are in a 1% rate of return in this transaction. So it is a blended capital structure. Next slide, please.

On this side, I'd like to review the structure and the stakeholders in the Forest Resilience Bond pilot project. And if we start right in the middle, we have the Forest Resilience Bond. This is a special purpose vehicle or project finance vehicle. Simply means a California-based LLC that can enter into contracts and loan agreements but doesn't have any staff.

Each project that we finance will have a separate SPV to create accountability and transparency, both for investors but also for our stakeholders. And we do this to ensure, for groups like the Yuba water agency, that their commitments are used on their watershed or area of concern. The next group to highlight here is the National Forest Foundation, down at the bottom middle of your screen. They are the congressionally chartered, nonprofit partner of the US Forest Service, and they were chosen to implement this project by the Forest Service because of their strong capacity in the Tahoe area.

The FRB, in a way, serves as a credit facility for NFF, making funding from any and all stakeholder commitments immediately available to pay contractors within a week. These commitments include cooperative agreements with the Forest Service, reimbursable grant funding from state agencies in California, and the contract with the Yuba water agency that allows them to pay into the project over a five year time frame.

Notably, the contract with the water agency is only about 10 pages, which seems to be much simpler than developing an MOU and/or cooperative agreement with the Forest Service, if those aren't in place for utilities in the audience here. And additionally, we think that bringing in a high capacity implementation partner like NFF to manage that part of the project can really improve project outcomes. Next slide, please.

So here I want to touch on how does something like this grow and really start to scale up. Well obviously, that starts with the pilot project that we've just described. But the second, sort of most important thing here, is to build social license across all the stakeholders. And here, that meant the formation of what's known as a forest collaborative.

This group is called the North Yuba Forest Partnership, and it was created about a year after we closed this first pilot project. And it includes federal government, state government, tribal government, county government. And then also NGOs, small local ones like the South Yuba River Citizens League all the way up to the Nature Conservancy from that standpoint. And I should say that in many areas, in California and across the west, these collaboratives already exists, and some have been in place for more than 20 years, to build that social license to drive this work forward.

In terms of how this scales up, I think this is the fun part, because we can do this in the same watershed, with the same stakeholders, with the same contracts, same type of investment vehicle, and even some of the same investors from the first project, as we look to a second, larger $25 million Forest Resilience Bond in the same watershed.

And what we really want to do with that is create longer term signals to the market that can spur growth in industries like biomass, forestry, and recreation. But those long-term contracts are also key to driving sustainable, rural development, not getting us into the boom and bust cycles of government funding. Next slide, please.

Here we wanted to lay out the partners that have helped us put this together, have invested in the transaction, and supported us from a legal standpoint. Two partners I want to call out quickly because you haven't seen them or heard much from them, is Water in the West and the Natural Capital Project at Stanford and the UC system.

Those two groups help us understand what are the positive ecosystem services benefits conferred by a healthy forest or a healthy watershed. And that really informs a lot of the work that Todd and his team lead at the World Resources Institute, where they can go sit with a group like the Yuba Water Agency and say, you know your system better than we do. But with these outcomes, what might they be worth for you? And that's what ultimately allows a group like the Yuba Water Agency to make an investment in these projects, backed up by strong economics from the World Resources Institute.

Quick shout out to the lawyers Brownstein Hyatt and Orrick, both provide pro bono legal support to this. Brownstein Hyatt on the environmental side and Orrick with the deal law and contract structuring. Next slide, please.

All right. To wrap up with what success looks like, here's a couple of pictures of the project area thanks to the Yuba water agency, where you can see before restoration, what this landscape looked like, and what it looks like after the restoration activities have been completed. We really wanted to end with this to show, tangibly, what this looks like to folks that are less familiar with a problem like this.

So with that, I'll wrap up my presentation and kick it back to Todd.

Zach and Nathalie, that was great. And again, please as questions arise, please feel free to shoot them into the chat box. I see a couple coming in now. Next slide, please.

What we're going to do is now hear from all of the panelists and really get a feel for what their role is in these projects. Why their entities played a part and what we learned, and really, what is next. So Willie, I might start with you. You heard Zach mention the Yuba Water Agency a number of times. Your leadership, your willingness to kind of be a first mover in this space made this possible, and it's gone so well apparently, that we're now looking at deal number two.

Take us back a couple of years. How did Yuba get involved and why? It would be great to hear from you. Thanks so much.

Excellent, Todd. So I just want to say, it's so exciting to be a part of this. I know we're the first and I'm hoping that this can expand to other areas throughout the West. But that's a great question, how did we get involved? How did this whole thing start? But it really started with some innovative thinkers at Blue Forest.

Zach and his team came to us with an idea. And they came to us with an idea because they heard that one of the issues with forest management, or the reasons that forest management is not taking place on the scale that it really needs to be taking place on, is of a lack of funds. Or not necessarily a lack of total funds, but just a mechanism to get money on the ground.

So they came to us with this creative financing mechanism, the Forest Resilience Bond, and said, hey, we have this financing mechanism we think can solve one of the problems with large scale forest restoration projects. And at first, we didn't really understand what Zach and his team were asking for.

Honestly it's like, are they just looking for money from the water agency? Or do they really-- Is this a truly like-- Is this a solution to the problem of lack of forest management on a large scale?
And so we dug into it and we worked with them, and we got to understand what they were really trying to do. And then we started seeing the benefits to the water agencies specifically, like improved water quality, improved water quantity, and direct cost avoidance if we did experience a major catastrophic wildfire in our watersheds.
So through months or almost a year or more of research, we kind of jumped in with both feet and saw the benefits of the water agency and decided this is something that could be expanded. I mean, it's 7,000 acres that'll protect 15,000 acres, which is a small portion of our watershed above our reservoir. But we thought, hey, if we can do this successfully, we can expand it into something even bigger and start seeing the real benefits of improved water quality and quantity.
So we jumped in with both feet. I'll just tell the quick story, that Zach and his team worked really hard on their presentation to bring to the Yuba Water Agency board of directors. And the day before the presentation, we kind of finalized it and got it all buttoned up. And I told the guys, I said, you guys, you've worked hard on this, it's a really great presentation, but this is new and it's never been done before. I don't know how my board's going to react. I give you guys a 50/50 chance to get this through. And our board voted unanimously to approve it and move forward with the first Forest Resilience Bond.
So that's kind of what it takes. It takes a little bit of courage, it takes thinking outside the box, it takes bringing a bunch of people together, really kicking around ideas and refining it. But that's really why Yuba Water Agency participated and we will get into a little bit later. But now, we're moving on to the second Forest Resilience Bond and so that proves that it's successful.
Apologies, my mute button got a little stuck there. Really, that was great. Thanks so much. And you mentioned money. And obviously Yuba is contributing, I believe it's $1.5 million for this first deal, and has made an initial commitment for $6 million for the subsequent deal. That's the payback investors, at least in part.
We're fortunate to have Catherine representing Calvert, who was one of those investors. And just like Yuba, needed to go out on a limb and say we're going to be a first mover. We needed that on the investment side as well. Catherine, what about this deal was attractive and incentivized Calvert to become involved and a lead investor? We'd love to hear from you.
Yeah. Well, I'm really pleased to be here. So thank you . The EPA and all of our great partners on this deal so Calvert Impact Capital is a nonprofit impact-investing intermediary. We exist to enable private investors to invest their capital in ways that generate for them a financial return, but also and most importantly, a social or environmental impact.
We have ourselves, and we hear from our investors a real interest in understanding how best to apply private capital in ways that generate environmental benefits, social benefits. And there is a lot more demand for investable product in a space like this than there is available kind of product. And so, what we really liked about this was the opportunity to demonstrate the great idea that Willie talked about, sort of the Blue Forest team really germinated. How can we create a mechanism and a model and an intervention that enables greater scale to address this problem?
And so for us, it was really about sort of the demonstration effect, and the ability to show that we can engage a beneficiary of this intervention like Yuba Water in a structure that can responsibly deploy and

engage private capital. We were excited to be a part of the first one, we're very interested in taking a look at the next one.

So let me just stop there Todd and see if there are any other-- I'm going to make one more point. And that is that there's a real growing sort of universal interest in investing for impact. Most of the opportunities to do that, that get at this intersection of sort of environment and social impact, tend to manifest for capital that has a real appetite to take equity risk. And we are a debt player, right? We're kind of plain vanilla and there aren't as many opportunities. And that is, debt really scales.

And so when you think about the scale of the solution that's required here, and thinking about how to tap into capital at scale in order to help realize that end goal, I think what Blue Forest and all of the other partners involved here did was really exciting for that reason. That it's really showing the markets that this is a possible-- That it's possible to structure in a way that's appropriate for a kind of a debt risk appetite.

That makes a lot of sense. And you hear all the time about all of this money on the sideline seeking these types of deals, and you began to touch on that. This deal was a little bit smaller, $4 million the first time around. How did that fit into your calculus? Is it sort of to crawl before you can walk before you can run?

Yeah. And just to preface, we are not just knowing that there are a lot of utility players on the line. So we're not a bond fund. We don't sort of operate in that market as kind of our core business. We are a private debt player. We made a million dollar loan commitment to the first Blue Forest bond. That's small, relative for our portfolio. In aggregate, $4 million transaction, that is really, really small for kind of traditional players in bond markets.

So it's part of the role that we see ourselves playing. Is sort of helping these product solutions, these intermediary solutions, migrate from sort of the niche impact realm to sort of the big girl market realm. So it's a role we like to play. We really love it when our borrowers and the solutions that they bring kind of graduate away from us in some ways. That's sort of the goal. But it is something to think-- We are relatively-- We're a very small piece of the overall pie. And the goal here is to sort of get to the big players so that we can kind of do this sort of work at a greater scale.

That makes a lot of sense. I think a perfect transition, maybe I'll turn it to you Nathalie. Scale, right? Forest Service managers, up to 200 million acres across the US, how do you view the FRB model? It's risky, in some ways, for the Forest Service to start getting involved in private capital markets. Why did the agency decide to dig in on this, and what do you see as the future for this and similar models across your ownership?

Yeah, great question Todd. I mean, I laid out the challenge earlier today. We're facing 60 to $90 billion of backlogs in restoration work, areas with severe fire risk, communities being impacted, you guys read the news. So the challenge is there. And I think the FRB came at a point when, leadership in our agency, we're thinking about how do we change the way we do business? Because the way we're currently doing business isn't addressing the challenge and the scale of challenge that we are facing.

So I think innovation of necessity, perhaps. But nonetheless, innovation was on the table. And when Blue Forest came to the Forest Service with this idea, it did take some work to socialize the idea. But I think the uptake was pretty rapid, given the large decentralized bureaucratic agency that we are people. Were pretty quickly enthused by the potential here. And I think as far as what future potential this holds, it's all about how do we move beyond the $4 million pilot project, the Yuba project, and do that again, and do it bigger, and do it in a variety of geographies across the West, so that we're bringing private capital to bear to at a scale that makes a difference?

And I do just want to be really clear that private capital presents this opportunity for the environmental sector, for public-private partnership. But within the context of the Forest Service, we can't make use of those funds sort of automatically. We have to have a mechanism in place that allows us to access that opportunity and that potential.

So what the Forest Resilience Bond does, is it sets up a mechanism that we can be part of, and it sets up a cost-sharing platform so that the Forest Service is not shouldering the full burden of this giant cost across the national forest system. Instead, it's dividing it between stakeholders that share risk and benefit with the agency, when we're thinking about how our landscapes are managed.

So for all those reasons, we're excited to be a part of this. And I think one other softer success and thing we're excited about is this model is seeding partnership with non-traditional partners, folks we haven't worked with in the past, particularly. And I think those partnerships are going to go beyond specific FRB projects to broader land management, planning, decision making, joint financing, and we're already seeing that with the collaborative that Zac talked about that's been set up as a result of the first Yuba project.

So we hope to see that elsewhere too. How does this model help us work with new folks, who do share risk and benefit to get this work done?

And maybe just a quick follow up on that Nathalie. So the first deal was in the Tahoe, the second deal is likely going to be in the Tahoe, which is great because we're starting to actually do what we talk about, landscape scale moving beyond pilot. What should a forest supervisor or district ranger in Montana, or Arizona, or New Mexico, if they're hearing this and they're like, this is the exact type of tool we need in our watershed, what should they do? Is it reach out to you? Reach out to Zach? How do they start thinking about this?

Yeah, I love that you're making it very concrete, thanks for that. Yes, they should absolutely reach out to my team and the National Partnership Office. We can start to help scoping out opportunity, and what kind of financing structure or model or partner that they could work with, might make sense, and we can help to think about what projects could be bundled together to be a good fit for a financial structure such as the Forest Resilience Bond. We can help think through what is the readiness of that project bundle, and what else needs to get be get done-- Sorry if that sounded inarticulate, but what needs to get done to get to that point where financing is the only thing that's needed.

And so that means NEPA planning and analysis, that means prioritizing projects at the unit level, that means the site prep, and surveying and other stuff that happens on Forest Service units. And we can help to think about that prioritization and think about what are the criteria for readiness that need to be in place for something like FRB to take off. And then we can absolutely also connect units with Zach and his team at Blue Forest Conservation, they're great to work with, they know the Forest Service really well. And we're happy to play that role too.

That's great. And I see some incredible questions coming and I'm going to turn to those in just a second. Zach, kind of building on what Nathalie said, she talked about the NEPA process and prioritization, those are some of the key enabling conditions on the Forest Service side. What are some of the other enabling conditions from the beneficiary side, from sort of pulling resources together, that allow this to work?

Yeah, it's a great question Todd. And I think a lot of it starts with the willingness to have these conversations. We were really happy, obviously, that Willie and his team at the Yuba water agency wanted to engage. Because the first conversation is not sit down with Todd and his team and he'll help

you understand what this project might be worth, there's an engagement process that has to take place. So an openness to that is important. And a recognition that there are real benefits out there from an ecosystem service standpoint for these downstream stakeholders.

And that leads us to a couple of the other conditions. We want to find people that are champions, that can really be evangelized force within those organizations, and they're not always the general manager. Willy wasn't the general manager when we first started talking to him. So finding those folks that are not the forest supervisor or even the district ranger, maybe one level below that, that can really help drive these things forward is incredibly important.

The other thing we really like to see, especially our science team, which is pretty robust at Blue Forest, is good baseline data. Because then we can start to see what's the delta? What's the improvement from forest management activities? So that's an incredibly important thing for us to see as well.

And then what we really like to do is bring folks together. Whether it's stakeholders in a specific watershed so that folks can get to know each other, whether it's the people that are actually investing in the projects. All of our investors were on the same loan agreement and they've gotten to know each other quite well, or whether it's working with utility or trade associations like ACWA in California or AWWA, to bring a number of utilities together to talk about this again at a larger scale across a number of different watersheds.

So those are all things that I think are important. At the end of the day, Todd, this all comes down to relationships and building trust. And you really do need to crawl before you walk before you run with this work.

Yeah. And maybe a follow up question, you mentioned sort of robust science, right? Investors, beneficiaries, project partners need confidence that what we're doing in the forest is actually going to reduce fire risk, is going to enhance water quality, potentially enhance stream flows, and the like.

One of the questions that came in is about climate. And what are the approaches that we're using to think about both the carbon and climate impacts of the work that we're doing, from a scientific perspective, and does that in any way fit into the cash flow or revenue streams, either now or potentially in the future?

Yeah, this is a great question Todd. And I'll say right from the top. Because we're working on National Forest system land, there is not currently an opportunity for us to bring in carbon credits to support the project. We think it's a real benefit in these projects and it's something we're going to continue to monitor, to track, to report on. We do an annual impact report not just for the stakeholders and the investors, but really to share broadly with this space so that we can continue to improve some of these projects.

The other piece about the carbon that's important to understand is that our forest, as Nathalie showed us in the presentation, actually hold about 10 times as many trees as would be naturally occurring because of that regime of fire suppression. So initially, you actually need to take some carbon off the landscape to reduce the risk of fire coming through and obviously releasing all of the carbon on the landscape.

So that's negative, from the carbon standpoint, to take something off the landscape. But you also have to understand what's being done with that wood. Is it put in a pile and burnt? Not a great outcome, but obviously better than the whole forest burning down. Or is it used for bioenergy or into a value added wood product that could potentially keep more of that carbon sequestered for a longer period of time?

So this is a really great example of something where the carbon does need to come off the landscape. But how that's utilized has a really big impact on how you might account for some of the carbon. So at this point, again, no cash flow related to carbon. We do think it's a benefit, and perhaps even more

interestingly, is air quality coming from these projects. Because this year, in 2020, was the first area-- Places that tend to have a lot more resources like the Bay Area could go outside for a week at a time, where it was orange all day from 8:00 AM to 6:00 PM, and you couldn't really see. And you had to where you're N95 mask, not because of COVID, but because of the wildfire smoke.

And I actually think as a benefit and something that we're modeling and working with some great researchers to model and better understand, that's more likely to produce cashflow, I think in the next five years. Then maybe something like carbon is just because you have to take some carbon off, you really have to monitor it, and have a better understanding from that standpoint.

That makes a lot of sense. Maybe kind of building on that a question, kind of both for Willy and for Catherine, but I suspect from different perspectives, sort of the health benefits, the social impacts. Catherine, how have you communicated to your investor base? Or have people reached out to you saying, what is this? How do I get involved in more? And then Willie, maybe similarly, how have you communicated to your rate base, and your customers of what you're doing and why you're doing this? Maybe even how it benefits them both in the short and long term? Thanks.

Yeah. So it's actually funny. So we have about 120 investments in our portfolio. So this is one of many. And I'm not sure we've had an investment that has spurred as many calls to our investor relations team saying, how do I get into that one? So kudos to Zach and his team, both for the marketing, the really positive communications and articulation of the value here, the innovation here, and ultimately the environmental and human benefit.

So we are very transparent about everything that's in our portfolio. And we ask-- and Blue Forest would have done this anyway, but we're very clear that if you're going to borrow money from us, we need to understand, over time, we need to understand upfront what do we think the impacts are going to be here? How are you going to measure that, and how are we going to measure that over time to if we're being successful?

And so that is something that you can go to our website and look at our portfolio list and look at the Force Resilience Bond. And over time, we are asking Zach to report to us on how does that benefit manifesting? How are you measuring that, and how will we know? We've seen a lot of enthusiasm about that.

I also saw in the chat someone asking if there's sort of investor interest in remote areas. And I will just restate what I said at the beginning. We see enormous investor interest in this intersection of protecting and being best stewards of our biodiversity and our natural resources. And when particularly when we can also link that to the human benefit, here, the water quality.

It is of really high interest among investors. It's a longer conversation that I won't go into about, so how do you actually enable those investments to take place? And we talked a little bit about how, in this particular case, that's a really critical role that Blue Forest and other partners have played.

So I think there is real interest. I also will just note, in response to that, the good work-- Excuse me, that's my dog, that Blue Forest did engaging other investors who have a real particular locational interest right here. So I think it's not necessarily just limited. But you do have to understand, as you're trying to engage investors and engage capital, what are they looking for?

Now that makes a lot of sense. And Willie, from your side, you are representing your customer base. How have you communicated to this and what kind of feedback have you gotten?

Yeah. I think you stated earlier, how do you communicate the benefits? We are identified as a beneficiary here, so there's obviously benefits or assumed benefits. So what are they? And then how do we communicate them to our irrigators and our customers and our board?

The reality is, when Zach and team came knocking on our door and identified us as a beneficiary, we really needed to understand, how do we benefit from this? And we really started just diving right into the weeds, looking at the improved water quantity. We think we could get-- I won't even throw out percentages-- This much more water quantity if we restore the forest to their more natural condition, the condition the forest were 200 years ago, or the picture that was on your left in your slide deck. It all made sense.

And then there was the academics behind it. The project proposes studying this and actually proving this water yield. And so we got a little bit tied up in showing quantities of water on an annual basis. And then we just took a step back and said, OK, that's very likely, and it's absolutely a benefit. But let's just talk about the actual known issues that we deal with on our watershed right now.

And I'm talking about direct cost avoidance and the financial benefit the agency will get here. We're not going to get hundreds of million dollars rolling into us based on new water to the water agency. If anything, it's on the level of thousands of dollars. But what the project does is, it provides protection of our watershed. And by restoring the forests to a more natural condition, our forests can withstand a fire. It wouldn't be considered a catastrophic fire or even a wildfire. Our forest would be able to withstand fire.

And how does that benefit the water agency? Well, just simply direct cost avoidance. And what do I mean by that? We have a $1 million acre foot reservoir that's downstream of all the projects we've been talking about. And on about a 5 to 10 year interval, we have a high hydrology year, like high water year.

And I'm not talking about a flood here, but just a year that's on the upper end of how much precipitation we get. And during those years, we see a lot of inflow into our reservoir of woody debris and sediment, and it costs a lot of money to remove that. And so I think it was 2017, we spent about $4 million. 2017 was a high water year, we spent about $4 million cleaning up sediment debris from our reservoirs.

Now that's with a forest or a watershed that hadn't experienced a catastrophic fire, right? So this is a relatively healthy forest. While it's overstocked, it's relatively healthy. Imagine if we experienced one of these catastrophic fires in our watershed. Let's say half of our watershed was burned catastrophically. How much sediment and debris would be input to our reservoir under that circumstance? Are we talking 10 to 20, or 100 times the amount of sediment or debris? Probably.

So our point is, and this is a race against time, can we treat the forest before we experience that catastrophic wildfire? And that's what we're trying to do. So the benefit truly is, we'll realize the benefit if we can get a significant amount of the forest treated before that fire happens in our watershed, by minimizing the costs.

There's also just the overall benefit in collaboration and relationships. We feel that we manage our watershed, from the summit of the Sierra Nevada's to the delta, we manage it in a holistic way. And in the downstream portions of the watershed, where we have salmon and steelhead habitat, we're working on habitat enhancement to improve the conditions for those species. That's one area the water agency works in.

And then when Zach and team brought this program to us, it's like, Oh my gosh, now we have partners and collaborators to work on the upper end of the watershed. And a lot of the upper end or the mountain

ranges, water entities don't necessarily think about, because they're not owners, they're not part of the managers, they're not the Forest Service or Cal Fire, they're just receiving water from this area.
But it's truly another reservoir of ours, right? The snowpack is a reservoir, the snow is a reservoir, right? These are reservoirs for us and this is where we get our water. So we have an interest in managing these holistically. And so, is it easy to describe to our constituents the benefits? No, but I think in all of these different ways, direct cost avoidance, managing holistically, seeing improved water quality and quantity, I think all of those together show that this is the right thing to do.
And what we haven't even talked about yet is protection of the people, doing these projects around communities. And that's where kind of the second Forest Resilience Bond goes. The first Forest Resilience Plan is more up in the upper reaches of the watershed, and now the second one is down closer to some of our communities and there have a direct benefit to the people that live in those areas too, for public safety.
So with all that said, I mean in my mind, it's simple, this is the right thing to do. And the Forest Resilience Bond is the mechanism that brought us all together and is allowing us to do that.
And the people part it's really interesting because there's the direct impacts from the flames themselves. People's well being, their houses, their access, et cetera, the air quality piece that Zach brought up. Two things interest me. One maybe Nathalie you can help us think about are the jobs component about this, sort of rural jobs, and especially in areas that unfortunately there's high levels of unemployment. How was the stakeholder consortium thinking about that?
And then Zach, and sort of the benefit community risk piece, I've always found it really interesting that one of the lead investors was an insurance agency, and sort of their rationale for getting involved. So maybe, Nathalie, first with you on jobs, and Zach you can take us through the insurance component.
Yeah, absolutely. So I think with local jobs and also world economies more broadly, the FRB is already proving that it can signal a guaranteed supply of small diameter timber coming off of forests, which can stimulate economic growth around the forest. Which unfortunately, in a lot of national forest areas or forested areas out West, we're seeing decline and kind of that historic infrastructure for the wood product industry. And so something like this, that again, guarantees the supply, can lead to investment well beyond the FRB in developing new processing facilities, and adding to rural communities that might not have had a lot going on for the last couple of decades.
Yeah, I'll jump in. And just on the job side, one of the biggest challenges, and it's also a huge opportunity for us, is how much money the state of California puts into these projects. That was $20 million back in 2015, 2016, when we started Blue Forest, it's $200 million a year now. And through the recent re-budgeting process, the state made another $536 million available for this type of work.
Now the challenge with that is, it's all reimbursable funding that takes about six months to get out on the ground. And that's a big part of what we're doing in this financing, is advancing that money so that we can pay, or so that NFF can pay contractors in seven days, and then that reimbursement can come back from the state after six or nine months and ultimately make its way to reimburse part of the principal for our investors.
And that's a really important part of the transaction, because it allows us to hire local folks, people from this watershed, and give them longer term contracts, so that they can say, all right, I've got 10 people on staff, but I know I'm going to be working here for the next four or five years, and I can sustainably start to staff up and actually hire local.

Because what happens in a lot of these projects, especially in California is, we bring in timber operators from Oregon, and Idaho, and Montana, and even Alabama, working in the state because they're big companies that can float this working capital issue that exists with some of this. So I wanted to touch on that quickly.

Onto the insurance side, not surprisingly, insurance companies have had to make massive payouts in the last couple of years. In fact, if you look at profits and losses in the insurance sector, the fires, especially Wine Country in 2017, knocked out 20 years of prior profits in the insurance industry. In 2018 it was even worse than 2017, and obviously 2020 was worse than either of those years.

So there's a concentrated effort within the insurance community to understand this risk better, to price this risk better, and also find ways to reduce this risk where they can. And from their perspective, they're an investor, they are a market-rate investor just like Calvert Impact Capital is, so they're getting a financial return and we're able to reduce that risk of fire in this area.

After closing this transaction, we actually worked with the Department of Insurance to get this certified on their investment network called COIN, the California Organized Investment Network, so that any insurance company could invest in a future project, and get a nice checkmark from their regulator saying this is socially and environmentally responsible. And it was important for us to do that, because insurance assets in California alone total about 4 and 1/2 trillion dollars. So certainly, more than enough to solve this problem from that perspective.

All of these different kind of tangential, but critical pieces. The woody biomass infrastructure, and investment in the heavy equipment, and jobs in the woods, and getting from 4 million 25 million to adding on multiple zeros, require a pipeline of projects. Has there begun to be thought around any kind of funding structures that might be able to aggregate these projects and kind of amplify the-- Kind of accelerate the road toward scale?

You sound like our investors, Todd. I get pushed on this almost every conversation. A $4 million project is great, but it's too small. $25 million is cool, but it's still too small. A lot of people want to write a 10 or $20 million check for the amount of due diligence they have to do to understand this structure. So while we will raise the next project on a project-specific basis, I think we have to move towards a fund structure. And we'll use the marketing product time frame to better understand what investors would want, both in this next project, but then also in a fund structure. And in working with the Forest Service right now, we have these FRBs sort of budding up, if you will, on about a dozen national forests across the Western US. But nothing that's gotten to the point of ready to bring that financing to market, the same way we've seen with the two projects with the Yuba Water Agency.

And that was intentional. Because if we show people just a $4 million project, that's interesting, that's great. But until we can show them a scaled-up version and here's how we can scale in-situ, in the same watershed with all those same stakeholders, that's a critical aspect for bringing more utility interests to the table, and that really helps drive these transactions.

Totally. A couple of questions have come in and asked, this is great, it deals with rural forests and the fire issue. Is the model applicable when you think about storm water or flooding? In your portfolio, when you're looking at opportunities, do you see this or something similar relevant for those context?

I saw that question, Todd, and had to sort of smile a little bit. We actually did do a green infrastructure bond financing in partnership with DC Water in a different kind of a structure. It was a municipal issuance in that particular case. But the point of that bond was similar, in that it was really demonstrating the

efficacy of the green infrastructure solution to achieve the reduction in the storm water, combined sewer overflows, given the climate that we're in now.
So I think yes. I think sort of beyond US forests, beyond-- I think this concept of quantifying the monetary value of this intervention to better steward the natural resource. Conceptually, it's really taking this-- It's identifying and quantifying that payment for the ecosystem sort of service, if you will. That is the essence, I think. What this does, what Yuba has really done and has constructively enabled a structure that then opens up a financing opportunity.
I think that's the biggest bottleneck between-- The need for this kind of thing is very clear, the demand from capital to invest in this way is really clear. That enabling condition of, OK, I see this benefit, I'm going to pay for this benefit. I'm willing to invest for this benefit here. That enables private capital to come in and say, OK, we see a way in and we see a way of getting paid back. So I think that can be brought in lots of ways across the [? ecosystem. ?]
And just a kind reminder, if folks could please make sure they're all mute, that would be great. Catherine talked about private capital. That's what's going to take to kind of leverage the other sources of funds and finance that are out there. And I've heard from a number of people over the last couple of years, whoa, whoa, whoa, you're going to direct private finance to public lands, it's going to be a free for all, clear cuts. This is just a cover for the timber industry.
Nathalie, what role does the Forest Service have in terms of the planning process, and monitoring implementation, making sure that all of the multiple benefits of the Forest Service was created to deliver are actually being accentuated?
Yeah, that's a good point Todd. So with the first FRB project and future projects, Blue Forest Conservation comes in as a project developer, after we've identified projects that are at least most of the way through the NEPA planning process. They've been identified in the forest plans, that all national forest tap, those are documents that are put together, hopefully every 15 years, laying out priorities for land management.
So, projects have been identified in the forest plan and NEPA planning has at least started to happen, which includes periods for public comment and lots of environmental analysis from a lot of different Forest Service specialists. And so we're looking at the environmental impacts and deciding how we proceed. And once those decisions are made and we have a record of decision through NEPA, then at that point, Blue Forest could bring in the private capital to bear on the project
I think it's also really important to note that, with the first Tahoe FRB, there is nothing different for the way the Forest Service is doing this work. So they are working-- the Tahoe National Forest, the unit involved, is working with the National Forest Foundation through something called a stewardship contract or stewardship agreement actually. In this case, that's a very standard agreement mechanism that is set up that allows the Forest Service to have someone else implement work on our landscapes. And the National Forest foundation is the one receiving the loaned funds and the granted funds through the FRB. And so there's nothing changing for the way the Forest Service is doing its work. We still go about our planning and analysis as we always would, we still go about our prioritization. But then we have a partner who's coming to work with us and bringing new sources of funding to bear.
That's great Yeah, please.
If I could jump in and just sort of tie somewhat what Nathalie and Catherine said together, which I think is really important, is that the underlying financing we put together isn't really that complicated. I mean, it's

very much in the line of typical infrastructure financing. What allows this to happen is actually the scientific innovation that allows us to better measure these different ecosystem service benefits or outcomes from the project in a more credible way, such that general managers like Willie can make smarter investment decisions.

So a lot of times, I like to just impart on folks that the financial innovation here is actually driven by the scientific innovation and the ability to better measure these outcomes, which is going to continue to improve over time, and make things like this, outcomes-based financings, easier to put together. And I think that's going to continue as part of the scaling strategy is, we're going to have a better understanding of how to measure these benefits. And it's going to be more widely accepted, the methodologies that are used to do that.

And maybe Zach, there's a couple of questions that have touched on lands beyond just Forest Service holdings. So other lands managed by one of the other federal agencies, BLM, National Park Service, does this work with them? Or does it have the potential to? What about private lands, both industrial and then the smaller non-industrial?

And then the last question, someone asked, what about utility-owned lands? Maybe just a quick summary of any or all options on those holdings.

Yeah that's a great question, Todd. So first, we should talk a little bit about the difference in the mission between the National Park Service and the Forest Service. The National Park Service is all about preservation, so it's unlikely that these types of projects would happen in the same way on National Park Service land.

They have a lot of the same authorities as the Forest Service does. So functionally, it could happen, but you're unlikely to see this type of project. You're much more likely to see this type of project on BLM or Bureau of Land Management land. And they do have almost identical authorities with the Forest Service so it would work well from that perspective.

Where I think you're going to see more opportunity is this hybrid or cross boundary structure, where you have what we use term as an anchor tenant of Forest Service, or a big, large, land mass of Forest Service managed land, where we can bolt on private landowners, utility landowners, and other folks like that.

And it's not typical, at least I don't think it is, for a utility to own their entire watershed, especially in a state like California. It's much more typical, as Willie mentioned, where the water agency may own 10% of their watershed. But I think 85% of this County in this watershed is National Forest system land, so I think you're going to see that much more often. And that goes back to the origin of the Forest Service, why was it created? It wasn't just for trees. It was also thinking about water and setting these up in the key most important part of the headwaters, especially in the Western US.

And on the utility on land, and we've had a number of conversations with San Francisco Public Utilities Commission. They depend on both Park Service land, Forest Service land, and they own some of their own watershed. And even if they decide to treat the acres that they own and it's outside sort of the FRB financial structuring, there's still the potential of economies of scale in terms of restoration crews, the landscape planning processes. So still major cost savings and scaling up opportunities here.

Willie, building on this idea of scale and multiple funds that might be available, how closely is Yuba tracking the various recovery fund packages, the infrastructure debates that are going on DC, and what that might mean for the future of natural infrastructure and these [INAUDIBLE] in the future?

Yeah that's a great question, Todd. We're tracking it very closely. I think the idea of green infrastructure or investments in our forests and watersheds has been recognized. I mean, you have the catastrophic fires we've experienced the last four or five years and our people are finally realizing we need to invest there. So when you talk about infrastructure, it's not just concrete and steel. We're talking about green infrastructure now and that's the right conversation to have.

And we haven't talked a lot about it, but what the Yuba project, or the first bond project did, is, it kind of spawned a larger collaborative in the entire North Yuba watershed. So it went from like a 15,000 acre proof of concept area of the Yuba project to now a 300,000 acre entire watershed scale program. And I won't get into the details of how that all evolved, but it was a benefit of the first bond.

And that team now, it's nine entities that signed it MOU to be part of this North Yuba forest partnership. But that team is really getting together, Zach's part of it, they're getting together and they're constantly looking at planning and what's the next project, and that's how we got kind of the second Forest Resilience Bond going. But they're also looking at funding mechanisms. And it's all funding mechanism. It's existing grant programs, but it's also future infrastructure packages. And they're having a hand in the drafting of this legislation that creates these, and they're monitoring and they're providing input and making sure that the green infrastructure voices are at the table.

So I think that that's going to happen. I think you're going to see investments in green infrastructure and forest restoration. That's an absolute shift. If you would ask me 20 years ago what does that mean, I wouldn't have even thought that we'd be thinking about thinning the forest on the scale that we're doing now, and the investments, the millions of dollars needed that we're actually putting onto the ground now. It's actually happening, which is great.

So I do think we'll be able to take advantage of that, though all those funding opportunities.

Going through the chat, so I'm going to try to work them into what I lay out for the panelists. And kind of building on that, fire knows no political boundaries. What are the opportunities to think about state lands, non-industrial lands, industrial timber lands, that holistic all-lands approach. Anyone want to comment on that opportunity or challenge?

Todd, I'll jump in here. But then I might actually kick some of that question back to you, given our work with NRCS and some of that. So for us, the most important thing was to have a large anchor tenant, and the Forest Service really fills that need in an important way. So the transaction, the first one, the pilot project, is entirely on Forest Service land. And in fact, this watershed, if I'm not mistaken, is about 80% to 85% National Forest system land, so they're the majority landowner there.

We do want this to be something that can cross boundaries and work with the sister organization to the Forest Service, NRCS, through their EQIP program, through programs like RCPP, or the RCPP AFA, which are an alternative financing arrangement that can bring additional and concentrated funding into an area with private landowners. And I think that is an incredibly important piece of this. Specifically in California, Cal Fire also runs a program in partnership with NRCS called CFIP, California Forest Improvement Program.

In all of those funding sources I just laid down, they are all reimbursable in nature, meaning the same financing need is likely to exist across all those projects area. So we want to start with that large Forest Service landowner and then pull in some of those chunks of private land to treat that. And that actually will be part of the Yuba two Forest Resilience Bond, there'll be some private land in there.

But Todd, back to you actually, you led a lot of that work with NRCS. Any additional thoughts or things I missed there?
Yeah. I mean, it's hard not to give a cop out answer, but there's a lot of smaller non-industrial landowners. And trying to figure out what an aggregation scheme looks like, how to pull these folks together in an efficient contracting method, is something that, regardless if it's the FRB or broader water quality programs, has, frankly, been a difficult nut to crack in many places across the US.
But maybe it sets us up for one of the other questions that just came in, the role of carbon. Both in terms of just understanding what the key benefits are from additional sequestration, or we're actually removing biomass from the landscape. Are we creating some at least initial pulses of carbon fluxes into the atmosphere? But how does that compare with preventing catastrophic wildfire? And then ultimately, what does all of that mean for the potential of markets, both on public and private lands?
I know there was a lot there, but what the heck do we do with carbon in the FRB?
Well, I will right now that I think there are real carbon benefits. There is no monetary flow tied to carbon in the Forests Resilience Bond, neither the first transaction or the second one. We do think that is an additional leg of the stool that can be brought to bear on these projects in the future. But there will require some legislation likely to allow that to occur.
So maybe I'll kick it to Nathalie. Currently, National Forest system lands are really not available for either the California carbon offset market or the voluntary market at this point.
That is correct. But back to the cross boundary project question, potentially, carbon revenue streams could be brought to bear, not on National Forest system lands. And if there were legislation that changes the carbon ecosystem for the federal ownership, that could look different in a year, five years, 10 years.
That's great. And Willie, from your perspective, I mean is Yuba-- Obviously you are a water and hydroelectric agency, but how are you guys thinking about the emerging carbon markets and carbon revenues?
So kind of like the Forest Resilience Bond, it was kind of like a new and emerging way to treat the forest. We're always looking at different ways to bring in revenue or diversify what we do so that we can benefit our constituents. And we're constantly talking to people that are looking at converting the wood waste into other products, either bioenergy and maybe renewable natural gas. Or just in the infancy of those discussions.
But some of the results are actual carbon credits that come from that work, and some of it is actual carbon in biochar that you can put back on either the forested landscape or areas that may have experienced catastrophic fire. Or we can put it into agricultural use as a soil amendment.
So there's the actual-- I'm going to call it like the paper carbon credit or the paper valued carbon market, but there's also the actual carbon that comes from these resources in biochar and other products. So we're looking at it. Like I said, a lot of these markets are in their infancy. And there is like a carbon trading market out there, we're not involved in that at this point, we're kind of seeing how that's going to unfold. But we'll be looking at it. And if an opportunity comes up, we will participate.
Yeah, that's great. And maybe shifting a little bit, and Jim, feel free to chime in on this question too. Willie, you mentioned a lot of the enthusiasm for this project was based on some of your sister water agencies in close proximity being majorly impacted by catastrophic wildfire. Fortunately, it hasn't hit in your watershed yet. But even with the amount of progress you made on Yuba one and Yuba two in the pipeline, what

happens if a fire does break out in the midst of these deals going through the implementation process? What does that mean for beneficiaries? What does that mean for investors?
Is that question for me, Todd?
Anyone who wants to take it, please.
This is kind of like a legal and black and white response, but the contract that we have with Blue Forest kind of addresses that and protects our investment there. And if we're not going to receive the benefit because the forest we were going to treat was impacted by wildfire, then we aren't obligated to pay.
I'd rather give a fun response, but legally, we're protected there. But actually, what happens in the world, we take our licks and we go treat another area, right? I mean, I know that we're not legally contracted to go treat another area, but this team is not going to stop. We're not going to say, 25% of our watershed burned so we lost. That's not what we're going to do. We're going to analyze where we're at, we're going to look at the watershed. OK, re-prioritize and go treat the rest of it.
I mean, we haven't formally talked about what we'd do if this happened, but I'm telling you, knowing the team members here, that's what we would do.
Yeah. All right. Catherine, from your perspective, obviously and appropriately, diversity, equity, and inclusion is a big part of the conversation across the nation. And there was a question that came in around for the role of private capital and thinking about equity. As you think about these types of investments, how do you think about the need for inclusion and diversity, and making sure that everyone benefits as much as possible?
Yeah, that's a great question. It is a really important aspect for every sort of deal in our portfolio. We review from a pretty comprehensive impact framework. And in this case, and I'll invite you Zach to sort of talk a little bit more about the way in which-- And really, sort of the employment aspect and the job creation element of the Blue Forest Bond.
We don't decide and derive the location of where these projects happen. That's really, as Zach described, kind of the way in which the site selection happens. So for us, it's really much more looking at the broader population that benefits from this intervention. And so, understanding it's not about for us making the decision of which population that is, but really understanding the dynamics of the beneficiaries of a transaction like this.
Hey Todd, I'll jump in here. There's two primary things that we look at and try to push for. The first is hiring local. In the state of California, we have timber contractors and restoration crews that come from Idaho and Montana and Oregon and all the way from Alabama. And we have people in these areas that could do that work that aren't currently employed.
So one of the things we really push for is to hire local. And there's been a great local group called Robinson Timber that's done a vast majority of the work on the project. And they're quite literally from just one county away, from Nevada County in California. So we'd like to see that aspect of it.
The other piece that I want to highlight is the inclusion of tribal government going forward in this. As the collaborative formed, we realized the tribal government hadn't been at the table. They were a signatory to our MOU, which is great to see, and then they can be more involved in the planning process and other things.
And we can also acknowledge that we are on land that was traditionally belonged to that tribe, prior to folks moving West out here. So really good to acknowledge those things and try to bring groups like that into this process, for everything from planning, to the implementation of these projects.

Todd, can I also just respond to one, because I looked at the chat at that particular question. And I think the question was also really getting at sort of ultimately a wealth transfer, and should the commercial investor be paid commercial return? And here, I will go back to-- In a perfect world, we have enough either public or philanthropic capital to solve these problems. We don't.

And I actually gave Zach a fair amount of grief on kind of what a market return was. He and I debate, is 4% the right return for the risk? So I would say, I think it's really important that we demonstrate investable opportunities that will provide a market rate return. And if we don't, we won't get the scale. And we will be rendered to this sort of scale of available below market-return on capital. And there just is not enough of that to go around.

Absolutely right. And a big push in this space is to not think about our infrastructure problems as spending the money on just gray, which oftentimes are carbon intensive and can lock us into a singular path, but thinking about these as hybridized green and gray. And I think Yuba water has been a leader in this space. Everything from their hydro-electric focus as a low carbon energy solution, to thinking about treating broad swaths of the watershed.

And that really leads me to the next question of, what are the opportunities, when we think about recovery funds and the various infrastructure packages that are being debated in Congress right now, how do they fit in? Do they serve as potential leverage? Can they buy down parts of the deal? Or do we just need to kind of wait and see? And that's really for anyone.

I'll jump in and start, and then I think we should let Nathalie talk from the Forest Service perspective, on a federal side. And there's really two things happening here. There's both things in the state of California, because that's where this is based, and then at the federal level. At the California level, we were really excited just two weeks ago to see the governor's re-budgeting process pass the legislature, which made another, I think $536 million available for forest health treatments over the next couple of years.

And that's one of the things we're building this next FRB around, so that we can take in some of that state funding, which as folks may or may not know, comes out as reimbursable grant funding, where often it takes the state about six months to make those payments. And again, we want to get those local contractors paid immediately, so that's really important.

You've seen a couple pieces of legislation at the federal level that are already starting to circulate, either making more funding available for this important restoration work-- And again, not timber sales that pay for themselves, but the service work; taking out some of those smaller trees, doing the meadow restoration, doing the prescribed fire treatment, like what we saw with Senator Bennet's bill.

And then there's also going to be some legislation coming out from other senators that will make some appropriations available that could be part of a budget reconciliation process. But then also authorizing legislation to allow the Forest Service to make longer-term financial commitments to these projects, where they're not just committing timber value, but they're actually committing financial resources, to again, handle some of that service work; small diameter trees that don't pay for themselves, the incredibly important meadow restoration work and the reinvigorating of the natural fire cycle through prescribed fire. So we'd like to see more support for that type of work and longer term commitments as well from the Forest Service. That will make it easier for groups like the water agency to make bigger and longer-term investments going forward.

Anyone else want to kind of add on to that? Or maybe Nathalie, the partnership office where you're situated, what are they doing to try to make sure that there's 10 more of these, and then contextualize approaches for other major issues across the US?
Yeah, I think I have more to say there than the policy side of things, just given how much uncertainty there is about what might be in the infrastructure package coming up, et cetera. But as far as the National Partnership Office's role, we provide support to Forest Service units that are working with partners like Blue Forest Conservation, to kind of support and guide project development and doing something new. So we will continue to do that. That includes that matchmaking of connecting need and opportunity with the right partners, finding landscapes that exemplify need and opportunity.
We also do a lot of building capacity, building expertise across this decentralized large agency. So we offer trainings, have resources that we provide for the field to make the content more accessible and familiar. We cultivate communities of practice around this kind of work to help folks feel like they aren't doing really new, scary stuff alone, and instead, are learning together as a group and sharing successes and challenges as they go.
And then we certainly work to think about what are the large scale barriers that we're up against? And how might we confront some of those through changes to Forest Service guidance and handbook's policy. That's a way that you can intervene in a large, decentralized agency. Is like changing what the manuals say about certain processes or providing more clarification.
That's a big part. And sort of providing just proof of concept and templates for doing this again, so that it feels easier, it feels more accessible, all that.
That's great. We have about five minutes left, time went fast. It's been a wonderful discussion. There's a couple of questions that came through about WUI areas, So the Wildland Urban Interface. And curious, Zach, if the FRB-- Obviously it's on public lands, but is there thought to community protection?
And I thought maybe you could highlight the fact that an insurance company, along with Calvert, was one of the market rate investors, and sort of why they came to the table in this.
Yeah, that's a great point. And I should say that a lot of folks think about the Wildland Urban Interface and they only think about private or county land. There is National Forest System land that is part of the Wildland Urban Interface. And in drawing up this next project, what we really heard was community protection has got to be one of the most important focal points. So a lot of the work is actually going to start around a town called Camptonville, which is where the Ranger offices, and it's a town that's in Yuba County actually.
So it's good to see that things like that can be prioritized; forest health, meadow restoration, prescribed fire, all of that is important, but protecting communities tends to be right up at the top of the list there. And that's, I think in large part, why we've seen so much interest from the insurance community.
We did have an insurance company, AAA or CSAA is their northern California affiliate. And there's smaller insurance company, they probably manage nine or $10 billion or so. So good sized, but small for an insurance company. And they were really interested because in addition to what you think of with AAA, where they'll pick you up if you got a flat tire, or your battery dies or something, there are property and casualty insurer as well.
And they did have significant impacts because of the Napa and Sonoma fires in 2017, that we saw-- And I think they're interested in, how can I make a market rate investment, where I can also reduce the risk of catastrophic wildfire needing to pay out on the premium?

So you have the asset side of the balance sheet and the liability side of the balance sheet for insurance companies. And I think there can be real benefits there. In following this first project, we actually got this investment vehicle certified with the Department of insurances, California Organized Investment Network, called COIN, in California, and that allows any of the insurance companies to invest in something like the Forest Resilience Bond, and get a nice checkmark from their regulator saying that they're being socially responsible, environmentally responsible.

And that was important to us because in California alone, insurance companies control about 4 and 1/2 trillion dollars, with a T, of assets. So they could very easily solve this problem all by themselves. Well, obviously, have other investors and impact investors be a big part of this going forward, and those concessional investors to the extent that we can attract that capital to lower the project cost. Because the lower the project cost the more work we can get done on the ground from that perspective.

That's great. And recognizing we only have about three minutes left, and we are going to pass it to Jim at the end just to help us wrap things up. Maybe in this order; Willie, Nathalie, Catherine and Zach, I'm giving you a magic wand. How are you going to use it to make sure that we can have many of these deals at a much bigger size in the years to come? Please Willie, kick it off.

OK. So here's what I would say. So I hope that there are people on this meeting that our thinking about participating, or involved in agencies or beneficiaries or investors that could participate. My message is, every watershed is different. It has different force conditions, it has different beneficiaries, has different landowners, has different regulators. Whether it's in California or other western states, there is not one perfect recipe on how to do this. So remember that.

You've heard what we were doing in the Yuba watershed and how all the mechanics of that worked and I think it's really great. But that doesn't mean it's going to be exactly the same somewhere else. So be flexible, be open minded, and make it work. we'll get back to the WUI question, I'm sorry I'm taking so much time, but the first Yuba project, the first Forest Resilience Bond we did, it in my mind, it wasn't the best place for Yuba Water Agency to invest.

We would've liked to invest closer to our reservoir and closer to the residents that live in Yuba County. But it was in our watershed and it worked. And there were some high mountain cabins that are protected in that area and it is protecting our watershed. So here again, it wasn't perfect, but it worked.

And then it grew into the second Forest Resilience Bond that is and was planned right around our community of Camptonville, and right close to our reservoir. That's more perfect for us. So nothing is perfect, make it work and it'll grow to something better. That's all I have to say. Sorry to take so much time.

That was great. Nathalie, passing the Harry Potter wand to you.

Two quick answers. First is to see legislation passed that would allow the Forest Service to show up as a long term cost partner for Forest Resilience Bond models. That would allow us to maximize the leverage of other sources of capital. Second answer is securing resources to stack up conservation, finance capacity, dedicated conservation finance capacity inside the agency.

Great. Catherine. Might be on mute.

Almost did it without messing up. Am I allowed to say what Willie and Nathalie said? I mean, I just think those much closer to on the ground understanding of the ingredients that are needed for those different recipes, Willie. And I guess from my vantage point then, what I would say is, the holy grail would may be an investable structure that's got project diversification. I love the ideas in the chat around risk sharing

with the insurance companies. So I would say do the work, assemble the rest of the ingredients for the recipes for each different watershed, and put it in a structure that can really sing at scale.
I love it. Zach, 30 seconds or less before I pass it back to Jim.
We know the model works and that's important. What we need to do at a larger scale now, is build the social license in each one of these communities to do this work and to scale it up. And a lot of that starts with local nonprofits like the South Yuba River Citizen League in our group right here. The more capacity those local nonprofits have, I think the better all the stakeholders in the watershed will be. Because they can bring folks together, they can change hearts and minds, and they can allow this work to happen at a much bigger pace and scale, which is what we need to do.
Again, might be on mute.
It's a common affliction in the COVID world. Yeah, I mean, another great another great conversation today. Again, thank you all for participating and telling a story of this great initiative. And I want to thank our audience for also participating and sticking with us to enjoy this conversation for the last hour and a half.
My bringing it home is really a breakthrough financing, is the way I like to characterize it. And I call it that because, from my perspective, water resources, the role that Yuba Water Agency has agreed to play as a third party revenue provider, basically looking to share in the benefits, effectively, the public goods that come off of the Tahoe National Forest. So, great shout out to Yuba. It always takes a first mover to really get the ball rolling. And hopefully with the success we've seen here, we'll see more of this product as we roll forward.
And the last thing I just want to leave with everybody, is that you can pick up the Forest Resilience Bond report on the EPA Water Finance Center website, and it's right here in front of you on the screen. And I'll just also put out a shout out to the Water Finance Center for the work they did on the technical reviews for the DC Water Environmental Impact Bond that Catherine mentioned a few moments ago.
So with that, again, another heartfelt thanks. And also Ross Strategic, both Melissa and Darcy for really putting us in position to pull off this webinar. So again, thanks to everyone, and we'll see you soon.
Thanks to everyone. And once in a couple of weeks, the presentation will be available on the EPA website as well. Have a great rest of your weekend. Thanks to our panelists. Take care.
Thank you everyone.
Thanks.