



## Transcript for the Americans for a Clean Energy Grid Webinar – Transmission Needed to Meet Corporate America’s Growing Demand for Renewable Power

March 27, 2018

The accompanying recording of the webinar and a PDF of the slides is available here: <https://cleanenergygrid.org/webinar-transmission-needed-meet-corporate-americas-growing-demand-renewable-power/>

- Isabel Harrison: 00:00:09 Hello everyone and welcome to our webinar. My name is Isabel Harrison and I'll be helping run today's program. We'll be beginning in just one minute once we get critical mass. In the meantime, I just wanted to make a few logistical notes.
- Isabel Harrison: 00:00:24 First, I wanted to let you know that we will have a question and answer session with our excellent panelists at the end of the webinar, and you are welcome to submit questions through the webinar control panel on your screen. If you have any additional questions you're welcome to reach to Americans for a Clean Energy Grid over email. We'll share contact information at the end. And then finally, a recorded version of this webinar and a copy of the slides will be sent out to all participants within the next day.
- Isabel Harrison: 00:00:55 In just a minute or two our moderator John Jimison will kick things off. Thank you.
- John Jimison: 00:01:37 Hello?
- Isabel Harrison: 00:01:41 Hey John. I can hear you loud and clear. I think you can get started whenever you're ready.
- John Jimison: 00:01:46 Okay. I'm sorry, I missed the last part of your introduction. Hello everyone, thank you for joining our webinar. My name is John Jimison and I am the executive director of the coalition we call Americans for a Clean Energy Grid.
- John Jimison: 00:01:59 A word about myself, I started working full-time in the energy policy arena in 1971. You can do the math. Practiced law for 22 years. Was in Paris with IEA for four years. Ran a think tank for five years, and was on the hill for 14 years, culminating with being senior counsel to the Energy and Commerce committee.



## Americans for a Clean Energy Grid

- John Jimison: 00:02:22 As I approached the end of my career, I wanted to focus on one of the remaining major issues that I think is very difficult to solve but absolutely has to be solved if we're going to continue to make progress not only to a modern economy but to a clean energy economy. That's the problem of the transmission grid.
- John Jimison: 00:02:42 So I was very pleased in my last years with the Energy Future Coalition to begin working with Americans for a Clean Energy Grid, which is a very diverse coalition of parties and stakeholders who understand that it is tough, expensive, and potentially objectionable from a perspective of land owners and others, as it is. We have to have a better modernized, expanded, and integrated high voltage grid, if we're going to have the kind of electricity system that allows us to keep electrifying our economy, adding electric transportation, and otherwise doing what we need to to get to a clean energy future.
- John Jimison: 00:03:27 So we were thrilled as ACEG when we learned that the Wind Energy Foundation had commissioned a study from David Gardiner and Associates to look at how the corporate community that wants to use clean energy faces the issues it takes for them to get it, and early on learned that a better transmission grid was one of those issues.
- John Jimison: 00:03:50 The purpose of our webinar today is to present that study to you and to hear from two of the key parties, a corporate energy consumer that knows the transmission is critical, and a transmission grid operator that is the middleman in making that all happen. We have an excellent panel to present these perspectives to you, starting with David Gardiner.
- John Jimison: 00:04:18 David runs his own consulting firm at this point, but previously had high ranking positions in government as the executive director of the White House climate change taskforce during the Clinton administration, and as the assistant administrator for policy at the EPA. So David is very qualified to talk about the dynamics and policy issues related to this, and his firm has prepared an excellent study that he will summarize for you.
- John Jimison: 00:04:52 Following David, we will hear from Stefani Millie Grant. Stefani is a senior manager for external affairs and sustainability for Unilever, and as was the case for me, I had no idea how many name brands Unilever owns and



operates. I hope she lingers on that slide so you get a full sense as to scope of this company's operations. But Unilever is one of a number of companies that has taken on serious commitments to include greater clean energy in their portfolio, and Stefani is going to explain why and how, and what challenges they face doing that.

- John Jimison: 00:05:33 Then finally after Stefani, we'll hear from Eli Massey. Eli is senior advisor to the Midcontinent Independent System Operator, universally known as MISO. They operate the grid in a large section in the middle of the US, from Minnesota down through Louisiana. They're the ones who have the wires and control the wires on behalf of others who own the wires, but who plan and make it possible for energy to be moved over those from where it comes from to where it goes. He's going to address how MISO looks at the need to meet clean energy commitments, and what they're doing now.
- John Jimison: 00:06:17 So with that, I want to turn it over to David and have him tell us about the study that his firm completed and what we should know about it. David, please take it on.
- David Gardiner: 00:06:37 Right. Thank you very much John. Good morning everybody. I wanted to start, if I could, by first saying a word about the two organizations that are responsible for the report. Wind Energy Foundation is a non-profit organization dedicated to raising public awareness about the importance of wind ... communication, recertification. The Wind Energy Foundation commissioned this report as part of their A Renewable America campaign.
- David Gardiner: 00:07:11 My own firm, David [inaudible 00:07:13] advisory firm focused on climate change [inaudible 00:07:18]
- Isabel Harrison: 00:07:19 David, this is Isabel. Your audio is a little iffy.
- David Gardiner: 00:07:22 ... trade associations, and we conduct-
- Isabel Harrison: 00:07:24 David, you may want to call in over the phone briefly.
- David Gardiner: 00:07:27 Okay. So what should I do about that?
- Isabel Harrison: 00:07:29 You could just switch to the phone call audio.
- David Gardiner: 00:07:33 Okay, let's do that.



## Americans for a Clean Energy Grid

- Isabel Harrison: 00:07:33 Everyone, it will be just a moment, apologies.
- David Gardiner: 00:08:37 Yeah, okay. This sound a little better Isabel?
- Isabel Harrison: 00:08:40 Yes. Thank you. Go ahead.
- David Gardiner: 00:08:42 Sure, thank you. So again, my own firm, we are a strategic advisory firm focused on climate change, clean energy, and sustainability. We have clients who are non-profit organizations, corporations and trade associations. We conduct research and analysis, strategic planning and improve communication through partnership building and advocacy.
- David Gardiner: 00:09:05 Now let's dive into the report if we could. There are a couple of key findings that I wanted to draw to your attention right away. Isabel, if we could have the next slide.
- David Gardiner: 00:09:17 First, we've seen a dramatic increase in corporate commitments to procure renewable energy. Those commitments are growing rapidly and we expect them to do so in the future. A second, that the best renewable resources are in the central US, but far from where we use electricity. Third, that because of these two important points, that we must expand and upgrade the transmission grid to ensure that renewable energy demands can be met, and also provide other benefits. And finally, that we learned that in discussions with transmission planners and experts, that in general transmission planning fails to consider this rising tide of corporate demand for renewable energy.
- David Gardiner: 00:10:12 I should further note that while this report focuses on corporate demand, there are other institutions, such as government entities, colleges, universities, that are a part of this large increase in demand from institutional buyers of renewable energy.
- David Gardiner: 00:10:34 Let's dig into those findings a little further. If we could go to the next slide. The number of corporations, as you can see, who are buying renewable energy. This chart is a good indicator, shows the increase in demand that we've seen from corporations. But that stems from the fact that 48% of Fortune 500 companies, and 63% of Fortune 100 companies, have set targets to either reduce their greenhouse gas emissions, improve efficiency, or increase



renewable energy. In some cases, companies have done some, or several, or all of those.

- David Gardiner: 00:11:14 US companies since 2013 have purchased nearly nine gigawatts of long term wind and solar power contracts. The Renewable Energy Buyers Alliance, a coalition of the organizations and companies looking to purchase renewable energy, has a goal to deploy 60 gigawatts of new renewable energy in this country by 2025. That's an important number, which we used in our analysis. Let's go to the next slide Isabel.
- David Gardiner: 00:11:54 We've looked in particular at the central region of the country, these shaded states that you see in the map of the US on the right. There's 15 states there, between the Rocky Mountains and the Mississippi River. We call that the central region. That's critical because that region accounts for 88% of the country's wind technical potential, and 56% of the country's utility-scale photovoltaic technical potential.
- David Gardiner: 00:12:26 The problem, from a electricity standpoint and a planning standpoint for transmission, is that it's home to only 30% of projected electricity demand by 2050. So most of that electricity demand then is going to be to the east and the west of that region. You can see in the right hand side here the map of the regional transmission planning organizations, MISO being one there in orange. We'll hear from Eli later, but you can see we have a somewhat Balkanized planning system, rather than a national approach to it. Next slide Isabel.
- David Gardiner: 00:13:12 To take a look at the needs for transmission to meet this corporate renewable energy demand we ran two scenarios. We compared a high and low scenario for building out transmission with a high and low scenario for corporate renewable energy procurement. The key takeaways here are that three of the four scenarios fail to meet the corporate renewable energy demand. The only one that succeeded to meet and meeting the demand was one in which there was low corporate demand for renewable energy and very aggressive transmission construction.
- David Gardiner: 00:13:58 That suggests that there's a need for us to step up transmission planning beyond the level that we see even today. Our scenario for transmission construction was



based on the lines that have been proposed to date, and so we see that even the lines today wouldn't be adequate to meet the needs that we see in the future, unless that corporate demand drops of significantly. We projected the high level of corporate demand to be 51 gigawatts by 2025, and the low level was sharply lower, only 20 gigawatts. That would be a substantial drop-off in corporate demand, which we don't actually anticipate. Next slide.

- David Gardiner: 00:14:55 As I had mentioned at the outset, one of the key things that we found was the transmission planning fails to account for this corporate and other institutional demand. It contends to consider renewable energy requirements, such as the requirements that states have set on utilities to deliver increasing amounts of renewable energy through renewable portfolio standards, but not voluntary commitments of the sort that we see from the corporate community. Therefore, it leads to the second problem, which is that we're not providing adequate focus on the need to transmit electricity from that central US part of the region to the place where the electricity load is likely to be out in the future.
- David Gardiner: 00:15:49 If we can go to the next slide Isabel, the report then has two recommendations. First, that the transmission, regional transmission organizations and other transmission planners should take account of this large customer demand for renewable energy in their transmission planning. Renewable energy is no longer a business that is solely about what do electric companies buy. It is often about these other large institutional buyers and companies who come in on it.
- David Gardiner: 00:16:21 And second, that of course we need to focus on planning between the regions. If you keep in mind that map of the regional transmission planning organizations that I showed, and the map of where the large resources for wind and solar are likely to be in the future, you can see that we're going to need to move electricity from that central region of a country across regional transmission planning organizations to both the east and the west.
- David Gardiner: 00:16:47 The second recommendation is simply that corporations that are buying renewable energy and other large institutional customers are going to need to going to engaged in the transmission planning process itself. It's all



well and good to have commitments to buy renewable energy, but if we don't have a way that that renewable energy can get to electricity demand centers and to factories and other kinds of things like that, it's just not going to work, and we have not seen ... While we highlight a few examples in the report of companies like Stefani's that have engaged in some of the planning for transmission lines, it's been limited and we're going to need to step up the kinds of engagement in the transmission planning process as we go forward. John, that's a quick summary. I'll turn it back to you.

- John Jimison: 00:17:39 Thank you very much David. Thanks for doing the report and for outlining so succinctly. Now we will turn to Stefani and hear from one of the corporate buyers with major commitments to using clean energy, the issues they're facing in getting that, making it possible to meet that commitment. Stefani please take it over.
- Stefani Grant: 00:18:04 Thanks John. Good afternoon. Next slide. First of all, I always like to start with ... You might not know who Unilever is, but you likely know our brands. We're a company with over 400 brands, with operations in nearly 100 countries and sales in nearly every country in the world. Our products are bought over 150 million times a day, and are used two billion times a day in over half the households on the planet.
- Stefani Grant: 00:18:33 So I always start with this slide because most people, when I'm usually in person, I can see them nodding their heads and realizing they have a lot of these products either in their pantry or in their bathroom. But that's who Unilever is. Next slide.
- Stefani Grant: 00:18:49 In 2010 our CEO Paul Polman developed an ambition to grow the business while at the same time reducing our environmental footprint and increasing our positive social impact. With this, what came out of this is what we call our Unilever sustainable living plan. Next slide.
- Stefani Grant: 00:19:11 This was developed with a number of goals across the business. As you can see greenhouse gases is one of those, which the energy goes into, and that goes into reducing our environmental impact. This is a living document. We annually assess it. We look where we're at. We make adjustments, and really report out in what we're doing.



## Americans for a Clean Energy Grid

- Stefani Grant: 00:19:32 In a lot these we've made big audacious goals, knowing that we might not be able to reach the final goal, but even if we reach 50%, and 60%, 70%, it's a lot more than making a very small goal that's very easy to achieve. So all of our initial goals are based around 2020, but over the last year or two we've really started to develop additional goals with a 2030 target. Next slide.
- Stefani Grant: 00:19:54 One of those 2030 goals is to be carbon positive by the year 2030. We actually announced in December of 2015, that we wanted to become carbon positive in all of our operations by the year 2030. This means basically producing ourselves in some countries, or [inaudible 00:20:18] and being a way to leverage renewable energy and other things that would carbon positive and on the current grid as of today.
- Stefani Grant: 00:20:28 This reflects our ambition to play a leadership role in the transition to a zero carbon economy, and responding to the challenges set out by the UN global goal 13 climate action. Our success really depends in part on broader changes taking place in energy markets worldwide and we recognize we have a role to play as an industry leader to help shape those markets.
- Stefani Grant: 00:20:46 By becoming carbon positive we expect to achieve lower operational costs, also improve our resilience in energy supply, and develop a close relationship with consumer. In the US what this means for us, it's really looking for power purchase agreement opportunities, especially those where we might be able to do this on-site. Solar is one of those easy examples. We've also had wind energy contracts in the past, such out of Texas that covered our entire our entire portfolio. But those, that contact did not actually provide their renewable energy to our facilities.
- Stefani Grant: 00:21:25 We like to say we're experts in manufacturing but not necessarily in energy, so that's why we'd rather do the power purchase agreements and have this brought on-site to us. Next slide.
- Stefani Grant: 00:21:37 We're not the only company making these types of commitments. I put up a handful here that I pulled, 130 of the RE-100 companies have made commitments to go 100% renewable. You can see these range from 2020 to 2040 by the different companies. We're not alone in making this, and a number of companies I think are really





starting to look at this closer, what this means for their portfolio and how can they do that. Next slide.

- Stefani Grant: 00:22:06 We really agree with the recommendations made from the Wind Energy Foundation report, which I pulled into this slide and might be a little bit of overlap with what David talked about too. But companies really need to engage on the transmission planning positive. I will admit we've engaged at a lower level. We haven't been out front on this.
- Stefani Grant: 00:22:26 Part of it is, goes into we need assistance on this. Companies such as ourselves, we have done this through groups such Ceres and supporting organizations like Clean Light Energy. But we really don't have people on our staff that are experts in transmission. We have our buyers that might buy our renewable energy and know that, but when it comes to transmission and that type of thing, we need assistance from other organizations that will help us and reach out to us and say, "Hey, this is important to you guys," and explain.
- Stefani Grant: 00:22:56 Usually within our external affairs office and with what we do, we'll usually sign on to letters or help put out a statement or things like that on these types of things. But that's definitely, for us, if we're going to actually get to the carbon positive and put this into our facility, we can actually start talking about, it's actually running our facilities, instead of just being out there buying the racks. We've got really focus on transmission. That is all I have today. I think next slide. I appreciate your time and I'll turn it back to you John.
- John Jimison: 00:23:33 Thank you very much Stefani, and congratulations to Unilever on your goals and your work and your commitments. Our final presenter is Eli Massey of MISO. Everyone's aware of the revolution that's going on in the telecommunication world, and you're probably also aware that a parallel revolution is beginning in the electricity world. But the key difference is that you can get telecommunication signals by wireless, by copper, by coaxial cable, by fiber optics, by satellite.
- John Jimison: 00:24:07 There's only one way to move electricity, and that's by wire. So you have to have in the transmission system and the distribution system that network of wire that moves the power from where it's generated to where it's used. Now



## Americans for a Clean Energy Grid

we're going to Eli Massey from MISO, whose company operates the key middle continent wire system that makes that possible, and he's going to tell us the challenges they face in addressing, meeting and serving the public interest with regard to commitments for clean energy. Eli take it over.

- Eli Massey: 00:24:50 Thank you John. [inaudible 00:24:53] Here we go, the first slide. First, I'd like to talk about who we are. The Midcontinent Independent System Operator is the regional transmission system operator for all or part of 15 states and the province of Manitoba.
- Eli Massey: 00:25:11 What we do, because we don't own any generation or transmission assets, we're able to provide unbiased and neutral regional grid management and open access to transmission facilities throughout our planning and energy market operations. Next slide please. As you can see in the map, MISO is one of six transmission planning regions in the eastern interconnection. Because we are just one of these six planning regions we have joint operating agreements and inter-regional transmission planning processes with the three planning regions, PJM, Southwest Power Pool, and the Southeastern Transmission Planning Region, that are directly adjacent to our footprint.
- Eli Massey: 00:25:56 We coordinate our transmission planning with our neighbors in order to eliminate the barriers to reliability and efficient operation. We also work with transmission system operators and planners that are not directly adjacent to our transmission system through our participation in the Eastern Interconnection Planning Collaborative. MISO is also working with other grid operators to address interconnection-wide and nationwide transmission system issues. For example, we are currently working with the National Renewable Energy Laboratory on an interconnection seams study to identify cost effective options for upgrading the national electric grid, and to create a more integrated power system to drive economic growth and increase the efficient development of energy resources. Next slide please.
- Eli Massey: 00:26:51 I'd like to take a minute to walk everybody through a basic electricity delivery system. The system starts on the far left side with a generator. The electricity generated by the power plant is then routed to a substation, where its



voltage is increased to a higher voltage suited for transmission. The high voltage electricity then travels across the transmission system until it reaches a distribution substation. In the distribution substation the voltage is lowered to a level compatible with the local distribution utility system. And the finally, the electricity is routed to the industrial, commercial and residential customers over the local distribution system.

- Eli Massey: 00:27:35 One of the difficulties that we have in transmission planning is that the basic electricity delivery system is subject to many different jurisdictions. If you were to draw a line, a vertical line, through each of the two transformers in the picture, the delivery system's broken up into three sections. On the left hand section, the states have jurisdiction over the generators located in the MISO footprint, both in the context of siting and in the development and ensuring of resources adequacy.
- Eli Massey: 00:28:11 This isn't to say that MISO doesn't have some ability to inform siting. As we do interconnection studies we can determine points of interconnection, where the cost of integrating a new generator can be minimized. In the middle section, FERC has jurisdiction of the transmission lines that are utilized and what they would call energy sales for the purpose of resale. That is the wholesale markets. FERC approves the tariffs that govern rates, terms and conditions of transmission service. FERC also issues rules that govern transmission system planning, cost allocation, reliability and generator interconnection.
- Eli Massey: 00:29:03 The last section, again we go back to a state jurisdiction. The states have jurisdiction for the purpose of retail sales. States also have the authority to enact renewable portfolio standards and to govern distributed energy resources such as distributed generation, energy efficiency programs, electric vehicles, and energy storage.
- Eli Massey: 00:29:29 The last thing I'd like to note before we move on is that MISO is working both internally and with our stakeholders to examine and address issues that occur at the transmission system, distribution system interface. This includes such topics as data collection and transfer, operator communications, as well as the statutory and regulatory issues. Next slide please.



## Americans for a Clean Energy Grid

- Eli Massey: 00:29:58 The overall objective of MISO's value-based planning process is to develop a comprehensive expansion plan that promotes economic efficiency and accommodates policy objectives under reliable operation. MISO transmission planning process utilizes [inaudible 00:30:15] transmission owner planning criteria to identify local and regional projects to satisfy reliability requirements.
- Eli Massey: 00:30:23 Economic efficiency is achieved through the value-based planning process, which addresses economics first, and then proceeds with the incorporation and interaction with reliability requirements in order to identify projects that provide access to electricity at the lowest total electric system expansion plan cost.
- Eli Massey: 00:30:48 Finally, our planning process supports state and federal policy requirements for changing generation fuel mix. For example, our planning process includes many different analyses of system scenarios that focus on changes in the generation fleet, as well as the evaluation of distributed energy resource programs and other factors that can affect load shape.
- Eli Massey: 00:31:17 One more point is that I want to say, and this is very important, that the outcomes from the transmission planning process have to lead to an appropriate cost allocation to ensure that the cost to projects are allocated in a manner that is commensurate with the projected benefits of the projects. The next slide please.
- Eli Massey: 00:31:42 I'd like to get a little bit more into MISO's specific transmission planning process. The MISO driven top-down planning process is predicated on region-wide economic efficiency that ensures reliability requirements are met. Then we have bottom up process, which is generally focused on ensuring local system reliability. Typically what we see is that this is driven by load growth and optimization of local balancing authority dispatching. It's the load growth that is interesting because in the context of this discussion, when a generator signs a PPA with a corporate customer, it's the scheduling of transmission to allow for the delivery of that electricity that is impacting the local utility, the load serving entity's load growth.
- Eli Massey: 00:32:52 Even though MISO isn't a party to that power purchase agreement, it is in this process where the local utility sees projected load growth that it values its system, it's



electricity delivery system, and participates and informs the MISO transmission planning process.

- Eli Massey: 00:33:19 Another area is the stakeholder participation and the access planning portion of the process. This is where we find out oftentimes about power purchase agreements between generators and the end user. But because MISO is not a signatory to the power purchase agreement, we don't always know about these power purchase agreements, so it's difficult to plan in that context.
- Eli Massey: 00:33:53 The final thing I'd like to note about our process is that the generator interconnection process is separate from the transmission planning process, but both processes inform each other. Transmission planning provides insight to generator interconnection customers with respect to their siting decisions. And then on the flip side, the generator interconnection process informs load serving entities as to where new or upgraded transmission assets are going to be needed in order to serve prospective end users.
- Eli Massey: 00:34:28 I have one more slide and, there we go, and it's just a quick map of MISO's multi-value projects. The only reason I throw this out there is because this is a really good example of a positive outcome and how economic efficiency, reliability and the accommodation of public policy can all be advanced through a robust and inclusive transmission planning process. That was my last slide, and I didn't want to take too long because I wanted to be able to field many questions.
- John Jimison: 00:35:15 Well, thank you very much Eli. You are indeed going to have an opportunity to do that, because we've got a number of excellent questions already posed. I will go through them. I may not get to all of them in the time remaining, but I'll try to pick some at least for each of the presenters.
- John Jimison: 00:35:35 David, the first one goes to you. It asks, "Is it double counting to simply add the renewable portfolio standards requirements and the corporate goals that came from your scenarios? For example, if a utility met corporate demand for renewables, that would also count towards its renewable portfolio standard."
- David Gardiner: 00:36:01 The short answer is no. It's not double counting. What we see in the corporate market is that companies want their



renewable energy purchases to be in addition to what might be required under law. So typically what happens is that the compliance mechanism for a utility and its renewable portfolio standard is that it must have a set of renewable energy credits at the end of a year that says, "I had this many renewable energy credits in hand, and therefore I met the standard that required me to have that many renewable energy credits."

David Gardiner: 00:36:45 On the corporate side, the companies themselves want to own those renewable energy credits also. So when they are signing power purchase agreements in the way that Stefani was speaking of, they are acquiring those renewable energy credits. Once they've acquired it, it cannot be used by a utility in order to comply with the renewable portfolio standard. So I don't think there's any double counting there.

John Jimison: 00:37:10 Great. Thank you David. Stefani, here's a question for you. What kinds of power purchase agreements work for Unilever and other corporate purchasers? Are you finding it easy to arrange these contracts and to arrange the transmission that's required to make them work?

Stefani Grant: 00:37:28 I wish I had my buyer on to answer this one, but I'll do my best. We're usually looking at anything we can do on-site first. So if we can put something on-site, such as solar panels for example, and be able to do the direct PPA there, that's our first preference with that.

Stefani Grant: 00:37:48 Other ones, it's very easy to go out and find the wind ones for example, but getting the energy to our facilities, at this time haven't been able to do that. We found that to be much more challenging, to actually get the ... So if we're buying wind in Texas and trying to get it to my plant in Virginia, in Tennessee, in Missouri, that's proving to be more challenging, and right now we're just not able to do that. So we will just purchase, do the PPA, but just have it cover us but not actually being delivered to our facilities.

John Jimison: 00:38:20 Okay. It sounds like there's transmission work and regulatory work to be done to make that easier.

Stefani Grant: 00:38:28 Yes.



## Americans for a Clean Energy Grid

- John Jimison: 00:38:29 Eli, a question to you that's fairly specific, but very recently the Department of Energy said it was no longer going to support the Plains and Eastern project that would have gone through Arkansas, and is sort of pulling back from using its own ability to help with transmission. Does that threaten transmission projects and the ability to meet these corporate demands?
- Eli Massey: 00:39:02 Globally, I would say no. One of the things you have to understand about the Plains and Eastern project, is that it was permitted at the Department of Energy in the group that I used to manage under section 1222 of the Energy Policy Act of 2005. This was very, very specific language to allow for the Department of Energy to accept third party money that is from a merchant transmission developer to develop high voltage transmission lines in cooperation with either the western area power administration, or with the southwestern area power administration.
- Eli Massey: 00:39:49 This was the first time that provision of law had ever been exercised. So while it's definitely a hard blow for HVDC and for merchant transmission, from a MISO standpoint, it doesn't really impact how we're evaluating the increased penetration of renewables in our footprint and the need of our system to be able to move that energy west to east.
- John Jimison: 00:40:29 Okay. Thank you very much. Here's a question that a couple of questioners have raised both David and Eli may be willing to address, and that's on cost allocation. It's expensive to build transmission capacity. When you add it to a system you need to know how those costs are going to be paid. I think the question is, "How can one adapt the cost allocation process to reflect future commitments to purchase renewable energy from corporations that are firm commitments, are solid commitments, but you're really getting a benefit throughout an entire region from improving the transmission capacity?" Talk to us about how this affects and should drive cost allocation processes.
- Eli Massey: 00:41:32 Okay. I guess I'll take-
- David Gardiner: 00:41:33 Eli, [crosstalk 00:41:34] Yeah, you go ahead and start.
- Eli Massey: 00:41:38 Okay. I think there are a couple different issues in here. From a transmission perspective and our requirement to follow FERC jurisdiction, is all cost allocation is predicated



on cost causation and beneficiary pays. So as we develop transmission planning, we develop projects that move their way into appendix A and that are going to get built. We have to do detailed cost benefit analysis.

- Eli Massey: 00:42:13 One of the things that we have to demonstrate is that the cost allocation methodology that we apply, whether it's for a reliability project, or a market efficiency project, or an MVP, that the costs and the benefits are being met and that the beneficiaries are the ones that the costs are being foisted upon. It gets tricky because one of the issues that happens is that projects that are reliability today generally stay as reliability projects.
- Eli Massey: 00:42:54 But projects that are market efficiency or economic projects today, because when they get incorporated into the base case that we use have reliability impacts going forward. So cost causation is always an issue and it was an issue with the MVP's as well, is we look at the cost of the MVP's on a portfolio basis to make sure that the regional cost allocation for all the projects is providing benefits to all of the rate payers in the region.
- David Gardiner: 00:43:39 John, I would add two thoughts. One is that I think we're in the midst of an evolution of thinking about the transmission grid, and that's going to change the way we think, or should change the way that we think about cost and benefits. You go back to when we were first building out the electricity grid, we were talking about transmitting electricity from a power plant sort of virtually down the street. Now, we know that we operate not just with regional transmission grids of the sort that Eli's organization has to manage, but you can really see that the transmission grid is in fact a national one.
- David Gardiner: 00:44:17 So I think that changes in part the way that we need to think about this thing. It's part of the reason that we recommended in the report that we have to think about this in an inter-regional way. We have to look at this in more than just looking at Eli's region, but to look at the ones next door that have, or even parts of his region that have these big wind and solar resources.
- David Gardiner: 00:44:41 The second thing is that I think the most important thing about cost benefit analysis here and allocation is that we have to think, do a better job of accounting for the benefits that can be accrued to folks. I think that current planning





process doesn't do an adequate job of really counting up all of the benefits, and then it doesn't think about it, as I was saying, in a kind of broader geographic scale.

- David Gardiner: 00:45:14 We've built the interstate highway system in this country not because the highway system went from point A to point B, and the people along point A and point B paid for it, but because we recognized that it provides national benefits, and therefore everybody contributed nationally. We need to be thinking about how we assess the benefits and think about how we want to pay for things, more along those lines than we currently are.
- David Gardiner: 00:45:41 Can I also touch on one thing about the question that Stefani answered earlier? Which is simply that when a company signs a power purchase agreement, it's the developer who needs to be able to be sure that their electricity can actually get to market. That's the way the process sort of works, is to make sure that the developer can actually get that wind farm or solar farm hooked up to the grid, and that that grid is then going to be able to transmit that electricity to where the users actually are.
- David Gardiner: 00:46:15 That might be not a big deal in the short term, but I think as we think about building out renewable energy in the larger scale that these corporate buyers are talking about, we've got to think about making sure that every individual deal that will get done can actually get the electricity from where it's produced, typically in the central part of the country, to where it's going to be used.
- John Jimison: 00:46:38 Okay. Thank you David, and thank you Eli. Here's another question for Stefani. Stefani, corporations are fairly notorious for having short term paybacks by which they evaluate the investments they make, maybe five, six, seven years. But a transmission investment is often good for as much as a century. Certainly 50 years, 60 years, transmission assets are still in place. How can a transmission provider or an investor count on the corporate commitments to clean energy in making such a long term investment?
- Stefani Grant: 00:47:21 You're absolutely right about we look for the short term paybacks on that. Which is a little more difficult in the US compared to other countries, just because our energy is so much cheaper here. But I think really look to what our



companies, such as Unilever and the other ones that I pointed to are making, these are long term commitments.

- Stefani Grant: 00:47:39 Once we've hit this point in 2030 for example to be carbon positive, we're not going to go back and get back to the way we were doing things previously. We're going to continue with that in companies such as ourselves too and looking at what we need to do for the future. We're going to be always looking to see what's next. What's the next technology? What do we need to do to make sure we're out there on the edge of it?
- Stefani Grant: 00:47:58 Making sure we have these renewable energy things in place [inaudible 00:48:03]. I think once you look at companies such as ours and Mars and Walmart, that are making these commitments, we're going to continue to make more, we're going to continue to buy more as our companies grow more, or expand and things like that. That's more opportunities for transmission of renewable energy.
- John Jimison: 00:48:21 Great. David, here's a question that goes to you, and then I'm going to pick up on that and ask Eli something. Did you evaluate the potential for satisfying these goals through greater energy efficiency, distributed generation or other non-remote solutions? Or did you only look at the potential to satisfy them through transmission? Make sure you unmute yourself.
- David Gardiner: 00:48:54 Thank you. Apologize for that. We looked at it in the context of, where is the large scale wind and solar development going to occur in the future? I would say that that's ... Yes, there's clearly potential for distributed energy resources that will occur in other places, but I think that the piece that we looked at, which was again that 15 state central region there between the Rockies and the Mississippi River, it's the place where in the future we can produce the very large scale wind and solar renewable energy, and we can likely produce it at very low cost.
- David Gardiner: 00:49:40 I think that's an important factor too, is that we're seeing as the price of renewable energy falls, that that's making it attractive not only for companies like Stefani's, but I think it's making it attractive for everybody who is a buyer of electricity. We need to find ways to get more of this low cost wind and solar, which can be produced in large scale



in the middle of the country, to, not just to corporate buyers and other institutional buyers, but all electricity consumers.

- John Jimison: 00:50:15 So Eli, the variation on that theme for you is that it's very clear that greater efficiency has reduced load growth throughout the economy, and I'm sure in the MISO area as well, and kept ... You referred a couple of times in your presentation to developing transmission as is required to meet the load growth that the load serving entities or utilities were telling you about. But when Stefani's company and other companies are substituting clean energy for conventional fossil fuel fired energy, overall load in the system may not increase. So my question is, how does MISO plan for transmission in the event that it's basically substituting on source for another but not increasing load?
- Eli Massey: 00:51:09 That's a good question. The way we do it is we look at load shapes. The most famous example is the California duck curve. Where their load goes up in the late afternoon to early evening. For us, the substitution of distributed energy resources changes our load shape. It gets tricky from a planning perspective on how to deal with this. This is where I was ... one of the issues between, that I mentioned earlier, was at the interface of the transmission system and the distribution system.
- Eli Massey: 00:51:59 We don't always have an idea, a good idea, of what distribution system operators are doing behind the meter or on their side of the interface. When the system is substituting DER's it changes how we have to dispatch generators on our end, and we don't always, in the real time don't have great visibility on that. But what we do do is we do a lot of modeling, system modeling where we can bracket potential scenarios and come up with high cases and low cases of penetration of distributed energy resources that can guide our long term transmission planning. From a RTO standpoint, the fear, while overbuilding is never a good thing, the greater risk is underbuilding and being on the bottom of what you've bracketed. If you fall out of that, below the minimums that you planned for, and you can't meet your load and you get to reliability issues and involuntary load shedding, that's the nightmare scenario. These are really complicated things and we constantly model and we try to understand what our risks are and to mitigate those risks through our planning process as best we can.



## Americans for a Clean Energy Grid

- John Jimison: 00:53:52 Okay, terrific. We've just got a few minutes and we've got a bunch of really excellent questions still pending here. Let me go back to David. I ask you David, based on your years of experience here in Washington, what would you recommend to companies like Stefani's in terms of getting involved and making sure they can throw their own weight behind the need to expand transmission resource to meet their clean energy commitments?
- David Gardiner: 00:54:25 I think the first thing is just recognizing that this is an issue and that we've certainly seen the engagement of companies like Stefani's in some transmission planning activities. We highlight one case study in the report. We've certainly seen companies, again Stefani's company has been a leader here, pushing governments to remove barriers and open the markets for renewable energy at the state level, where the local public utility commissions have access.
- David Gardiner: 00:55:10 I would say beyond there it's, as she suggested, working with the organizations and others that they've been working on to recognize that there's this broad need to ensure supply and we need transmission for that supply to occur, and it's about getting up to speed and thinking about how to get involved directly in the transmission planning process, just as those companies have been involved in many of the state utility renewable energy issues.
- John Jimison: 00:55:45 Stefani, have you and your company, or have you heard of other companies that have had serious pushback on your goals and your objectives in terms of clean energy, either from utilities or regulators or legislators or others, that you have to overcome before you can meet these goals? Or is it more a question of engaging and putting your great economic and social skills to work to make it clear to people that you're serious and this needs to be done?
- Stefani Grant: 00:56:20 We have run up against some legislative and regulatory barriers I would say, and not just ourselves, other companies. Which is why there's group of us, coalitions out there, in different states on these. Part of it is just the way laws are written today. These laws were written 30, 40, 50 years ago in some cases, before power purchase agreements for example were really utilized and looking at what was best for incumbent industry utility.



## Americans for a Clean Energy Grid

- Stefani Grant: 00:56:49 We run up against that in some states, where the incumbent utilities are usually fighting that because they don't want to lose us as customers necessarily, when our point to them is, "You can create this and we would buy from you too." But we need to have options and making sure that those companies ... those companies can't always provide what we need necessarily or aren't willing to do so, so opening to make sure. That's been our biggest barrier within that.
- Stefani Grant: 00:57:16 Some states have been very friendly and open. Other states have been much more challenging. I think you will start to see that as companies make future investments we will be looking at states. That will be one of criteria when we go into a state and say, "Hey, we're going to invest here," is, what are our opportunities to be able to purchase renewable energy? Because we need to meet these goals and do this.
- Stefani Grant: 00:57:37 We do have coalitions in different states. Recently, I'll just use North Carolina as an example, there's an article that just came about Duke Energy's green tariff and some of the around that, and how nobody's taking it up because it's unworkable right now. That is pretty much our biggest challenge, is the protection somewhat given in some states by legislators and regulators with the incumbent utilities.
- John Jimison: 00:58:04 Great. One last question, I think it's all we have time for, and this goes to Eli again. Eli, it only takes a couple of years to put a wind farm into place, or a central solar plant. It takes a lot longer than that to plan for, engineer, get the land for and develop a new transmission route, and multiple years to even do things along existing routes sometimes. So how does MISO deal with that disparity? How do you anticipate the need for transmission so that you don't expect people to put up a wind farm and then wait five years before they can actually transmit the power?
- Eli Massey: 00:58:50 I think that's exactly what MISO did with the MVP projects, is we know that ... They call it informally, the call it the Buffalo Ridge area, southwest Minnesota, northwest Iowa, the eastern part of South Dakota. We know that there's a tremendous amount of wind capacity there, and in the current incentives regime with the production tax credit, we know that right now ... and because the cost of wind



generators is coming down rapidly, we know that there's going to be wind locating there.

- Eli Massey: 00:59:35 I looked this morning, and MISO has approximately 37,000 megawatts of wind in its interconnection queue, and another 21,000 megawatts of solar in its interconnection queue. The good news is that it takes a long time for even those plants to get through the generator interconnection process, and this gives us a little bit of lead time in the transmission planning process to identify projects that we're going to need on a regional basis, that we can predict based on what the wind capacity is and where we know the load is. The MVP's is a classic example of MISO addresses that issue.
- John Jimison: 01:00:29 Well great. I want to thank all the panelists and I want to thank the attendees. We will happily take additional questions by email to the ACEG information email address that you see on the screen now. We will forward them to the respective panelists for answers.
- John Jimison: 01:00:55 We welcome you all to tune in again when ACEG puts on another webinar. We intend to keep doing that. In fact, we welcome you all to join us and help us work on this very difficult, complex problem of, how do we make the transmission grid the right one of the future of a clean energy economy? With that, let me turn it back to Isabel for any final housekeeping or other words of wisdom.
- Isabel Harrison: 01:01:28 Thank you everyone for tuning in. As I said at the beginning, we'll send around a recording of the webinar within the next day. You'll see that in your inbox soon. Thank you. Bye bye.