

What the FERC Is Going on With the Electric Grid

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Alana Casanova-Burgess: I'm Alana Casanova-Burgess.

Ariana Brocious: And I'm Ariana Brocious.

Alana Casanova-Burgess: And this is Climate One.

[music change]

Ariana Brocious: On today's show: we need a better electric grid. And we need it now.

Alana Casanova-Burgess: For decades, we've known that the key to slowing down climate change is to use more renewable energy - to move away from burning fossil fuels that add emissions to the atmosphere. And most of the conversation around that transition has been around the SOURCES of cleaner energy: how to GENERATE more power from solar or wind or biomass.

But what we haven't talked about so much... and we're going to talk about it today... is the fact that **even if we make that new energy**, our current grid can't handle it.

Shelley Welton: We actually have a ton of clean energy that's like ready and waiting to connect to the system.

Alana Casanova-Burgess: This is Shelley Welton, a grid expert and law professor at the University of Pennsylvania. And she says the grid has a major traffic problem.

Shelley Welton: The statistic that I saw recently that I think is very jaw dropping is that there's as much energy that's in line waiting to connect to the U. S. Electricity grid double as much in line as

there is currently on the grid at present.

Alana Casanova-Burgess: Most of what's waiting to connect is renewable energy and batteries that can store it - which would allow us to use wind or solar power when the wind isn't blowing or sun isn't shining.

Shelley Welton: We have a ton of developers that are lining up to build exactly what we need to build to tackle climate change.

Alana Casanova-Burgess: But for several reasons - which we'll get into in a moment - they're unable to quickly get that power into the system. And this problem is compounded by the fact that we actually need more electricity - a LOT more - to power our future.

Shelley Welton: We often talk about that one of the primary ways to solve climate change is to electrify everything - moving heating onto the electricity grid, moving cars onto the electricity grid, moving a lot of industrial processes onto the electricity grid. This is one of the key strategies that we have for how to decarbonize, for how to try to solve this climate crisis. And you can't move all of these things onto the electricity grid and have it help with climate change unless you have a grid that can support that.

Alana Casanova-Burgess: Wherever you are in the country, you've probably experienced our current grid falling down on the job. It's vulnerable to heat...

Those high temperatures are responsible for power outages that left thousands without their AC systems last night...

Alana Casanova-Burgess: It's vulnerable to hurricanes...

Right now more than 1700 customers are impacted in Tallahassee...

Alana Casanova-Burgess: It's vulnerable to winter storms...

More than 600,000 waking up still without power in Texas this morning...

Alana Casanova-Burgess: It's even vulnerable to overgrown trees.

Those gusts also pulling down power lines, right now more than 9,000 PSE customers are without power, most of those in south sound...

Alana Casanova-Burgess: In other words - we need a stronger, more resilient grid to help us get through extreme weather AND to help slow down the global warming that will make it worse.

Shelley Welton: If the lights go out or the bills go way up as you're doing this, electrification is not going to be a solution to climate change. And like, so the grid is kind of the pivotal technology that's going to make or break our core solution for how we respond to climate change.

[MUSIC CUE]

Ariana Brocious: So how did something as essential as the electric grid get to be so totally inadequate for our needs?

Shelley Welton: I mean, it's like if you could come up with a really bad way to do like planning in the public interest for a big infrastructure system, it would be like take all of the people that make money on this system and put them together in a room and let them figure out what should be done.

Ariana Brocious: When Welton says “the people that make money on the present system,” she’s talking about the electric utilities that built the grid long ago and continue to manage it today.

Shelley Welton: Maybe the analogy is like, if you let companies that make concrete or asphalt plan the national highway system, right? Like somebody where their incentives are just not aligned, right? Like they might just want to create a system that puts the most asphalt on the roads possible, but that would not be a good way to go about planning the system for the future, right? Like what you actually want is an interconnected system of highways that gets people where they need to go. And that's sort of the same thing for the grid. Except that we are turning it over to the asphalt companies.

Archival tape: "Power, abundant power, instantly available, no matter the circumstances..."

Danielle Fidler: Our grid was designed by monopoly companies over a hundred years ago. And it centered around burning coal to power steam electric turbines, and then deliver that energy to cities that aren't very far away.

Ariana Brocious: That's Danielle Fidler, a senior attorney with Earthjustice who works on energy and transmission.

Danielle Fidler: And today's grid is actually still operating that way, using the same kind of technology. And in fact, a lot of the infrastructure is almost that old. So unsurprisingly, the wheels are falling off of the system, both because it's really old and also because it is in no ways capable of meeting the demands of the digital age.

Archival tape: "As we magnificent Americans bustle about our everyday, do we ever pause to consider this miracle of electric power by which we live? Of course not! We take it for granted"

Ariana Brocious: Through much of the last century, utilities operated as monopolies.

Danielle Fidler: The same entity would build the power generating unit and the transmission lines and connect to the home. So it was like one company that owned everything.

Ariana Brocious: As the country grew, the grid operators faced more pressure to connect to one another. At first, the reason was reliability. Here’s energy expert Pat Wood.

Pat Wood: The power grid was originally set up to electrify a city and then to electrify the towns around the city and then connect two cities and then in the name of reliability. After the New York blackout in 1965,

Archival tape: At the height of the rush hour, the lights went out.

Pat Wood: that certainly stimulated the drive to have more interconnectivity across the region so there would be resilience.

Archival tape: Perhaps 30 million people in approximately 80,000 square miles were affected. There were massive traffic jams and confusion, the New York transit authority estimated that 800,000 people were underground when the trains slowed to a stop in the dark.

Ariana Brocious: In 1992, the federal government stepped in and required transmission line owners - those incumbent utilities - to open up their electric grids to other players.

Pat Wood: It basically viewed that the highway system built by the utilities for the local uses back

earlier in the century really was a valuable asset that we could utilize for regional power grids. And so that started to really open up the power grids across the nation.

Ariana Brocious: So now other companies could generate power and use existing transmission lines to get their power to market. This change also opened the way for newer kinds of power from renewable energy. But Danielle Fidler says the regional utilities didn't love the idea of letting other companies onto their systems.

Danielle Fidler: The way that these companies prevent competition is through transmission. So for a while they kind of learned to eventually make nice because they were all in the same business. They were all using the same technology. But now with clean energy, you've got all kinds of technology. You've got all kinds of new storage, wind, solar, all these new competitors that are cheaper, really cheap, so much cheaper than coal, which the whole system was designed to dig up, ship it, burn it, you know, to generate steam. And so this is really, the first time the electric industry is really facing competition in a much different way.

Ariana Brocious: And that's still true today. Remember, these regional power companies have been operating as de facto monopolies for decades.

Danielle Fidler: They don't like competition, and they never have. And while a lot of that has been broken up in some places, largely in the Northeast, it hasn't been broken up in most of the country, especially the Southeast and the West. You still have monopoly utilities that own the generation and the transmission.

Ariana Brocious: Part of the reason they don't play nice is because the utility groups only profit by building more transmission lines in their **own** territories. And to pay for those new lines, they tend to pass along the charges to their customers - that's you and me. Meanwhile, federal money and private capital is pouring into the renewable energy sector. More states and companies are setting clean energy standards. We've got the potential for tons of renewable energy but we can't get it to where it needs to go.

Danielle Fidler: There's lots of congestion just in the system as it is, even if we weren't talking about clean energy. There's so much congestion, because there's so little transmission and it acts like a pipe. Just like water or anything else you're trying to get through it. The volume of transmission dictates how much energy you can get into a given place. And so when you've got a big population and not enough resource, you know, you need a bigger transmission line.

Ariana Brocious: So the lines aren't robust enough to take the new power. And even if they were, there's a long delay just to get connected. Shelley Welton says it's a real bottleneck:

Shelley Welton: It's called the interconnection queue to get onto the grid, right? And so this is really jamming up the clean energy transition, because we're not able to quickly connect the new resources that we need to, you know, facilitate both a clean and a reliable grid going forward.

Ariana Brocious: Let me take a quick moment to explain that interconnection queue. When a new power generator, say a solar farm, wants to sell their power, they have to get connected to the grid in order to get those electrons to whoever is buying them. That process is called interconnection. And right now, there is a **huge** backlog of companies waiting to get connected. We're talking as much as a seven-year wait, just to get permission to break ground. Here's Danielle Fidler again.

Danielle Fidler: It's kind of like a deli counter. It's first come, first serve. They're waiting for the permission to connect before they build the unit. However, it takes so long that a lot of times, by the

time they get a thumbs up, the thumbs up comes with things like, Oh, you're going to have to pay for the entire network upgrade, you, the single solar farm, or you, the single wind farm, you're going to have to pay for an upgrade that everyone else is going to benefit from, but you just happen to be the first person in the line, and then they're sort of like, well, we can't afford to pay for the whole upgrade of the entire network. So then they drop out.

Ariana Brocious: And to complicate matters, most solar and wind resources aren't located right next to a big city. So oftentimes they need to build new or more robust transmission lines just to get that power to market. But Welton says the regional planning needed just isn't happening.

Shelley Welton: When it comes to the grid, these are resources that take a long time to build, they're very expensive. And so you need to be looking out over the distance and asking like, What are things going to look like? And how should we meet the needs that we have to interconnect electricity sources with places that are using electricity.

Alana Casanova-Burgess: OK so Ariana, As you describe this to me, it seems so clear that this is a system that's not going to solve itself, right? For decades, these regional utility companies have resisted working together - even when the need for that coordination has gotten more and more important. And we see how critical it is to the wallets and **actual survival** of their customers - like, each time the grid fails due to extreme heat, there are people who die because they don't have access to electricity. So - who is advocating for them?

Ariana Brocious: Right. The agency in charge of overseeing this whole system is called FERC: the federal energy regulatory commission. FERC's role is to make sure consumers are paying fair prices for their electricity and broadly that the power lines are getting to where they need to go. And it's a really, really important agency - maybe the most important agency you've never heard of. But it's an agency you can be forgiven for not knowing.

Alana Casanova-Burgess: Yeah, I had no idea.

Ariana Brocious: And I'm not alone in this mission to make people more aware of it. A couple years ago this Congressman Sean Casten of Illinois actually went on a campaign to make the public understand the role of this critical agency, with some musical backup.

Sean Casten: I rise to continue our celebration of hot FERC summer. So listen up y'all cause this is it. The Federal Energy Regulatory Commission better known as the F to the E to the R to the C is one of the most important federal agencies to fight climate change and if I'm doing this right, one that a few more of you are now keeping track of....

Alana Casanova-Burgess: wow. That's....

Ariana Brocious: And he's totally right.

Sean Casten: Having a well air conditioned home when it's hot, hot? That's fercalicious. Getting your electricity from the lowest cost reliable source? That's fercalicious. An electric transmission system that keeps everything from electric vehicles to steel mills running with zero-carbon electricity... fercalicious.

Ariana Brocious: This is the agency that forced utilities to open up their power lines to competitors in 1992.

Alana Casanova-Burgess: Okay, so they've got authority... would you say...they're powerful? (Pun intended!)

Ariana Brocious: Kind of. FERC has authority to regulate certain aspects of the transmission system across most of the country. Shelley Welton says they put out rules that tell utilities how they're supposed to plan, but that doesn't always happen.

Shelley Welton: And basically to shorthand it, they say like, you should get together in a region and you should make a plan together. You should look ahead, figure out what needs are going to be. And then as a region, pick a set of lines that's going to best meet those needs. In practice, what ends up happening more often is that utilities each prefer to build lines within their own service territories that they completely control and that they make money off of. So, the ideal is pretty far from the practice at present.

Ariana Brocious: Pat Wood is a past chairman of the federal energy regulatory commission, FERC. And he says many of the challenges to regional planning come down to politics, plain and simple.

Pat Wood: You've got multiple states with different public policy objectives, perhaps, that may say, well, gosh, I don't want to pay for that transmission because it looks like it's going to help Nebraska and Illinois a lot, but I'm sitting here in Michigan or Ohio and I don't see a lot of benefit from that. But we've got a commodity here that truly is interstate in nature in most of these regions. and there's really only one body under the law set up to do that, and that's FERC. Their job is to look at the country. And so when I sat in that chair, that's what we had to look at. We had to balance the interests of all the states. and really allocate the cost fairly to who was benefiting the most. Regulators know how to do that. That's kind of what we're paid to do. But that still doesn't mean it's easy.

Ariana Brocious: It often takes ten years to build a big regional line because so many projections have to be factored in: What are the future sources of energy? What are future demands? What is the future economy? And then, how and where do we build? These are complicated questions to answer, but we have really smart people modeling all these things right now. And Danielle Fidler says this kind of planning is essential to make sure this grid can serve us reliably now, and in the future.

Danielle Fidler: This is what everybody does, right? We all plan. If you're going to take a vacation, you're going to, you know, pack for what you expect the weather to be, but you're also going to pack in case it rains or, you know, what if I miss the train there? You know, you're doing a lot of planning in advance. Everybody does that, but utilities weren't. Nobody was really looking at, well, what does the system need? What, you know, where are we trying to build to or, you know, skate to the puck, right? Like, where are we going in, in building these lines? You know, it takes time.

Ariana Brocious: Coming up, a proposal for who should design the grid of the future:

Shelley Welton: We should have public planners that are planning this grid... and they should design a plan and then hand it over to the utilities and say, build this plan.

Ariana Brocious: That's up next, when Climate One continues.

Alana Casanova-Burgess: Please help us get people talking more about climate by sharing this episode with a friend. And we'd love to know what you think of the show. Please give us a rating or review. You can do it right now on your device - and it really helps people find the show. Thanks!

Ariana Brocious: This is Climate One, I'm Ariana Brocious.

Alana Casanova-Burgess: I'm Alana Casanova-Burgess.

Ariana Brocious: Okay, to recap what we learned in the last segment: we inherited a system of regionalized fossil-fueled powered electric utilities. In recent years, they've been told to share their transmission lines with a bunch of new renewable energy projects and plan more collectively.

Alana Casanova-Burgess: Yeah. But those utilities don't have a lot of incentives to work together.

Ariana Brocious: And the planning is not keeping up with the explosion of energy demand on the horizon.

Alana Casanova-Burgess: And the disrupted climate is leading to more outages.

Ariana Brocious: And it's all costing customers a lot of money.

Alana Casanova-Burgess: It's hard to know where to start. But Shelley Welton sees a way through this complicated web of problems. She's a law professor at the University of Pennsylvania who also holds a position at the Kleinman Center for Energy Policy. She recently wrote a paper detailing her plan.

Shelley Welton: What I argue is that when you start to get at the root of these problems, really, I think we have a grid governance problem on our hands, right? And this gets back to the asphalt, right? Like we have erected a system where we're asking companies that are like, understandably trying to maximize their revenues. That's what we asked them to do to also plan for a system and orchestrate a system that's going to basically, like, earn them less money, but be really good for the American people and for the environment. Right. And so I think like, that's just not a governance arrangement that makes sense, right? Like we're asking them to do things that are against their bottom line in the public interest. It just doesn't make sense to me that that is who you would have planning the grid of the future.

Alana Casanova-Burgess: Right. As you said, this is, these are like asphalt makers. They are going to want to asphalt.

Shelley Welton: Yeah. So I think it's helpful to think of what's going on with the grid as not just sort of like these discreet challenges, like everybody's stuck in line or, you know, we're building small transmission projects, but not big transmission projects. And to understand that the problem is we're asking the wrong people to do the wrong jobs here, right? Like you're asking people that just don't have the right stakes and incentives in place to actually do the planning of our grid. And I think, once you understand the problem like that, I think the solution becomes a lot easier, which is we should have public planners that are planning this grid and creating a system in which we project ahead, figure out what the needs are in terms of long distance transmission lines, transmission that's going to allow clean energy resources to get on the system quickly, and they should design a plan and then hand it over to the utilities and say, build this plan. Not your plan, which is understandably driven by your revenue goals.

Alana Casanova-Burgess: Mmmhmm.

Shelley Welton: And so, I think the ideal way to do this would be for Congress to create something like a federal grid planning authority where you would have a government entity actually doing the modeling to suggest this is what a low cost, effective, efficient transmission grid going forward would look like. Here's the lines we should build.

Alana Casanova-Burgess: Could we use an existing agency to do that? Or are you envisioning a whole new system, a whole new entity?

Shelley Welton: The federal government already does a lot of grid modeling. The Department of Energy and our national laboratories are very good at this kind of modeling, but they do it for informational purposes. Every few years, they'll put out a new study that's like, we need a high voltage, long distance transmission grid, it would save the U.S. ratepayers billions of dollars. It would be really good for the clean energy transition. And then these plans just kind of languish on shelves while utilities then do their regional planning without actually accomplishing the goals that these studies clearly suggest are the right way forward.

And so it sounds like a big lift to create some sort of new planning authority, but I actually think you could use most of the tools and resources and expertise that we have within existing federal entities and just have them go one step further and take their great modeling and transform it into an actual plan that we use as the basis of deciding what lines to build in the country.

Alana Casanova-Burgess: So you, so it's more like giving them authority or giving them some teeth.

Shelley Welton: Yeah. So you could, you know, basically like task an existing office with this, or maybe it makes sense to create a new office and put everybody in it. I'm not so hung up on sort of like the organizational details. I think there's a few different ways that you could do this, but I think maybe the key point is just like, we have the skills. And really like a lot of the tools that you need already in place to do this. It's just that legally right now, FERC and the Department of Energy do not interpret the law to suggest that they have this power.

Alana Casanova-Burgess: So, does this sound like a big lift to you? Like, do you think that the regional transmission authorities and the utilities are going to respond well to this?

Shelley Welton: Okay. So I guess there's like a few different senses in which you're talking about a big lift. Like, I don't think technically it would be a big lift. I think it would be very doable. I think politically, it is a firestorm. There's no doubt about it, right? Like, mean, most utilities are investor owned utilities. They have shareholders. They want to get maximum returns. And this is basically a plan that would save customers a lot of money, but at the expense of utility revenues. So I think that they would push back. I think that there would be legal challenges against this. I both think it's entirely doable and like a bit of a thicket, which is why I think FERC has just sort of been willing to like go along with trying to incrementally improve utility planning bit by bit instead of having this fight. But I guess what I'm suggesting is I don't know that you can avoid this fight any longer given how important the grid is to like core climate objectives going forward.

Alana Casanova-Burgess: Well, speaking of FERC, FERC just passed a new rule called Order 1920 and this requires utilities to plan together and on a longer timeline. So is that kind of what you're describing with your proposal?

Shelley Welton: Yeah, so Order 1920 was hard fought and contentious, and I think it's a step forward is what I'll say. But you know, the way that you described it, I think is exactly right, right? Like it makes utilities get together and plan better over a longer horizon, considering more benefits. That's an incremental improvement on what FERC has done in the past when it issued what it called a landmark order back in 2011, Order 1000, that basically told utilities to get together and plan better and consider more benefits. And it failed miserably.

Alana Casanova-Burgess: And this time they're like, we really, really meant it, like -

Shelley Welton: They're like, we really, we really mean it. And like, we're going to get a little bit more prescriptive about the timeline and the scenarios and the benefits you have to consider. But

what hasn't changed is that utilities and RTOs are still at the center of this drama, right? Like they are still running the show. And so I do think that the regional plans that they produce as a result of Order 1920 are going to look better than the previous regional plans. I'm not at all convinced that utilities are then going to turn around and build that set of lines, right? Because what FERC explicitly says in Order 1920 is, we're not saying you have to build exactly what the plan shows. We're just saying make a plan and make it better, right? So whether or not they actually build those lines is going to depend on the outside pressure that they get from, say, maybe like state regulators that turn to their utilities and say, like, Look, this plan is going to be 5 billion cheaper than your plan. Like really, truly you have to build it, but we don't really know how those mechanisms are going to play out yet. It's still a workaround to the fundamental governance problem that we have utilities working in their own interest.

Alana Casanova-Burgess: In charge of this. Yeah.

Shelley Welton: In charge of this. Yeah.

Alana Casanova-Burgess: Right. Do you feel the same way about order 2023, which passed last year?

Shelley Welton: Yeah. So the other big step that FERC has taken is specifically directed at this bottleneck problem of resources getting onto the grid. And that's order 2023 and what that order did is basically say, like, regions, we want you to improve the way that you study interconnection requests, in an effort to try to speed them along. So, basically, it told them that instead of studying request by request, you should group a bunch of them together, study them together, allocate the costs together, and did some other things to try to ensure that people that are in line, like, really mean it and really want to build where they are in line. I think it's pretty widely acknowledged that like this is a step in the right direction and it's also not going to fix the problem. And like maybe the most glaring evidence of that is the fact that several regions already basically had Order 2023's methods in place and they are suffering from the same bottleneck problem. So part of why it's not going to fix the problem is that you still have the same people in charge of these queues that don't really want all of these resources to come online.

Alana Casanova-Burgess: You know, as I'm hearing you talk, I'm thinking about this sort of invisible problem, like, this is both so central to how we get power and how we pay for it. I mean, power like electricity. and yet it doesn't seem like such a visible problem. There's like a disconnect here, like, I'm, I'm hearing you talking. I'm incredibly interested. And I'm also like, gosh, does the public know about this? Like, it seems this we're like, really, we should all be talking about this all the time.

Shelley Welton: I totally agree. I think that's one of the things that's really hard about working on this problem. I also think it's one of the reasons that regulators maybe like don't want to tackle it because it's not like a direct substantive fix. It's like the fix to the problem that's sort of like churning all of these other problems. And, you know, I think one thing that's really tricky about thinking about public engagement in this area is that the goal should be. The public doesn't need to deeply engage with, like, planning processes for transmission at a regional level, right? Like, there's I think there's nothing realistic about the idea that, like, everyday people are going to suddenly go to their RTOs and, like, voice their opinions and things are going to change, right? And so I think it is really hard to sort of, like, make tangible for people how central these governance challenges are to, like, fixing all of the substantive challenges that we all face. Or that many of us, you know, really care about and want to see happen. And I will say, I think that a lot of environmental not for profits that are working hard on climate have increasingly sort of wised up to the fact that the grid is central and that these governance issues are really important. So there are some groups out there that are doing really

tremendous work to bring a public interest voice to these processes that has largely been lacking.

Alana Casanova-Burgess: And also when you talk about the public being overcharged by billions of dollars, I don't know, that makes my ears prick up.

Shelley Welton: Totally. And like I think the other entity that has been important here and is really raising these issues is consumer advocates. A lot of states have consumer advocates that are specifically supposed to focus on electricity charges for customers in the state. And then some RTOs and regions also have consumer advocates. And whatever you think about the clean energy transition at the end of the day, people are really struggling to pay electricity bills and they're soaring and they're expected to keep growing because electricity demand is going to keep growing. So like really transmission should be a totally nonpartisan issue because we're just talking about like helping Americans pay basic bills for fundamental goods that you need to stay alive today.

Alana Casanova-Burgess: So, but given the recent Supreme Court rulings limiting the power of agencies to regulate. How realistic do you think it is that the next president could or would empower FERC or the Department of Energy or another agency to take on this leadership role that you're envisioning?

Shelley Welton: Yeah. This is a tough question right now. so, you know, the Supreme Court over the last several years, and particularly this summer, has really cut back on the extent to which it's willing to interpret existing statutory authority to give agencies license to creatively address new problems. So if there were legislation telling FERC and the DOE to do this, I think that we'd be on solid legal ground. Now, assuming that politically that's not going to happen, I think there's like a series of steps that FERC could take in the direction of trying to address underlying governance problems. And some of them are more risky from a legal perspective, and some of them are not very risky. Maybe the overarching point gets back to what we were just talking about, which is that FERC's job is to make sure that rates are just and reasonable for transmission. Rates are not just unreasonable under the current framework, and FERC just found that when it put out this new order, this 1920 order. And so like, because billions of dollars are on the table and they could save tons of money and make rates a lot more just and reasonable. I actually think they're starting from like a pretty solid footing, no matter what they do. But if they were to say, create a new planning authority whole cloth, I do think that there's a good chance that the Supreme Court might ultimately strike that down, if they do it without any new statutory authority whatsoever.

Alana Casanova-Burgess: Are there other ways we could accomplish better regional and interregional planning and coordination without some kind of federal leader?

Shelley Welton: I think that there's a lot of steps that FERC could take that are not very legally risky and wouldn't be sticking their neck out that far, that would help, right? And I think once you understand that a lot of the discrete problems that we're seeing are problems of governance, like once you understand that this is about, like, making sure we trust who's at the center of decisions, it kind of like unlocks a new set of solutions that, you know, focuses on governance, right? So several people had suggested to FERC when they were thinking about what should our next big rule look like, that they create what are called independent transmission monitors. So basically just like an independent entity in each region that would oversee the transmission planning process to try to make sure that it's happening in the public interest and not just sort of serving utilities' bottom lines. So I think FERC would be on super solid legal footing to require something like that as a way to ensure that we're ending up with these just and reasonable plans. Other things that FERC could do like pretty clearly under its authority... Right now when individual utilities make a set of plans to build new lines and file it with FERC, they just presume that these are like a prudent set of lines. They don't actually review them to decide, like, does it make sense? Some states do a lot of states

don't. And so one thing FERC could do is just give more scrutiny to local transmission plans, right? Like in individual proceedings, which would require some more staff, but I don't think that it would be legally on shaky footing. There are some places that have decided to basically do transmission planning well, even though the federal rules aren't great about requiring that. So I think the example that gets cited most often is from MISO, which is the mid continental system operator. It operates across a bunch of the upper Midwest, and the states there have gotten together and basically decided we're going to do long term planning. We're going to select a portfolio of lines that collectively benefits everyone and helps everyone accomplish their goals and we're going to pay for it together and that's kind of like forward looking. You know, goal driven planning and leadership that we need to see. The problem is like it basically takes a bunch of states that are basically in policy alignment, being willing to work together and having like a discrete moment of success. In order for this to happen. Whereas what we want really is this just happening all the time across the country on a national and not just a regional basis, right? Like even that process is not building the big interregional lines that we need to see. So like, I think that the momentum is in the right direction. And I think people are really starting to understand how central this is to the clean energy transition and to like keeping the lights on in America over the coming decades. But I don't think that policies on the ground match the scope and scale of the challenge yet. I'm heartened that we're by what's happened recently and it is still not nearly enough to get lines built as quickly as we need to to try to hit targets to stave off planetary catastrophe.

Alana Casanova-Burgess: Shelley Welton is presidential distinguished professor of law and energy policy with the Kleinman Center and Penn Carey Law at the University of Pennsylvania. Thank you for joining Climate One.

Shelley Welton: Thanks so much for having me.

Ariana Brocious: Up next, The federal government has just made fortifying the grid a priority. And for the first time money is flowing from the Department of Energy into big transmission projects.

Maria Robinson: Now we're in the business of deployment. Deploy, deploy, deploy, as the Secretary says all the time.

Ariana Brocious: What that means for improving our national grid, when Climate One

This is Climate One, I'm Ariana Brocious.

The transmission and distribution lines that move electricity through cities and across states are like the central nervous system of our country. They are incredibly vital. And as the demand for electricity grows, that system is struggling to keep up.

A recent study from the think tank RMI found that by 2050, the electricity market from from Wyoming, Colorado, New Mexico and Montana could grow to nearly 50 billion, or shrink to 3 billion. It all depends on whether or not interstate transmission lines will be built. And coordinating between four different states is incredibly complicated - which is why there needs to be more planning happening on a regional, or even national scale.

I spoke with Maria Robinson, the director of the new Grid Deployment Office at the Department of Energy, about the work her office has been doing to modernize and improve the nation's grid infrastructure and resilience.

Maria Robinson: Today's grid wasn't built for the challenges of 2024. It was built piecemeal from the 1930s on, and for too long, we haven't invested in those critical upgrades. I liken it to the

highway system, right? Every year we're repaving and working on the highway system. Some of that same work does happen, but not to the same degree. And the federal government historically has not really invested in the grid system until recently. And yet we rely more and more on electricity. So we're seeing a lot in that changing landscape, in particular, this lack of capacity across different regions. So when we think of transmission, and I like to say transmission is when you see the big lines when you're driving out on the highway, whereas distribution are the lines that you see coming into your house, to help differentiate between the two. But those lines that go across highways, you have to understand that electricity markets don't follow the same types of boundaries. When we think of states, these lines go across all these different states. They create their own regions. And so the governance related to that can get really complicated. But what we know for sure is that at all of those boundaries across the country, thanks to our national transmission needs study, we just need more transmission, in order to make sure that the flow of electricity can happen seamlessly across the country.

Ariana Brocious: The Bipartisan Infrastructure Law granted the Department of Energy more authority in planning national transmission, also included the creation of your office. So can you explain what those changes were?

Maria Robinson: That's right. So my office, the grid deployment office, did not exist when I was first hired. There were just a handful of people on board, handed us a couple of laptops and said, build a brand new government office. We're up to about 140 people now. We've got \$7 billion out the door last year with more announcements now happening. And so a lot of this comes from President Biden and Vice President Harris's Bipartisan Infrastructure Law, right? It provides for more than \$30 billion for that grid infrastructure investment, which is the largest in American history. And in particular, I think there's a lot of great focus on 10 billion, which is going into grid resilience. We talk a lot about reliability, which is to make sure that the electricity doesn't go out, but with resilience, we also want to make sure that should the lights go out, we're able to recover very quickly in order to make sure that people aren't losing services for long periods of time.

Ariana Brocious: Yeah. And that's essential given climate disruption, what we're seeing, increased storms, severe weather, et cetera. Part of the problem with transmission planning currently is it takes too long. And so one of the outcomes of this additional authority granted to the Department of Energy is a new rule that you've released called the Coordination of Federal Authorizations for Electric Transmission Facilities. This is intended to cut in half the time it takes to issue federal permits for new transmission lines. How is this going to help?

Maria Robinson: Sure. I know it's such a mouthful. We've created this cute little acronym called CITE App, because it's an application to site your transmission lines. So this is actually part of the 2005 Energy Policy Act. This is a section of the law that hasn't been used to date and in our effort to try and scrape through every possible mechanism to make transmission, development happen faster. We stumbled upon this section, and this allows the Department of Energy to be the lead agency for all federal permits. That might not sound super exciting on the face of it, but it also allows us to set a two year backstop on those permits. So historically, transmission lines, they're really complicated. They go over many different terrains. You're dealing with water permits. You're dealing with Endangered Species Act issues. And there's lots that needs to be pulled together. This allows us to take this coordinating function. So the developer or the utility only works through us, the Department of Energy, and then it's on us to coordinate the rest of our federal family. And our hope is that coordination function will really speed up this process as well as that two year shot clock. And there actually was this really great study that came out recently that said, had all the transmission lines that were permitted between 2010 and 2020 gone through our process, it would have shaved off 66 years of process, which is just phenomenal. So understanding that we really need transmission not just to meet some of our greenhouse gas related goals, but really for grid reliability

with all these new sources of load coming online, like A.I. and data centers, you know, we need to be able to figure out how to build transmission quickly while also doing it thoughtfully and equitably.

Ariana Brocious: Yeah. So just to underscore, this will significantly speed up transmission planning, because it's kind of like a FAFSA application for student loans. You get to put everything in one place, submit it just to the DOE, instead of having to shop all of those documents around to each individual agency, and as you said, the two year window means it should happen faster.

Maria Robinson: That's exactly right. The common application is such a good analogy for this because it's so consistent and you need all the same information for a lot of these different permits. And so we'll have it in one place, it'll be through this whole portal that we'll be able to pull the information out of very quickly and easily and our hope is that it makes it easier for everybody in the process.

Ariana Brocious: So we are trying to speed up the timeline for actually getting projects permitted and ideally built. There's another initiative that your office is working on, that could do a lot to improve our current grid without having to build new things. This is reconductoring. So can you explain what reconductoring is, and how far it can get us in terms of expanding the capacity of our existing grid?

Maria Robinson: So reconductoring is one of Secretary Granholm's favorite things to talk about because sometimes it can feel frustrating when we're talking about transmission. It's a big construction project. It can take several years to get into the ground. Reconductoring is a mechanism of taking our existing grid, using existing rights of way, and it's either upgrading the existing grid as you're replacing the lines. You can make sure that they can use a different type of technology that's more advanced that allows you to move more electrons across the same area. And that's incredible. And we've really tried to encourage utilities to use this technology, especially using some of these, these, these technologies that can span the grid one and a half, two times, of what we currently can move. So we here at the grid deployment office have funded several reconductoring efforts, including some that we just announced, in order to set a precedent so that other utilities can follow in their footsteps and continue to use some of these advanced technologies to get the most out of our existing grid.

Ariana Brocious: So recently, the White House and Department of Energy announced 2.2 billion of investments across 18 states, specifically focused on transmission lines. You were just discussing the reconductoring part of this. It also involves building more than 600 miles of new lines. So, are there specific parts of the country that are receiving this money that you could mention?

Maria Robinson: So one of the great projects that we're supporting here is in the Northeast. You know, the Northeast has been really bullish on offshore wind for a long time. But one of the biggest struggles relating to offshore wind is making sure that you have all of the grid infrastructure necessary to take the electricity from, the middle of the ocean, actually back to land. And that can be really complicated because you're working across a number of different systems. They're working with the states, and possibly amongst different grid operators. So some of this funding is actually going to a project called Power Up New England, where five of the New England states are really working closely together to make sure that they're incredibly coordinated and they figured out how they're going to construct a new transmission project to help bring online more offshore wind, developing even new points of interconnection to allow for more offshore wind to connect to land.

Ariana Brocious: Would you say that that funding is a higher level than normal coming from DOE, specifically going to transmission lines?

Maria Robinson: So, historically, the Department of Energy, prior to the bipartisan infrastructure law and Inflation Reduction Act, wasn't funding these large capital projects. and now we're in the business of deployment. Deploy, deploy, deploy, as the Secretary says all the time. And so, this is why our office was created, to have something, have a place where we can really work with industry. I know sometimes people believe that government just makes things in a vacuum and that's not at all what's happening here. We're trying to make sure that this funding can be stretched as much as possible to have the greatest good, to make sure that we're lowering, uh, electric bills for folks and making sure that everyone can access electricity whenever they want to. And so this is the largest investment that we've ever had in the grid from the federal government, across the, the 10.5 billion through this one program that we have. And that 2.2 that we announced is going all over the country.

Ariana Brocious: So, in addition to all that we've talked about, the Department of Energy released a list of 10 potential national interest electric transmission corridors. This is still a draft list, and that you're going to be refining in the coming months. But these corridors would allow the federal government to expedite the development of grid expansion projects. So can you briefly explain how it will do that?

Maria Robinson: You got it. So these national transmission corridors are really neat. First we did a really thorough study where we did a lot of consultation with states, and with tribal entities who were often impacted by transmission development. And we worked with them to, and, and worked with the all of the experts, particularly at our national labs to determine the areas where there's the most congestion on the grid. Think of the congestion sort of like the highway system, and we've identified those locations unsurprisingly due to long under investment. There's a lot of congestion across the grid, but all one area I'll note is, in the southwest part of the United States, there's so much economic growth happening there that there's a real need for more electricity and we need to transfer it from, north to south and from east to west there. So from there, we made some determinations after consulting with the public and having a very long comment period to help down select to these 10 that we announced in this draft stage. And we're going to continue to do a down select as we figure out which are the most ready. For classification as a national transmission corridor, and that unlocks 2 billion in loan funding, and it also unlocks some some abilities over at the Federal Energy Regulatory Commission, that would allow the folks over there at that agency then to issue permits at the state level that had not been issued in a timely fashion.

Ariana Brocious: That's great. So we're going to be seeing more of this. So, elsewhere in this episode, we talk with Shelly Welton, and she argues that we need a stronger federal role to manage and organize national grid planning and that basically, we should have a federal authority that would manage this on the national level. What would be Department of Energy's capacity to take on this role and based on everything we've already discussed, are you kind of moving that way now, but in more of a piecemeal fashion?

Maria Robinson: That's a great question. And certainly an idea of having a national federal entity has been bopped around from time to time. And I think our office is really trying to fill in those gaps as much as possible. So later this year, we'll have coming out, a national transmission planning study, which is an enormous effort. It has been several years in the making with multiple national labs working together, but it's really trying to figure out where do we need the most great capacity, how do we optimize both in terms of greenhouse gas emissions, but also in terms of cost investments. So much analysis has gone into this and what's really important is it goes down to such a detailed level that it should help utilities actually make investments, which has been a criticism of other transmission planning studies in the past that they haven't gone down to what they call the nodal level. And so our hope is that we can then start working with all the different regions to do a little more of that interregional planning work, but we're also seeing it happen organically. One of

the projects that we funded through our office is called the Joint Targeted Interconnection Queue, between two different grid operators called MISO and SPP. And so that's just a series of seven projects that will significantly increase the transfer capacity between those two regions. And that's something that they worked on together without the federal government asking them to do so, and we're seeing more of those organic pieces coming together, but certainly I will always say that the National Laboratories have just some of the greatest minds working there who can solve the toughest problems, and I'm sure that they would love to tackle this.

Ariana Brocious: Yeah. I mean, to be a little blunt, not to undercut at all these initiatives that you've been putting forward, which are really going to make a big difference. But at the end of the day, we're still sort of working with the incumbent power utilities and trying to kind of maybe cajole, maybe guide, maybe help fund their efforts. But it's different than someone at the top saying, I want you to build this line here.

Maria Robinson: It certainly is. And, you know, we're not, as the Department of Energy, not asked to tell folks where to where to build their lines. But with some of our investments, what we're just trying to do is create a precedent so that folks can figure out how to do this themselves moving forward, whether that's working at the federal level or at the state level, right? State utility commissions are often not willing to be the first to pilot out a project, even if it is something as innovative as a new cost allocation scheme. And so by us funding some of these projects, they can be the first that others learn from, and then hopefully the dominoes will start to fall quickly.

Alana Casanova-Burgess: And that's our show. Thanks for listening. Talking about climate can be hard, and exciting and interesting — and it's critical to address the transitions we need to make in all parts of society. Please help us get people talking more about climate by giving us a rating or review. You can do it right now on your device. Or consider joining us on Patreon and supporting the show that way.

Ariana Brocious: Greg Dalton is co-host and executive producer. Brad Marshland is our senior producer; Our managing director is Jenny Park. Austin Colón is producer and editor. Megan Bisciegia is producer and production manager. Wency Shaida is our development manager, Ben Testani is our communications manager. Jenny Lawton is consulting producer. Our theme music was composed by George Young. Gloria Duffy and Philip Yun are co-CEOs of The Commonwealth Club World Affairs, the nonprofit and nonpartisan forum where our program originates. I'm Ariana Brocious.