

Welcome to CleanLaw from the Environmental and Energy Law Program at Harvard Law School.

Electricity demand is surging, driven by data centers and the broader shift toward electrification. The United States faces a critical question: can the country build the energy infrastructure it needs fast enough to support economic growth while advancing the clean energy transition?

As Congress debates the scope and timing for permitting reforms, we are sharing a special joint episode of CleanLaw and Climate Rising recorded earlier this summer. EELP Founding Director and Harvard Law School Professor Jody Freeman and Harvard Business School Professor Mike Toffel sit down with Nat Keohane, president of the Center for Climate and Energy Solutions, to discuss why building new energy infrastructure has become so difficult, what permitting reforms could accelerate clean energy deployment and transmission, how AI is reshaping this debate, and why solving these challenges may be essential to both climate progress and American competitiveness.

We hope you enjoy this episode.

Jody Freeman: It's great to be with you, Mike. And Nat, thanks for being our guest.

Nat Keohane: Well, thanks for having me. Really excited to do this, and with both of you, so it's fun to have that combination of business and law.

Mike Toffel: Jody and I have been talking about this for a long time, trying to figure out opportunities to come together and have a pan-university conversation that spans the business and climate intersection that Climate Rising holds, and the environmental policy and law focus of Clean Law, and we really couldn't think of a better person than Nat, you, who studies law, policy with an economic lens, sitting in Washington and focusing on a topic of super importance to both law and business, which is the energy transition. So, we're delighted to have you join us for this conversation.

Mike Toffel: So, Nat, why don't we just begin, if we could, with a little bit about yourself, your background, and your organization?

Nat Keohane: Sure. Well, thanks so much for having me on. It's a real pleasure to be talking with you both, and I know you've got a great audience and a great mix of business and policy and law, so it's, which is a great, great place for me to be.

So, I'm an economist by training. I got a PhD at Harvard, actually. I spent seven years teaching economics at the School of Management at Yale, so I was a kind of business school environmental strategy professor. And just when I got promoted, I decided to leave academia because I wanted to get more involved in the policy debates. I went to the

Environmental Defense Fund. This was right in the midst of the climate legislation battles in the US Congress.

I built the economic and policy analysis shop at EDF. I then was brought into the Obama administration, I think, Jodi, you and I just missed each other. Right. Because I came in in January 2011, the second part of the first term to work in the National Economic Council.

I left after two years, went back to EDF, ended up running the climate program at EDF, and then, left five years ago almost exactly to run the Center for Climate and Energy Solutions, or C2ES, which is where I'm the president now.

We're all about climate and energy solutions. We're very pragmatic and solutions-focused. We work quite closely with the private sector. We've got a business council of forty-plus Fortune 500 companies and a broader array of one hundred and fifty to two hundred companies we work with on technology and innovation, climate resilience, and regional clean economies.

So, one of the things that sets us apart is working with business, working with the private sector. We're very involved in a lot of the policy debates in Congress in Washington, DC. We work on federal policy. A lot of our work is on emissions reductions, new technology, technology innovation, building out an economy, a clean economy in the US. We are doing more and more work on resilience, and some other issues as well.

Jody Freeman: One of the reasons I really admire your organization, Nat, and your work, is that sort of insistence that you have to engage with everybody, and you have to engage with business. And, at the law school in my program, we have a similar philosophy that you can't be an advocacy organization and talk only to one side of this equation. So I, I think that it's terrific what you're doing there, and, and your leadership is, is inspiring.

Mike Toffel: So, one of the topics that you deal with at C2ES is the energy transition. I'm not an energy person myself, but my understanding of the energy transition essentially is we have a demand side and a supply side. On the demand side, there's a growing interest, for those who want to meet climate targets, in shifting from fossil fuels to electricity and battery or other types of storage, and that's anything from automobiles moving to electric vehicles to other types of transportation, trucking, for example.

And it's moving from heat using fossil fuel combustion to heat pumps, so that's for the building sector. Lots of different pressures to move from fossils, but then to rely more on electricity. And then, of course, there's the whole data center revolution, which is getting a lot of press right now, and all the additional electricity that will be required to heat and cool and power those buildings. And then on the other side, there's this question of, well, how do we actually deliver new generation and distribution of renewables and perhaps even

nuclear, which is another low-carbon electricity production technology. And in the midst of all this is, I think, a general consensus that things are moving too slowly, that the demands are outstripping the ability for the system to increase supply of renewables, and so maybe we have to unleash new fossil fuel power and sort of might set us back against the climate targets that we were hoping to achieve. . And permitting reform seems like one of those topics that if we can get people aligned and, and move things faster, then maybe we can actually help the supply catch up. But that's sort of my non-energy person take on what's going on. Jodi, do you have a take on this as well? And then we can ask Nat for the solutions.

Jody Freeman: I want to get to Nat as quickly as possible, but I want to add just a, a little color commentary, which is, you know, this focus on permitting reform; it's almost a buzz phrase that suggests, we don't build stuff anymore in this country.

We don't build infrastructure, including infrastructure for the grid, infrastructure to help connect solar and wind to the grid. And so, we need this thing called permitting reform in order to move forward on the clean energy agenda. That I think is something we want to unpack because there are a lot of assumptions that go into the claim that we need permitting reform.

But I also want to suggest we should spend some time in this discussion talking about the context we're situating this in, because this is a potentially bright spot at the moment. There might be some bipartisan agreement over this issue, but we should situate it, and know I, I know, Nat, you know this well, in this larger moment we're in the second Trump administration, where there aren't many bright spots on climate and energy policy if you're interested in the clean energy transition, and we should talk about the sort of positioning of permitting reform in that larger context. But let's talk to you, let's ask you, Nat, to set up this discussion.

Nat Keohane: Super. Well, look, I think there's a lot involved in what both of you just said, and so I'll give you my take. And Mike, it might differ a little bit in some respects, but let me start with how I see the US case, which is what I know best, but I also want to touch on a little bit about the global case because I know you've got listeners from all over the world.

In the US, we are in a remarkable moment right now in the US with respect to the energy transition, and for somebody who is always predisposed to think about things in terms of the path forward, and action, and hope, and optimism, if I weren't optimistic, I couldn't show up and do my job every day.

I think it's a moment of incredible opportunity, but also of risk. And let me explain what I mean. So, I'm going to start with the demand, just the energy demand for energy. Mike, you

mentioned this, but the demand for energy in the US is projected to grow and is starting to grow at a rate that we haven't seen in 50 years.

So, that's in terms of percentages. In terms of absolute numbers, it's arguably bigger than it ever has been, right? Because the energy system is bigger. So, if you go back to the 20th century, you know, back in the '50s and '60s, Hannah Ritchie had a great Substack on this recently. You look back at the '50s: electricity, of course, the grid was newer, growing at 5%, 6%, 7%, 8%.

The '60s still at about 5%. The '70s, maybe around 3%, if I got my numbers right. Basically, slows down, and then it gets Electricity demand in this country was flat from about 2005. That's partly because energy efficiency means we're using energy more efficiently. Think about LED light bulbs instead of the old incandescent ones, more efficient air conditioners, more efficient refrigerators, appliances of all sorts, more efficient industrial processes.

Some of that is regulatory, some of that is driven by saving money. So, you've got a period of time for about 20 years where electricity demand is flat in the US. Now suddenly, we're looking at a significant upturn. Some of that is sort of years in the making. Mike, you mentioned the kind of electrification that needs to happen from a climate perspective if we're going to get to net zero emissions; we're going to get to the point where we're not putting anything more into the atmosphere than we take out.

Well, the first place you start is by electrifying as much as you can because you can-- then you can clean up the electric power system, and that's a great way to get to, to get carbon emissions down. So that means electrifying transportation, that means electric vehicles, that means cars and trucks, eventually long-distance trucks and so on.

That all happens over time, but that's a new load onto the power system. It also means electrifying businesses and industry, homes, as you mentioned, HVAC systems, residential, commercial buildings, but also industrial systems. Lots of industries use heat as a process, and you can generate that heat with electricity in, in many cases instead of needing to burn coal or fossil fuels.

Okay, so already that was underway, but the big game changer, you mentioned, Mike, has been data centers and artificial intelligence. I'll tell you a quick anecdote. I'm on the board of the Electric Power Research Institute, or EPRI, which is the kind of research arm of the US electric power sector, actually increasing the global electric power sector.

I joined that three years ago. When I joined, when even the electric power utilities were talking about flat demand.

They were starting to think about how you are going to deal with the slow increase in electrification from EVs. But it was very much a boy, we've got to think about the utility business model in an era of flat demand. Almost overnight, in the context of the three years, it wasn't long before, like that spring of twenty-four and certainly summer of twenty-four, the conversation had changed completely, and it was all about how we are dealing with the hyperscale of the data, the data center-driven growth.

So, it's both the total amount of growth, which is now projected to rise at three or five percent in this decade going forward, which is a rate we haven't seen since the 1970s, but it's also the size of the data centers. You talk to utility CEOs; it used to be that kind of a fifty-megawatt facility was like a big interconnect or a fifty-megawatt facility.

Now they're talking about data centers that are five thousand megawatts or five gigawatts of power. So, it's totally changed the electric power sector conversation in the US almost overnight. Now, why do I say that's an opportunity? It's because we've got to meet that demand somehow, and Mike, this goes to your supply question.

I think that's an incredible opportunity if we get the policies right to have that demand be met with, to f- first of all, the in- the current demand be met with clean energy. I can talk about supply in a sec. And, and but also to pull forward the next generation of clean technology. So, if you look right now, the cheapest way and the quickest way in many ways, in many cases, to get new electricity onto the grid is solar panels plus battery storage.

This is very different than when I started working in climate 20 years ago. The costs of solar power have fallen basically 90% globally since 2010. Costs of battery storage are plummeting. You need the batteries because the sun doesn't shine all the time, right? It doesn't shine at night, but the batteries can help store that and smooth out the power.

So right now, if you're putting electricity onto the grid, solar plus storage is often, it's at very least, cost competitive; in some places, the cheapest thing to do. Nat, but we need so much power. Yeah.

Jody Freeman: I want to throw some skepticism in the bucket here- There was a moment when it looked like the hyperscale's, the big tech firms that were going to need huge amounts of power to power these data centers for AI, that they were making for their own company's net zero commitments, and then all of a sudden, with, as you said, overnight the bursting of AI onto the scene and the shift in politics in Washington with a new administration, it suddenly looked different to a lot of people who said, "Wait a minute, now the hyperscale's just want to build, and quickly, a bunch of natural gas."

And they're going around to the utilities and to the states shopping for the cheapest, fastest build. And it comes along with a real anxiety about who's going to pay for all this new power.

Nat Keohane: No, I appreciate it. Let me make a couple of quick points. One is, I guess, where I was going, and I'll just be quicker about it: the technology is there to be cost competitive if we have the right policies and practices in place. This is very different. So now on that supply side, we have this huge energy demand.

We could meet that with solar and storage in a way that's really cheap way. The question is, will we? Okay, so to come to the hyperscale's question, Jodi. I mean, we work with all the big hyperscale's are actually in our business council, and we work with them closely. I will say there's.

And, and then there's other groups like X AI, and so then there's data center developers that are just building data centers on spec because they figure people will come. I think it's really important to recognize there's a diversity of practices across all the hyperscale's.

I won't go into each of them. I will say I think Google, for example, is doing an excellent job. They are really trying to hold the line, on their clean energy purchases. They've made major commitments to clean energy, and they are really doing more than just buying a lot of solar now; they are doing things like signing long-term future agreements with Fervor, which is a geothermal company.

So, Google is underwriting the ability of this new technology, advanced geothermal, which taps hot rocks deep, deep underground to produce steam and drive turbines. They underwrite that with a long-term power purchase agreement, basically enabling Fervor to make the plans now to produce power in five years.

So that's what I mean by bringing forward the next generation of technology. The way I think about the hyperscale's, because you're right to be skeptical. I mean, certainly right to ask the skeptical question. The way I think about it is, the hyperscale's need to be willing to do two things. They are-- They need speed to power.

They need to power up their data centers as fast as they can. The chips they are buying, all the money in the data centers are in the chips, the GPUs that NVIDIA makes. Those GPUs basically are obsolete within two to three years of you buying them, because there are so many product cycles. So, two to three years after you buy them, they're basically worthless, even if they're installed.

So that means if you have to wait six months or eight months or 12 months to hook up the power, you're losing a big fraction of the cost. So, they need speed to power, but they also, I think, are willing, in varying degrees, to buy clean. They, all these hyperscale's have deep pockets. They have a lot of cash.

They've made the commitment. So, my bottom-line view, and this feeds into the policy and everything else, is if we give them the possibility, we, the collective we, the community, the policies and so on. If they can build speed to power and clean, they'll do that. They're willing to pay. If we make them choose between speed to power and clean, they'll all choose speed to power. And so, the question is how we make it as easy as possible, to, and as fast as possible, to build solar plus storage and connect it to the grid. And then to bring forward that next generation of technologies.

Jody Freeman: Just on the fine point of you emphasizing solar plus storage, which we all would like to see, there's an argument that you just can't do this on a scale, at the scale required without natural gas. Which is, of course, the backup- for the intermittency problem, and storage is about d- time delay. It's not necessarily performing the same function as natural gas. And maybe this is too nerdy and technical for some people, but I think it's important if we can just have you really explain: this can indeed all be provided without natural gas, or do we have to come to terms with the fact- Yeah that we are going to need to add natural gas to the system, too?

Mike Toffel: And let me add to that before. So, you've been talking about solar and battery storage. But what about wind?

Nat Keohane: Yeah. So, let me address that one first. I mean, first, I think there are a couple reasons to talk about solar and storage rather than wind. You certainly could do wind, plus storage. Wind has been successful. I mean, in the previous decade, wind, you know, was quite successful. I think you- what you're seeing is you see much more local opposition, not just.

I mean, there's also political opposition in the current administration that colors all politics here. But I think you also see just local opposition to wind a little bit more, and I think the economics of solar have improved faster than they have for wind. I would say, look, we need everything. We need all the low-carbon solutions, and so we should certainly have wind.

If you're looking right now at what kind of speed, what's quickest in terms of speed to power, it would, in terms of just the underlying technology, I think most people would say it's solar and storage. So, I don't mean to shut wind off to the side; I just mean, like, the lead thing is just put up a bunch of solar panels.

Nat Keohane: I guess I would argue if you look at things like what are people building now, that the tax credits are starting to expire, the clean Ener the renewable energy tax credits, we can come back to that, I think there is more sol- there's much more solar in the queue than wind, and there's a bunch of reasons for that.

But I think some of that will probably outlast this administration. Some of it's political; I think some of it probably is technological. But to get back to your question, Jody, which I think is a great one. So, three quick things, like, to, to put in here about the electricity system, right? One is, number one, that you need to distinguish between getting electrons onto the grid for, like, a data center, like, what's fastest for a facility or just to get new electricity onto a grid, and what works at a system level.

Obviously, at some point, you build enough facilities, and you're getting up to the system. At a facility level, you're building a new data center; you need a couple of thousand megawatts or, you know, need a gigawatt onto the, onto the grid. Solar and storage can work. I mean, it depends on the precise configurations, but generally, the, I mean, the grid is, you know, massive, right?

So generally, you're talking about a facility where you put on solar and storage; that's fine. If you're thinking about system level, there are a couple things that come into play. One is you need reliability, right? So, you need things that can run 24/7. That's the big one, which feeds to reliability.

You need 24/7. Even storage, the storage that we have is typically pretty short duration. So, there are long-term battery storage ideas that are just coming on, but most of the batteries we have now are just like you're stacking up a bunch of lithium-ion batteries, like the ones in your laptop, that only hold a charge for a few hours at a time.

So, you're absolutely right. For the 24/7 power, you need something that can be dispatchable. It's base load. Right now, the best opportunity for that is natural gas. This is where some of those new technologies come on. I mentioned geothermal. Yeah. Geothermal is a 24/7 technology. That's always on. If you can get that on the grid, that can play that 24/7 always-on role.

Nuclear is another one. Super expensive to build, but there are new technologies that some people think will be cheaper. We'll see. But if they came on, another way to do that at zero carbon.

Jody Freeman: So, this takes us to all of the challenges you have to solve if you're trying to enable the transition. You've got huge demand from AI; even if it's a bubble, there's going to be, even if it were half what's being projected, it will be a very significant uptick in demand. You've got all the demand that environmentalists should be in favor of from decarbonization, that you need if you're going to decarbonize, which is, as you say, electrifying everything, transportation, buildings, and so on.

So, if you're interested in climate change and in ameliorating it and mitigating its risks, you want to be in favor of big demand on the grid, which means you want to be in favor of

building out the grid. And so, this brings us to why it is so difficult to do and what we need to change to facilitate it.

Nat Keohane: Let me pull out some of the most important reasons for why it's hard to build new stuff and connect it to the grid. And I say build and connect because you need both of those things. I will just note, I've painted this glorious future in which we build all this solar and storage, and we bring the new technologies forward.

There is a dystopian future in which all the data centers are just fed with power from what's called behind the meter, not connected onto the grid, natural gas or diesel generating sets. I mean, there's like a dystopian world in which we get a lot more emissions, and we don't get a modernized grid, and that's bad for everybody.

So, the question is: how do we build cleaner and connect it to the grid? And I would pull out three challenges, okay? I mean, there are more than this, but to be simple.

One of them is building new facilities. We can come back to this. This gets into the actual process of sort of permitting new facilities, but it is the reality that it's and I sound like an abundance bro when I say this, but it's too hard to build new energy infrastructure in this country, including new clean energy facilities. And if we made it easier to permit new facilities, that would allow us to build faster. That's probably, that's the real thing. I don't know that that's where the big emissions reductions come from in terms of a clean energy hawk like a climate hawk, but that's a real thing.

It's also linked to the second point, which is it's too hard to build new transmission, okay? Some of that is the same permitting things. Some of the existing infrastructure environmental laws, in particular the Clean Water Act, do make it harder to build transmission. But the biggest problem with building transmission is the transmission we need to really build out a modern grid is long-distance transmission, okay? So that's connecting, you know, from one state to another.

If you think about the transmission system, you look outside your window, you know, there are the telephone poles. That's like the distribution system. That's local. That's just run by the local utility. But then there are big metal, you know, long-range transmission wires that you see, you know, cutting through a forest or something.

We need more of those long-range transmission lines. It's hard to cite those, not only because of the permitting, but also because if they cross multiple states, there are sort of different states has different rules; they get to weigh in, and states will block that. There are disputes over how you allocate the costs.

All of those things probably need to be dealt with at a federal level. And then the third piece is an “inside-the-system” thing, and this differs across different regions of the US, and that's connecting. So that's not just building the facilities or building the transmission; it's connecting a facility into the grid.

It's called an interconnection. The grid is this marvelous machine I mentioned, right? You can't just plug into it. The engineers have to make sure it's going to work okay; it's not going to disrupt the voltage and all those things. And so right now it just takes way too long to connect in in most places around the country, and this varies by region.

But you have interconnection queues, which is what they're called. You have people waiting two, three, four, five years, to hook up. And then you get this weird system where then, because everyone knows it's going to take a long time, everybody gets into the line, everybody gets into the queue just in case they're going to need it in a few years, and that makes the queue even longer.

So, you have these crazy incentives and this crazy process. That interconnection queue probably needs to be dealt with; that system needs to be dealt with at those individual system operator levels. But the permitting piece that I mentioned and the transmission, the interstate transmission, that can be helped by federal policy.

Jody Freeman: So, can we talk about this in a little more detail? Because if we're talking about the holy grail of permitting reform, all of this falls under it. And we have an overlay here of a legal and regulatory system that has proved very resilient to change.

The things you're talking about now, you and I both worked on in the Obama administration, which now feels like a million years ago, and even then, it wasn't the first effort to do this. The efforts to modernize transmission, siting, and cost allocation go back decades. In fact, you know, the George W Bush administration tried to address this new legislation to speed up federal permitting of certain high-priority transmission lines and certain critical corridors. What I'm trying to say is this is an old story that has come up against a legal system that divides power between the federal government and the states.

The Federal Power Act makes it very difficult for the federal government to just bigfoot what the states want to do to step on them. I think you're calling for new legislation that would change that. But we then have, in addition, the problem of local control over zoning and permitting that presents obstacles. And then what you alluded to before, which is the disputes among states about who's going to pay for this and who's going to host these new lines. Not all the states will get the benefit of the power, but they're going to have the costs foisted upon their ratepayers. Those are things that don't get solved by waving a magic federal wand. It's complicated. .

And so, the question is, when you say they must be dealt with, how do we start dealing with these things? Are there new ideas that have surfaced, new pressures because of the dynamics you described about AI and so on? What is changing that is making this look more possible?

Mike Toffel: And let me just add to that, a request for a little more clarity on what is causing the slowness. Because there could just not be enough workers to process the applications, and there's a big queue. And so, all we need to do is 10 times more people to process the paperwork. Or there are time lags built into the regulations that allow six months for a comment period, and really, we need to make that one month. Or maybe you can allow lawsuits to happen, like, any time during the process, as opposed to saying, like, "You get a month to file a lawsuit, and if you don't file it, then it's too late."

There are all sorts of possibilities; I'm just speculating here. So, if you can help us articulate the problems, then the solutions will match more readily, at least in my head.

Nat Keohane: I'm tempted to say, Mike, in response to what you said, all the above. And I'll come back to that. I want to acknowledge, Jody, something you said: absolutely, federal action is not a panacea here.

If you look at them, even just the permitting issues, right? Even just sort of siting a facility, there are federal permitting issues, there are state ones, there are local ones, there's local zoning, as you said. You can't do all that with federal legislation. I think, at least in Congress, I do think there's a deal that could take shape. I am relatively optimistic. We can talk about the pluses and minuses of what the odds are, but I'm confident there is a deal, which is different than saying it's going to pass, and, and the reason is that some of the things we've been talking about I think have changed the political landscape over the last couple of years.

So two years ago, in 2024, there was an effort to pass permitting and transmission reform. That did not get passed, but these environmental statutes that were enacted long ago that many people argue now have made it too hard to build, new facilities; that's something that the Republicans have long wanted, right? That's a classic Republican priority in US politics: cutting red tape, making it easier to build, not just clean energy, but things in general.

So that was already seen as the Republican ask. And the transmission reform piece, how to build interstate transmission lines and make it easier for the federal government to work with, maybe even overrule states when they didn't agree, that was seen as a Democratic priority because it was seen as, how do you get green electrons from renewable projects to blue cities, right?

And so, it was seen as like, it's going to be a grand bargain. The Republicans want this; the Democrats want that. I think things have changed to make both sides see the virtues of both of these things. I think more moderate Democrats are willing to say, "You know what?

We need to build more things. And we do need to think about how to streamline, making it easier to build energy infrastructure, including clean energy infrastructure." So, I think you've got Democrats saying, "Okay, we're willing to look at the permitting reform piece."

And I think you've got Republicans saying, in the light of everything we've talked about, this booming energy demand, competitiveness with China, and the AI race, all those things, I think you've got Republicans saying, "You know what? Maybe building more transmission in a modern electric grid is good for our priorities as well."

That's why I think there's more opportunity to do it now than maybe a few years ago or, or, or, you know, all those times before that we mentioned.

Jody Freeman: In 2023, Congress did pass the Fiscal Responsibility Act about the debt ceiling. And included in that were a series of reforms for permitting under the environmental impact law that's called NEPA, the National Environmental Policy Act. That's the big federal law that requires impact statements whenever the federal government is financing or permitting or involved in a big infrastructure project that has an environmental impact.

And this set of reforms in 2023 was supposed to speed things up, put some page limits on those studies and put some time limits on those studies and require a lead agency to coordinate across agencies of the federal government and so on.

Did that not make a difference?

Nat Keohane: So, I'll remind you of an anecdote. You know this, Jody. Yeah, the folks on the Republican side, would say yes, but then the chair of the White House Council on Environmental Quality went up to the Hill and said that nothing had changed as a result of that.

So, what are the kinds of things, if we talk about permitting reform as distinct from the transmission piece, what are the kinds of things we're talking about? I think there's a middle ground, but, you know, just to acknowledge, some of these are super contentious. It's like filing a suit to stop a project, right? There are at least half a dozen different agencies, more than that, involved in federal permitting, under various laws. We brought them in, and we asked them simple things like, "How many permits do you have in the pipeline? How long does it take you to write them? How do you coordinate with other agencies?" Nobody could answer those questions at all. Now, that was 15 years ago. We did some minor reforms.

Maybe things are a little bit better. But there is a need. I know my friends on the liberal side will say, "Wait a minute, these are really important bedrock environmental statutes," and they are, but they're not perfect, and there is a need to to put, time limitations on how long it can take to do it.

C2ES, has been a main advocate and the impetus behind something called the Permitting Act, which on its face seems very obvious and a no-brainer. This is something that was introduced, I think, in the last Congress and reintroduced this Congress by, Congressman Peters and Dusty Johnson from South Dakota, bipartisan.

It would basically put permitting online. It would put all the perm- federal permitting procedures online. There would be a visible dashboard, a lot of transparency. You talk to folks who are really concerned about things like statutory deadlines in permitting reviews and NEPA reviews. One of the challenges is lack of transparency, right? So, nobody knows when the clock starts. So, if you say there's going to be a 180-day clock to respond to the You know, to put in a comment or to respond to this or to file something, but nobody knows when the clock starts, then it's going to be a lot harder to get people to agree to that 180 days, because maybe they find out on the 179th day that, you know, some developer filed a paper copy in some basement in DC somewhere.

And if you make all that transparent, you put it all online, I think you actually build a broader consensus that it makes sense to have some of those statutory deadlines.

Jody Freeman: One of my beats was interagency coordination when I was in the White House, and it's intensely frustrating when you're in the government, and you want to get something done, and you can't manage to coordinate the agencies.

So, I'm all for improving that. I guess my only caution is just when people talk about delays, there are different reasons, as Mike suggested, for delays. Sometimes it's, you know, you've cut the staff of the agency so much they can't get to the work. Yes. And that's just not opposition to citing infrastructure; that's federal capacity that might be gutted by one administration or another. And the other thing to just point out is, much of the work, I think, that's being discussed, that y- you raised some ideas and, and I raised the same about, you know, time limits and, and clocks and simplifying scope, that actually is part of the bill that Congress already passed in this 2023 law.

And so, the question is, is it already in legislation and just not being done, just not being implemented? You know, the Trump administration has absolutely reformed this process of permitting under NEPA. Basically, said that the central agency we're talking about, the Council on Environmental Quality, which is part of the executive office of the president in the White House and has always had possession, if you will, of NEPA, this environmental

impact statute, it's basically been giving over its authority to the individual agencies and said, "We're no longer playing the central coordinating role."

And so, you might say, well, that's a step away from what we want. We want a top-level White House office coordinating these agencies, leading the way, writing the rules so all the agencies follow the same process and, you know, follow the clock. So, all I'm introducing is really two things. One, Congress already passed a reform bill, and I wonder, do we need to double down on that or just make sure those changes actually get put into action?

And secondly, what do you really want from the executive branch in terms of leadership on some of this permitting reform, and are you going to get it from the current administration- Mm no matter what you do on the Hill?

Nat Keohane: So, I mean, I think two quick answers, right? I mean, one is I do think the current legislation, the sort of possible text that's being discussed, goes a little bit further than the Fiscal Responsibility Act.

So, I think, to codify some of those changes. I think it's also a matter of, like, how do we get a comprehensive package that really does something, not only on the permitting piece, because if this were just about permitting reform, you couldn't get 60 votes in the Senate and 218. Well, you could get 218 in the House, but I don't think you get 60 votes in the Senate.

Because as much as I think folks on the Democratic side see the potential to make some changes on the permitting side that make it easier to build stuff, they also want to see that transmission piece so that we can build a more modern grid. And so to get this to 60 votes, which is the number of votes that you need in the Senate to pass regular, to pass regular legislation, to get that 60-vote threshold, I think you need both the permitting piece and the transmission piece, right?

So, but you, but by the same token, you couldn't just pass transmission reform because you, you have folks on the Republican side in particular who want to see that permitting piece. So, I think it's a, it's a balance, and it's partly what can you put together that gets you, get, that gets legislation passed both houses and signed by the president.

Jody Freeman: So, Nat, just tell us briefly what's in that transmission piece that you're talking about, because we have FERC, the Federal Energy Regulatory Commission, that right now has authority to approve, you know, transmission planning and cost allocation. What change is there and, and what do you think that there's possible agreement on?

Nat Keohane: Yeah. So, I think what you would see in the legislation that's being talked about, again, and we're doing this in July and so who knows what happens by the time the-

this, airs, but what we're seeing in terms of the current text on the table, and these, I think, will be general themes that will stick, a requirement for more interregional planning, providing.

And it provides FERC, which is the Federal Energy Regulatory Commission, then it provides FERC with backstop authority to sort of make sure that the states go through with that. Some of these are, you know, FERC has moved forward on some of this. Again, I think the, it clarifies the nature of that authority.

It provides a boost; it provides a boost around the interregional planning in particular and sort of stiffens some of that up. I think the legislation will need to take a stand on cost allocation, which just means, like, how do you allocate costs among the different parties in the different states?

That's a tricky issue, but I think you need to resolve that. So, you know, I think this is, I think the reason for the legislation is to clarify some things, to give a clear congressional intent and a clear mandate, and to make sure that the FERC really has the authority and the push to exert within, you know, to say sort of basically push for those interregional transmission lines even if the states can't quite get on board.

Jody Freeman: Some context, though, for listeners is, because this is going to be important. If this legislation goes forward, what you're, what we want to see is not the same old thing. What we've seen for years is yes, FERC does have some backstop authority, which has been defined by the courts as not being able to override what the states do, but simply if the states refuse to act on certain transmission lines across state lines, then FERC can step in with very limited authority that it really doesn't use. So it's, it's hard, right? Because all these things have been tried before. Pushing, when we say pushing interregional planning, which means trying to get the utilities to work to agree that they're going to build lines across the states and decide who pays for it, we've been trying that a long time.

FERC has been trying to pro- prompt the organizations of utilities, the, the regional transmission organizations that they participate in, to do exactly that through transmission planning. And the only reason I say all this is what I think we all are looking for is: are we going to still be incrementalist about this in a new piece of legislation that does the same old things we've done, or are there some new ideas that are bigger leaps that change the system more profoundly? And, and I, I don't know if that's possible, but I think that's what some watchers are going to be looking for.

Nat Keohane: And I think that's a really fair point, and there are some big ideas about, like, how do you think about the fundamental structure of the electric utility industry, which was

then, all the electric utility regulation was built in the 20th century. That, I think there definitely are people talking about that. You're absolutely right. that's, I don't think that's going to be in the mix, you know, this year. But y- it's a good caution because, as you say, we've been collectively beating our heads against the wall on this.

I think there's more movement for all the reasons we've talked about, and more impetus, but you're right, and it might be that even if we get this passed, we need to start. If it doesn't hold or it doesn't stick, we need to be starting to think about more transformative approaches.

Mike Toffel: So, I want to ask what's at risk? So, if speed is the goal, and it certainly- Yeah is an important goal, what might we give up in exchange for that speed? And sometimes it's nothing. It's like, oh, we used to do things in a sequential process, and now it turns out, why didn't we parallelize it and start the clock on five processes that actually don't rely on each other, their independent assessments.

Just start them all in the beginning. Don't wait and do them one at a time. In which case, you're not giving up really anything, for, for speed. Hm. But other times, I think about sort of the urban renewal movement in America- Hm or the highway impetus that, that didn't give much voice, and then you end up with a highway right through the middle of the Bronx that destroyed a bunch of neighborhoods, and the clearing of a lot of land that was built up in neighborhoods in Boston. Not giving voice dis- can result in quite a lot of, of community destruction. So there, taking out some voice, taking out some ability to challenge decisions that are made centrally, we can see what that looks like from our history.

So, what's your sense of what's at risk? Because certainly I think just about everyone wants speed. I'm going to come back to that in a minute. But let's suppose everyone wants speed. What are we willing to give up at that speed?

Nat Keohane: Yeah, I think that's a good question, Mike, and it's useful to think about some of those other examples. I guess there are a couple of quick thoughts and responses. One is, I think when you look at sort of the amount of time, I mentioned the interconnection queues, you have transmission projects that have been proposed, and 11, 12, 15 years later they're still not built. We're not talking about like, "Oh, it'd be nice to get this done in, you know, two months rather than 18," right?

We're talking about, like, can we get it done every And, and the delays, right, the costs mount, the economics of the projects make it much harder. If you delay a project, it might make sense in the beginning, but by the time, you know, you But, but the, the delay invariably ramps up costs because you have to pay f- the waiting costs and the inf- and you get inflation over time, and you get supply bottlenecks and so on.

And so, number one, there's I mean, I'm not disputing this, but there I just want to point out there's a real cost. It's not like, oh, we have to race to get everything on as fast as possible. It's that there's a real cost to not building, especially on the clean side, to not building clean. We are finally at the point where clean energy is cost competitive, and if we're not, if we're blocking the potential to build that, then we're slowing down the transition.

We're seeing that with offshore wind for sure. I just want to point one more thing out that hasn't really come up, I will just say the general-- that was a reminder of how fast, it's a reminder to somebody in the NGO world who's spent time in government, how fast the private sector moves and I will just say, like, the, the private sector is not waiting around, by which I mean data center developers, some of those hyperscale's that just want the speed to power they're not waiting around to be like, "Well, let's see if everybody, you know, if the NGOs resolve their policy concerns and this"

They are building data centers now, and if they need to, they're building dirty power, which I mean like diesel generator sets and natural gas, like, literally reports of taking jet engines and stripping them from planes, bolting them to the ground and running them in reverse as electric turbines. Okay? So that is happening to some. Nobody knows exactly how much, but there are anecdotal stories of that happening and you go to a conference and you're just overwhelmed and so the reason I raise that, and I'll come back to the risk, but the reason I raise that is because the alternative to figuring out how to make it easier and faster to connect power to the grid is to build a lot to connect clean power to the grid, is to build a lot of dirty power that's not connected to the grid. It's, it-- There's not another alt- There's not that alternative where we just sit around, and we get it right, and we wait and then get it perfect. I think there are risks, but I will say, like, I think you can, you can, manage those if you design smart policies.

Let's go back to that permit thing I mentioned, right? One of the risks in speed is if you say, "Well, we're just going to sort of shorten all the timelines and make sure that we just go ahead with the permits and the environmental impact statements and so on," one of the big risks would be, well, are you shutting communities out of the process?

Are you short-circuiting community engagement where there's a legitimate interest in people saying, "Hey, wait a minute. We're concerned about the impact of this facility," and so on, especially frontline communities that have typically borne the brunt of, you know, lower-income comm- communities, often minority communities that have borne the brunt of facilities in the past.

So, then you say, "Okay, well, how do we design this that encourages early participation? Are there things like permits that increase transparency, so we make sure that folks have an

insight into this? If we're going to say there's an 180-day clock or 120 or whatever it is, how do we make sure that there's outreach in the beginning?"

From what I've seen, and Jody, again, you'll probably know more, but there's a lot of evidence, a lot of the lawsuits that get brought against, at least, you know, generically, a lot of the stuff they get, they, they want to get built, ends up being, you know, pretty wealthy private landowners who are just kind of NIMBY, not in my backyard. And so, I think there are ways, I think there are ways to manage for that community engagement risk with good policy, but I think, Mike, to your question, that's probably the biggest risk.

Jody Freeman: This, this really gets to something important, which takes us back to what we've all mentioned abundance once or twice. The abundance argument talks about environmental rules as part of the problem, that we don't build. They didn't say, you know, they're the only reason, but, but I think the argument has been taken by some to mean, "Oh, it's the environmentalists who block everything."

And, you know, I just think that's just not sufficiently nuanced. I mean, the reason projects don't get built in this country has everything to do with, you know, everything from interest rates to the c- you know, supply bottlenecks to, um- Yes you know, labor costs-Hundred percent delays in getting financing together and so on. And so, I worry a little about the sort of singling out of environmental rules as, oh, the problem to everything. If for the people who do that, I would just say, you know, it's a more complicated picture. That said, there's no question. That these processes, you know, these systems that are good i- in their core, they're about looking before you leap.

They're about early consultation to avoid avoidable harm. Why wouldn't you want to do that? Why wouldn't you want to improve public health instead of making it worse? Why wouldn't you want to save the natural environment if you could by moving the project, a little bit to the left, a little bit to the right?

I mean, there's a really, good principle at the heart of these processes, these permitting systems. But of course, there are reasons why they take too long, and I like what you said there, Nat, about this isn't necessarily something you lay at the foot of the environmental or conservation movement or interests or communities.

It's partly what's going on here is just pure NIMBYism, just a pure local resistance to something in your community, and that's a different problem. They're using environmental laws for that, but that's not the same thing. So, I'm always careful about what we identify as the issue here because it affects the solution you choose. And I think the worst result would be to throw all of this well-principled set of guardrails and constraints right out the window rather than improve it in a way that makes sense - for everybody. And your

suggestion that community engagement be earlier, well, that's in everybody's interest, you know?

Nat Keohane: Just on that point, every company we talk about, just on the community engagement, every company we talk to says, you know, early communication is the key to success, those that have tried find that it actually turns out to make everything else easier.

Mike Toffel: So, we're talking about this with a little bit of abstraction as in terms of who's opposed to this. So, if you would think the hyperscale's are still dedicated to wanting quick power and, to the extent that they want to deliver on their net zero and other type targets, they're in favor.

If there's a bipartisan consensus of people who want green power and want more power, they're in favor. For utilities, it's an opportunity for them to generate and distribute more power. They should be in favor. And so far, we've only talked about, like, NIMBYism or people who don't want the visual of offshore wind or onshore wind or transmission line. Who would we point our fingers and say, "If only we can get them on board, we'd be able to move the needle"?

Nat Keohane: Well, so let me answer that in two different ways. I think one version of that question is like, well, goes back to Jodi's point, like why has this not happened before? What I think this may be, I, I hope this isn't a cop-out, I think just, like, inertia.

Yeah. I mean, I think this has sort of accumulated over time. There are a lot of different reasons. You've got these environmental statutes that were born in the 1970s, they're written in the 1970s, that are the core bedrock. I mean, I'm an environmentalist, right? They're the core bedrock of the environmental movement.

Some of the biggest, certainly the Clean Water Act, one of the, and to some degree NEPA, I think we could argue about that, but some of the biggest, gains in the environmental movement, but that have now become weaponized maybe by some folks who want to kind of prevent any, maybe this is overstating it, but, but folks who are concerned about this sort of NIMBYism and want to prevent anything.

So, I think there's one piece, just part of the reason why we haven't gotten this: you've got these avenues for folks to challenge things; you've got utility business models that they might be open to some of this, but they're not in- you know, they, their incentives; I mean, the, the incentives of utilities, of regulated utilities, are just to build more capital projects.

It's not to build inter-regional transmission. It's just to build more generation and expensive generation and get, I mean, that's not quite fair. Well, but it's to build more capital projects

and to get the rate of return. So, the first answer, like why is this still there? It's, it's not, I don't think it's like there's an evil villain out there.

I think it's just that there's, the, there's a lot of inertia in the system and, you know, that didn't show up as much when we were in that period of flat electricity demand, right? Yeah. For 20 years. And so all of a sudden now you've got this push, like, we got all the, the economics of clean energy are much better. You've got this huge energy demand, and I think that's where it's coming together.

Jody Freeman: The utility business model, right? The problem is they're mostly monopolies, and they have service areas over which they have monopolies. They have no interest in having competition introduced into this system where there might be developers who want to build new generation and sell it to the data centers in a way that will compete with and eat into the profit margins of the utilities themselves.

So, all I'm saying is there are winners and losers in this sector. And it's a competition over market share, and they want to capture all the market share, and they're not really interested in what the system needs, which is a lot of competition to produce new generation quickly for speed; instead, they want to retain their incumbent, advantage. So, there's a lot of criticism that I think appropriately lands on utilities.

Then the other thing to say, not just, just so that we think of me as an equal o-equal opportunity, critic, you know, what I'll call the environmental conservation/sustainability movement and leadership organizations, which are have all done historically hugely important work, it is true that, and I think the leadership of these groups would, would say this in a, in a sophisticated conversation, they have become more used to saying no to blocking than to saying yes because what was on offer to say yes was projects that were harmful, right?

Now we have the possibility of clean energy projects that work in the direction of trying to address climate change by helping with decarbonization, and so there's more to say yes to. And I think that dynamic is really important. And the third thing that I think is significant here is the anger from the public that will come when it turns out, if it turns out as many predict, including my colleague Ari Peskoe at the law school has written a wonderful paper on this, if it turns out that it is regular old consumers, homeowners, rate payers who foot the bill for the build-out of AI data centers, there will be political hell to pay.

And I think politicians are starting to come to grips with this and realize they must do something to make sure the allocation of the cost for all of this new development on the grid and transmission will not fall upon regular people. So, to me, those things are all

happening, moving us in the direction of yes and away from the direction of no. Do you think I'm missing something there?

Nat Keohane: I, I actually, I totally agree. I think you described it really well. I will just add a couple of quick nuances.

One is, I think my friends in the kind of traditional green groups, I think they really have seen, and for all the reasons you mentioned, now the projects that aren't getting built are, are clean projects, right? They're projects that are vital for climate change, for addressing climate change, and that have changed the calculus.

That doesn't mean you're going to see, you know, I've got good friends who run the environmental organizations on the left. You're not going to see all of them say, "Yeah, we're for this." And frankly, on the politics, that probably wouldn't be that helpful. But when you have private conversations with many of them, they'll say, "You know what? We get it. We get this is important for climate, and if done the right way, we're fine with this." And they're giving that permission structure to folks on the left. On the utilities, look, I'll just say two things. One is, I mean, I'm an economist, so I believe in incentives, right? So, you weren't quite doing this.

But I think there might be friends in the kind of abundance movement who are like, "Blame the utility." I mean, the utilities are responding to their incentives. So if we want to change the behavior, we should change their incentives, and you've seen examples at various points in the past.

And I'll say, in the electric power sector, there's a lot of diversity of views, especially regionally. We have companies that operate in the West that really want to see transmission reform, because they want to build new clean energy projects right and they need transmission, and you have folks in the Southeast who tend to feel like they've done what they need to do, and, and sort of they, they see, they, they're much more concerned about sort of federal overreach.

And so, these are the things we're going to have to navigate to get a deal. I'll just say quickly on affordability that, you know, and that's such a deep, such an important topic, and I'm not going to be the first or the last person to say that that's on everybody's minds politically.

Nat Keohane: I will say that the, it's complicated in the sense that there are ways to build more topic, generation, including in response to data centers, that reduce costs to consumers because of, because rates are a, they're a fraction, right?

They're cost divided by the base, and if you and the generation, and if you increase the amount of generation and you don't change the cost too much, you can actually lower

rates. I know that PG&E has done that in California as an example. It depends on the circumstances. EPRI did a great piece on this that shows it's not cut and dried all the time, and so policy matters, right?

I mean, this is consistent, I think, with what you're saying. Policy matters. Pressure matters. I think we see, I mentioned Google. I think Google has done a great job of saying, "We will pick up the cost of this, of the new power." It's in their interest to do tariffs, to figure out rate tariffs where they take on the cost because they want the political license to do this, they need the data centers, and they have the money.

So, I think there are ways to solve that, but I agree that that is a political flashpoint, and if we don't solve it and we don't get that right on affordability,

Jody Freeman: So right now it's an uphill battle because while you're saying there might be some agreement in Congress, there really is no interest, it would seem, on the part of the administration that's pushing very much in the other direction, right? Trying to stymie wind, both offshore and onshore, trying to revive fossil energy, trying to make it so the coal plants retire later, not sooner.

You know, basically rescinding every important climate federal regulation, including the scientific underpinning, the endangerment finding. In view of all that, the retrenchment of the administration on climate, isn't it hard to see why the president signs this bill? I mean, is this a, a legislation that needs to wait until 2028 and beyond? What's your view of that?

Nat Keohane: Yeah. So, first of all, good reminder that it needs to pass Congress and get signed by the president. And look, it would be foolish to pretend that this administration, it's, it's easy to predict what this president will do. I think we see right now, I mean, as we're taping this, the president's holding up a housing bill that everybody in his party wants.

So, it's hard to predict. I will say, and Jodi, you know this from having served the administration, no administration is monolithic, so there are absolutely people in the White House who would like nothing better, I think, than to sabotage and undermine the possibility of a permitting deal.

But there are also people who see the need, all the arguments I made on the Republican side; they see the need for more electricity onto the grid. They see the value of a modernized grid. They worry about affordability. They see the value of getting some lasting permitting reforms. And so, I think there are some much more moderate and strong voices also inside the administration saying we should do this.

And I think the Republican leadership is behind this, at least this general push, in the Congress. So, I think there's a chance to do it. I guess when I sort of handicap things, I'm

saying that there's a policy deal, like there is a deal on the table that I think could get bipartisan support in 60 and 218; that's not the same thing as saying it's definitely going to get passed.

Nobody ever lost money betting against Congress doing anything, you know, uh- maybe Congress getting anything done. And so, there are a whole host of obstacles. One of them is, will the president sign it? You know, does he throw a spanner into the works at the last minute? But I think for all the trends and the reasons we've said, the conversation's very different now than it was even two years ago. And, you know, I think, look, the midterms, who knows? I'm not smart enough to predict midterms. I do think that if they are on track with what polls say, and you have a Democratic House and, maybe a Democratic Senate or a closely contested Senate, I just don't think that, like, permitting a transmission reform is going to be the first thing that's on, you know, Speaker Jeffrey's mind.

I'm kind of joking a little bit, but I think the politics for this do not get I think they get worse in some respects, not better. So, I think this is the moment, hopefully this is the moment to do it, and we'll see whether that pans out.

Mike Toffel: You mentioned if we don't create the infrastructure to power these data centers, then they're going to do it themselves. That is one possibility. The other possibility is they're going to do it elsewhere, and then we're going to lose that potential competitive edge that we have now. Are we going to let the future of data centers go in the same direction as we let the future of EVs and the future of solar and the future of wind, which is to say other countries? So, I think that to me is the political angle about this.

Jody Freeman: There's a lot of money to be made here. And, a lot of, sometimes when there's a lot of money to be made, it inspires, cooperation to find a way, but there's also a lot of competition for a share of the pie, and, I, it, you know, it's hard problem because you don't, you don't just have interest groups that stand to win or lose, you have federal state division of authority that's been hardwired into our law. That's very, very hard to disrupt, and you have these historic commitments to what some people degrade and deride as process, but that we in the United States are really known for, which is a public-oriented, transparent, and deliberative process around, how we build things and site things in the communities that are going to be burdened by them and are going to pay for them that we ought to be proud of, and that we've exported around the world, you know?

So NEPA, this National Environmental Policy Act, says you do these environmental impact statements. You know that sounds very simple, but that was a revolutionary idea, in the late

1960s and early 1970s, and, and, you know, the idea that we would just jettison that I think would be a real loss.

So, there's a lot at stake in this debate and dialogue. What's so interesting to me is in the middle of a conversation that is about the demise of climate policy domestically and the retreat of climate policy internationally and the geopolitical, arrangement now that's shifted so drastically after the war in Ukraine and the closing of the Strait of Hormuz and the rising of fossil energy and the rest of it, and this narrative around climate as now having to be done secretly and quietly or, we are all now all in the age of climate realism and all this stuff, which is basically a story about climate's out.

We're done with that. In the middle of all that, you come, Nat, with a story of, hey, there's real progress here- that would help decarbonize our economy. That's a good news story, so I want to embrace your good news story.

Nat Keohane: And I will say, you know, there is obviously a lot more to talk about, but I think, you know, I think there's a lot more that could be done and will be done in the next few years.

We could talk a lot about all the topics you just raised, Jody, but I do think this has the potential to be an important positive step forward, even in this political climate.

Mike Toffel: So Nat, before we let you go, let me ask you the final question that I ask all of my guests on Climate Rising, which is, for those interested in this space, what resources do you recommend? Whether that be conferences or career activities or podcasts or newsletters, magazines. What resources should, should we point them to?

Nat Keohane: Well, that's a great question. I mean, o- obviously this podcast, both of your podcasts. I think there's a lot of good podcasts out there. You know, Rob Meyer has been doing some great reporting and heat. I mean, there's a huge number of newsletters coming out. Heatmap, I think a lot of folks look to that. He's put together a great team there. There's increasingly, you know, more take on sort of Substack. You, you can get the kind of controversial, moderate, you know, Dem view from people like Adam Jentleson and Matt Yglesias. I think there are some really good folks on the right of the center that are thinking about this ClearPath as an organization.

Obviously, there are a lot of resources at my organization, C2ES. You know, c2es.org. We have a lot of stuff online. I would just say, I think we've had a very rich conversation here, and we've even just scratched the surface. I, I, I think what you're hearing from me is I would encourage folks to read, to try to read a variety of perspectives.

My view, as somebody who's been working on this for twenty-five or thirty, now I guess longer, thirty years, we're-- if we're going to have durable, we need durable solutions for climate. We can't be swinging back and forth and pingback with every ping-ponging with every administration. And so, we're going to need to find solutions that attract a broader base and make arguments that appeal to a broader base of folks.

So, I would say, read folks on the left. You know, read some I mean, Heatmap doesn't have a political, well, maybe a little bit bent to the left. Read folks like Jesse Jenkins. The Repeat Project at Princeton does some great work. If you want analysis, the Rhodium Group does some of the best analysis.

But also look at some of the folks who are a little bit either contrary voices, kind of the moderate Dems, or, or folks on the center right who view it from that Republican perspective, like ClearPath. And I think we're going to need to kind of bring all those perspectives together to make compelling arguments that can attract broad support for the kind of changes we need to, to address; I mean, we haven't touched on that. Normally, a climate podcast is all about, like, the terrible things that are happening. We just went through a massive heatwave on the East Coast. This remains as urgent as ever. So, I would just encourage folks to read as much as they can and then get involved.

Mike Toffel: Great. And we'll put links to all those materials in the show notes.

Nat Keohane: Awesome.

Mike Toffel: Great. Thanks so much

Nat Keohane: Thank you.

Jody Freeman: Great, great to be with both you guys. Fun.

Nat Keohane: Great to be with you.