

Hannah Perls:

Welcome to Clean Law from the Environmental and Energy Law Program at Harvard Law School. I'm Hannah Perls, a senior staff attorney with EELP, and in this episode I speak with Deanna Moran, vice president of Healthy and Resilient Communities at the Conservation Law Foundation here in Boston, where she oversees their work on community resilience, research and metrics, impact investing and farm and food. In this episode, we walk through some of the surprising ways that law and policy drive adaptation decisions in Massachusetts and beyond, including state and local building codes, design standards and risk disclosures, how to make our utilities more resilient without forcing ratepayers to bear the costs, and permitting. We also dig into Deanna's wish list and current advocacy efforts for a wicked resilient New England. Thanks Deanna so much for joining us on Clean Law.

Deanna Moran:

Thanks for having me. I'm so excited to be here.

Hannah Perls:

Well, for people who are new to this conversation, and I'm thinking in particular of our listeners who might focus on more "traditional" areas of environmental law like greenhouse gas mitigation, power plant regulation, pollution prevention, public land use, etc why should they care about climate adaptation?

Deanna Moran:

You know what, I think after I describe this, people will realize that they might already be doing climate adaptation work because it is so ubiquitous in all of those other areas that you just mentioned. Climate change adaptation really is just as critical as the work that we're doing to reduce greenhouse gas emissions. I think for a long time the environmental community felt like focusing on climate adaptation was somehow giving up on mitigation, that we couldn't do both, but we can do both and we absolutely need to because even though reducing our emissions is critical to the survival of our planet, there's a certain amount of impact that we are unfortunately locked into. So even if we were to reduce our emissions to zero tomorrow, we are still going to see a certain amount of sea level rise, extreme precipitation, extreme heat, and we need to prepare for that.

And climate change adaptation, the reason I say some people might be doing it without knowing that they're doing it is because it really affects everything that we do from infrastructure siting, to development standards, to natural resource management, and it also has that direct tie to all those other traditional areas of environmental law, especially because it's exacerbating impacts of existing inequities that we're trying to correct through things like the Clean Water Act, the Clean Air Act, getting access to clean energy. And we also know that environmental justice communities are most likely to bear the burden of climate impacts, and that will just further exacerbate the existing social and economic inequities that we have.

Hannah Perls:

And we'll also be sure to touch on permitting at the very end, including where we permit our critical infrastructure that is facilitating hopefully a just energy transition. So it all comes full circle. Now you in particular, you come to this work from many angles. You have a law degree, two masters, one in city and regional planning and another in public policy. You received your BA in environmental design, and of course you have over a decade of professional experience including with community-based financial institutions. So what brought you to focus on climate resilience and adaptation?

Deanna Moran:

Yeah. So when I was first starting to get into the environmental space ... And I didn't start my career there, I started my career in community development working on things like affordable housing. As you mentioned, I worked for a community development financial institution. I started to get into the environmental space really from the perspective of data and information and getting people the information that they needed about climate impacts. And at that time, the climate sector in the environmental space was still pretty new. Most people were laser-focused on greenhouse gas emissions. Climate adaptation and resilience was still extremely nascent. It still is, but back then it really was. I wanted to work on climate. I felt like that was a good way to spend my career. And I felt like resilience, in particular, was an important space to be because we just weren't doing enough. There wasn't enough focus on it. Everyone was so focused on mitigation.

When I started to get into this work, I moved to New Jersey. I think it was the year after Hurricane Sandy hit. And that was really for me ... I was like, whoa, we are not ready for what's coming. And it was so eerie to be there post Sandy and just to still see even a year later the devastation. I lived in a town next to a town that just got absolutely devastated by Sandy. It was a town called Sayreville, and it was just so heartbreaking to see how unprepared we were. And I was like, we got to figure this out soon.

Hannah Perls:

So seeing it as an imperative to anticipate the damage before it hits, because otherwise you saw firsthand what it looks like when we fail.

Deanna Moran:

Absolutely.

Hannah Perls:

Well, we are definitely going to dig into specific examples with a focus on Massachusetts. But before we do that, I think it'd be helpful just to have a basic framework to think through what constitutes "effective" climate adaptation policy? So based on what you've learned in your work, what do you see as some of the key elements of a meaningful climate adaptation policy?

Deanna Moran:

Yeah. I think first and foremost, we need to learn adaptive governance and planning. And by that I basically mean that we need to be able to plan and govern in the face of uncertainty and be nimble in how we respond to new information and science and be able to quickly act and incorporate that into everything that we do. And that's super hard. Our brains are not wired to do that, that's not how we've ever done things. We've always based everything on static information, like historical observations. We do something one way and it never changes. So to think in this way is completely different. And for the lawyers on the call, it's like, I'm sure when you were going to law school, people told you law school's going to teach you how to think differently. That's what I would say about working on climate adaptation is it's a completely different way of thinking.

And the second piece that's related to that is we need to start incorporating forward-looking data and climate science into all of our codes, policies, regulations, which again, is super hard because our entire statutory regulatory framework, not just in Massachusetts but across the country, is based on these static baselines. And we don't have experience incorporating uncertainty or forward-looking data into how we govern and plan. I think the final thing, which is related to everything else, is we have to get comfortable not just with uncertainty, but with making hard choices. I think especially in the climate

resilience context for a long time, people's mindset was we're just going to keep the water out. We'll build walls if we have to. At a certain point, you can't keep the water out, so you have to think differently about what it means to adapt. And that means making some hard choices of places where we can't do things the way that we've always done them.

Hannah Perls:

So maybe if I can impose a framework on top of that, thinking about the students. How do we summarize all of this? It sounds like there were three key components in there. One is we need to have adaptive standards that integrate that forward-looking data. We have to think about the future as we plan for today. The second, you mentioned that static baseline. So making sure that that baseline on top of which we might put more dynamic standards is itself adaptable. And I think those are two separate but related components. And the third about making hard choices, part of that makes me think of the principles and the priorities that we bake into our laws. What are the ways that we should be making those choices? So here I think about explicit mandates around what we should be prioritizing, whether it's public health, whether it's equity, whether it's safety in this case. So maybe those three. We have adaptive standards, adaptive baselines, and that really explicit priority around what we want our communities to look like and what we should prioritize.

Now, I know this is all a downer at this point, but what I find really exciting and actually hopeful about the work that you do is that you're really clearly diagnosing the legal and the policy failures that we need to address if we're going to achieve our adaptation goals. And so first, we need to just design these targeted solutions that get at those barriers. So I want to walk through some of those failures here in Massachusetts as an example. And then of course, we're going to talk about your short and long-term solutions, your wish list. So actually I'd love to start with the report that you published in 2019 on the Massachusetts and state building code and climate change. And we'll throw that report in the show notes as well. Can you just talk a bit about the impetus for that report and what you found?

Deanna Moran:

Yeah. That report really laid the foundation for a lot of CLF's current climate resilience work. At the time that we undertook that research, it was clear to us that we needed to move more quickly on implementing on climate resilience. We had spent the better part of 10 years planning around resilience, and we just could not figure out how to get the momentum to move anything meaningful forward. And so in my role at CLF, we were exploring levers that we thought might accelerate those efforts. What could really get things moving? And a lot of people that we talked to said to us that they thought that insurance would be that catalyst. That because of their exposure and their risk, they would start requiring consideration of climate risk and then just organically make its way into everything else and that would be the accelerator. We learned pretty quickly in talking to experts from the insurance industry ... And I will clarify not the reinsurance industry, which is the insurers that insure the insurance companies, but the run-of-the-mill insurance industry. They were basically like, "No. We're not really thinking about this yet. We write policies on an annual basis, and as risk goes up, premiums will go up, and when the risk gets too great, we'll just probably exit the market." And so we were like, "Oh, okay. Wow."

It's interesting thinking back that we heard that from them in 2017. Now that what we're seeing in Colorado and Florida and California, that's starting to happen. But anyways, so we decided if insurance really wasn't going to be that catalyst, maybe legal liability could. So we started researching what liability there might be for failing to adapt. So failure to act. And if you read the report, you'll see that we focused on two sectors. We focused on public sector, government decisions, and then private sector,

specifically design professionals. And the conclusion on the public sector side was for the most part, failure to act was going to be covered by sovereign immunity. There's a couple of exceptions to that, and people can read about that in the report.

Hannah Perls:

On that point, meaning that if people wanted to sue a public actor for failing to adapt, they're protected by that immunity shield.

Deanna Moran:

Exactly.

Hannah Perls:

Okay.

Deanna Moran:

Yep.

Hannah Perls:

Just want to lay that out for folks.

Deanna Moran:

And the private sector liability though is much more interesting. We felt like there was a really strong legal argument that design professionals ... So architects and engineers. That their standard of care, their duty requires consideration of climate change, whether or not government regulations require it.

Hannah Perls:

Can you say a little bit more about that standard of care? What does that mean and how would that liability play out in practice?

Deanna Moran:

Yeah. So parties that are injured by design professionals failure to build a structure that is sufficient to withstand climate change r-related impacts could be subject to liability for damages under common law of torts, negligence nuisance, others. And our research for tort liability really focused on the duty element. So go back to first year of law school, negligence equals duty breach causation harm. We really focused on the duty piece, which is basically another way of saying standard of care. So what duty did the design professional owe to the person they're in a contract with a third party whomever? That's going to be based on the typical analysis that you would do When you think about what duty does somebody owe. Design professionals have a heightened standard of care because of the role that they play in designing very important things like buildings that have an effect on public safety. And so they owe higher standard of care than Joe Schmo off the street.

And so in thinking about that duty element, we found that compliance with explicit regulatory requirements ... So you met the building code, doesn't necessarily shield you from professional liability. And every case is going to be fact-specific, but we think the court is really going to go through an analysis on the duty element that's likely to include among other things, consideration of the foreseeability of harm. So what did you know? What should you have known? That really ties into this

whole piece about climate science, the availability of it, some certainty, what impacts lie ahead? So what should you have known, what did you know?

And then industry custom is another one. And industry customs is interesting because I think a lot of people would assume that really means, okay, if everybody's not doing it, I'm not expected to do it. And the analysis on industry custom is a little bit more complicated than that because while the prevailing industry custom, what most people are doing might serve as a useful guide to the court in establishing the standard of care, even a pervasive practice may not meet the relevant standard of care. And so I'll explain what that means a little bit. There's this old second circuit admiralty case from the 1930s, so it's old, it's called T.J. Hooper. And we talk about this case a lot in the report because it has some interesting commentary about this idea of standard of care. And basically in this case, there's a tugboat owner and he gets caught up in a storm and he loses a bunch of cargo. And the person who owned the cargo sues him. And part of the plaintiff's argument in that case was that the tugboat owner didn't have a functioning radio on board, and if he had, he would've gotten a warning of the impending storm and could have avoided losing the cargo.

And the tugboat owner was basically like, "Listen, radios are brand new technology. Some people are using them, not everybody is. I couldn't possibly have been expected to have this new technology on my boat. That can't be my standard of care." And the court disagreed. They rejected that rationale. And they said that mere compliance with industry custom is not a defense to liability. And there's a quote in that decision by the famous federal appeals court judge Learned Hand that says a whole calling may have unduly lagged in the adoption of new and available devices, but there are precautions so imperative that even their universal disregard does not excuse their omission. And we read that and we were like, oh my gosh, climate modeling, climate science, technology that is so on point.

And there's a related case, too, out of the Illinois Appeals court from 1960, so a little bit later where this was really on point. And again, these cases are not in the climate change context per se, but you can see how they're very analogous. And in this case, this 1960s case, there was a customer that was entering a shopping mall and was injured when a concrete pylon fell on her, and it fell because of wind speed. And the court decided in that case that even though wind speeds of that magnitude that day that it fell on her had never been recorded before on that site ... The engineer argued, I couldn't have known that wind speeds would be so high. I couldn't have designed to that standard. That the engineers actually could have predicted those high winds with technology that existed at the time, and they failed to consult that technology and they failed to consider it was a possibility that that high of winds would happen and that the concrete pylon might fall, and thus they fail to exercise their standard of care. So that's another one where it's very on point. Having the technology available and not using it, those are all questions that we think the court will ask in the climate change context.

Hannah Perls:

Wow. So we have these really surprisingly on-point cases. Oliver Wendell Holmes in the 1930s. We had this 1960s case pointing to this heightened duty of care. I think about people driving 80 on the Pike. And well, everyone's driving 80 on the Pike, so I should be fine. And it sounds like what you're saying is no, no, no. If you can anticipate if there was a reasonable case be made that you should have anticipated a danger and could have acted to avoid that danger, it was actually your duty, even if everyone's going 80 on the Pike to drop down to 65.

Deanna Moran:

Yeah. Well, and especially in this context of design professionals, because as we talked about, they have a heightened standard of care to the public because they're designing buildings that can be life or death for people who are occupying them.

Hannah Perls:

So how do you see these relatively old cases being applied today in the climate change context?

Deanna Moran:

So today, a lot of the climate litigation that we're currently seeing is still on the emissions side. It's about holding big polluters, big oil accountable for essentially causing the impacts of climate change with their emissions. But there are also some cases starting to emerge along the lines of what we theorized in our 2019 report. And one good example of this is this case that came about ... And I think it was 2019. Right after Hurricane Harvey. There was a community in Houston, Texas, about 700 homes, and the community was flooded during Hurricane Harvey because a nearby river had overflowed and flooded their community. And hundreds of residents from that community filed suit against among other defendants, the engineering company, Costello Engineering, who had designed the stormwater system for the community that was intended to prevent this flooding. There were a number of claims in that case, including a statutory claim under the Texas law for deceptive trade practices, but there were also negligence claims. And the plaintiffs alleged that the engineering company Costello failed to use ordinary care in the operation design and maintenance of its pump levee and drainage systems as well as in the design and management of the system. They argued that ordinary care would have meant that designing and operating the stormwater system to protect the community from foreseeable rainfall.

Now, in this particular example, they actually had seen rain amounts like this before. It was extremely rare. They saw an incredible amount of rain during Hurricane Harvey, but it was not unprecedented. So a little bit different here. It had been documented, it had not been undocumented, it hadn't been completely projected or that type of thing. But you can see here how even this argument could easily apply in the context of a, well, it never was recorded here, but it was foreseeable because you had the modeling technology to know that this type of rainfall was possible. And so that case was ongoing for a couple of years. The parties ultimately settled out of court, and so we did not get a decision on the merits on their claims, and it was voluntarily dismissed. But it's interesting. Some of the cases that we've seen, like this, one have all gotten voluntarily dismissed and settled out of court, which makes you wonder why.

I would be remiss in not mentioning that CLF filed a lawsuit as far back as 2016 against ExxonMobil. This was a statutory claim, so a little bit different. But we incorporated this novel failure to adapt claim into what would've otherwise been a Clean Water Act enforcement case. And we argued in that case that ExxonMobil had failed to meet the appropriate standard for something that's called their Stormwater Pollution Prevention Plan, a SWPPP which is required under the Clean Water Act. And it specifically requires that the plan be signed off on by a professional engineer in accordance with good engineering practices.

So you see that and you're like, okay, a.k.a. standard of care. And so in that case, like I've said before, we argued that the standard of care for an engineer signing off on one of those plans would consider climate risk. And again, like the Costello Engineering case, that case settled out of court. So the engineering standard issue was never decided on the merits. But I will say that in some of the briefing and hearings for that case, the federal district court judge, Judge Wolf, who was overseeing the case accepted CLF's assertion that professional engineers working on large civil works projects routinely take

climate change effects into account. They're already doing that. And good engineering practices should include consideration of foreseeable extreme weather events like those caused by climate change.

Hannah Perls:

So definitely something to watch. It sounds like we don't yet have a case that's really clearly laid this out on the merits. But I'm curious before we shift to talking about the public sector and regulations, given all of this uncertainty and what sounds like a really clear case to be made that design professionals are to be held to a higher standard, how do you see this playing out in practice? Because obviously the design professional is not the only decision maker at the table when these projects are being built.

Deanna Moran:

Yeah. That was a really hard part of this work for us is we were giving a presentation about this report and our findings to a lot of different audiences, but often to design professionals. And they were really just terrified of, we want to do the right thing. You're telling us we're going to be liable and we're going to be on the hook for this. But like you said, they're ultimately not usually the decision maker. They can ask or advocate for their client to go above and beyond codes and regulations and to do what they think they should do to incorporate climate risk. But if the client says no, the architect, the engineer, whoever is really in a position to decide whether they want to go forward and potentially face liability down the road or walk away from the project, and that's a really unfair choice for them.

But the upside to having those conversations with design professionals is that we were able to mobilize them a little bit in terms of advocacy. Because they were really like, "Well, what can insulate us from this liability?" And we were like, "Well, the easiest way would be if we updated our codes and standards so you had something that you could really rely on that you felt like did incorporate foreseeable risk and did incorporate climate change." And they were like, "Great. Let's update the codes." So we were able to mobilize some professional societies, including the Massachusetts chapter of the American Society of Architects, to really get behind this idea of updating codes to incorporate climate change.

Hannah Perls:

That's a great transition to talk about those regulatory standards and what needs to be updated. So as you mentioned, it would be a lot easier for designers to advocate if the law required buildings to be designed with resilience in mind and so advocating on a project-by-project basis. Now, before we dive into those reforms again, can you just give us a quick primer on how the state building code works in Massachusetts and how it measures up when we think about those priorities that you mentioned earlier?

Deanna Moran:

So a lot of people that I talked to about this work are shocked to hear that the building code doesn't incorporate climate risk. They're like, "How can that be true? It's supposed to be there for public health and safety." First off, the Massachusetts State building code, which is not true in every state, not even true in every New England state happens to be both a floor and a ceiling here. And so by that I mean you have to comply with it. It is a minimum, but it is also a maximum. We do not allow municipalities in this state to pass local building codes that are more restrictive than the state code. So that's very different for people who work on things like wetlands. You know that it's often the case that as long as you're more restrictive than the state code, you can pass bylaws and ordinances that go beyond that. You cannot do that on the building code in Massachusetts.

So that's a real problem because not only is it acting as both this floor and ceiling, but it's not adequate because it's based on static information, historical observations. It's not including forward-looking climate science. And that plays out in two ways. And I'll give the flooding example as the example because it's the easiest one to understand. There are two ways in which the building code falls short on flooding. One is because it doesn't incorporate forward-looking information, our elevation standards, so how far a building needs to be off the ground to avoid flooding are really outdated. They're also inextricably tied to FEMA floodplains. So FEMA puts out these things called flood insurance rate maps, which we colloquially refer to as flood maps in many areas and flood risk areas to find a base flood elevation, so where you should be elevated to avoid flood risk. We keep tacking on numbers to that. So we do require a couple feet above FEMA based flood elevation in the building code, but it's not really based on much. We actually adopt the International Code Council's model codes. So some of that's coming from there and not from our own science.

But resilience is one of those things where it's so geographically specific and we have better information in Massachusetts about what flood elevation should be, and that's just not making its way into the code. And then the other piece, which is arguably more concerning, is like I mentioned, the code is inextricably tied to FEMA's flood maps because at the time, that was really the only universally accepted federal source of flood risk data. We only require flood-resistant construction in those FEMA floodplains. And we know ... and FEMA has admitted that those maps are not adequate for predicting flood risk. They really never were, and they never should have been used as long-range planning tools, but they are definitely not now because they don't incorporate any forward-looking risk. They're based entirely on historical observations.

And I think part of the reason people are surprised to hear that we're not doing this in Massachusetts is because we have done so much on the energy side. We have done a very good job of incorporating emissions reduction and energy efficiency into our code. In 2008 when we passed the Green Communities Act, we were nation-leading in adopting what we call a stretch code for energy. So we had our base code, which was based on the International Code Council's model codes, and that was a minimum what you needed to do on energy. But then we adopted this stretch code, which basically allowed municipalities who wanted to to opt into a higher standard. And because we linked it to our Green Communities Act and there was grant funding to incentivize it, every municipality in the commonwealth opted in. So we really need to figure out a way to do that on resilience. Resilience has gotten left behind.

Hannah Perls:

So we've talked a fair bit about this reliance on FEMA for understanding our risk now and in the future, and in particularly these flood insurance rate maps, the floodplain maps. First off, how often are those actually updated? And then if we were to disentangle ourselves from these rate maps, what would that alternative framework look like?

Deanna Moran:

Yeah. That's a really great question. I think a lot of people just assume that FEMA maps must be regularly updated. They must be pretty up-to-date. And in fact, if you look in a place like Boston, you might see that the FEMA floodplain maps were updated in 2017 or 2019. But what that means is very little. First of all, they're not systematically updated in any way that really makes a lot of sense across the country. So some places have super outdated maps, some places have some newer maps, but even when we talk about newer maps, there's a lot of complexity that goes into how they do the modeling. But a lot of the hydrology and that data that goes into the map is still based on information from the 60s



and 70s. So that underlying data that really helps inform where flood risk is happening isn't often updated, even if the maps are updated. And it doesn't incorporate all of the factors that we would normally consider when we're modeling forward-looking flood risk. It doesn't incorporate things like extreme precipitation or wave action. It certainly doesn't incorporate climate risk. So that's why we're seeing so many more flood claims outside of the FEMA-designated flood plan.

So it really has become pretty useless. And it's interesting because FEMA themselves will say ... I have heard multiple reps from FEMA in newspaper articles at presentations say this is not predictive of where flood risk may happen. These maps were created for a very specific purpose, which was to price the National Flood Insurance Program, to price insurance premiums. We talked earlier about how insurance premiums are really based on a point-in-time level of risk. It's not intended to be a long-term planning tool. They're like, "That's what these are for." So a lot of people have said, "Well, why can't FEMA just update the maps? Why can't they just incorporate climate risk into them so every state and city doesn't have to do it themselves?" There's been a lot of conversations about this. It comes up almost every time the National Flood Insurance Program is up for reauthorization. There is I think a broad desire to do this, but the barriers to doing it are just so great. It would be so resource intensive, so time intensive for them to do this for the entire country. Like I said, they can barely update the regular maps that aren't that good for the entire country now. So to do it in a completely different way and to do it across the country would take at least a decade probably, I would assume.

What we have said, and I think a lot of people would agree with, is the states really need to be out in front on this. They can be more nimble, they can move more quickly. Like I said, in Massachusetts, we have this data. The state has worked with Woods Hole group to generate this modeling data for the entire coastline. We just need to figure out how to use it and we need to not be afraid to use it. We've been able to rely on this mythical federal data set that everybody just agrees is right and that gives you cover in some ways like, oh, we're referencing FEMA. Everybody does. But we're getting to that point, and this is interesting from the liability perspective too, where everyone knows that FEMA is not enough. Everyone knows. FEMA knows. FEMA has said it. We have to stop pretending like it is.

Hannah Perls:

So on the federal side, it sounds like we need Congress to dig in and change the framework of the National Flood Insurance Act and the way the National Flood Insurance Program operates, which has been on everyone's wish list for decades. So we won't hold our breath on that one, but that would be the pathway for change.

Deanna Moran:

This might be controversial, but I would say that is not the right path. We need to separate long-range data and planning tools from the National Flood Insurance Program. The National Flood Insurance Program is an insurance program. The updates that are needed there that I think are on everyone's wish list are pricing, flood insurance premiums based on actuarial risk. Because the other issue is that we've been subsidizing disaster in this country for 30 years and incentivizing people to move to places where they never should have moved. So there is a bunch of changes that need to be made to the National Flood Insurance Program. Making forward-looking maps part of it, I'm not sure. I think it needs to be a separate thing. Whether the federal government should do it or not, I don't really know. But it needs to be this separate long-range planning tool separated out from pricing insurance premiums. Because we also don't want people who might see flooding in 30 years necessarily to be priced out of their homes because they can't afford their insurance premiums. There needs to be separate strategies there, I think.

Hannah Perls:

And in that last piece, you talked about people being priced out of their homes, and I wanted to quickly talk about, I think there's an overarching narrative that people who live in these high-risk areas who refuse to move are, to put it bluntly, being selfish or stupid. And I think it's really important to clarify or highlight the financial trap that can happen. So can you talk a bit about what you're seeing with these folks who live in these high-risk areas and, for whatever reason, are limited in their financial choices if they want to leave?

Deanna Moran:

Yeah. So there are definitely people who just don't want to leave. And that's fair because if I lived somewhere for 30 years, I don't know that I'd want to leave either, especially if I don't trust the information that the government's giving me about risk. Especially if I haven't experienced flooding where I live the whole time I've lived there. But there are also people who maybe originally thought that way and have come around to the science or just are finding out about the science for the first time. Like we said, there are no flood risk disclosure laws, so a lot of people don't know when they buy their house if their property is at flood risk. If you experienced it a couple of times you might want to leave.

The problem is, and this was something that played out post Hurricane Sandy in New Jersey, if you decide after a huge storm rolls through and devastates your home that you want to leave, your choices are limited. If you can't afford to rebuild or rehab your home, you might be stuck there. You might lose equity on that investment because your home's not worth as much as it was when you bought it. If information is driving the market and we have a correction in the market to reflect risk, your property value might go below what you even owe on your mortgage. You might end up underwater on your mortgage. You might need flood insurance when you didn't need it when you moved into your house. You might pay a lot more for your premium than you thought you would when you moved into your house. So there are all these financial considerations that for a regular person can be the difference between having to stay or being able to leave. And that's why buyout programs are so important. And we're advocating for a Massachusetts-based buyout program. There is a federal one that FEMA runs, but it's riddled with red tape and bureaucracy and it's super hard. It took, I think, one set of homeowners in Massachusetts 10 years to get through the whole process, so it is really not a feasible option.

But there are states like New Jersey that have state-run buyout programs, and that was a lifesaver in New Jersey after Hurricane Sandy because they had this really well-established, well-funded buyout program called the Blue Acres program. And they were able to come into these towns, Sayreville that I mentioned I lived near, and they bought out whole streets, whole neighborhoods of people whose homes had been destroyed. And they were like, "I just want to leave." And they bought them out at fair market value. They then turned the property into conservation land. They returned it to its natural state to use as a buffer to protect everything behind it.

Hannah Perls:

And it's pre-disaster fair market value, which is-

Deanna Moran:

Exactly. And that's what's important. Because if they go to sell their house on the market afterwards, it's going to be worth potentially nothing and really hard for them to sell. So we want to make sure that people have those options, especially if we're advocating for things like flood risk disclosure because we don't want to unintentionally trap a lower moderate income homeowner who in many cases their home

is their biggest asset. We don't want to trap them in an unsafe situation because they have no financial options to get out.

Hannah Perls:

So there's a lot of places where it sounds like we've got room to grow. You mentioned this conundrum where we have both the baseline and the cap baked into the building code here in Massachusetts. We had mentioned previously that one of the priorities for a meaningful policy is priorities to guide decision-making. Do we have any kind of priority in the Massachusetts building code around public health, equity, safety? Is that in there?

Deanna Moran:

That is a great question. The only one that is in the Board of Building Regulation and Standards, that's the board that oversees the building code, is public safety. Public health is not explicitly in there. Equity is not explicitly in there. What is in there is cost of construction. And there's no explicit directive as to how to weigh those things. And you would assume and hope that they would weigh safety higher than everything else. But in practice, what we've seen is that they tend to weigh safety and cost of construction pretty equally, if not safety, a little bit less. And so in these conversations that we have had with the board and the advocacy that we've done in front of the board to try and make the requirements more stringent, that's the most common response we get is like, "Well, we don't want to raise the cost of construction." Apparently, even if it comes at loss of public safety.

Hannah Perls:

So any reform sounds like it really needs to include a re-visitation of those priorities to make sure we're planning not just for the present but for the future as well.

Deanna Moran:

Absolutely. And one of the bills in the legislature this session that CLF is supporting would make those changes to the state building code. So it would address this issue of where we require flood-resistant construction. It would address the issue of elevation. It would propose that the state develop this resilience stretch code that I mentioned earlier, and it would clarify the board's Enabling Act to say not only is public safety a concern, but public health and equity are as well. And to provide a little bit more direction on how to properly weigh those things against each other and against the cost of construction.

Hannah Perls:

We'll link to more information about that bill in the show notes for our listeners based to Massachusetts. The other thing I just wanted to flag before we dive in a little deeper on municipalities is something I was really shocked to learn is that there's zero flood risk disclosure requirements in Massachusetts. So it means when you purchase a home, the seller is not required to tell the buyer about the property's flood risk or if there's any past flood damage. So just another thing to tack on to the list of failures. Well, so now we've done a comprehensive review of the bad news. We've talked a little bit about the solutions that CLF is pushing for. Before we talk about additional solutions, I want to make sure that we get to towns and cities. And I'm thinking in particular of Cambridge and Boston. These big cities with a lot of resources, but also a lot of real estate at risk. And does the state code bake any allowances for municipalities or major metropolitan areas?

Deanna Moran:

So no. Technically it does not. Even big cities like Boston and Cambridge have to comply with the state building code. They don't get a pass, they don't have any type of exemption from it. Where we do see cities sometimes able to circumvent these preemption issues with the state building code is through zoning. So zoning powers are really more about land use rather than things like construction materials. The building code's going to occupy the field. You're going to be preempted on that. But your regular zoning powers do give you the ability to say, for instance, all right, we know this area is going to be at risk of flooding, so we're not going to build here. It's not always possible to do that, especially in places like Boston and Cambridge that are fairly built out. So the other way that we see them use their zoning power is really not zoning per se, but in a negotiating context.

So there's zoning as of right, which is what somebody can do with their property without asking permission basically or asking for an exception. And then there's construction that happens by special permit for instance. We see a lot of that in Massachusetts. And that's basically where the developer is asking for something that they're not allowed to do as-of-right. And so there's a negotiation that happens and the city can extract from them things that they might not otherwise be able to get. And so say you give the developer a density bonus, they get to build more units than they would have under as-of-right zoning. In exchange, the city asks them to elevate their building more or move the HVAC to the roof, that type of thing. So they do have that negotiating power and Cambridge and Boston are definitely using it. So there are examples of that.

But small towns don't really have that leverage. One, because there's just not as much development happening in them. And two, they have less development that's happening by special permit. They have less sophistication on staff of how to deal with these things. And so they are left behind and they also are not able to experiment as much because whereas in a place like Boston or Cambridge that's a city, they can pass an ordinance.

So say City of Boston passed this flood resilient overlay district as an ordinance, they can just do that. And if it's in a legal gray area, they're just going to wait around for somebody to sue them and see how it plays out. If you're a town and you want to pass a similar bylaw, you have to get your bylaw approved by the attorney general's office. It has to be reviewed and approved by them. And they tend to take a little bit more of a conservative view of these things that fall in a legal gray area. And we saw this play out a couple of years ago when Brookline ... A little bit different, but they passed a bylaw that was looking to ban new gas hookups in new construction. And the attorney general's office reviewed that and they were like, "Nope. Building code occupies the field. It's preempted. You can't do this." So not exactly the same. More on the emissions side. But that is the hurdle that they would have to overcome.

Hannah Perls:

Gotcha. So up until this point, we've gotten a ton of really great information about buildings predominantly, and I think it'd be really helpful to shift gears a little bit and talk about critical infrastructure and in particular utilities and energy infrastructure and making sure that those facilities are sited and built with both current and future climate risks and mind. Can you talk a bit about how resilient our energy infrastructure is in Massachusetts?

Deanna Moran:

Yeah. So the problem with the term resiliency in the energy context is it's gotten co-opted to mean grid modernization or redundancy. And those things are certainly a part of the type of long-term resilience that we want to see, but we don't always see other things that we'd like to be part of those conversations. More long-range. Things like design standards, that type of thing. And so what we're

seeing is that a lot of infrastructure is really unprepared for extreme weather now, but more importantly into the future. And we are not seeing a lot of long-term risk planning on the part of investor-owned utilities in Massachusetts. And at CLF, we've really been modeling our advocacy on this after what we saw happen in New York after Hurricane Sandy.

And so what happened there was there was a group of NGOs including the Sabin Center for Climate Change Law at Columbia University that filed a petition with the PUC, which is their version of the DPU. To require investor-owned utilities to basically do this type of long-term planning. They were like, "Look, we got absolutely wrecked during Hurricane Sandy. We don't want this to happen again. What are you doing to prepare for the next storm?" And that really snowballed into what turned out to be a formal docket that the PUC opened. And in their final order in that docket, they required Con Edison to put together an extremely comprehensive climate adaptation and resilience plan. And that took two phases. There was a vulnerability assessment that happened that took several years, and then there was an implementation plan that came after. And we've been following that closely. Like I said, that took several years for that planning work to play out. And Con Edison has now released both their vulnerability assessment and the implementation plan, and they continue to be the gold standard for what we think investor and utility companies should be doing on this issue.

And to give you a taste of what they did that we think other people should do, they looked at things like the design standard for their infrastructure in floodplains. And this goes back to what I was saying about the building code. They were like, "All right. We need X feet above FEMA base flood elevation. We need to be looking beyond FEMA floodplains potentially for where we don't site infrastructure, where we don't rebuild infrastructure." They also looked at something as simple as the average design temperature for their wires, because I think the average temperature, the industry standard is like 85 degrees, and that's fine from an average temperature until you start to incorporate in these extreme highs that we're seeing in the summertime. And then you've got issues around like sagging lines and distribution issues, that kind of thing. So that's the type of thing that they're looking at. They're going really deep on that.

CLF petitioned in Massachusetts. We petitioned to the DPU twice on this. The first time was in 2019 and they never acted on it. And then we withdrew that petition and refiled in 2023 when the new administration came in. And at the same time, we were pursuing that administrative route. We also filed a bill in the legislature. So that's where our strategy departed from what happened in New York just because we weren't seeing any action on this from the administration. So that petition is still pending. The 2023 one is. And we do have a bill in the legislature actively on this that is moving. And basically what both the petition and the legislation would do is require DPU to open a docket on this. So let's do what the PUC did in New York and let's bring everybody to the table, all the stakeholders, including the [inaudible 00:42:30] utility companies, and decide what they really need to be doing to plan for this long-term. And most importantly, we want to see that be enforceable. We do not want to see a plan sit on a shelf. We want to see a really thorough plan created, submitted, approved, updated periodically, and we want to see incremental progress on that plan, even if that means that DPU maybe doesn't allow for something like storm cost recovery or increased rates because they have not seen progress on the plan.

Hannah Perls:

So we have a great model out of New York and action moving right now in Massachusetts to try to force our DPU to take on that model. But in the interim, we're still getting these extreme events. Utilities have to respond to those stream events. So assuming at this moment that our utilities aren't prepared for more severe floods, storms, extreme heat, what happens when those utilities have to spend money on rebuilding and recovery and under Massachusetts law, who bears those costs right now?

Deanna Moran:

So when infrastructure is damaged or destroyed now in extreme weather, those costs are falling on the rate payer and rate payer is just a fancy name for the customer of the utility company.

Hannah Perls:

You and me.

Deanna Moran:

So you and me. The way that we're handling this in Massachusetts is through something that we call storm cost recovery dockets, but that's really a bandaid solution. And I want to talk a little bit about what a storm fund is. So the storm funds were first set up in the 1990s because of settlements with a few investor-owned utility companies. They were set up to help level the impacts on customers of annual storm variability. So you and I don't want to get hit with a huge rate increase because there was a big storm last year and we have to pay that off all in one year. So by paying into the storm fund every year and then withdrawing money when extreme weather happened, the investor-owned utility companies were acting like their own insurance. They're spreading those costs out over a longer time period.

The problem is that what we're seeing with climate change is both more frequent and more severe storms. So even though the mechanism has been adjusted a few times over the last few decades, the utility companies still aren't contributing enough into the storm fund. And so it's in the red. And they're having to recover those costs separately through this thing called storm cost recovery dockets, which are separate from their rate making dockets. And from what we can tell, it looks like the system broke down in 2009. That's when National Grid took out \$30 million more than they had in their storm fund for costs associated with a 2008 ice storm. And the storm fund has been in the red ever since. And so in addition to them not adequately preparing physical infrastructure, which is resulting in this type of damage, every time we have extreme weather, there are two primary flaws in how the storm funds are operated, and both are related to our failure to adequately assess climate risk. One is the contributions to the storm fund. So they're not paying enough. And the other one is the threshold costs for storm fund applicability.

So in addition to underestimating the total storm costs that have resulted in the storm fund being chronically overdrawn, there's an underestimation of the likelihood that intense storms will happen and a low threshold for what constitutes a major storm. So they go into the storm fund too often and there's not enough money. Those are the two biggest issues. And what this does is ends up costing the customers way more money in the long run because the bill doesn't come due all at once. So what the utility company is doing, the storm cost recovery dockets is amortizing those costs out, and that means carrying costs. So the customers are paying not only the original recovery costs that were needed, but they borrowed from themselves through the utility company. So they're paying interest on that debt as it's spread out over many years. And we are estimating that in some cases that adds an additional 30% onto the cost of recovery for the customer. So we have, like I said, a petitioner in front of DPU and a bill in the legislature that would hopefully start to address this chronic cycle of disinvestment, no long range planning. We think even though there would be a cost to the customer to proactively invest in making the grid more resilient, it probably will cost less than the way that we're doing it now.

Hannah Perls:

I think what's so helpful about the work that you all do is once we can get really specific about the places where we see these systems breaking down, and in particular the places where we see an unfair

distribution of those costs, we were just talking about with the rate payers being burdened with this additional 30% because they have to pay off the interest. I think it's hopeful in a weird way because now we can diagnose those failures and hopefully with targeted solutions like you're proposing in these bills, actually address them in the hopes of being able to plan for a more resilient future in a way that is actually equitable. So really encourage our listeners to check out those bills. Again, we'll link to those in the show notes.

But as promised, we saved, in my opinion, the best for last. We're going to talk about permitting. And one of the reasons I wanted to talk about permitting is there's this really close connection between building and wetlands. And in particular after the Supreme Court decision in Sackett, which eliminated up to 63% of federal protections for wetlands in the United States we start to get really interested in state protections for wetlands. And there was a great study out of the Environmental Law Institute published in 2022 that found that 24 states have no wetland permit requirements above the federal requirements. And we'll link to that study in the show notes as well. And so there are states certainly that are looking to beef up their wetlands protections after that Supreme Court decision in Sackett, and those include Colorado, Wisconsin, Illinois, but there are also states that have passed laws to open up more wetlands for development, including Indiana and North Carolina.

And this is just really puzzling to me because that means not only putting more infrastructure in these high-risk areas, we know wetlands flood, but it also means eliminating those crucial ecosystem services that wetlands provide, which means mitigating the impacts of flooding and storm surge. They filter pollutants, they replenish our groundwater reserves, and of course they provide habitat. So given this is something that we're seeing play out in really different ways all across the country, how are we seeing this tension between the need to build, we have a housing crisis, but also the need to protect wetlands and habitat that provide that flooding buffer?

Deanna Moran:

So the good news is that unlike some other states in the US, Massachusetts does have a really strong state wetland protections, and we have no indication that the administration is looking to roll that back. So in terms of the Sackett decision, we're in a better position than a lot of other states, including other states in New England. The issue in Massachusetts right now is that we need to modernize our regulatory frameworks for things like wetland protection, stormwater management. I mentioned earlier, we don't incorporate forward-looking climate science into any of those regulatory structures. We need to. And that's not unique to Massachusetts. It's similar issue that we're having with the state building code. And again, we're accustomed to being able to base our standards and regulations off static information. I think the other context here for wetlands is we ushered these protections in the 70s. In an era of absolute chaos. There were no protections. And so we were really focused on maintaining the status quo in a lot of ways. We don't want the resource areas to be impacted. They serve this important function. We have to protect them. That was the mindset and you can tell that that's how the regulations were written.

The problem is that in the world of climate change, things are changing and it's not static, and we don't always want to protect the status quo. Sometimes we need the resource areas to evolve. Salt marsh migration is a really good example of that. If we don't allow the salt marsh to migrate and make space for that and allow that to happen and facilitate that, they're going to drown because of sea level rise and then they're going to be gone. So that's an example where we don't want to protect the status quo. We need to be thinking ahead and incorporating forward-looking science on how to protect them in a different way.

And so that's really hard. We have to update our thinking about the regulatory framework to allow for that. And it's also a balancing act because we don't want to inadvertently blow a hole through environmental protections resulting in negative consequences to the resource areas. So it really is this careful balancing act. DEP just put out in Massachusetts at the end of last year a regulatory package to revise the Wetlands Protection Act in Massachusetts and chapter 91, which is our Public Waterfront Act, to better incorporate climate change. And public comments on those are due April 30th.

Hannah Perls:

We can link to those in show notes as well.

Deanna Moran:

Some of the things that they're trying to do are address this issue of risk to try and be more forward-looking on what's required to be more friendly for permitting of things that are actually good, like the category of projects we refer to as nature-based solutions.

So things like wetland restoration, berms, living shorelines. Those are generally considered to be better projects than great infrastructure, where they work. There are some urbanized environments where they're not going to work. But if it's a possibility, we want to leverage the natural capacity of these resource areas to protect us. And so we want to make it easier to permit those types of projects and to, in fact, incentivize them or prioritize them over things like seawalls, like gray infrastructure. So that's something that we're thinking about and we're trying to do through these revisions.

I will also say, shout out to Mass DEP for going out on a limb, because one of the things in the regulatory package that's so interesting is that they're also for the first time proposing to prohibit any new development in what we call the velocity zone, which is a very specific part of the FEMA floodplain. It's subject to wave action. So it's the most risky part of the floodplain. And there's a lot of things that already exist in the VE zone and that stuff won't be affected, but they are proposing to prohibit development there going forward. So that's going to be a hot-button issue. It'd be interesting to see how that plays out.

We are obviously supportive of that move. But they still have a ways to go. We point out in our comments to them that they're still relying on FEMA really heavily, and they're not incorporating forward-looking risk on floodplains data outside of FEMA that we have. The state has really good data on where we expect to see flooding on the coast. And that's important because we have a resource area under the Wetlands Protection Act in Massachusetts called Land Subject to Coastal Storm Flowage, which is just a really fancy term for floodplain. And that is tied in to the FEMA regs. But we know, and we are already seeing a lot of flooding happening outside of those FEMA floodplains. So how can we think about that resource area differently and not based on this federal data set that we've always used, and not based on historical observations, but on something that we know might happen in the future? And that's hard.

Hannah Perls:

So we've covered so much ground. I'm so appreciative, Deanna for you, for your time, for your expertise, for all the work that you're doing at CLF. I think it's really exciting to not just look at this as an adaptive challenge in terms of the science, but also adaptive in terms of the way that we think about rule makings and administrative action. This is what feels like a very new way of looking at the law and a new way of thinking about how we identify the problem. Because not just talking about the problems we can see now, but the problems that we anticipate in the future. And it is a whole new way of



thinking. So I just really appreciate you coming and sharing your enthusiasm and your wisdom with us. If folks want to learn more and they want to follow your work, where can they go?

Deanna Moran:

Yeah. They can go to CLF's website at [www.clf.org](http://www.clf.org) and they can follow me on ... I think it's called X now, but I just keep calling it Twitter. My handle is @demoran18.

Hannah Perls:

Great. So we'll link to that information and of course, all the resources that we flagged throughout the episode. Thank you again, Deanna, for speaking with me today.

Deanna Moran:

Happy to be here. Thanks.