2024 Vermont Long-Range Transmission Plan
Transcript from May 14, 2024 Public Input Meeting in Rutland, VT

Shana Louiselle:
All right. Well, it looks like we're starting to get some critical mass. There might be a few people that, that join us as we get started, but I just wanted to say welcome and thank you for taking the time to come and be part of the public input session for the 2024 Vermont long range transmission plan. We truly value your time and your feedback.

If you've had a chance to look at past long-range planning efforts, the public input piece is always included with each iteration of the plan. This is a process that we do every three years. And so we go out and do these public meetings to meet with Vermonters so that they're aware of future plans for the grid over the next 10 and 20 years.

Before I get started, I do want to make some introductions. I should probably start with myself first. My name is Shana Louiselle. I think I've communicated with a number of you through the sign up process. I'm the communications manager here at VELCO and I also facilitate the Vermont System Planning Committee. This is a statewide stakeholder group that is designed by the Vermont Public Utility Commission to address grid reliability issues on the grid, specific to load growth in the state. We haven't seen a lot of load growth in Vermont over recent iterations of the plan. That's a very different story to the 2024 plan. As you'll, you'll hear more as we get into the analysis. I'd also like to introduce our, the VELCO team who's here today. Our president and CEO Tom Dunn is here. Zakia El Omari, our senior transmission planning engineer is here. And Lucas Looman, another transmission planning engineer is here with us today. And we'll have our director of transmission Planning, Hantz Presume join us virtually today.

So a few things if anyone has any questions during the presentation, feel free to raise your hand. If you're joining us, virtually, feel free to raise your hand or, or put a message in the chat or you're welcome to say, excuse me, I have a question. This is supposed to be a, a conversation, a dialogue. So please feel free if you want to interject. Zakia who will be giving the presentation of the findings would be happy to take questions along the way.

VELCO's long range transmission planning process began in 2006. It was designed to facilitate the full fair and timely consideration of non-transmission alternatives. And that's specific to growth related issues on the transmission system. So we are required VELCO is required to publish a long range plan that looks at 20 years every three years. With updated forecasts, load forecasts, updated issues that have been identified on the system and the proposed non-transmission solutions. This year's plan, the 2024 plan will be our sixth iteration of the long-range plan. And it's also the first plan since 2015 where VELCO has actually identified transmission deficiencies to meet future load growth. So that's, that's a bit of a change in and something we expect to see in future iterations of the plan particularly as the decarbonization work is full steam ahead. We are seeing more load growth connected to the electrification of the thermal and transportation sectors. And that's something that our planners are diligently monitoring and why the three year planning process is so important because things can really change quickly. We might publish this plan on July 1st and by the end of the year, there might be new inputs, new technology that come in that make it really important to continue the process. So the, the planning process for this draft began almost two years ago. And that was through the Vermont System Planning Committee and they have a there, it is a very collaborative effort to create what the load forecast will be, that the, the plan is studied on. And the committee is comprised of all the Vermont Distribution Utilities. VELCO included, regulators are at the table including from the public service department, as well as a public utility commission appointed public members that represent interests from the residential, commercial, supply and resource, and regional planning commission and environmental representatives. So there's a lot of voices at the table. We often say the VS PC. Meetings are at the kitchen table for, for energy discussion. The VSPC as required received the draft plan first that was sent to them in early February. They had 60 days to review that plan and provide feedback to VELCO and their own input. That input was incorporated into what is now the public review draft which is available on our website and the, the draft that we're taking public input on today and through the rest of the month of May. Public participation is a critical piece to this process. We encourage all of your questions, all of your input, we are recording the meeting today. And so anything that you want to say verbally, we can take that into the transcript and use that as part of our public input for the plan. But we

also have several other ways if you'd like to provide comment beyond today. The there is an online website that has a comment form that you could submit any comments there. And I'll have my contact information available for anybody who would like it. It's at the end of this presentation and we can also talk later to, to provide that information if you'd like to send an email or have a phone call.

Public Member:
So, yes, please. What are you non-transmission alternative?

Shana Louiselle:
Great question. Another, another logistical piece if there's any utility jargon that gets used today, like non-transmission alternatives or what we like to call NTAs, feel free to, to stop us and ask a non-transmission alternative is exactly what it sounds like. It's, it's a solution to a, a grid problem that is not iron in the ground. It might look like distributed generation, it might look like load reduction or how you shift the load. So if you're plugging in an electric vehicle at five o'clock at night, get home and a lot of people are doing there might be programs in place to shift that charge, not at five o'clock, but at 11 o'clock.

Public Member:
So you're not talking about things like microgrid?

Shana Louiselle:
A micro grid is certainly part of that, that definition of a non-transmission alternative to the,

Public Member:
Excuse me, my interruption here. But you said continuity to... So VELCO is primarily involved in the primary transmission, correct? And it is one of the (inaudible) from outside of the VELCO scope or (inaudible)?

Shana Louiselle:
They are. VELCO's sole responsibility is to deliver safe and reliable, high voltage electric power. And we do, we deliver that to our customers and owners that are the distribution utilities. And so when we go through this process and we'll talk more about this in the presentation about what that, what that framework looks like once our, our long-range transmission plan is final and submitted to the state that essentially starts the kickoff to the distribution utilities and there's a lead utility for each of those solutions, they all happen to be Green Mountain Power. It's the one of the largest utilities in the state that will start a non-transmission alternative study process, specific to the transmission deficiencies that we identify in the plan.

Public Member:
But you spend a lot of time talking about DGs, distributed generation.

Shana Louiselle:
DG is distributed generation and then distributed energy resources is a little bit broader of a…

Public Member:
OK. The distributed environment means (inaudible) is that correct?

Shana Louiselle:
That is correct.

Public Member:
Yes, a lot of this deals that the plan.

Shana Louiselle:
There are two sections of the plan. There is the section that's all about meeting peak, its serving peak load, that's the first half of the plan. And then there is a section after that is about accommodating additional distributed generation on Vermont's system. And that's an ancillary section to the plan. We include that because back in 2015, 2018, there was a change in the trend of the amount of distributed generation, particularly solar PV that was coming on to the Vermont system. And our planners were starting to see the effects of that amount of distributed generation in aggregate, effects of it on the transmission system. When

that started happening in 2018, our 2018 plan, we made the decision to include that section on distributed generation and what it would take to accommodate more distributed generation on a system that is built to serve 1000 megawatts. Once you go above 1000 megawatts, you have to have upgrades to be able to accommodate additional load. And to, to your point distributed generation being an NTA we, this process in fact works and I should tout that. In the early two thousands, there was a transmission project that came out of our 2012 planning efforts that would have required a large transmission upgrade in Central Vermont. I believe it was the Cold River Substation down to Vernon or Ludlow. Reconductoring. And it was to the cost of over $150 million. And the NTA process that began as a result of that deficiency essentially was able to solve the problem through the energy efficiency efforts that were underway. And this this new growth of distributed generation in Vermont. And when planners looked at those two non-transmission alternatives, it was decided that Vermont does not have to put that upgrade in place because those, those two non-transmission alternatives were enough to solve the problem. Now, of course, when you look at the, that time frame, we weren't seeing a lot of load growth either, but all of those components basically was the first time that a, a transmission owner was saying, no, we don't have to build transmission. We can do this in a more cost-effective manner.

Public Member:
How did you get to this later in the time? You must know really what the viable NTAs would be. Is there anything that would involve distributed generation to solve a transmission project Proposal say you have a transmission problem in the same, too much load in the winter peak situation. What kind of distributed generation would you put in? It would have to be fossil or battery run for hours. Is there any NTAs that are on the table now?

Tom Dunn:
I think it's the collaboration on understanding what, what's happening. One of them, one of the things the winter time is, is a demand response. In the end is controlling what the peaks do. And if that's the case where you go to a company and they go to several consumers and say if you would agree to lower demand, here's the arrangements. That's being done by the distribution utilities. I think that's kind of the key role. Batteries actually, probably not with batteries today. With a hot summer day, batteries are used to lower our peak, very effectively. And likewise in the wintertime, same thing we, we have a battery connected to our solar PV generation facility in Rutland that has a battery associated with it, and Green Mountain Power has a program, but we get called, to run that battery for four hours. That box that lower the peak for the region. It saves, it saves everyone money. So we get, we get paid a little bit to do that. That's another, that's (inaudible). So it's going to be a mix of technologies (inaudible).

Public Member:
And then I have one last comment that is, I haven't seen anything from Green Mountain Power about, when people take out fossil fuel heating equipment, and put in heat pumps. I haven't seen anything programmatically, that would speak to the fact that let's keep people's furnaces in place so that we can do that. I haven't, in other words, I haven't seen any movement on that yet, but it seems like we should be doing that now because I, I know from anecdotal information that people are not maintaining heating though, with fossil fuel systems, they should and if we're going to be (inaudible).

Tom Dunn:
We may not have an answer for that.

Shana Louiselle:
All right, with that, I'm going to hand it over to Tom.

Tom Dunn:
Good afternoon, everyone. Thanks for joining us on this beautiful day. Some special interests…as Shana said, VELCO, we're the owner, operator of the High voltage grid in Vermont, located right here in Rutland, about three miles up the road. We have 175 people on our staff and, and that's, that's a number that's increased in the last several years as, as we've been doing more things particularly in the IT fronts. More and more important. We are owned by all of the distribution utilities in Vermont. That's the largest owner of Green Mountain Power, but all of the, all of the electric distribution utilities own VELCO so there's 17 of them, I

believe. And so Green Mountain is the largest, all the way down to small municipals and co-ops. And they are so they're both an owner and they are a customer. We provide transmission service to them.

Another thing that's unique about VELCO is we are a for profit company. We make money by building transmission and the return that we earn on that is goes back to our owners. They provide us with the equity that helps fund our investments. And that return that goes back to the owners is then credited to their revenue requirement, which effectively means that it goes back to consumers. So unlike other places where transmission is owned by an investor owned utility, where those returns might go to shareholders. In this case, our shareholders are the distribution utilities who in turn have to deduct their cost. But that, that, that profit that they receive from us. So it's an unusual model across the country. There aren't many, I'm not sure there's another utility like us in the US. So pretty interesting in that regard.

And the long range planning process, I will tell you, Annette knows this and is this, this process started from, from pain and, and frustration that a lot of people felt about one of our first large transmission projects that we did in the early two thousands. And the, biggest complaint was people were surprised that investments needed to be made on the transmission service system to pre to preserve reliability. And, and what, what, we were asked to do after that first large transmission case was to create a planning process. So that's what Shana was describing, how we create every three years. We do a long-range transmission plan with the intent being to inform as many people as possible that here's what's going on on the transmission system. Here are the upgrades that will be needed if loads increase to a certain degree. And that's what we've been doing every year now for about 18 years. I believe. So every three years that, the conversation that we have. I think it's been great. I mean, I, I think it's a, it's a, it's a big improvement over, what was in place beforehand.
And I think today it's more important than ever first. It's, you know, we have the VSPC, which is a, a very interesting and I think an effective venue for people that are really involved in the energy space to have a voice and understand what's going on. We have these opportunities for public engagement here and others to collect input as we go through the planning process.

And, and I think, you know, as I think about what we're trying to do here is we're trying to maximize the system that we have today and, and, as we're required to do, if we identify the need for upgrades in this planning process, we then have to say, well, is there something else we could do before we actually build transmission, and, when we look at non-transmission alternatives that Shana was talking about they need to be cost effective relative to the cost of the transmission upgrade. And, and I think today, you know, the more this is the most dynamic environment I've ever been in, in the utility business, I've been in the utility business for, you know, at least three decades now. And it's, it's remarkable. If you go back 20 years ago, New England had 300 power plants and you know, at the end of the economy was doing well, the demand for electricity went up. It's pretty closely linked. Fast forward to where we are today. There are literally thousands of power plants that are connected to the grid at different places, either at the distribution system or the sub-transmission system or in some cases that transmission system and they have different operating characteristics than what a gas power plant or a nuclear power plant on a sunny day. And obviously the solar does, it's terrific and it, it matches up very well on hot summer days. Obviously, when the sun goes down, but we lose that resource. So managing, managing the grid in this environment is more dynamic than ever. Things like data are increasingly critical to our ability to continue to provide reliable transmission service.

So I mentioned the number of people that we're bringing on a lot of it has to do with in the IT areas where we're bringing more and more data back to Velco and developing the capabilities to accurately model how the system is perform on all of these different devices that are being interconnected to the grid. It's, it's a, it's a fun time. And if you like solving challenges and you like coming up with new ideas, it's a very fun time to be in our business. It's definitely not a boring, static situation. And I mentioned that, you know, Vermont's grid is evolving and, and if you've read the plan, you've seen some of the numbers, but, you know, succintly, we're about a 1000 megawatt peak demand roughly summer, it's roughly the same summer and winter. If you look at the policy wise where we're going to go, the likely event is we'll go back to becoming a winter peaking state like we were for a long, long time. And I think that's, that's probably inevitable. And, and that's being driven in large part by, by the state policy that is encouraging electric vehicles, heat pumps and other electric based technologies that are going to drive demand in the future. I think the nature of that demand though is a lot different than it was 20 years ago that you know, when you go home and you put in an electric device or air conditioning 20 years ago that just showed up and it ran whenever you wanted to. But I think we, we expect that the demand in the future will be a lot more responsive even to price signals or to reliability to questions.

And that work is almost entirely being done at the distribution level. So again, we run the transmission system, we don't run the distribution system where a lot of this equipment is being installed and a lot of programs are being developed have been developed are being developed.

We mentioned the one about Green Mountain Power and the use of storage, they have literally hundreds of pieces of storage that are part of that program and that has a big impact on our peak day. So, more and more of that's coming, going forward. So I mentioned and talked to a few of you before the meeting began. But in this time of transition and uncertainty in terms of how quickly things are going to happen it's so important that we have collaboration and we had a chance to talk to community members, we have a talk with stakeholders. And I think, you know, as I look at, this year's plan, we've made a sort of when you do a transmission planning exercise, one of the key inputs is demand. And in this case, we sort of have a high demand case and then we have a lower demand case and that's pretty traditional how you do it. When we put in the high demand case, in fact, what the high demand case is, all the state policies are successful. So we get a lot of, a lot of heat pumps. We actually see the demand go up quite a bit when, when that number, if that number is realized, then there are problems that show up on our transmission group. And I will tell you we have federal requirements that we have to follow to make sure that our grid can perform up to the standards that are required by, by the Federal Energy Regulatory Commission and others in our industry.

Now having said that my view is you're unlikely to see that peak. I think that's probably it's for, for a planning exercise that's appropriate as to what we actually see, that's where you go back to collaboration and understanding how quickly are things like demand response programs going to scale up and be really significant and how quickly things like storage is going to be deployed. And it's not just, you know, the storage and some of these technologies have, you know, two areas that you need to look at is one of the technical feasibility of some of these technologies, how quickly will they develop and actually work? And then the second question is how quickly do they become economically viable and in a lot of cases, these technologies are being receiving federal dollars, state dollars to help them more economically viable. So it's a real package of things that we're, we need to understand as we think about whether we need to upgrade the transmission system or not. And again, back to, we need to be part of the conversation and the cooper operation that is taking place out there. So thank you for being here today. I'm looking forward the conversation. I know there'll be a lot of interesting things.

I will tell you Velco is in terms of the getting more out of our grid, we are, we are looking at a few different areas. One is grid enhancing technologies. That's GETs. So now we get another acronym. Effectively these are things that allow us to take the existing system and get more throughput. And so we're, we're actually going to be applying for permission to build, you know, it's called a flow control device on a transmission line from New York to Vermont on an existing transmission line that will allow us to have greater control and actually wanted at a higher level than would otherwise have. So, you know, those are the things, some of the one example of grid enhancing technologies and several others that are out again. And then another piece of how our world is changing some of the opportunities that are available. So again, thank you for being here. I want to hand it over to Zakia who is the transmission planner and an expert. Yes, sir?

Public Member:
I'm asking you this now, but it's this is a question that I see here. The NTA classically you have an NTA which is going to solve a problem, not building transmission. So if you look at the reverse situation, where the transmission system is ok for a number of years. But because you overbuild solar, there has to be distributed generation such as the development and solar, you have to build transmission. So there the situation is, should we not have policies that put up so much solar? So we don't have to build the line? And what's Velco's role there? Because VELCO is really the only entity in the state that has the expertise, you know, just speaking to the lawmakers.

Tom Dunn:
I think first and foremost, our role is to provide good information to policymakers, people, market participants about, you know, here the concern you're mentioning. So that is if there's too much solar, that so much resources that show up, make sure people understand if that happens, here's what we will have to do. Now, you, you're probably familiar with the northern Vermont, the constrained area in northern Vermont. SHEI. We've been talking about that. Sheffield Highgate Export Interface. And that's a, that's a part of Vermont where a lot of renewable energy resources have been built, you know, they actually exceed the amount of

demand electricity. So in that instance, the transmission system is called on to export power on the on our transmission lines. And so there's, you know, wind and solar was built up there. So what we have brought to the commission was the fact that there are these limitations. So anything showing up that that went above a certain level, the commission put in place a policy that developers had to try to make a payment to reflect the impact that their additional capacity was going to have on the transmission system. So that's one example of where, how that's been handled. I think you know, well, it's never a static situation. So while the transmission system at a certain point in time. Here's what happens if you add some more megawatts kilowatts of certain area. You know, there are projects that we're going to be doing that will probably relieve that there's other things that have been done by other parties, other technologies that's been added up there to help relieve it a little bit. But what happened, for a while was that ISO New England, who, who is basically giving us the direction of how the grid operates actually was curtailing some wind plants and basically, that's a signal they sent to say, don't go above this, this level in order to avoid compromising the reliability of the grid. And again, the, reliability of the grid isn't compromised, it would not be compromised. In other words, we would not operate in a place where it was unstable. That's a critical part of what we do every day. 365 days a year. But in the case of SHEI, there were instances where curtailments took place. I would say today most of the time was it was there are curtailments now because things have been done and, and additional things are going to be done up there. But that's an example for me of a role that we play to inform all policy makers, working with ISO-New England to inform what's possible in Northern Vermont and the PUC took that into account and they decided and they're still doing it but it's not static.

Public Member:
Yeah. And as you know, some of us would like VELCO to be more outspoken (inaudible) to discuss.

Tom Dunn:
Well, I'm going to hand it to Zakia I know cause she will talk about how we tried to convey in this plan, the importance of location and siting resources.

Public Member:
So yeah, shouldn't that have been foreseen what happened with SHEI in advance? Couldn't that planning process resulted in avoiding? I mean, the ones being fixed, it could cost that the damage. And so looking at certain current situations, I was looking at the map for the state and noticed that there is a 50 megawatt solar project plan for your, for your mapping indicates there's about 50 megawatts of capacity and the that says no outreach. But is this really the power we should be developing? I think how to say out-of-state company comes in. It just says, OK, take it and we're going to use our whole grid capacity. Is that good planning?

Tom Dunn:
That's a great question. I think, you know, we have been talking about the points of location for at least three plans and have become more and more vocal as the issue has developed. It's, it's a complicated situation in Northern Vermont. It, it evolved over time. And it's, I think our job, I think we're in the best place when we can say here's, here's what the grid can do. Here are the implications as more and more resources to the extent we can provide numbers. And I think we looked at in a bus per bus basis. So I think there's very specific information about the capacity of the grid from our perspective. I think that's an important role that we inform folks. It is, you know, you could still add this stuff simply recognizing that someone is going to have to pay for an upgrade if you go above a certain number. You know, this is, this is not a Velco only conversation, you know, that better than I do. This is a legislative conversation, this is a PUC conversation and, and very clearly the state has been marching towards more and more renewables and, and I think that's, that's the direction they're continuing to go. And we are at the table, we are providing good information to our ability on that. It's so I'm not sure exactly how much more we can do change that. I want to give Zakia time. Please, sir. I'm happy to talk to you afterwards too if you want.

Public Member:
Yeah, sure. Well, from the lowly resident's point of view, it seems that the incentives to have such financial incentive is such developers are bombarding Vermont with projects. I don't know where things stand in Southern, southern Vermont and with these huge projects. And I think other than huge previously, I heard of, you know, and they're extremely environmentally destructive and they need to care about that and there's no protection for residents, the residents are left sparingly on their own. Yeah. So out of he, you plan to have some sort of sense and you're up against these billion dollar companies just on that, that, you know, and so I

guess the question is what ammunition to bring to bear to make sense of this process whereby there's actually planning involved instead of some I mean, the developer of we're dealing with that bought this land, you know, it started this back in 2017 and was, wasn't announced until 2022. And so nobody, no residents were aware of it five years in and then it's presented at stage 15. And that's not planning. I mean, that's, that's just sacrifice your state and residence to out of state needs. So I guess that's my, I don't know if this ends up with a question. Yeah, the question is what can we do in this situation to impose a plan on this? Because it doesn't appear to me there's one, other than developers coming and buying cheap land and oh, it's excellent.

Tom Dunn:
Well, I will tell you that, we have to be non-discriminatory in terms of our role. And I, I try not to duck your question. But if somebody applies to us and said they want to connect the 50 megawatt solar project, we are, we are required to give a response, and in terms of the siting questions and the suitability for a facility to be sited in a particular community, those are PUC questions and we will, we will be a participant in that process. Talk about what are the implications for the transmission grid.

Public Member:
I would like to invite you then, but I'm not aware that you are.

Tom Dunn:
Well, it'll depend on if the, if it's like a SHEI type situation or it's developing into a SHEI type where, where we think there's going to be a limit on grid capacity and that it's going to result in curtailments. Obviously, that's a role that we would want to make sure we provide information if it's directly connected to the transmission system. As of right now, there's only one large renewable solar project that's developed connected to our system. There's one wind project in Northern Vermont, it's connected to the system, all the rest is connected on to the sub transmission system or the distribution system that's owned by the distribution utilities..

Public Member:
Well, I, I guess there should be some attention to not letting it progress to develop the same kind of issues that we're dealing with and (inaudible) that that seems to be the direction it's going because all these projects get thrown into the state and all the power is going out of state and the, and there's absolutely no say for the residents who are suffering.

Shana Louiselle:
One of the slides that will be in the presentation when we get to the hosting additional regeneration is what VELCO has been talking to utilities, the VSPC, policymakers about an optimized way of hosting distributed generation to avoid what Tom's talking about those constrained areas, particularly in the northern section. There's a map that Zakia will be providing details about if we could have an optimized way of how additional distributed generation gets sited on the system. There is a way in terms of where there is already transmission capacity, but the trend that we're seeing is siting is taking place where there isn't additional or very minimal transmission capacity which may or may not be getting to the specific project that, that you might be referring to.

Tom Dunn:
The challenges. I mean, we're looking at it from a transmission capacity perspective. That's only one criterion of at least 10 that are in this siting process.

Public Member:
Everybody's looking at his own little piece, and they're missing the big picture. The developers are throwing these things into the state and they couldn't care less what happens to them other than you build these things, we sell them, we're out of here.

Tom Dunn:
I understand your frustration, I could, I think I'll hand it over to Zakia at this point. Yes, sir?

Public Member:
Yes. One thing I'm trying to get this between don't have a hearing aid and probably in the beginning. But anyway, competition in our neighboring states, how can we go after that and bring into the state of Vermont?

Our energy that we need like New York State. Let's grab it from Canada. They can get it done for you. Probably got the population. We need something to go on starting right now. What's behind us is behind us. We gotta move forward. So how is the Green Mountain Power be grow? How can we go about competing with New York State with Canada and try to get this power to come into here because from what I read in here, we are progressive. We can go forward on this and we got to go forward with all politics and, and let the State House get their act together and go as a group. We're all going in the same direction, but we're going like that. But the competition, we, we, how do we get that competition? You get the energy in the state of Vermont?

Tom Dunn:
Well, I think there are a couple of couple of things come to mind is there was a project that was permitted that would connect Quebec with the Velco System done by a transmission developer. It's called the New England Clean Power Link, I believe that one is permitted and that would be a, that would be a way to, to connect the Quebec in the, in the US grid in Vermont. That would provide a number of benefits that have been negotiated as part of the transaction. You know, some money, we negotiated a that if that project were to move forward, we would get $2.5 million a year that we would then return back to all the ratepayers. It also has money in it for lake cleanup and other things. That project isn't moving forward right now. It's got an approval. That's, that's one example, there's another interregional project that's being contemplated that would connect Quebec and Vermont and possibly New York to take advantage of moving cheap energy from one place to the other. And, and that is, you know, again, being discussed, they're very expensive, they're very complex to do. I would say, you know, there are the, one project that's being built right now, at least in the northeast or it's two actually is one that's going from Quebec to New York City, that one's being driven by really expensive prices in New York. The other is the project that's being built in Maine that's going to come online. I think it's a, it's a complicated question to answer. One of the other things I would share is that Quebec is changing its perspective wanting to sell just north to south because they're using, they want to use more of their hydro for economic development inside the province. So when you look at these opportunities, you've got to figure out is there a transaction that makes sense for all parties? So it's being looked at, it's being considered, I can't say for certain whether any of these are going to get built or not, other than the two I mentioned.

Public Member:
One other thing, do we have enough representation in Montpelier to get this performance moving in a, in a more expedient manner where we can move on? But we seem to be at a lull in the statehouse up here in Montpelier that everything is… just nobody, nobody wants to stand up and go for it. Do we have enough representation in Montpelier?

Tom Dunn:
Well, we certainly participate up there and we have a role I think to play in providing good information. Other utilities are there as well as many other stakeholders. I guess it depends on your perspective, whether it's adequate or not. I'll leave it, I'll leave to leave it there because I want to make sure Zakia has time for her presentation. But thank you for your questions.

Zakia El Omari:
Thank you, Tom. I think a lot of questions came up. I'm very happy with that and just to kind of start from the presentation, you know, most of this information is shown in the future. Really, what we're trying to do here through this long-range plan is to bring you information, bring to you guys, bring into all the shape of the stakeholders about what we are seeing in the future based on all the data that we have based on all the trends that we see and, and also to give it to you ahead of time so that we can support non-transmission alternatives, you know, other alternatives to transmission in a fast. So that's one of the major reasons why we perform these studies. In terms of questions, you know, feel free to stop me at any time if you have any questions about anything that you see or if you have other questions later on, we're sharing some contact information, you can share that with us.

And from a goal perspective, when we look at transmission planning, we are trying to answer questions about the reliability of the system with all the, the, the data that we have and all the trends that we see with all the tools that we have and also with all the, the federal government requires and how we perform our studies. How can we make sure that we are planning a system that is going to be reliable in the future? But also plan the upgrades in a way that makes sense that it's cost effective. And how can we start that process as early as (inaudible)? And when we look at our studies, you know, for the, the 10 year, the 20 year plan horizon that we

use is, is one piece of it. We start with the, the ISO New England 2023 Needs Assessment. This is more of a 10 year, right? So it looks like 10 years. It also, so only looks at the subtransmission system. So it doesn't go any deeper into the sub transmission system or other constraints that we have. So we supplement it with the 20 year plan with the, 20 year plan we do. In terms of when we put in the analysis, we put a lot of the standards that we have from the federal government. How are we studying? What are we considering options? What kind of assumptions that we have? So we have to follow a lot of the items to do so. And also regional requirements. The Vermont System Planning Committee plays a key role in in this study that they provide a significant input throughout the study from the beginning when we are looking at forecasts of the, all the way to the end of the plan when we provide the data.

And in terms of planning cycle, what you see here is, is the cycle for the 20 year plan, the 2024 long range plan. And so it starts with step one, which is where we gather all the information from so many key stakeholders from different sources from distribution utilities from the public service departments. Look at all those trends and then we develop our own simulations, we develop our own studies. We look at all of that and then we share all of it with the VSPC and you guys. So now we are at the step number three where we're looking at the public comments and that will go into the plan before it's finalized and filed this year. And once we finalize that, then the blue side of the cycle will start, which is all the NTA, the non-transmission alternatives. And that's where the distribution utilities will take all the findings from on the land. And they will start to look at what makes sense in terms of the alternatives. Any questions so far,

OK. So this is a, a glimpse of what goes into the, the study itself. So the blue side, you see that's Itron. Itron is a company that we use for forecasting. They have an expert forecast. So they look into all the, the policies and the trends and they come up with scenarios for loads that we include in the studies. So some of the trends is the heat pump trends and the electric vehicle. So those were key inputs there. And they include into that the VSPC input in the forecasting effort. We also are looking at the DR and DG penetration. And for that, we take into account all the data from the distribution utilities. So they share with us what they have today in terms of their DG, their transmission system so that we can model that and see where we have capacity issues when we are running the, the simulations for the DG hosting capacity. We also use for the, our simulations and analysis, the load models from ISO New England. So that would be the basis that we built our cases from and use contingency scenarios based on that as well. And so all of that goes into the 2024 long range plan.

OK. So I'll, I'll go a little bit more into specifics for this particular iteration. So we looked at two things, we looked at the peak. So with the load growth, we have peak scenarios and we also looked at something for the spring day time. So this is when the load is significantly lower. And now we have the DR at its maximum, the DG at its maximum. So what is it going to do to our system? And, and so for the peak load, we had Itron come up with two major scenarios. One of them is the VT road map, which is if all those policies that we see now are successful and we are reaching a certain level of load that is electrified. Where would we be in terms of load? So that will be one and then the other lower forecast that we are looking at is the what we call Continued Growth. So the Continued Growth is more of OK if we stay pretty much at the level that we are right now, where we will be. So it's a, it's a more conservative way of looking at it. We also always look at summer and winter to see what the, where we can find the worst issues. Sometimes it's in the summer, sometimes in the winter. So we are looking at both and if, although we are looking at a 20 year plan, also look a 10 year plan so that we can cover all our bases to make sure we are not disregard any issues that come a little bit earlier, which you'll see in our plan that we did. For the spring daytime we started as on the, as a basis with what we have. Right. So right now we have about 500 megawatts of in-state generation in our system, you know, and when we looked at is like, if we scale this up to 1300 which is about twice what the t tier two is right now. So if it goes to 20% we'll be at 1300. So what would happen to the system if we get to that level? And so those, we run, we run multiple scenarios. So with every 100 megawatts, we go to 100 megawatt, we run all the simulations. And we, and we look at this, what is, what is the impact on the system? Do you see any issues on the transmission system or is that what the status is? And for each one of these, we have we, we documented the issues and you can see that in the detailed the, the report of the study we have there and we also model any behind the meter generation outside of that that we currently have. So we model that at capacity. questions. OK.

Public Member:
Ok, great. Let me start off first. It's something I should have said before. I worked with VELCO people until I retired in 2013. I stayed in touch with one of my old work colleagues who went to work with. And I do, I want

to make sure I have no problem with the VELCO. Don't think that you folks are doing a great job. The only, I make clear, my only criticism would be that you need to be more outspoken for the people who write the laws.

So you tell them what's going to happen in terms of cost and that's another issue. But I want to say make it clear that I'm very impressed with the job you've been doing (inaudible). We're getting close to something positive. Oh, ok. Now that I've got you buttered up, I'm a little bit. I have a actually a technical question. Ok. You just want to clarify, it will be a follow up question. You mentioned a 1300 megawatts of solar PV distributed generation will need to be to 20% requirement. Was that for in reference to H.289 new law with the new change?

Zakia El Omari:
No, this, this was more of a VELCO thinking we looked at where we are and we said, ok, well, let's go beyond that, you know, let's just see, you know, like because we have many policies that are like the big, so we just wanted to cover all our bases and I'll just stay with the, with the tier two, at what it is right now, especially if you are looking at 20 year. So, so with all this uncertainty, we wanted to go step by step. And so we, we target, we targeted the 700 to 800 to 900. You know, we go step by step looking at every step of the 100 megawatts. What are (inaudible).

Public Member:
The point I'm trying to get at is there's two situations happening. We, we have to put it more solar on pursuit. At the same time, there are developers that are proposing projects that will sell that renewable energy plants out of state. So that the model would have two sets of solar projects being installed. One direct developer in particular is proposing a 20 megawatt plant in Shaftsbury, Fair Haven, and that's a 50 megawatt plant. And, and the initial understanding is the Shaftsbury project is working like a Connecticut approval or approve to sell the renewable energy to meet that they're going to sell the renewable and it's out-of-state and it won't be done to meet the Vermont. So there could be even more than 1300 megawatts. Can you quantify? Do you have any feeling for all that? 1300 megawatts fits into the state mandate? Plus what could happen with, with other solar projects that are built for upstate are (inaudible).

Zakia El Omari:
Yeah, the one thing I would say is that when we get that when you get to, the hosting capacity is. This is one view. So we look at where, where the (inaudible), is the history trend where it is growing and we basically (inaudible). So we look at it from like if it, now there might be some different part of to come in and stress out one area versus the other and that could create its own challenges. It, but this, this plan is to look at it like broadly from that perspective. But from a positive perspective, maybe….

Shana Louiselle:
I'll chime in. So the doubling of in state generation requirement, this is a requirement for 10%. This has been a discussion in the State House for several years, since it's 2017. Ever since then, Velco has through this long range plan planning effort has been including that second component of accommodating additional in-state generation. But this specific plan and H.289 are not one of the same. Our planning efforts started 20 late 2022 prior to H.289 being considered. And so our, our plan, our, our draft plan for the VSPC actually coincided with the beginning of the 2024 legislative session and the introduction of H.289. There was lots of conversation with Velco in respect to our findings of the analysis, while that discussion of H.289 was in place. And that conversation that those, those are very specific questions about whether or not our plan was a cost estimate for H 289 which we very adamantly refused that it is not a cost estimate for H.289. It is a planning perspective to start a conversation with Vermont stakeholders that if we are going to double in-state generation, we need to understand what the situation could look like and go from there.

Public Member:
So the problem, so he just gave me the example of potential out of state developer wanted to buy (inaudible). And another example would be who was so that actually got contracts for four (inaudible) what projects to sell to Connecticut. So I guess you it's got the plan, the instate in meeting the state's goals. So, but then there is, there's this unknown uses as a plantation, set up state and how, how do you, (inaudible). So how do you factor those into the plan?

Tom Dunn:
You're raising good policy questions about whether function siting Connecticut solar projects in Vermont. What we're doing here is very much a technical analysis, this many megawatts solar, so here's what happens, go up a 100 megawatts, here's what happens, but it's not taking account who owns (inaudible). That's what this is. And it's intended to inform policy makers if we get to certain numbers here are the things that could happen and I'd say could, Shana said the same thing, could happen because there are other actions that we (inaudible) to reduce the need for us to do anything on the system, which again, back to the point of operation, depending on how things develop. May or may not. Solar may get directions from ISO New England to operate at a certain level to avoid causing liability. I think that's common. So there are a lot of different things involved with. We are trying to provide information what Zakia and her colleagues have done to say if these numbers show off absent any of those other things happening. Here's what happens to the transmission system.

Lucas Looman:
Couple of things to keep in mind (inaudible). So you can say, hey, there's four different projects being proposed here, but really, they're only going to pull the trigger on one, they're not going to necessarily type up all them, (inaudible). So it's just something to kind of keep in mind back. They're not actually trying to build all of these. It's just kind of a we're going to (inaudible).

Public Member:
So the 15 megawatt but there's (inaudible).

Lucas Looman:
Yeah, there's different levels of whether, whether its impact study, whether, whether there's different things and there's multiple ways that a project can be pushed back on.

Shana Louiselle:
So Lucas brings up a good point particularly to planning effort. So we don't include those things that haven't been built or permitted into the planning effort. And hence the, the landscape can change very quickly. Or the regional connection projects that Tom was talking about earlier. If one of those projects gets built, this is a completely different conversation that we're having to hear in terms of load growth, needs, and distributed generation accommodation.

Public Member:
OK. Imagine trying to evaluate, you know, 3 or 4 projects from the developer because he only wants the one. I, you know, it's just mind boggling to me that the state just sits by and lets it happen, because the in the, I don't know that would involve entire communities wrestling with these issues that are, they have no real infinite knowledge and there's no assessments of VELCO or anybody in terms of valuing the sensibility of this project, you're left to do your own research and spend your own money and hire attorneys all kinds of insane waste of time activities. So I think somehow collectively we need to impose a more sensible planning process. I don't know what the answer is myself. And then we will go through this 248 process, which takes years and what they're going to say at the end. Well, I guess we'll, we'll, we'll look somewhere else. I don't know which is worse. Ok. And also I, I don't, as I said, I don't know what the answer is. So I just moved to Vermont, but it's sheer insanity what's going on. And, and then we have the, you know, yeah, climate change. Vermont is not going to solve climate change. So let's get a little realistic about what Vermont is really about and what Vermont can really accomplish and put all of these things in that process.

Tom Dunn:
It's going to be a little disappointed about how broadly our plan looks at.

Public Member:
No, I understand very little now.

Tom Dunn:
Like, so I know that doesn't help you deal with the issues that, you know,

Public Member:

I'm just trying to recruit anybody I can to try to solve what I think is the overall problem, which is I'm not saying it's a transmission problem at all. I so, but, you know, as a new resident of the Vermont, I am just astounded by the stupidity of this process.

Shana Louiselle:
So what one and, and again, it does answer the piece you're putting on the table right now.

But the other planning process that does happen at a statewide level is the public service department's Comprehensive Energy Planning. That also comes around every six years and what you're talking about right now, sounds like it would, not that it's not that we're not receiving your input right now. And this is very helpful because we can include it. We can include it in our, our input section which the regulators pay attention to, but for being received from the entity that naturally has, you know, effect on that. That's something to just be aware of the, the Comprehensive Energy Planning process.

Public Member:
In other words, members of the public did have more feedback. I realized we're, we're complaining to you and that's not your role. You, you're asking me to fix something that is not in your job description. But is that public service department process?

Shana Louiselle
The Public Service Department is responsible for the Comprehensive Energy Plan. They do a public outreach process similar to this. I think I attended their Rutland meeting in this room about two years ago.

Public Member:
That's very helpful, thank you.

Public Member:
Was everyone represented at that? All the utilities?

Shana Louiselle:
No, I don't believe all of….

Public Member:
Would that not be a good idea to try to put everybody together and then go over the state and say here we are, we're all on the same direction and just, just, just talk about it. Have a meeting maybe every other week or once a week and put your ideas on a table and then come up with something and then go with the state maybe once a month and see what would come up with. The whole group has got to be together to get something done. VELCO wants to do this Green Mountain Power wants to do this, doesn't want to do that. You gotta be together.

Public Member:
So (inaudible) Shana because you were involved in the Renewable Energy Standard legislative working group, that sort of thing? You start (inaudible) and then you testified this year on the standard. And then (inaudible) and I'm very unhappy with the lost opportunity. When I read your plan, I think it's on page 62 or 63 and very clear about location. How did location get left out of which, you know (inaudible)? Why didn't VELCO not speak up? And I mean, I know Kerrick said location on the Senate side, but then it was a done deal, a lot of this going on behind the scenes. And, as we heard, you know, go back to Vermont, (inaudible) and you heard the deal makers. And so when I read in your plan about how important location is and how we had the opportunity to talk about it. We're going to increase the requirement for instate renewables. Why didn't the location get addressed in this?

Shana Louiselle:
Thanks for the question from Velco's perspective in that conversation there, there were really two main points that we brought to our comments and one is location is critical. And the, the second piece was diversity of resources. That we don't want to take away the impact of solar PV. But it's, it's not enough to maintain reliability and that transmission, but Vermont will continue to be de dependent on transmission to meet Vermont's needs and stay reliable without that diversity of resource. So, those, those were our, our pieces. I, I

remember talking to the committee about particularly the siting and trying to connect it to the equity piece. That was one of, you know, nine objectives of that working group. I don't know that it landed in a way that was included in the legislation that came out of it, the agreement that came out of it.

Public Member:
It's the same helter-skelter (inaudible). OK. So the other piece that very much goes to the getting people together because there are so many inter related interest. So I don't know if you can picture the Green Mountain Power solar map. So it, has a lot of red that like they see something similar here and you've got all these areas that don't have the capacity. So some people's ideas, I think we was even an amendment from the House side. Let's just require the development is still (inaudible). But on the other hand, we got this grand plan for everybody's going to drive an electric vehicles, everybody's going to heat with a heat pump. And we have areas that have no distribution capacity, so that in some substations, and the diversity equity of it, how are the people who live in those areas, get, so if they are going to update their homes to surround with that and where is this conversation happening to look at equity distribution? And it sounds, that's better to just throw some of them good and, not care about where it's located or is it better to locate some of them in which case, that's a lot of other (inaudible).

Shana Louiselle:
That approach was something that we would have been supportive of. I wouldn't say they've got much day time in either committees.

Public Member:
And continue to sort all on this side of it in a different way. And again, I'm apologize. You're not getting a chance to explain your long-range plan. But, I do have a specific question that some of what, when you did the plan, and this is the issue. Basically the, Vermont law, like you said, we want to build so much solar and they didn't say, well, it could meet renewable energy standards by buying out-of-state and not so alternative from offshore wind. So if we think about offshore wind, because, you know, there's like on now, if Vermont were to buy, offshore wind contract the pass to meet a certain amount of renewable energy standard. Would that have, would there be any problem getting that energy into Vermont versus building somewhere within the state?

Zakia El Omari:
Yeah, that's something that we not, we do not look at in, in, in the, in this, situation with the plan. A and I would say there are always issues when you start to shift how the load is going. I'm not sure if there has been any study at VELCO, like I thought about that, but you know, unless until we model it and we simulate it, it's hard to say, you know, it will depend on the population of generation that we have load, which, which here we're targeting. So maybe it could be but to know for certain, we would have to actually have a complete study.

Tom Dunn:
ISO New England is New England grid operator, they are in charge of planning, they're in charge of interconnecting large generators and it's basically (inaudible). It'll be that work that they will determine how what's the nature of the interconnection to (inaudible). My expectation though, to answer your question, (inaudible).

Public Member:
Vermont's renewable energy standard does contain the energy for regional.

Tom Dunn:
It's generally, it's, it's for those of you on the industry, there's this friction of power plant that's built off the coast of Nantucket and we can buy power from power doesn't actually float, the dollars is, it's a financial transaction that takes place. Likewise, the solar project that gets built in northern Vermont, it's being done in Connecticut. That power doesn't get to Connecticut. What the developers do is a financial transaction takes place. That's, that's what happens. We are dealing here, and I really want to give Zakia an opportunity to finish her presentation. We are dealing with physical impact of putting, you know, putting equipment on the system, what does it do? And a lot of work has been done. Really? I, I'm not trying to cut the conversation off. I'm

happy to talk afterwards, but I really want to let it Zakia continue the presentation. You know, it's, you have a question?

Public Member:
So you're basically saying we can talk after.

Tom Dunn:
Yeah, great.

Zakia El Omari:
So a little bit more information about what went into the analysis. We talked about the two scenarios, the, the Vermont road map, which is the one where the policy is going and the continued growth with which basically would be like, say where we are at. So for the first one, the annual sales for heat bumps would increase to 18,000 annually by year 2029. And in terms of the EV we will see a growth to where we reach 90% of the vehicles by 2043. That's the assumption there for the fleet EVs with it would be that 100% of the, the EV would be electrified between 2038 and 2045. And the effect of that is what you see in the solid lines on that curve. So basically, we would start at about 1000 megawatt for both the summer and the winter peaks. And then by the year 2043 we would see an increase in the load by about 40% in the summer and by 60%. And that's part of it is due to this shift of this electrification of, of the load between the EVs and heat pumps. And there, there are some graphs in the, in the 10 year, 2024 long range plan where you could see more of that broke down by type. Yes question?

Public Member:
Yes, what's the difference between the fleet and non-fleet?

Zakia El Omari:
So, so non-fleet is basically cars for residential, you know, your car, my car, that's non-fleet. The, the fleet EVs are for commercial fleets, you know, FedEx, UPS, trucks, things like that, that those would be. For the continued growth, this is a more a lower forecast there where we assume the annual sales would flatten to 10.5K every year. The non-fleet will stay at 60% by 2043 and the fleet will be constant between 2032 and 2043. So a more modest growth and you can see that reflected there, about 20% increase for the summer, the summer growth and the, the load and about 30% for the winter. And in, in this presentation will mainly focus on the, the VT Road Map because that's where we saw most of the issues.

So summary of what we saw in 2043 with that policy scenario or VT road map, we saw 75 miles of lines, transmission lines exceed the capacity. We also saw the transformers overload. These are transmission links. So 19 of them and you can see them geographically. So those are in orange, those are the overloaded transformers and the groups are all the ones that we saw.

This is a more in depth look into the issues that we saw and we are looking at them by, by areas of concern. So we have five areas. This is the norther Vermont area. When we perform this analysis, we run what we call a N minus one minus one contingency. So these are simulations where we basically take up one transmission line or one transformer followed by another transmission asset that we lose. So what happens to our system if we do that? And that's a part of the federal government regulation for us to study. So we, we are aligning with those requirements in terms of how we study the impact. So we are modeling all the load, put all the generation in our system within the lines and then we start to take out these lines, one by one and see what, what problems we see in your system.

So for the northern region, what we saw our thermal overloads, we saw many lines transformers see there, we also saw a voltage collapse issue that might happen. So if we do nothing, we might expose the system to a blackout. So these are things that we wanted to bring up and talk about. So one proposed solution that is we can expect is to build a new line between Essex and Willison what you say here in orange that will be one option. And we would need that line by 2032 based on what we saw in the winter. So this is this issue started to, to show up in the winter forecast first. If we were to avoid the project and we wanted to look at the, the load instead. So if we were going to control the load and look at the non-transmission alternative, we would have to reduce the load in that region above this line here. You see this this discontinued black line.

So load over that line would have the we need to be introduced by 75 megawatts and that would be with different technologies and I just in total, it has to be 75 megawatts and that's in 2033. Now, we know that the load is going to grow from 2033. So in 2034 it's going to be more than 75 etcetera. So as the load grows, that load reduction has to also grow.

Public Member:
Also do you understand that new generation is going to be built in that area at the same time? And the other side?

Zakia El Omari:
Yes. So for 2043 we had assumptions about what, what the generation is. We only used the existing generation system and everything else would be exported. So there are no new assumptions of any more outside the (inaudible).

Shana Louiselle:
The other assumption is that the flexible load management programs that are being operated currently by the distribution utilities are not at 100%. And I don't know what the actual percentage is that … We actually removed all of that all flexible load management out of the equation, which might not be fully realistic, but it provides the baseline of how severe the problem could be if we don't implement those solutions, whether they be transmission or non-transmission alternatives. And that's, that is the same for all five of these transmission projects that you'll see on these slides.

Public Member:
Is 115 kV replacement line between the Williston and Essex, just replacing existing structures. Or does it somehow add, if you like to add capacity to?

Zakia El Omari:
Yeah, it would be an additional line.

Public Member:
It's just another line?

Zakia El Omari:
Correct. So it's an additional line. What we found is that if we are losing two transmission lines in the area, we start to overload the remaining of the structure of the system, the transformers, et cetera. So we see a lot of that and by adding that line, we are basically taking away all those transmission constraints. And so that line basically helps with the flow and power so that we don't have those opens in the system.

Public Member:
So rebuild that we take out the old line, put up new comparable structures and then you're adding something to it?

Zakia El Omari:
Yeah, this this one is a new line. There are some other scenarios where we're rebuilding the line, which means we're increasing the capacity of the line. This one will be a new one. So that basically instead of some of this flow going through the sub transmission system and causing a lot of issue, we're giving it another new avenue for the flow to, to to for the power flow between those two substations. And what we saw is by doing that we are (inaudible). So, but this would be a new line.

Ok. So, we also looked at the northwestern Vermont area of concern. And so if you notice it already includes the north Vermont area, but it's a little larger and it goes all the way down to the Rutland area. Again, we run the N minus one minus one scenarios. We saw the more overloads as well. And one transmission solution that we proposed was to rebuild the West Rutland to Middlebury line. So in this case, with the rebuilding, it's the same line, but we are going to make it have a much larger capacity so that if we can accommodate the, thermal flow that we saw.

Public Member:

How do you do that? How do you make out a capacity?

Zakia El Omari:
So the, the conductor itself is always, is made for a certain level of power. And so we we replace that conductor itself.

Public Member:
Would you raise the voltage?

Zakia El Omari:
We sometimes we raise the voltage, in this case, it would not raise the voltage, it would stay at that point, but it would be like a maybe a larger conductor that can sustain more power. So, you know, it would not heat up and melt. So it could be larger, you might need like stronger structures. If it's, if it's necessary, it's usually it would be replacing it. So it can take more. And so, in this case, again, we saw that we needed it by 2029. And if we reduce the load, if we're able to control the load and reduce it by 80 megawatts in 2033 then we would not need this upgrade. And I'm so, so comparatively, if you saw before, we talked about 75 megawatts for the, the north Vermont area. So if you use that, if we add another five megawatts to that reduction, then we will take care of both issues.

Central Vermont again, the area over the, the dark discontinued line, we know saw some issues as soon as 2034 so some transformers were affected, transmission lines. And, and so as a solution, we looked at the Coolidge-North Rutland line. So if we rebuild that line, we would be able to to take care of the issues that we saw there. Or if we did not want to build that transmission line, we could work with the load, so do some load control there. And if we do that and we keep the load below the 2033 levels, then we could avoid the,

Another area is the southern Vermont area. This one, again, we saw some overloads and in this case, we are seeing an impact in neighboring grids, neighboring networks. So we saw national grid system being impacted. And so part of the solution that we proposed that would be a transmission, a solution would be to rebuild the Bellows Falls to Ascutney Tap. And that's what you see there in orange. And also for GMP would be the Vernon road to the Newfane. So those would, would need to be upgraded if you wanted to avoid the thermal overloads. And that that will need to be done by 2034. Again, similarly, this is a load driven issue. So if we are able to maintain the load below 2033 levels, and we're talking about from that year all the way to 2043 then we are able to avoid the overloading.

OK. And lastly, the Vermont area of concern. So this is the whole system is impacted in this case, We, when we are on the simulation, this is some issues in, in that area. And, and so one solution that we have is to install a new 345 kV line between Vernon and Eversource. And and in this case, also, we saw impact to our neighboring on the system, you know, in New Hampshire, we saw some thermal overloads there. So this would be a solution. It will be needed by 2034. So I can see there fairly close in terms of timing, you know about, we are talking about the 10 year window. And again, you know, this is a load issue. So if you keep the load lower than what we have and in the 2033 level, then we wouldn't avoid them.

Shana Louiselle:
Zakia, one question came through the chat and it was so the question is I'm curious to know if Velco is considering employing reconductoring as a grid enhancing technology. And so the grid, the grid enhancing technology aspect of reconductoring is to use nontraditional conductor that would reduce the number of structure replacements. So as an answer to this is Velco looking at that? Yes, absolutely. But so far, we've found that those types of conductors were either unnecessary or not cost-effective to Vermont's needs when we're replacing poles and wires. So I just want to let share that and Q and A with the group. Thank you for the question.

Zakia El Omari:
So, the next slide is a summary of what we have seen. So you see all the, the areas on the first column, the second column are all the solutions that we mentioned there. Transmission upgrades. You see our high-level estimate of what that would cost to come up with those upgrades. The third column are of the is the non-transmission option, alternative analysis. And so you see all the options that we need that and also all of these issues that we mentioned, our candidates for the non-transmission alternative studies that we could talk by

the distribution utilities. So all of this test going into their plan and they will look into the feasibility of this issue.

Public Member:
What do you see as the prior issues?

Zakia El Omari:
It could be a combination of many things. There's definitely was for energy efficiency. There is there are other options, battery could be an option load that would be called off the call on to kind of be really resource lifted. Maybe we could move some of the EV charging from the peak if that's possible. So there are multiple ways to do it. I think the ultimate say would be or the, the, the distribution utilities to come up with, with a cost-effective way to incorporate all of this. And there are a lot of factors into this. We look at repeat. So we look at really like a small window for all of this and, and now it's about looking at the solution throughout the day or in a month. Do you know how, how so how often these issues happen? And, and also for example, if we're going to reduce the load, what's the window? Is it an hour? Is it two hours? I think all of those factors are important. People mentioned a little bit of that in, in the report itself. But it's, it's going to be a more comprehensive look at that. Look at how, how frequently, so how you how frequently do we need to come up with these solutions? And what makes sense?

Public Member:
So is, is that money necessary for the upgrade coming from the like this?

Zakia El Omari:
So it, it will depend and you know, some of these facilities might be part of the ISO England system. These studies are performed by, VELCO. So if ISO New England also sees these issues on their end to their studies and they agree. So some of that will be cost-share. So VELCO will pay a percentage of that and, and the, the entire New England system will pay for it. If it's more of a local issue, then it would be cost to, to that.

Tom Dunn:
I would say the ratepayers are going to pay for and it's either going to be Vermont only ratepayers or it's going to be all of New England based on a form of them. So it really will depend.

Public Member:
Who decides?

Tom Dunn:
Well, ISO is, is, it's really the entity that has the, you know, we, we can say here's the fix. So here's what it's going to cost. Depending on how big, the problem is, is the reliability impact is significant enough such that it could affect a large percentage of the Vermont's load or other areas. Those instances (inaudible), there like we do today for projects, but we do, we also pay large share of projects done outside of it. If on the other hand, it's a relatively small amount load relative to New England, it's likely and that's some instance that the Vermont ratepayers would not pay.

Public Member:
Ok, a couple of questions. Ok. Now, for batteries, you were looking a look at the type of batteries you're considering. And also some questions of what with your substance were typically, my understanding of lithium ion batteries is you buy a one megawatt battery hard, it might have 2 to 4 megawatt, but it was different.
Is that about the type of range we're looking at in terms of the duration of energy storage and follow up on that. If you consider it flow batteries have long, it's a new technology, right?

Zakia El Omari:
Yeah, that's a very good question. And some of that for us, we have technology agnostic, right? We, we'll just look at the solution. And so there are, there are some slides about looking at load reduction as a solution. And I in the report, you'll see A diagram like a graph that shows here is what we are anticipating the load to be from 12 o'clock in the morning to 12 o'clock at night. So the whole 24 level. And so, and we looked at the, the, the load that is above what this can take. So we saw like, ok, we have a certain amount of... So we have to basically take care of that, that load one way or the other, you know, through shifting or reduction or

something. And we saw, I believe about eight hours for about eight hours, not all at maximum, right? Because it has a certain shape to the load, which basically is a forecast rate.

Public Member:
So, ok, so we're, I'm going with this. So that's good. I haven't, I have not gone to the reports, I will look for that. But you're saying you got to have any batteries that can handle a load reduction problem. If you're going to let an like the NTA eight hours,

Zakia El Omari:
If it's all like one way, so we call it load reduction. So it could be batteries and have energy efficiency be low. But the solution itself is that for about eight hours, we have to have some.

Shana Louiselle:
So our plan is looking at the, the NTA solution of what it's going to be. It's not storage that will happen in the NTA study process. After this plan is final and filed Green Mountain Power, we look at these, well, even though its five different projects, it essentially is one big area where they're all kind of connected in terms of how much load reduction we need. They'll, they'll start winnowing in on how would storage impact this load reduction? How will our flexible load management programs in place have an effect on that and continue down with the NTAs that they're solving for?

Public Member:
Ok, I see that and I understand it again (inaudible). Again my point is that you have to have a battery with about eight hours of storage, I would say even more so than that because my experience with heating load, is that when you have a peak day, heating load itself is a very high day of the moment. So in other words, people turn on their heat pump it's on 24 hours. So now the load curve will have some ups and downs because there's someone controlling it, both components from industrial and so forth. It's not there, you know, all, all day long. But, what I'm worried about, and again it's not your worry, it's not your job. But that you're saying that we have a, a winter peak in Vermont. That's the main takeaway. We, we're also at the same time putting a lot of heat pumps and then we're relying on shutting down somehow, either shutting down the heat pumps or having a battery that you run at least eight hours. Probably more than that than to solve this problem.. that's the thing, that's a big problem, and that…

Shana Louiselle:
That's also a big assumption. I don't know that any utilities are talking about shutting heat pumps down during winter. I mean, we are in Vermont. And I, and I don't think that, that, that is a solution.

Public Member:
I would say that as a state where we're encouraging people to just put in heat pumps and not do anything with the existing process that and I, I'm not seeing anything coming out of Montpelier, the program that says, hey, keep your, keep your oil heat. And I remember in the old days when we were going to see opposite direction, you take them out like I see, but things change. But yeah, I just want to make since this is being recorded, I would at least like to get on the record. That's a concern. I realize that the only person in this room that has anything to do with the legislation was the entire legislature Dave back there. That's what we should target should be strapping those people in the seats for a while. I mean, this is a little bit better than, than the south.

Public Member:
Well, is there any solution to this seasonal problem? It should have. The, the sun doesn't shine with any certainty. So how many batteries do we need to have power?

Shana Louiselle:
So I think I think for right now it, it's, Vermont's transmission system is a very valuable asset to Vermont that supplies that reliability when in-state resources are not available to serve that load.

Tom Dunn:
In fact most the hours out of the year of are importing power. Very few hours it's (inaudible).

Public Member:
Ok, so that power is the hydro nuclear.

Tom Dunn:
Whatever is running in New England. Go to the ISO website right now and you can find out what mix of generation is running. Probably most of its going to be gas.

Shana Louiselle:
And if you look out 20 years, to see what it looks like, it's a lot of a batteries, offshore wind.

Public Member:
Yeah, I mean, that's the other thing that gets me about, I love when you get a renewable energy, don't get me wrong. But, how you actually getting rid of gas power (inaudible). So you can pass any number of laws saying you have to be 100% renewable by, you know, 20 whatever. Yeah. Ok. It's not any cheaper, nobody has an answer. Right. I'm just curious. Yeah. You che, I mean, that's how it, it's all great. II, I understand. I'm not saying we cheat, we delude ourselves that for the,

Tom Dunn:
Well, I think, you know, this is my opinion. I mean, I think that, if the election goes to some Republican that will change some things, but what I see across, not just the electric industry, but across the industry in general, there's enormous pressure to get cleaner, to get electricity through cleaner resources and, and the price of renewable energy has declined dramatically. So that, so that is those factors and that, that, and the technology is improving. So I think that even, and if you look at the legislation that's been passed to encourage, you know, investments in green, green, clean, green energy, much of that money is going in red states. Factories are being built with our factories, battery factories are being built in some states and there are thousands of jobs that tax, that's a dynamic that's going to play out even if there's a Republican in the White House that I think will, I think it's inexorable. And if you look at it just one thing for me, it's always been, you look at emissions in the way the last 20 years they have gone down. CO2 have gone down dramatically. That's a function of new things. It's been switching from oil and oil to natural gas, that's been the biggest one. And, but you know, the offshore wind is going to, happen, it's going to get built it's going to be sizable, it's going to be more expensive than what people originally thought. But I don't think, I don't think that's gonna change at all in terms of the direction that we go. It may be the pace of which things happen. you know, so it's, you know, how fast will consumers adopt with electric vehicles? There's a bit of a slowing now. But, you know, if you come out an electric vehicle that has 500 miles of range and can be charged in 20 minutes, you'll have a very different reaction than you have today to. It takes three hours or four hours to drive to charge anything and that technology is happening, it's getting better.

The other thing in terms of long duration of storage is there's a lot of money going into research into taking renewable energy to produce things like I to to create hydrogen, which could be a fuel source. It's the technology can do it right now. The challenge is making it cost effective and, and, and that's where a lot of the technologies that are coming long duration storage the can absolutely be based on hydrogen. But you know, I think the costs have to come down. It would be that's why I said the landscape that we're operating and producing the transport, but technology is evolving and getting better prices is going down. The political aspect of the world obviously has a pretty big impact but what I have seen even in 2016, was the industry, I said my observation from the industry across the US is it's, there are a lot of other pressures, not just political factors for companies continuing to pursue a cleaner, cleaner future than a lot of the customers. And that's, that's what I see. I don't think, I don't think that's going to change. Maybe the pace …

Public Member:
Can you talk about the supply chain of the transformers?

Tom Dunn:
Sure. I mean, it's like a lot of places. There were, there are challenges on various components that go into, you know, I think its core steel was a big challenge .I don't know anything about that, but there's a lot of challenges on supply chains. I mean, we waited a year and a half I think to get a power transformer and, and yeah, so that's something, you know,

Public Member:
The plan talks a lot about transformers needing an upgrade?

Tom Dunn:
Yeah, I mean, we would have to be make sure we make commitments early on to get into the manufacturing slots. And you know, that's another thing there that money is going into from the federal, there's tens of hundreds of billions of dollars of investment going into, into you know, supporting making transition. a battery maker, it works with manufacturers. A lot of the transmission transformer capacity went offshore. They used to make them in the US and they got out of the business and, and we talk about transforms rural land from Asia, from Taiwan. But there are more, more developed and more manufacturers that are creating capacity and the so it's a, it's an issue, you know, distribution side is basically a year….

Public Member:
Can you take one more question? In your studies, I think you have two different types of studies. You have the load flow studies which study more (inaudible), but then you have other studies which are called generation simulation studies. You know all I am speaking to. The generation simulation studies, what you do for a computer model, that's our like our operation of the generation system (inaudible). Were those used, because the reason I'm asking this question is, you know, VELCO has talked a lot about curtailment. If you put in too much solar, you're going to have to curtail other renewable energy in Vermont. So there are a lot of generational simulation studies to do done to assess and an increased potential increase in curtailing renewable energy from putting too much solar?

Zakia El Omari:
Yeah, that will be an interesting study to look at. We are looking at it from transmission system. So sub transmission, you know, and we are basically targeting the you know, so we are basically looking at small here. The study that you were mentioning usually it is performed by the developers. So they would look at an entire year, for example, operation so that they can build the economic model and see, you know, is this a viable project or not? We do not look into that for the plans. But on their end, definitely, that's a big question and, and I would say for the NTA, it's definitely a good question to ask.

Shana Louiselle:
And that conversation is shifting too whereas for filming used to be a very dirty word, right? No one wants to be curtailed. But I think particularly developers are thinking about that in a different way now because often times the curtailment will only be for a short amount of time. And is that now worth, is that now actually make more economic sense to be able to make a commitment saying, you know, this is happening right now within the Sheffield Highgate export interface, there are developers that want to build, to continue to build in that area but it's constrained and so there's and so talking with distribution utilities making an arrangement that we will curtail in these certain times, if we can build. And so I would say curtailment in terms of that was one of the pieces on the takeaway slide of where can there be further coordination in state and curtailment is right next to the, storage and flexible load management.

Public Member:
I expect the developer did not, did not do generation simulations. But I'm also curious if you know what, when, when you're saying developers have joined before they put in a project that they actually study.

Zakia El Omari:
That's my understanding, you know, you know, coming from a different utility and I was on the generation generator utility, so we would see what kind of questions to discuss. So (inaudible). So this might not be certainly something for Vermont, but you know, they will do their own analysis hour by hour, the entire year, they will basically map out what their expectations in terms of their (inaudible) and how they monetize the project, or their looking at the costs.

All right. So are we ready for the next? So we talked about the peak and the peak challenge. So now we wanted to look at the, the solar hosting capacity, what's going to happen with the growth of the (inaudible). And so this, this is what our base baseline. We pulled information about historic data or where the DG the generation, which includes solar, where, where is it in the, where, where it was in 2015 is what you see here and you see the progression there between 2015 and 2023. And you see clearly that the residential areas

where there is more population, there is where all the DR is going. So we use this as a basis for our trends. So when we were skimming up, generation from the current 500 megawatts up, we targeted those areas and spent in specific. So we kind of went with that trend and increase the available DG.

And when we reach 1300 megawatt of DG, this is how the system look like. So everything that's in orange, those are the overload, the transmission lines. I think that's good. That's the trans transformers. So a pretty significant impact we saw that we would need, if we're not doing any load control, we would have to upgrade 156 miles of lines to, to adapt 1300 megawatt. And for transformers, same thing, we had a significant number of transformers that what were exceeded in the capacity.

OK. So the load control, if we were not going to make all those upgrades, whether the peaking or for the, the, the DG penetration, what would be the, the option? So we went back into the, the cases and we went site by site and modified or added a load reduction in different locations to see how can we reduce the overloads, all those simulations so that we are not exceeding, the the capacity, thermal capacity. So the total, the aggregate of that is about 440 megawatt for the winter peak and 400 for the summer peak. And this is for the worst case scenario. So we're looking at 2043 looking at the policy which is open. So that's how it would look up. And then again, this is substation by substation, bus by bus specifically. And that might not be the, the best solution. That is what we, that's what we look at. And again, we, we are not, we are technology agnostic and we are looking at that one window or that particular load that we are studying. And so that that could be a load reduction. We could, we could add batteries that injecting power at this particular location, it could be a different levels of, of solutions there. But as long as we reach that number for that particular hour and to your point again, so it's not 440 for eight hours, you know, it's like the bell curve, you know, of the load. So the load is when it's at its peak, that's what you need. But as the load continues to decrease, you know, outside of the peak hour, then we would need less (inaudible). So by the peak hour, we might need a certain basis, but it's not as fast. Thank you.

Similarly, we use the same approach when we looked at the PV hosting capacity but now what we have is excess generation, we have excess generation on the distribution side. It's causing issues on the trans sub transmission and transmission side. So where can we put load increased solutions that would help us avoid all of those upgrades. And so for 175 miles upgrades, etcetera. And what we saw is that we would need about 480 megawatt total of load increase solution. So we avoid the upgrades.

Public Member:
So this is VELCO load, (inaudible)

Zakia El Omari:
Which one are you looking at, the 170? So that's on the transmission system. So that's, that's not on the GMP it, you see. So we, we had to look at solutions as well on the directly on the transmission system.

Public Member:
You've got 115 to…

Zakia El Omari:
So correct. Yes. So we went directly, for example, on the 115 side and we basically simulated a solution that would basically maybe a bit better storage something that would absorb some of that generation directly on the distribution side.

And one last page, you know, this is another look at it, you know, we'll talk a little bit about this this map again, you know, this is an optimized look at it at the DG. So we went back to the drawing board and we said, OK, we use that approach about scaling everything. Now, let's, let's go back and actually look at where can we put the, the DG in a way that would not cause order. And so the, what you see in green, that's the southern area where we found the most capacity. So we would go and to all the substations on the distribution side and increase the DG until we find the problem and then we would go to another area, etcetera. So, so that's what you see here. And, and the total of what we could put in the system without causing any issues was about 1057. If we take into account transmission and sub transmission, we'll get to that level where we would not need any upgrades. If we're only looking at transmission limits, we can increase to 1175. So a pretty significant difference, you know, and that would be one map that could inform you said, you know, where to put the DG,

certainly not on the top area where it's all red in that area, you put between zero and 25 megawatts, there's very little capacity left. But you know, that's, that's what …

Public Member:
If I'm a solar developer and Iook at this map I say, OK, I can bombard Southern Vermont. And that scares the hell out of me.

Shana Louiselle:
There's a reason why that's really most of most of southern Vermont, it's heavily tree covered right?

Public Member:
They don't care about trees.

Shana Louiselle:
From a siting perspective…

Public Member:
They love cutting down trees, that's the, that's the thing, just say, OK, that's an opportunity, but I don't know what I can do. Except move up to the red area. It's cold up there.

Zakia El Omari:
OK. So, so the green color on the bottom shows where we can put solar or DG distributed generation without triggering thermal issues in the system. So, so the green one is, is a large number. So between 200 and 300 then the lighter green is between 150 and 200. And so it goes in decreasing level of capacity. Like so for example, on in the northern area, there is not much capacity. So if we added even a little bit more, maybe like if we try to add 30 megawatts, we'll find overloads in the system. And so we, we would need solutions that could be other NTA solutions. We need maybe a load reduction or we need transmission. This one is really like if we don't want to do any other things, we don't want to build lines, we don't want to do any other non-transmission Alternatives, you know, this is basically just finding better places for the DG to go where it would be would needed, not cost any transmission upgrades or require us to change our behavior in terms of how the (inaudible) is good.

Public Member:
Is the southern part of it have anything to do with Vermont Yankee and (inaudible)?

Shana Louiselle:
There are two very large transmission lines in the southern portion that aren't carrying….

Public Member:
So actually you mentioned trees, I think the southern part of Vermont is heavily forested. You don't have much transmission, there's just a little bit but most of it is further up. So really what this is this, map is a little misleading? So is it more than the capacity is on the eastern side of the state? Or It doesn't really care?

Lucas Looman:
I can speak to it. These zones are based on electrical distinction, so they could like switch that's always an open point (inaudible) where we drew that border of that Zone. So yeah, you can, you can see the Bennington transmission and, and then when you see the other side, it's all in one zone because of its electrical distinction in the western state. If you were to break that down further and you say, ok, I want double click the southern, I want to create an east and west zone. We haven't done that, but I would be willing to guess based on how the system works while you got 345 corridor and a 115. Yeah. So I, I can't say for sure, but that would be my assumption.

Public Member:
And certainly in Rutland (inaudible). So that's why there's so much capacity in that cause there's so much (inaudible).

Lucas Looman:

It's a combination of what your capacity is on the transmission system, how much current generation there is there and how much load there is. So up in Northeast Kingdom area you can see. Well, that's all red. That is a combination of a couple of things. One, (inaudible), two there is a lot of generation three, there's very little load not many people up there. So we have those three things all line up, all happen the same day.

Public Member:
But you know it to be an expensive plan, you understand that none of these people siting more (inaudible)

Lucas Looman:
But the price of the land to (inaudible) you know, it's a factor there.

Public Member:
Yeah, this is going to have been decided by and to developers. So tracking in terms of siting (inaudible) when there's capacity. (Inaudible) Which is why we haven't seen a lot.

Zakia El Omari:
And also in addition to the transmission system, we were looking at the sub transmission system as well and the transformers. So as you see, there are two numbers there. So we were looking at are we overloading the sub transmission system? Are we overloading transformers? So in putting that that DER that low, we were going substation by substation putting that those values increase in them. And then when we start to see an issue whether it's on the sub transmission system or the transformers. So all of those are also not only the system. So that's when we stop that area. So for that area, we were able to go up to about 300 megawatts substation by substations again in aggregate. OK. Any more questions on this slide?

Ok. So that's, that's the plan. And so, and so key takes away for us is that we are seeing. We are seeing problems as well as soon as 10 years. We are seeing for the for the reliability issue. We are seeing problems when we reach a certain level, we start to see problems. And so we are bringing it, we are, we are raising this issue, we are bringing to everybody's awareness. We are hoping that there will be an effort in the next phase of this process with the NTA where all of this is going to be taken into account so that we come up with solutions that are helpful with everybody. As you saw, we are impacting the distribution systems also. So we are going to need some collaboration with other entities. We work through this. We are seeing the benefit of a, a lot of different technologies and we, we are suspecting that there will be some integration between all of those. As, as you saw, we have different problems when you look at the peak versus the, the off peak. And so how all of these works together is something that needs to be addressed. That's the plan Thank you so much for your questions and for attending and I will hand it back to Shana.

Shana Louiselle:
And it's really repeating what I said in the beginning and in this way, there we go just in terms of next steps, We continue to engage with stakeholder groups. We have another public meeting tomorrow night in the Saint Albans area and talking with Regional Planning Commissions, really anybody who is willing to sit down and talk with us to have this conversation and give input. We are accepting public comments through the month of, of May. Although if I were to receive a comment in early June, I wouldn't dismiss it. But we do wrap up the, the final plan and submit it to the Public Utility Commission in the last two weeks of June. But that being said, if there are any questions, you know about the plan or you want to make a comment. These are a few ways you can do it. We have the, the website which many of you RSVP'd on. My contact information is your phone number, smoke signals, however you want to, however you want to communicate. We, we want to hear from you. So I really appreciate all of your time today. This was a very engaged group and I really appreciate it.

Public Member:
So I work, yeah, and this was true. It was for the energy standard and it's true with the most reason. All these planning efforts effect people that live here, and they have not been included in these conversation. and regional plan conditions are not a substitute. I served on the regional planning commission with us here. But are we it's just, it's a fact that all regional planning commission patients can ask them the public come to their meetings, they know, look at the turn out here. People are that capacity these days anyways, they just don't have the capacity but probably in cities and towns wasn't sitting at the table. I mean, how are we considering how these new technologies? So the private land are going to be developed in a way that does not increase conflict but instead it results in collaboration. And the fact that we are fighting over the siting of renewable

energy really arcane public utility commission process designed for rate cases, it's no answer, we got to find and VELCO to be an advocate for making sure that the public is included. And I know in your system planning group, one seat for an environmental group, that you know, they always get the same person in those seats. They applied. Sorry, seats warmers are there and all they care about is carbon reduction, emissions. Nobody is talking about the land itself and the people who live here, and then has to be included in these conversations and, and I don't know how many here is, people have to say that. But remember in, I think 2015, there was a big upset of towns who went to the legislature and said you're not hearing us and that resulted in this really insane, enhanced energy planning thing. It's just (inaudible) and it still is. (Inaudible) that have to go through this process that has never yet been used by the PUC in all the years that it's been in place. So, please take this comment to every place you can.

Public Member:
Well, I did hear you make a suggestion. I don't know. That doesn't make any sense to me of talking to PSD. You know, we've had input to the PSD, and said, oh, it's all fine. It's like you, we can destroy the forest, the fields doesn't matter because this …

Public Member:
The department intervenes, they actually prior to the participants of the case. So they almost always come in favor and. So, and they're not a voice for the people, they're, they understanding…

Public Member:
So that's just leading us to slaughter in a different.

Public Member:
Well, it's not just that there's a need for any of that. They need a seat at the table, that's what's not happening. The legislative committee put together the utilities and the so-called environmental groups to talk about how we're going to be doing. You know, increasing the renewable energy standard. There's no single person there who's talking about these issues of the community impacts. It's a, it's a very big societal disruption and things are exciting and many, many, many many projects goes through without any upset at all. But there's no reason for them to do these projects so poorly sited and nobody has any ideas to be put in the right place. So I've heard that Green Mountain Power say numerous times we don't want more solar and this isn't the right place. So and this is the right place. Your plan says locations are important. What's happening at where I heard the the head of the VNRC saying that PUC workshop really exciting is, is really talked about, you know, you have to do it, you know, that's, that's well OK. Why don't we continue with his helter skelter to develop driven process where they choose the sites? And why aren't the utilities more involved in why isn't VELCO more involved in identifying this is a good site? This is where we want it?

Shana Louiselle
Not refuting that, and that could very well be true. From the transmission side of things we do encourage collaboration. So when developers go through the ISO New England Interconnection process, oftentimes there will be outreach from developers to Hantz and his team, I know that there, there are conversations that happen about what that could mean in terms of needs, upgrades. I mean, obviously they have to go through that feasibility, system impacts study before they get greenlighted. That's, that's from an ISO New England level which is more of our playing field.

Public Member
Well, I think we're talking about a process whereby collectively as sites selected and then it's solicit bids from (inaudible). What's, what's wrong with that approach? It's, it's like insane now when this thing drops from outer space after its been in planning for 4 or five years. And the resident said what, what happened? Just so, I don't know, you know, it's funny because I love this session by the way, I think this is very, it's helpful for me because I haven't had a sensible conversation with anyone in even the Vermont government agencies, developers, whatever. It's all been, ok, you're, you're stuck with it, suffer. And you have to suffer for the good of the planet. And, I would feel much better if there were just some sensible explanation of why it should be here. And other than it was the land was cheap and and, and like some ability to negotiate, you know, some kind of alternative or some kind of modification that makes sense other than dealing with the developer who could care less about Vermont. They don't, they're not from here. They don't live here, you know, they hire a bunch of consultants from Burlington and, who, you know, who make a fortune consulting with these guys.

And we sit there, ok. What do we do? Yes, nobody to even talk to. This is the first conversation I remember where anybody was willing to listen even in a position with maybe something (inaudible). So, so I do appreciate it.

Shana Louiselle:
Thank you very much for the, for the input. And although like we've said, we may not have the answer to,

Public Member:
I'm not expecting miracles.

Shana Louiselle:
But it is, but it is a required part of this process and, and this feedback can, can be included in, in our plan so that there's giving voice to it in that aspect,

Public Member:
I did watch some of the RES, and what I noted and well, I know that I don't, I didn't know who was, who would be, but I noted that, ok, they were at least, you know, are people and deeper people craze about the climate change. You have to do this. And then there would be representatives from I believe from the utilities who seem reasonable saying that, you know, you should be flexible, you know, to be flexible.
And I, I interpret that as meaning, why the hell are you passing the law to say we have to do 100% renewables by X date. What does that accomplish? You have to be flexible, you have to realize that technology is changing and to change it constantly and be able to do that. And they were saying things like that. Nobody was really pushing back.

What has happened is and I watched the commentary after session, bringing mothers and babies and you know, oh, thank you for doing this. You're so wonderful from doing to me and, and and I sit outside, you know, you people are being misled.

Shana Louiselle:
We can stay longer. I do want to give this gentleman an opportunity to talk, because I saw you come in after.

Public Member:
(Inaudible).