



20 | **FUTURE OF**  
26 | **FINANCE**

*Advancing Economic Mobility and Innovation*

# Financing Resilience in a Changing Climate: New Conversations for a New Reality

**Announcer** 00:04

Thank you for joining us. Please welcome the panel to the stage.

**Kanika Singh** 00:07

So a late 'Good afternoon' to everyone. Thank you so much for joining us, for sticking around. My name is Kanika Singh, and I work in the Innovative Finance pillar at the Milken Institute, and our team works on sponsored projects. We tackle very specific market failures and funding gaps on any issues of economic, environmental or social consequences. So we're trying to save the world a little bit at a time. One of our ongoing projects is this market failure in investing in resilience. I have an incredible panel that makes my job super easy, so I'm just going to frame the conversation really quickly for us in the room, and then we can get straight into the meat of it. So let's talk about the weather. Two of the world's costliest ever rain events happened this century. They broke global flood records; both were in Asia. In the US since record keeping began, five of the costliest hurricanes were in the last 20 years. Last year, the world saw \$49 billion economic loss events, most of them were in the United States, and the devastating LA fires, where our headquarters are located, came in as the most expensive global wildfire ever. So what's going on? Our built environment, whether it's homes, buildings, infrastructure systems, are buckling under these weather events. Our natural environments are degraded, or they're neglecting, and so they don't act as buffers—in fact, sometimes they can amplify shocks. And finally, policies—policies to build better and incentivize resilience investing, or they just seem simply misaligned or just not—unable to cope up the scale of what we need today. So the result has been a steady loss in economic damages around the world. On average, this century, we have seen about \$336 billion of losses a year. For record, we started the century with numbers in the \$120 billion range, and we haven't looked back since then. So our speakers today are going to bring really unique voices, from their point of view, the investment gaps that they see in investing in resilience, but more importantly, how they are reaching for and how they are deploying innovative financing and partnership frameworks to plug these gaps and to encourage investing in resilience. So with

that, I'd like to go around the room really quickly for them to introduce themselves before we get into the meat of the conversation. Melissa.

**Melissa Roberts** 02:52

Hey, so thank you for having me here and excited for the panel. I'm Melissa Roberts. I'm the founder and executive director of the American flood Coalition. We're a nonprofit focused on tackling flooding, and we're a coalition of really stakeholders on the front lines. So cities and towns, elected leaders at all levels, from mayors to county commissioners to state reps, community based organizations, businesses like chambers of commerce and military leaders, looking at what those community leaders can do on the ground. So thinking a lot about project development and what those barriers are, and then also thinking about how to transform state and federal policy.

**Laura Mondragón** 03:32

Good afternoon, everyone. My name is Laura Mondragón. I'm the senior director of climate resilience and adaptation at the Montgomery County Green Bank. We are the first—the nation's first, county based Green Bank, a public charter, 501 (c)(3) financial institution. And our mission is simple—accelerate investment into clean energy, energy efficiency and climate resilient infrastructure in Montgomery County, Maryland. We started back in 2016 with a very strong portfolio on clean energy, and back in 2023 the county expanded our scope of work to exclusively include physical climate resilience as part of our investments. I'll tell you more about it later.

**Lindsay Greene** 04:18

Hi, good afternoon, everyone. I'm Lindsay Greene. I'm president and CEO of the Brooklyn Navy Yard, which is a 300-acre industrial and manufacturing park on the waterfront in Brooklyn. If you can picture what that's like, it's basically a rust belt city in between a lot of trendy restaurants, and we are home to over 550 businesses, the majority of which are very small, and employ 13,000 people. So for us, resiliency is about protecting the campus, which includes a working waterfront set of assets. We have an active shipyard that are there, and some other maritime based businesses. So our approach to resilience has to be quite a bit different. So I'll speak more about that.

**Francis Bouchard** 05:02

Good afternoon. Francis Bouchard, I'm a managing director for climate for Marsh. Marsh is the world's largest commercial insurance broker as well as reinsurance broker. So we've been dealing with these issues for a long time. In terms of the role that I play there, it's kind of doing this in a way. I do feel I'm a professional conference attendee, and this is one of my favorites, by the way, it ranks high in my list. But really, the job is to go out there and find new ways for the insurance sector to help advance this issue of

resilience. There are multiple different examples, and we'll talk about these here today. But the insurance industry has a bigger role than just risk transfer, and that's kind of been my obsession over the last few years is to remind ourselves, as well as others, that there are capabilities here that can be used.

**Kanika Singh** 05:53

Thank you. So Lindsay, help set the stage for us—an industrial park on a waterfront. Right? That has got to be huge in terms of a world of rising extreme weather events. Set the landscape for us, the kind of risks you've been experiencing, and how you thinking about this in the future?

**Lindsay Greene** 06:11

Yeah, so a couple things are happening. And I think we always talk about, sort of like the tale of two sets of water that you have to plan for. One is the bay and the river—there's like the active, although slow moving, water that we are close to in the East River, and so when there are extreme events and the water table is very high, that can be an issue. But again, we have a shipyard that has dry docks, and we have the home port for the city's ferry system and all these other working piers. So it's not as if we can do anything to keep the water away, like it literally is there for like, working purposes. And we also have very old infrastructure that the nonprofit that I run has to maintain. So it was built by the Navy in the middle of a lot of different wars, and is not maintained by the city. So we have our own sewer system, we have our own heating infrastructure, all of that, and including our own underground water return storm water overflow infrastructure, which does not work as well as we'd like it to. So we have to worry about both of those events happening. And I say storm water has been our biggest issue. We are also at the bottom of a hill, and so the city worries about our water collection. And so a lot of what we are doing is trying to look at as we do anything in the streets, we are also doing resiliency projects, and we basically are redesigning a lot of our campus just as a place to collect rainwater, as a short term measure, or long term, or whatever we just have to do it.

**Kanika Singh** 07:49

Thank you so much. Continuing on with the concept of infrastructure and protecting infrastructure, property values and communities. Melissa, can you share what you are doing on the ground, the challenges you are seeing with the communities.

**Melissa Roberts** 08:01

Yeah, and I love that we started with what Lindsay shared because I think for so many of these projects, when the incentives are in line, we know that the types of investments you're talking about—you know, ensuring your stormwater systems work, investing in resilience—over time, pay off. There's no question of that. And I think it's so interesting from where you're sitting as the owner, you can actually make those

investments and get that payback. What I see in the communities we work with across the country is because of the incentives we created through policy and the way that public money comes in, we've actually broken that incentive structure. So even though we know that these investments can save huge amounts of money—that \$1 invested can save 13 on the back end—who's going to put that \$1 in from the private sector when someone else collects the \$13? And that's what we see, is that there's, you know, a huge number of communities across the country—most of our coalition members will say to me, you know, look, I know this problem is getting worse, I've lived here my whole life, but the science is hard to understand, it's hard to communicate to my voters. I don't even know what I would do to fix this problem, even if I know that this road floods, I don't have the money, and even when there's state and federal money, it's too hard to get. And then they look at me and say, you know, I hope the next storm hits when I'm not in office, because I'm a part time mayor, I get paid \$10,000 a year to do this, I have four kids, this is really hard. And so I think that's what we're seeing. And I think there's a huge amount of energy to want to protect communities, but I think we're seeing this incentive challenge of what does it take to actually get that investment and get started. And also, what does this look like when we get outside of a New York City or a Miami or places with a huge amount of really specialized staff to all of the thousands of really small communities that might have three staff members that also have to adapt if we're going to be resilient.

**Francis Bouchard** 10:02

Can I—Lindsay, Melissa mentioned the 13 to 1, right? Use any number you want. I mean, the insurance industry has funded every study from 6 to 1 to 13 to 1 to everywhere in between. Have you spent your \$13 yet?

**Lindsay Greene** 10:17

You know, to be candid, I don't know those statistics for our campus, and really what we face as risks. We've been paying ever increasing insurance—our insurance premiums pretty much doubled in the last eight years. We've, I think, never successfully filed for a claim. And so I've been basically advocating, let's just stop paying for the insurance. And also, because we have old infrastructure, it is not a guarantee that if it was destroyed, we would rebuild it the same, which is the premise of insurance. And so that's, I think, one of the biggest struggles that is fraught is that you wouldn't replace like for like in almost any instance, with building.

**Kanika Singh** 11:02

Yeah, which is the perfect way for me to get to Laura. The \$1:13 is the US Chamber of Commerce, where six is in avoided—six and seven, right? It's avoided damages. Yeah, but talking of the \$1 for the \$13.

**Laura Mondragón** 11:18

So that's rebuilding—when a climate hazard hits a property, normally what happens is that property owner or that project owner rebuilds the same. They put a band aid on and they keep moving because they just don't have time, they don't have brain capacity to do it differently, and they don't have access to the expertise that they need in order to rebuild differently and prepare for the future. So we, let's say, took advantage of that and started working with exclusively affordable housing developers in Montgomery County. Why are we working exclusively with affordable housing developers? It's simple. Affordable housing developers normally develop, own, and operate their properties long enough to care about future climates in areas, and they also care about the communities they serve. So it was the perfect partner for me to launch something in the market. So we sat down a year, a little less than a year, with affordable housing developers, to just listen. How is the day to day of this affordable housing developers, and how me as a green bank can bring value to that day to day. And we ended up structuring the Resilience Dedicated Fund, which is a marriage of a line of credit with a loan fund. So we basically combine these two in order to let my affordable housing developer use low cost financing for their origin needs. This origin needs are daily origin needs, and they're normally spending very costly dollars to fix those origin needs. And what we did was, okay, we are going to let our borrowers use the Resilience Dedicated Fund to finance, below market rate, their origin needs, but in order to comply with the use of the instrument, they're going to have to do a resilience investment. What did they say? What do you mean? What is the resilience investment? We don't have the in-house expertise. So we baked within the instrument technical assistance, so they can—the borrowers can spend their financing towards a capital improvement need, but they need to pair it up with the resiliency investment. They can also use the loan proceeds towards resiliency related studies. So that is ending up, for example, last week, we got a draw request for parking that is getting ready for solar, and for the first time, they're considering permeable pavement and green infrastructure to tackle flood, even though that property has never seen flood before. That's what we want to get in this proactive approach to help these properties perform better. What's going to happen when these properties are performing better? We're going to have data. And when we have data, these property owners are going to have data to knock on their insurance broker door saying, Hey, your property is performing like this in comparison with all of these properties, how's my insurance premium going down? And in addition to that, we have the savings—in operation savings, right, and avoided costs when that flood is going to hit. Because it's going to hit it. We don't know when, but it's going to hit every single property. So that's how we innovated, and that's how we were working with affordable housing.

**Kanika Singh** 14:54

I'd love to pick on that a little bit and go to Francis and say, from the insurance side, right? You're at the forefront of this, you've seen the climate risks, you have the data, and you're seeing clients respond to that. What is the—

**Francis Bouchard** 15:06

I'm seeing two clients respond right here.

**Kanika Singh** 15:07

There you go, so share with the room what you're seeing, what holds the promise for the future?

**Francis Bouchard** 15:14

Oh, that's an easy question. Look, I think—first of all, I should say that the insurance industry is not a monolithic industry. I mean, there are, there are some insurance interests—and I say insurance interests because it might be a company, might be a broker, might be an MGA, it might be trade association—there are some who are pushing for more proactive, more holistic involvement in this issue. There are others who are treating it like just about any other risk, and just honing in on the pricing and honing in on their technical ability to understand the analytics. You know, as these tech firms come out with all these incredible analytical capabilities, not surprisingly, the insurance industry is learning a lot about their own portfolios, and you opened with the kind of doomsday numbers—you know, as we incorporate those into our portfolios and our underwriting, in some ways it's business as usual, because we've been doing this forever, and there have always been examples of a new risk kind of emerging here, emerging there, and sometimes it results in some signaling that, you know, we're struggling to figure out how to manage this risk. And I think the insurance industry is actually doing quite a laudable job today of risk signaling, at least that there is something happening. And, you know, I guess when you start seeing a t-shirt that says, "I don't believe in climate change, but my insurance company does." You know, I was not wearing it okay, but I did read such a t-shirt, and you know, it starts to suggest to you just how modern culture—this whole insurance and risk issue has become, in that everybody kind of needs to know it. And so from the insurance perspective, I'd say we are starting to recognize that business as usual probably will not be sufficient. Organizations like IBHS, who I know are in the room, you know, are pretty rapidly expanding the scope of engineering solutions from asset level to community level, which is absolutely critical. So, you know, there's some really significant below-the-radar-screen developments occurring. But by and large, I would argue that the insurance sector still views its primary role here as a risk transfer mechanism, and that is the way the insurance industry is going to make its money, and we've done it well for a couple 100 years. I think though, we need to recognize that we have an understanding of risk that can be used in other ways. We've done that before, and we'll talk about it a little later. What I do see, though, is—you asked, what is promising for the future, is that right? So I've been out on the hustings for five years. I know a lot of you in the room have been doing it a lot longer than that, but you know, when I started, I was kind of like an alien from outer space, in the sense that people are like, Oh, you're an insurance guy in the room? Oh, well, can you answer this question? Can you answer that question? And there was a sense that we had a secret, and we didn't want to tell anybody what the secret was. And the secret was, we know all the risk issues with climate, and we're just kind of printing the money, and, you know, kind of going home. When people started to realize that we, too, are struggling with the analytics and the total understanding of how rapidly our climate is changing, and what are some of the physical impacts of that, and then you start to look at the system level changes that are required to actually address the macro, system level challenges that we're facing. You know, there's been, I think, a recognition by the non-insurance community involved here. So I'm talking about folks like my my panel—maybe not the flood, you have some insurance folks—but you know, the nonprofit community, the government agency communities, I mean there's a growing recognition that insurance, maybe it's not the the black hat here. Maybe we haven't earned the white hat yet, but that we are kind of a truth-sayer in ways. So I think what I find most promising is that—even today, I've had conversations today about commercial solutions to some of these issues that we wouldn't have even known the language to use three years ago, right? So there is a rapid—rapid, everything's relative, right? I've been insurance for 35 years, so anything that takes less than 10

years is rapid to me. So there's a rapid recognition that the role of insurance can be a constructive one, if utilized properly, particularly in terms of capturing—that's why I asked about have you spent your \$13 yet—the insurance industry does a terrible job of rewarding people for taking those steps, right? And that's why we've got to get behind the IBHS standards and really scale those up. But to me, what gives me the promise of the future is that there's this almost a reaching out to the insurance sector to say, look, if you don't work with us, if you don't collaborate and find new ways to find new solutions, we're going to, with or without you, right? And I think that is bringing the insurance industry to the table more and more, and I think you'll see, you know, over the next year or two, hopefully some really new approaches—whether they're distribution approaches or product design approaches or whatnot—that will be in collaboration with a lot of the organizations that are represented in the room, or like them. So to me, that's what I find promising, is that there are new conversations happening. We might not be starting the conversation, but we're in the conversations.

**Lindsay Greene** 20:57

I think, when—it's interesting, the evolution of what you said is, how insurance sees its role in different rooms. You know, it was actually at this conference last year where people suggested to me that I ask different things of our brokers and our insurance providers. And I, you know, we switched to, "How do I balance my risk while spending less money?" as the primary question we asked, as opposed to, "Why am I not getting credit for the things we have done?" And I think it's about trying to get information from your insurance company—like we had our one of our carriers, just like, break up with us 30 days before our renewal. I would have loved to have information as to why, because it's incredibly informative, like if a whole structure of an industry looks at our property and says, the whole of what you do is just too much for me, it would be useful for me to know a little bit more about why, because it may impact either how we position decisions that we make for the long term, how we think about what is "worth protecting" and what does protecting mean? And I think it's different when you're talking about an industrial campus—my comment about how we would not rebuild the same is specific to us. If I'm a homeowner, or if it's, you know, sort of smaller scale infrastructure, a lot of times it is replace, but like the guts of it, is likely to be very different. You use different concrete. You may put a catchment basin under the street. You need to know how to do that. And so I appreciated your point about how do you get the expertise, particularly when most places can't afford to go hire an engineer. You don't even know what scope you're asking the engineer, also, is the other challenge.

**Kanika Singh** 22:40

Yeah. Melissa, if you can just address that, you know, picking on the thread from here, on the challenges, right? The constraints, which are actually not financial, but to Lindsay's point about the non-financial challenges, the capacity and the technical gaps?

**Melissa Roberts** 22:55

Yeah, and I will just say to your point about rebuilding differently—I mean, we should be doing that all the time, it's a great opportunity. And most communities get told by FEMA after a disaster, hey, if you want to get your federal money, you need to show us you're doing it the same way, otherwise we're going to be worried that there's fraud going on and you might lose your money. So that's just a deep conflict that I think is creating a whole lot of market barriers that don't need to be there. What I will say that we see, I mean, I love that you both brought up technical assistance and technical expertise. And I think Francis, the number of people accosting you at conferences asking for your help speaks to the same challenge. You know, I'll give a quick example. We did some work, you know, we do deep community work on the ground to pilot new ideas of doing infrastructure and solutions, and we worked in Kinston, North Carolina—you know, small community, recurring flood problems. And we were working with the community there, saying, What can we do to fix this road and home flooding? It was near an abandoned park that really was in disuse and wasn't being used to capture that water. So we were able to say, how can we think about designing a project that gets you more of what you want? What that community wanted was public space for shows, for art exhibitions, for concerts. And we said, Great, do you know what's a great way to hold a lot of water? A giant amphitheater that's basically a bowl for rainwater. So you'll get what you want, and we'll get protection. But I think what was really hard in that is what we needed to then do, you know, getting that buy-in—which was not expensive, we're talking about, you know, \$5,000, \$10,000 to get people bought in—communities don't have that money, and it's not part of grants. And then the next part came—once we had this idea and buy-in, we needed a sketch of a master design and plan for this to be able to apply for grants, and that ended up being \$25,000 that ended up netting them a million dollar grant to redevelop this park, which is happening. The design actually won the landscape architecture award, like it was a great project. But if we hadn't been able to step in with that \$25,000, you would have seen a million dollar project that's providing a lot of value, saving millions of dollars the next time a flood comes through for the taxpayer not go through. And the other thing we saw is just the kind of technical expertise to be able to say, Here's what the contract can look like with a landscape architect. Here's what you need to make sure you retain about the data. Here's what you need to put in there. That's the type of expertise that most communities just don't have. So I think those are a couple of those barriers that we see where, you know, the project makes sense, you're getting multiple benefits, it's going to save money long term. And then we see these little market failures. And I think the exciting thing—not to just be the downer here—is we can correct these, right. It is really cheap to pay that couple percent up front to do good pre-development and get projects that can do more. We just don't have a system that's well set up to do that. But it's actually, comparatively, quite cheap.

**Laura Mondragón** 26:02

I just wanted to add something around the insurance discussions and how the insurance discussions have been evolving, I would say, pretty fast in the past two years. When I started this program, I used to talk to my borrowers saying, we're going to get to a day where we're going to have this pipeline of investments and all other investments completed, and we're going to knock on the door of the insurance broker, we're going to get your premium down, etcetera, etcetera. Now, insurance companies are pushing developers—affordable housing, I would say—to do these investments and get the impact on their premiums, not even preview to seeing the property performing better. Why is this happening? Because insurance, they know the types of investments that they want to see at the property level. They already know that. They don't have to wait until the property is performing. They are already open to having that conversation when the property owner has done, let's say the permeable pavement or green infrastructure or elevating electrical

equipment, etc, and they're already open to have that conversation, even if the property hasn't been performing for three to five years. So that's a huge change there.

**Kanika Singh** 27:30

Lindsay, sorry, were you going to say something?

**Lindsay Greene** 27:33

No.

**Laura Mondragón** 27:34

Oh, I can piggyback on the pre-development side, because that's very important. When we have developers knocking on our doors to do mainly clean energy, because that's what we're known for, and it's a new construction project, everything is ready. They're just on their last step, building their capital stack, and we're fulfilling that gap in order to make that project feasible. What we're teaching with our new program is for developers to knock on our door earlier in the process, because pre-development and resilience at the pre-development phase is much cheaper and makes much more sense than when the property is up and running. So that's a huge change that we need to see in the market. And I'm incentivizing my borrowers, not only my affordable housing borrowers, but my clean energy borrowers, and showing them how if they came to me a little earlier in the process, I could give them a little better rate, because the property is taking care of some resilience, risk reduction investments at the pre-development phase.

**Lindsay Greene** 28:40

I was just going to say—I think a lot of the approach on the pre-development side, and the thing we've switched to doing the last few years after we did this big resilience study, is pretty much to say, You know, resiliency projects are often just infrastructure projects. It's stuff in the ground, typically. And so we have this mindset now where anytime we are touching anything in the ground, we have to ask all the questions, which is, like do—and we've just tried to train ourselves, and if no one else is doing I'm doing it, so training myself to say, Okay, what else specifically in the ground? Is all the sewer infrastructure up to date? Is all of the telecom infrastructure up to date in this particular section? Are the fire hydrants working in this section? Where are the gas lines? I just ask about all of the things that live in the ground, and also ask about how often does this part of the Yard flood? Do we need—I just now ask about a rain catchment basin every time we dig up the street, and I ask about telecom conduit every time we dig up the street, because it seems like we just need to. And so I think it's been about a mind frame shift to say, This is infrastructure. We just have to think about it in that way, and constantly ask ourselves, anytime we're touching in any infrastructure, to probably touch all of it because it is less expensive to do it at that one

time. There's some like finance kinks around useful life stuff—in particular when using municipal funding, and like something that goes back to a municipal bond is funding something, you know how it determines useful life drastically impacts when you can do it again, right? So, as an example, if you replaced a roof five years ago, and then all of a sudden you have something—you have more rain water and you need to put whatever—you can't use new public funds to touch that section of that roof again, because a roof has a 10-year useful life. You know, it's things like that. And so it necessitates being holistic in the planning one time, because you're going to mess up your money. And that's our easy, free money. And when it's private, it's got all these other twists and turns, if you can get it. So just, you know, thinking—tear up everything one time. It'll slow you down on the front end, which will drive everyone bananas—I just wanted to fix this light pole is like, I'm sorry. It's already been dark. It'll be dark for two more years. It's fine. But again, everything is like, 10 years in government, and so you just have to needle everyone on the front end. It drives them crazy, but it leads to the right outcome.

**Melissa Roberts** 31:24

Yeah, and I love that you said that, because I think whenever we have this conversation, there's two frames. And I think it's really easy when we talk about resilience projects and investments, to think about just the new piece of infrastructure you are putting in place to abate a risk, right? So, you know, the simplest example is a sea wall. The wall wasn't there. You build it. It keeps water out. But I think what we really need to be thinking about in the 90 percent of the pie that doesn't get attention is, every time you put anything in the ground, you need to think about whether that makes sense. I always think about Charleston, which has, you know, two major hospitals in an area that floods so badly, the hospitals have bought Johnny boats to ferry patients between the wings in times when the flooding is bad. And then they put a new, you know, incredibly expensive Children's Hospital in the exact same place at the epicenter of flooding. And we often think about resilience investments as the seawall and not "where are you putting the hospital? Where are you putting a new stadium? You know, how are your substations?" And so I think that's just an important frame for the conversation,

**Francis Bouchard** 32:33

And I think it's changing, because I've been part of conversations with architects who say we want the insurance interests in the room the first conversation we have with a client. We've had conversations now with large scale developers who are saying, we want to talk to you way before we even buy the property, as opposed to when we cut the ribbon and say, Come people and wait for the insurance issues then. So I think there's a growing awareness that engaging the insurance sector earlier is producing results that, you know, last quite a long time.

**Kanika Singh** 33:04

I want to pull on that for a bit. One of the things that I love about my job is I get to do these projects, and then you can go deep dive. And the current project—one of our current projects is to figure out this market failure, and how do we bring stakeholders to the table to make investing in resilience, whether it's

homes, whether it's buildings, whether it's updating codes. How do we move it from like this bespoke, grant-funded initiative, that it almost is a tag on, and how do we mainstream this into a bankable asset class? So I'd love for my speakers to weigh in. Do you want to kick it off?

**Laura Mondragón** 33:39

Sure. Okay, so there's three things that I think the market needs to keep doing and do better in order to I would say, get to a different level on resilience investment. The first one is treat resilience as a cash flow story. And how do we do this? We target the drivers of loss, because fewer and smaller losses equals more stable cash flows, and by that, we will get better credit performance. And that's for my co-investment partners and people that care about repayment. Where is their repayment coming from? Where are the savings coming from? Well, we need to treat this, and that goes to you—I think it was you—specifically, we talk about the sea wall, but we need to talk about what are we—all of the investments we're doing at the property level in order to see these values? The second things are savings repay capital. So again, this is connected, but basically we need to identify the repayment drivers of each investment that we do. That's why we baked with the Resilience Dedicated Fund the technical assistance, and that technical assistance is going to be used by our borrowers to help them do that data collection that we want them to do in order to get to those repayment drivers, that at the end of day are going to be the repayment sources for the debt. And then for scale, one thing that I'm doing, and it's been very successful, is packaging grows the pie. So packaging solutions—I'm packaging solar, I'm packaging energy efficiency, I'm packaging the roof leak, I'm packaging everything with resilience. And it's working great, because sometimes there's no resiliency in their pipelines, but there's a lot of resilience, as well. So packaging is growing the pie, and it's making much more sense for my borrowers to do more resilience investments at the portfolio level. And the last one is blend capital sources to de-risk the market. So we're piloting, we are proving a concept, we are going to standardize how we are underwriting and pricing these types of instruments, and then we can scale. But the fact that we are already deploying capital to do resilience investments is bringing attention to the private sector to do—can I co-invest on your Resilience Dedicated Fund, because they care about their repayment sources, and we have the repayment sources there for them. So, yeah.

**Kanika Singh** 36:48

Lindsay, do you want to pick that up?

**Lindsay Greene** 36:50

Sure, I would say it's, I think, adopt a little bit of the idea of an infrastructure approach, sort of, to my comments last point, it's about building the right durable thing for the long term that will operate more efficiently. I think the onus is on us for a lot of stuff to be better able to tell some of that savings story. You know, I don't think we, certainly for our property, we don't always track the money we spend cleaning up things, right? So I don't have the localized version of that Chamber of Commerce number, right? And so we need to do a little bit of that. I think that would help everybody have that equation. You know, being able

to quantify, even just in one year at a time, you know, this is what we spent cleaning up ABCD mess last year; if I could do more rain water catchment, I wouldn't spend that, you know, that type of thing. And talk about that as updating your infrastructure, because nine times out of 10 infrastructure is old. And I think people can—you know, private capital took a long time to wrap its head around investing in infrastructure, but it makes everything else possible, and it enables so many other things. And so there's a mindset of, oh, I can invest in that deeply unsexy thing, because it's the foundation of everything else. And I think, you know, that's my approach to it. Whether that translates neatly into a repayment structure or something that is attractive to someone seeking a return, remains to be seen. You know, the fact that there are privately operated airports is still bananas to me, but airlines pay gate fees, so I guess it's fine. But that isn't the same for a road, you know, and so there's—I don't have the neatest solution, but I feel like us trying to treat all these other elements as infrastructure and push the envelope of infrastructure financing feels more tenable to me.

**Francis Bouchard** 38:39

I think from the from the insurance perspective, I would try to highlight other times we've played a role, because we've done this before. And you know, what we're hearing here is some of the practical results of the insurance sector sending signals through pricing. But we've taken other approaches, and there are two in particular—for those of you who've heard it before, I do apologize—but the first one is electricity. When it was first rolled out, it really concerned the insurance sector, let's put it that way. The fire risk from the sparks and wooden buildings. It was 20 years after the Great Chicago Fire when at the expo in Chicago, they rolled this out in a large scale basis. The insurance industry was faced with a choice. We could either underwrite it, consider it an underwriting factor, and kind of price it and either decline you or not if you have a electricity in a wooden structure, or we could try to reduce the risk. So we created something called Underwriters Laboratories, which essentially looked at every electrical appliance that was made and it made the world safe for the use of electricity. Pretty profound. We haven't even started down that track on climate. I'd say even a better example is probably large and fast automobiles, when they came up in the '60s and '70s. So the risks—similar to what we're seeing in California or whatnot, maybe not the same scale, but we are seeing a risk track like this. So what the insurance industry did was take a data facility that it had and really turn it into a research facility, the Insurance Institute for Highway Safety, and we started crashing cars, and we started testing with crash test dummies and looking at exactly why and how people were getting hurt, and how can we reduce that and do this? But we also created a system. We had—federal government had laws built into the DOT appropriations talking about speed limits or seat belt use. We had very targeted, state-backed capital pools for third party liability motor insurance for those people who didn't have insurance and got in accidents, you know, so that the rest of us could actually drive and not be worried about losing everything we have just because some yahoo without insurance is out there driving crazy. Those were created at the same time. So they created a system that was self-reinforcing, that allowed risk to be reduced, understood, incentivized. So everybody was kind of rowing, not only in the same direction, but actually at the same cadence. And again, that was just in the 1970s So, yeah, we did in the 1890s, we did it in the 1970s. I'd say it's time we do it again.

**Lindsay Greene** 41:29

Whatever lab you want to put at the Navy Yard to set something on fire or blow it up. We can do that. I mean, that's what—I mean, we have people there creating hydrogen powered tractors, whatever, it's like that's the lab of what we do. I see so much fringe technology, I don't even understand half of it, but it is the beauty of a campus in an urban setting where you want to test that type stuff, so—

**Francis Bouchard** 41:51

You know what we what we need to do, and there are several entities trying to do this already, is basically to create the crash-test-dummy equivalent for a community. We need to be able to take a community, or a facility like yours and just slam it up against the wall over and over and over again until we know exactly why it cracks here and it cracks there and it cracks over here, so that we can do something about it, like we've done with cars. And again, you know, watch TV on a Sunday afternoon and you see these big, tough guys and buying trucks, and what do they talk about? Four Star safety ratings from the Insurance Institute of Highway Safety. The insurance industry is cool on a Sunday afternoon, right? Believe it or not, Lindsay.

**Lindsay Greene** 42:31

I mean, I—my dream car is also an F150. But I actually, you know, what do I drive? A 17-year old priest, because I live in Brooklyn, but one day—

**Melissa Roberts** 42:40

And I was going to say—I love that you're bringing that up, because I think the discrepancy is so clear, going back to where we started with, where is the repayment? You know, if I were to say I need to save money on my car insurance, there are things I know that I could do, and I know exactly how much making those changes, like driving less, or getting a newer car, or things like that, could save me on my premium. And that's just not true when we talk to a community about making these investments in resilience. And it's actually—not only is that not true, it's even worse, right? If you're a small community and you've put off a bunch of these investments, and your infrastructure is on the verge of breaking down, and then you get hit by a storm, you're going to get more money than the community that, you know, made those investments, shored everything up, had less damage—if you've gone and you've gotten insured infrastructure, that takes away from the federal money you've gotten. So I just think—

**Francis Bouchard** 43:33

I'm not sure anyone's getting federal money anymore, though.

**Melissa Roberts** 43:38

That aside, I mean, I will say that's the journey I've been on. You know, I started my career in the private sector at McKinsey, doing private sector infrastructure finance and answering the question for investors, Is there an investment thesis in adaptation? And I was in the position then of saying, No, not really, not if you want your money back in the US. And then I went to First Street as their first strategy director, saying, We'll get the information out there, right? If we have this sort of easily accessible, granular data about the risk, it will move the market. And what we found is that that's partially true, but also not. And I think it keeps slamming into this question of, if we can align the incentives, and the people who invest that dollar don't see the savings, it's really hard. So I do think there's so much we can do, but we also need to think about, how do we align those incentives so that this is a healthy market that works?

**Francis Bouchard** 44:32

One good thing—news from this morning—I can't even see it out there, I don't know if Michael Newman is still here or not—but IBHS has now expanded the number of states that they're certifying at a neighborhood or a community level in. And that's the kind of thing that has to be done as almost an element of infrastructure, because if there aren't IBHS approved standards in the state, then what do you build to? And now they're expanding, and they'll continue expanding, and hopefully other at other entities and other efforts will drive people to actually achieve the IBHS standards more and more when they build.

**Melissa Roberts** 45:10

And I will say, I think we're at a turning point. I mean, I'm seeing a number of states where they have had so many insurers pull out of the property insurance market, and those folks are going to the state-run insurer-of-last-resort—that's getting really expensive. So all sorts of states I never would have thought about are saying, insurance is priority one, two and three this legislative session, because this is a financial crisis. So I do think there's a lot of leverage coming, and that it's kind of a time to incubate new ideas.

**Kanika Singh** 45:40

And I wanted to put on something that is a common thread from everybody here, it seems, is data, right? Because if you have the data, then you can invest in it. Laura, can you talk a little bit about that with the new fund?

**Laura Mondragón** 45:50

Yeah, absolutely. So our Resilience Dedicated Fund, we are—it's portfolio financing. So repayment is coming from my parent entity cash flows. So we're not underwriting at the project level. We're underwriting at the portfolio level, which is a huge win for affordable housing developers already. But it does not mean that we will not follow a very digital—diligence—at 4pm I change to Spanish, so it's happening, it's happening now. What time is it? It's 4:46—

**Francis Bouchard** 46:22

At 5pm, my language changes, too—

**Laura Mondragón** 46:24

I switch to Spanish at four, that's a joke in my office. So it's happening in the panel at Milken Institute. That's not good. So what we're doing is that technical assistance, that it's baked with the instrument, is supporting these affordable housing developers do the proper data collection in order to comply with the use of the facility. It's part of the of their obligations, as part of the of the debt structure. That is going to lead us to the repayment drivers to, in a year or so, be able to underwrite at the project level, in the same properties or different properties. But that's happening at the same time that we are investing. I've been in many, many conferences where we need to teach developers the value of proper risk management and risk mitigation investments. Yes, we need to teach them, but we cannot wait until they they find a value and then decide to do it, because it's just not going to happen. And affordable housing developers are in this snowball effect where they're like—and this reactive approach that they're not able to proactively invest at the property and the other portfolio level. So data is a key part of—a component of our program, and also will be a key part of the future market pricing.

**Francis Bouchard** 47:50

You know, there's another example on the insurance side. It's still anecdotal and it's a one off, but—Missouri has a state insurer for public housing, and working with Robert Wood Johnson Foundation, they have agreed—or they're taking money out for the next five years to fund resilient rebuilds and retrofits within their portfolio, with a dedicated expectation of return. And if they don't meet that expectation of return, Robert Wood Johnson will top it up, right? So there's a financial guarantee behind it. So those—again, that's a five year project, so we'll be back here, and what '31 you know, to kind of see if it worked. But the same concept, right? We're looking at a portfolio level of resilience investment, and can we almost draw that dividend ahead, right? So we can actually spend the dividend to get the value. So we're testing it in the insurance side as well.

**Kanika Singh** 48:45

I'd love to get your thoughts, Melissa and Lindsay, you know the concept of data, standards, certification. How does that work from your side, when you're talking at the community level—you're talking, you know you're not talking—it's difficult. It's hard. So can you give us color on that and how you're meeting that? And then Lindsay, I'd love to come to you on that.

**Melissa Roberts** 49:02

Yeah. I mean, I would just say, if we're thinking about what are investments that are relatively modest to have outsized benefits? Certainly, data and more standardization across it is incredibly helpful. So what we see is, it is just such a hodgepodge of different expectations. I mean, I work in some states where communities are like chartering their own LIDAR planes to get basic data right. And if that's what you have to do, we just have, you know, all of these different puzzle pieces that don't fit together. So thinking about federal investments in both baseline data and in standards and state investment. I think that makes it a lot easier for communities, for private sector actors, and for others to make good decisions. And I also think a lot about, you know, working in states. You know, in many states, every community or every county might have, for instance, their own sea level rise curve. So if you're thinking about regional infrastructure projects, you are using—it's different time horizons, it's different underlying assumptions about what's happening in the atmosphere, it's different curves that makes it really, really hard. And obviously, if we want to—you know, you've talked about the concept of bundling, right? You want to make this standard. You want to make this easy. Let me tell you what doesn't make it easy—going community to community and seeing totally different timelines and curves and trying to figure out how to actually scope your project.

**Francis Bouchard** 50:30

And all they do agree on is that the FEMA maps are wrong.

**Melissa Roberts** 50:33

Oh, everyone agrees the FEMA maps are wrong. Yeah.

**Francis Bouchard** 50:35

We're dealing with humans who don't really like to have bad news put in front of them in the form of numbers.

**Melissa Roberts** 50:40

Right, right. I think that's a great point. It is—some of these messages are not well received, right? And there's a lot of pressure, often, to be giving market signals through your National Flood Insurance Program, that are wrong.

**Lindsay Greene** 50:58

So I think—part of the approach is, I think—it's one is a technology and systems one, which is, you know, connecting the dots between the types of data you already collect and using whatever accounting or whatever system you already have, because municipalities have to track, by law, every single penny they spend, but it's like giving your data attributes, so that when you want to run a report that says, Tell me all the money we spent cleaning up roof leaks last year, right? Like you need to be able to actually run that report, and that is about giving data in our accounting system different attributes that flag it as a roof repair, flag it as leak related, flag it as this specific building on the campus related, and trying to be smart about that. And that involves getting every single human who's doing different jobs to talk about how they use that data, because they all use it very differently. And so it's getting to that level of granularity because you probably already have the data, you just can't always use it. So that's the approach we've tried to take for a lot of that. And then separately, I think there are elements where you may not be capturing or measuring something you think you should, and you have to figure that out and create a system for that, that is mindful of the humans who are involved in day to day activity. Like a lot of times, we just want to, like, throw a sensor somewhere, but if no one's going to look at what that sensor is doing, it's pointless, or if no one has time to. And so you have to be mindful about where and how you deploy technology, and be deliberate about it. And then the the last point I'll make on on just data is separating—like you need to have all those different voices in the room understanding the value of the data, and also have separate expertise in knowing how to use the data. They're different people, and that's a resource issue, but it is one I think every organization needs to start to confront.

**Kanika Singh** 53:20

So I'm determined to finish this on a really positive note.

**Francis Bouchard** 53:25

Good luck.

**Kanika Singh** 53:25

Yeah, no, I'll get there, Francis. I would like each of my speakers to think about either something positive that you can see on the near term, on the horizon, on the concept of making investing in resilience more mainstream, or a wish list that you have, so over the next five years, so—in an ideal world, this is the one thing that are, the two things that you, in your capacity, think will help move the needle, so that we're not talking about investing in resilience as a luxury, or as a tag on or something, like Laura is saying, has to be bundled to make it work. While they think on that, I just want to let you know that this conversation continues. We will be talking about the ROI of investing in resilience at Global Conference coming up in LA, and the Innovative Finance team will be putting out a report over the summer. It captures not our opinions, but it captures the findings of the project, of close to about 90 stakeholder interviews that have been done off the record, working group discussions, three virtual working groups, conferences like this, where we've met people. So stay tuned. But now I want to pass it on, if we can start with Melissa and come down.

**Melissa Roberts:** 54:35

I mean, I will say we're seeing more energy and engagement in this work, whether it's across states, local elected leaders, community groups, than ever before, because it's impossible to ignore. And one opportunity I'm really looking at is, I think we have a real opportunity over the next couple of years to think about trying to reduce some of the uncertainty in the market that comes from the sprawl of federal programs we have. So we have 121 different federal disaster programs. They work differently. They're often hard to blend. They often disincentivize blending public money with private money, and they just create a lot of uncertainty that hurts the market. I worked with a community after Hurricane Helene that, you know, had their water system go down, and got told by FEMA, when they were evaluating to see whether FEMA would pay for it, You might have an answer in 10 days, it might be 10 weeks, or it might be 10 years. I mean, talk about something that creates massive uncertainty, that kills the market around resilience, right? Like they can't even move forward and think about their options because they have no idea when they'll even get an answer. So one thing we're working on is saying, what would it look like if these programs that are often siloed by hazard, that are often very reactive and that are incredibly fractured, were more like 30 or 40 programs that were more inherently multi-hazard, that thought about nature-based solutions, that thought about being proactive, and how could that create certainty to also unleash and catalyze private capital?

**Laura Mondragón** 56:13

So the lack of federal funding is leading to innovation. I've seen municipalities, property owners, project owners, pushing themselves to innovate and bring return to the private sector, because the federal dollars are not there anymore. So I think that innovation is good because that's leading to scale, and that's what we need. We need to bring the private sector. Yes, we need the federal funding, but I think that push to innovate is being very positive to the resilience industry.

**Lindsay Greene** 56:56

I would say the biggest positive I see is just a plain vanilla education of what common resilience things are. Like, when we first sat in our briefings about our resilience, I was like, What is resilience? I understand dealing with climate change. What do you mean by adaptation? What do you mean? I was like, I don't understand. It's just like a fuzzy word and breaking it down into storm water stuff, roof leaks, you know, grasses that absorb water, like very accessible things—talking about the projects and explaining to people when X, Y, Z disaster happened, it's because of the age of the infrastructure, the way we designed the street, or the way we designed the park, or didn't design the park. We have to break all that down and do that storytelling, and that is very basic, and how the local news is covering the disaster afterwards, when you're on the cleanup side and the storm has passed, it's like, these are things you can change. And so I start to see that happen, like we used to be very scared about rain, and is it mixed with the sewer or whatever? And we just had a change in how, like our water commissioner in New York started talking about it, and how different people from City Hall talk about the impact of a rainstorm and the age of the infrastructure. And that helped demystify people and make it less scary, and also takes the blame off of

individual people and anyone you can be mad at right now—it makes it a collective experience of, oh, we can do these different things differently. So when I see XYZ community, XYZ project in my in my community, at my park or on my street, I know that it's going toward a thing that helps all of us, and there's no villain in it.

**Francis Bouchard** 58:39

Alright, Kanika, I'm gonna try to—

**Kanika Singh** 58:40

I gave you an extra minute. I did.

**Francis Bouchard** 58:42

Oh, you did.

**Lindsay Greene** 58:43

Oh, sorry.

**Francis Bouchard** 58:44

Is it showing up there?

**Kanika Singh** 58:46

No, no, I'll make it happen.

**Francis Bouchard** 58:47

In terms of what's most positive. I mean, I'll just say this morning, the number of conversations I've had about real, tangible initiatives, real commercial products that are going to kind of create a consumer finance market for retrofits and in rebuilds—I mean, that wasn't happening two or three years ago, and today, I think there are multiple platforms out there trying to be the first one to do it. So that is, to me, a

spirit of innovation and drive that could alter the resilience market forever. In terms of what would I encourage people to do—follow the system, meaning, don't view, you know, yourself as an island on this topic—and sorry to use the pun, because there's some islands that are disappearing—so if you can figure out who you're touching and who has common interests, and start to track that map, you're going to stumble across some incredible partners, and you're going to get stronger and more effective. So my advice would be, follow the system and that will lead you to some interesting places that you may never have thought you could have an impact in.

**Kanika Singh** 59:59

Thank you so much, and a hand of applause, please for my incredible panel, so grateful for their time.

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