2024 Vermont Long-Range Transmission Plan
Transcript from May 1, 2024 Public Input Meeting in South Burlington, VT

Tom Dunn:
It's very unusual that we're a transmission only company, which can be a strength and the weakness, and in this process it's a strength as we can narrow our focus in today's world and all that's going on. We can't do effective transmission planning without engaging in all kinds of understanding. Not only what the utilities are doing, but what the stakeholders are doing, because obviously those actions, or storage, anything, all that is obviously will effect what we need to do. You know, we tell people it's a good time to be in the transmission business. So, I think it's changed, it really creates great opportunities. Hantz and I were joking, this planning process is created out of failure. It was the first large transmission project. I was the project manager… surprised regulators, surprised a whole bunch of people. And so the opportunity to do this, it's a tremendous amount of work for Hantz & Shana and everyone to do it, but it creates an opportunity to have these conversations.

And you know, as Shana said it was extensive process by which we, you know, what's the load flow, what's the load forecast we should use and so on. So the chance to have those discussions and to make sure that we come up with our plans, you know, it, it's not work cause and it's more important today than, as I said, we need to understand what (inaudible) distributed energy resources, what are the next flexible management programs? (Inaudible) it's great, it's great fun cause for some (inaudible) going to be electricity in the future. So it has some interesting challenges for us. I think, you know, we were with (inaudible) we're in today the plan is really uses some very severe functions. It's kind of the most stressed high loads, policy goals are being achieved. So you're seeing heat pumps, you're seeing EVs all at a really, really high level, and all the renewables that are on the system running at full tilt, you know, which is the appropriate way for us to be doing it. And then you start there, and you say so what are we going to have to do? That's going to be dependent on what actually happened to the other rules to achieve. How quickly are some of these capabilities developed? How quickly we source it (inaudible) flexible so a great time for a conversation. It's, it's just a lot of fun. It's, it was like I tell people that come to VELCO, it's like you like to solve problems and you want to be involved in something that's important. It's a great time to be here. So, thanks for coming out on a really nice day. I was thinking about it. I joked about how we scheduled these meetings on the first really nice day. It's going to be nice outside so nobody will come if we didn't do it. Thanks for coming. It's good to see you and to see some very familiar faces, thanks for coming in.

Public Member:
I fortunately I have to leave in like 15 minutes for a kids soccer schedule changed on Monday.

Hantz Presume:
I think Shana covered some of this. (inaudible) So this is wide open. It's a small enough group that we can spend all that time. Our goals of this process is to identify any weaknesses, deficiencies related to certain though that means peak demand, the highest demand that we see in the summer, a lot of winter, very hot, very cold, particular hour, two hour, three hour period in July, everybody's very light.

We are required to provide reliable service at the very moment. And we have to design the system to serve that load when something fails, fact, the wires detect multiple containers at the same time. The term that we use N minus one minus one means it's an outage in the system and within 30 minutes, something else happens at the same time and we have to be able to provide reliable service. So we do this analysis. This study starts with the ISO-NE planning process. ISO New England is the planner for New England and Vermont system operator, manage the markets and plan the system. The actual process includes a needs assessment which ISO-NE completed in 2023. So the ISO study horizon is only 10 years, supplement that with our analysis takes us to 20 years and ISO-NE is only concerned about the networked transmission system. And we are required to look at everything including the sub transmission system. The lower voltages that Green Mountain Power operates.

Public Member:
How low do you go?

Hantz Presume:
34.5 kV. We do our studies the same way as ISO. It's the same standards from standards. One key input into our plan is to forecast the state, the foundational input, is the load forecast and the VSPC it plays a critical role of this, prepare a forecast that everybody believes it, it correct. It's solid. A lot of conversation that happens. It takes us 9 to 10 months to prepare the forecast.

Public Member:
So the forecast is like a point in time forecast or is it kind of like a band?

Hantz Presume:
It's a band that looks at various scenarios, we mentioned two here in our forecast, when you think about confidence level and forecast, we plan to a 90% confidence level. So high forecast, so it's, it's what we use (inaudible). This circle here represents the planning processes in Vermont. It starts with the VELCO analysis at the top here and then issue a draft plan. That's what the VSPC use. They have 60 days to review that. They provide input, questions, comments and we reflect those comments to, to put that into the plan.
We call this a public review draft. (Inaudible) on the posted on our website? (Inaudible) we're going to take input, some questions through the plan with a final version by July 1st this year. The requirement of the plan is that we consider non transmission alternatives to address systemic deficiencies. We are doing an NTA screening analysis to determine whether it makes sense because it's possible to address reliability concerns with non-transmission alternative. In this case, all of the reliability concerns related to load growth can be addressed by a non-transmission alternative. And therefore the distribution utilities need to perform a detailed analysis. It looks at cost-effectiveness of resources, measures like energy efficiency, storage, load management, load control, any of those things that it can reduce load. Is that cost-effective because in an environment can you design a non-transmission alternative is going to be able to resolve?

Public Member:
So it's going to be a lot of work next year to perform it.

Tom Dunn:
That question. One of the things like grid enhancing technologies again, will those be viewed as a these are things like putting dynamic line ratings on our system? That'd be considered a non-transmission alternative?

Hantz Presume:
Yeah, some, not all, some grid enhancing technologies. (Inaudible) Dynamic line ratings so I put that as a non-transmission bucket, in that because it avoids transmission upgrades.

Tom Dunn:
And so the flow controlled device that you're looking at is that transmission?

Hantz Presume:
That’s transmission. And the answer of the system, of course, it gives you flexibility, operation flexibility.
I think it's a piece of equipment that’s costly. Yeah.

Public Member:
Have you been considering dynamic line ratings or seasonal ratings?

Hantz Presume:
We have, we are and we have, so far, we haven't seen the need for dynamic line ratings where we're constantly looking at that, technology. We found that we're able to achieve the benefits of the dynamic line ratings by doing something much cheaper than that. There’s cost associated with that, with line ratings. Because some vendors have to, they have an annual fee for them to maintain the connection with the communication and analysis on it.

Tom Dunn:
So it's probably more of a when, not if we’ll be using them? We don't have a lot thermal, a lot of the (inaudible).

Hantz Presume:
The things that we're doing as part of FERC 881, you get adjusted ratings, as part of our operational, as part of operations, and we're implementing that, that in itself can give you all game like dynamic line ratings is about that. So we may find that simple line ratings is sufficient. That's $0 for Vermonters. So taking a step of installing equipment to take advantage of and you have temperatures fees.

So any study, such plan studies require a lot of data. It's time to say we collaborate, we have to include other, folks and VELCO is not a forecaster, we hire a consultant, Itron, a well-established consultant that, that forecasting in Vermont and elsewhere. And we also use the services of the Vermont System Planning subcommittees, and mostly the load forecasting subcommittee. There is a lot of experts there which utilities should provide input. VEIC and the energy efficiency utility provide data as well. Mostly the heat pump and electric vehicles are the key technologies that drive load growth. We talk about all the policies we're putting in place to reduce emissions. Let's try transportation and clean heating means more than you have available, because those increase consumption.

So in terms of study, peak demand scenarios. So forecasting load 20 years out is uncertain of course, (inaudible), I recognize that it's really not (inaudible). Based on data that we have currently available data which says policies that are in place now … how will it drive consumption? (Inaudbile). So the first scenario is the Vermont Roadmap, we are on the path to meet Vermont policies. Well, I think the number of vehicles that are required to reduce emissions, the number of the bumps required and we're doing a test. We're doing a high forecast, also called the policy forecast. And on the low end, we think that we're going to buy the vehicle. Even without these, we're going to continue to use heat pumps. So there's going to be some growth EVs, heat pumps and, and other things. So this is also a, a growth scenario, but it's much lower, which that's what we use as a low and high bracket of.

You have to study the system of summer conditions, winter peak, and this is a 20 year process. And so the test 10 years out and 20 years out, we have test every single year. So you have two points on the curve to t away. And one other piece of our analysis that we added the last three plans is also look at our ability to accommodate a large amount of small scale distributed resources, or solar PV, it's mostly solar PV, it's the technology of choice. And to do that analysis, we do the testing at low, low periods, low loads at like 60% of peak. Speaking time to go see April Saturday at two o'clock, 1 p.m. It's a lot of solar sunny outside today, right? It's not much load. And we do that because if you're not consuming that energy, it's been injected into the system from the distribution system, that energy of that power was slow, it's going to come up to transformers, slow on our network. So we want to be able to find the strength to areas of the system where you don't have enough capacity to, to carry the excess energy. We started the analysis at 500 megawatts which is the amount of solar PV that's connected today, increase that by 100 megawatt increment up to 1300 1300 megawatts top. In doing this analysis, this is the key assumption that we do not reduce any other existing renewable resources, resources that are already connected, we accelerate it. (Inaudible) So we do everything we can on top of that.

Public Member:
This solar forecast only accounts for policy as it stands today, and not for the future? (inaudible).

Hantz Presume:
Although we're not there and we do not have the details…

Public Member:
That's fair. You can't analyze something that…

Hantz Presume:
And so what we said is so maybe this time, I think at the time we were talking about, do you mean tripling? So what you said it's double it's 10% to say it's 20%. But the details you do with the math, but most of the resources are solar PV, capacity factors (inaudible).

Tom Dunn:
1300 megawatt of PV of

Hantz Presume:
Yes, of total. And I want to say again that, you know, I did not set out to test the (inaudible).

Public Member:
No, that makes sense to me.

Hantz Presume:
Ok, next slide, so just to illustrate what this forecast means, the Vermont Roadmap possibility. To achieve these goals, we have to increase the heat pump sales up 18,000 by 2029. Apparently it's (inaudible), which is possible. And electric vehicles penetration levels are 90% by 2043. That's what we need to, to be (inaudible). The Continued Growth, mean that it's going to go up to 60% of the state (inaudible). It's happening. That's what is happening now. So that the same way the same will occur the next few years (inaudible). That's the difference. Two forecasts. You see the effect of the load, the solid one that is the policy forecast.

Public Member:
How's it going today?

Hantz Presume:
(Inaudible). We looked into winter peaking, summer peaking, (inaudible) weather, this is said because of the heat pumps or adding electric vehicles or to the state…

Tom Dunn:
The purpose of this analysis, we made no assumptions about it. Like a time utilities might take in terms of reducing the demand.

Hantz Presume:
(Inaudible). Sorry, we do not assume in the study that utilities have load reduction programs in place. It allows us to see the red flags see out here where we can say this is where it is that needs load control. So how much do you need to control? What size will you control? (Inaudible)

Public Member:
I'm asking a stupid question. Is this just for all of Vermont with no sort of assumptions about geography in terms of how if folks are adopting things at different rates in different places, this is just for all of Vermont, the whole state that kind of thinking like in terms of there's no geographic (inaudible)?

Hantz Presume:
So these all these curves are all Vermont total.

Public Member:
Yeah, but then you replicate it.

Hantz Presume:
We divide the system into… different areas of Vermont. Different, different type customers. I sort of see farms and (inaudible) the sequences certain cities and areas of adopting these faster in areas of this geographical difference made these up. It's considered captured in the forecast… we have zonal forecast. So we take into account these differences.

So we'll go into the results. So we, we do the analysis and we follow the rules, study rules of peak loads, model generation in-state, outages that we have to model. And model transmission outages on top of that. And then, so when you say you open the path, you can see how the network here is a lot you open, an outage line (inaudible) the line is carrying … that flow is now rerouted to other parts of the system. Rerouting adds load or adds flow on line of transformer if that flow is higher than the capacity of the line and just call that an overload called thermal overload. So our analysis shows that we're 75 miles of overloaded transmission lines, actually exceeded the capacity at like 2043 under the policy/Vermont Roadmap scenario. 19 transformers are overloaded. Our substations are the orange dots, also the lines are in blue.

Public Member:
With overloaded transformers. Is that under the VELCO to make those improvements or is it going to be done by the distribution utilities.

Hantz Presume:
It's VELCO.

Shana Louiselle:
And there, there are likely other upgrades that we have to happen on the distribution system, but that's not this process.

Public Member:
OK. Are those like distribution substation transformers or those like sub transmission or other transmission?

Hantz Presume:
(Inaudible). That's it's that connection that's overloaded here.

So one challenge in providing information, very typical analysis, to be able to convey any information in a way that's understandable. Like anyone, anybody can walk in there and understand what we're talking about. So the way we did this, we divided the system to five different areas of concern and decided to, I looked at our map and I started to draw that sort of to explain what you were seeing. In this particular slide, we show you Northern Vermont area concern and its limited by the dashed line that so anything that's north of that line is the model here.

And all of our system concerns are due to N-1-1 outages and two outages at the same time, test one, only one outage that system something lost. And so this is a case for thermal overloads where the lines are exceeding and we're also seeing voltage collapses which is a black out. So it's very concerning and the way we learn to address that is to build a second line to our Willison substation, so that resolves the issue. The timing of that is 2032 based on winter forecast, but there's a non-transmission option. Non-transmission option is we reduce the amount of load, it's in this small area of 75 MW by 2033. And so the load is going to continue to grow. So as the load grows, we will have to continue to reduce load to maintain reliability. So it's not a constant number and it just grows with time.

Public Member:
I have a question, I'm not sure if I'm going to phrase it correctly. But like, so where does storage go? I know storage has mentioned like almost 100 times throughout the report as like a possible thing that can be plugged in, would 75 megawatts of storage be a non-transmission alternative?

Hantz Presume:
Yes. You think that reduced demand that the transmission, energy efficiency, load shedding, demand response, or storage discharging would reduce the load. Any flexible loads that EVs are flexible, you say don't charge between 6 and 9pm, charge instead different time and so it reduces the load.

Public Member:
So OK, I have a question. So when you say 75 megawatts of load reduction, when you do that analysis, is that assumed like proportionally in at each substation or like if you had a disproportionate amount of load reduction in some areas versus others, would you still have issues? Do you do that kind of analysis or not?

Hantz Presume:
We do that. You're going to be doing a NTA analysis and as part of the analysis, you have to figure out where, where does it make sense to reduce that load? There's areas that are more affected than others. In this particular area, I'll tell you that if you reduce load near the Burlington area, Colchester, Georgia it's more effective if you reduce load in Saint Johnsbury and you go up to east Side. It just that the same like… so 75… just so simple analysis, not knowing how this will be implemented, you know, through detailed analysis. It's, we sit down with a lot of folks, we understand it's feasible, what's costly and not costly. It's really, at this point, it doesn't make sense to do this kind of detail analysis. If you count effectiveness of load reduction, it depends on the location…

Public Member:
So you're waiting on analysis from the distribution utility and stuff to say too like what is possible, what is possible.

Hantz Presume:
Yes, what is possible.

Public Member:
So as part of the non-transmission analysis that's coming because I also noted that in the plan, it said that it was not part of the scope of this plan to come up with that locational analysis. Where will that be part of the non-transmission analysis that's coming?

Hantz Presume:
Yes. Another area that I just a little south of here is a Northwest Vermont area, that area concludes (inaudible) but it's everything north of that line, which also includes northern, so I think of all the, the prior slide sort of the bull's eye, the other areas are all around that. So it does include all the area. It is very, very similar. And then all of the areas have contingencies, there's overloads, (inaudible). That's timing of this issue is a little earlier. And in the summer, the NTA is to reduce the load about 80 MW, you know, does these areas overlap? So you reduce 75 megawatts in Northern Vermont. You need only five megawatts to reduce to make up 80 megawatts. That's, that's another reason why we presented it that way just to see, you know, it inter interact or you sure…

Public Member:
Hantz, the timing of the northwest concerns before the timing of the northern concern. So does that mean it, we would have to have 80 megawatts of load production for this portion first?

Hantz Presume:
Start reducing earlier. We're providing a number of 2033. So we keep everything above the line. So, you know, 75 megawatts for northern Vermont, another 80 megawatts for northwest. But it, it, it's a load reduction done earlier in 2033, you start the process. So you can have a bit of different rate. Well, it's like not compared to start earlier and use more annually up in this area. And that's why the NTA analysis is going to be (inaudible). You got to look at all locational issues, coordination. Let's get some of the best, best bang for the buck, you spend a dollar to lose load when it's much better for that dollar. (Inaudible)

So, ok, so further south it was everything north of that. It's similar to Northwest contingency overloading the lines (inaudible) this issue is found in 2034. If you keep the load in 2033 low, manage that load to remain below the time to explore that (inaudible).

Southern Vermont, this is also a thermal issue. The lines that overload are not VELCO lines, they are our National Grid lines, neighbors in New Hampshire, but we're all connected system. Serving parts of Vermont and so their facilities (inaudible).

This is all of Vermont. You see that the dash line through parts of New Hampshire because we're interconnected. The issues we're finding here involve Eversource lines, VELCO lines. In fact, the line we're proposing as a solution, Vernon substation, the line in orange. So it's another half, the second half. We kind of do (inaudible) part of that line is on the block load. So a little bit, it's maybe a tenth of a mile, (inaudible).

In the long-range plan we provided this table, which summarizes the results. Each area concern is described. We provide the cost estimate in the second column. The first cost number is associated with the line upgrade and the second number is associated with the transformer upgrade. The third column shows all of these transmission concerns screen in for a detailed NTA analysis, which will be performed by the distribution utilities. Green Mountain Power was identified as the lead utility, which will manage the study, and all the utilities are affected and will participate in the NTA study.

And now, we will go over the solar PV hosting analysis. Based on the historical data, we were able to determine the growth pattern for distributed generation. These heat maps show that distributed generation growth is highest in population centers. We used this historical growth pattern to test higher levels of DG.

The results showed several transmission constraints at the 1300 MW DG level. This map shows transmission line overloads in orange and transformer overloads in blue. The overloaded lines are located on the western side of the state from Highgate to Rutland and Cavendish. Ten transformer overloads were also identified.

Public Member:
Can I ask you just, can you without the labels, it's hard to tell which of the substations in the center there? That are those? Yeah. Is that, is that that Berlin sort of Berlin?

Hantz Presume:
Yeah, that's Berlin.

Public Member:
So I just want to, yeah, so we're, we're concerned in this, right, in this figure like we have the three out of 10. But we, I, I guess I'm trying to connect this to the areas of concern and maybe that's a problem. Maybe I can't be connect to them at all. But is there any planned work to help support the towns there to still meet their energy goals and to draw down the investment that DG provides, especially in terms of reliability at the smaller community.

Hantz Presume:
(Inaudible) increase the size of transformers to VELCO work plan. Usually it's set, see if there's a transmission failure that would give us the extreme, knowing how to manage this issue. So should we buy a similar transformer the same size or should we buy something bigger knowing that the load that exists? So it gives you the opportunity if, if everything's running fine, we're not going to replace the transformer, it's functioning for what we need today. (Inaudible)

Public Member:
In the heat maps, one of the regions that we're probably not at least some of those gaps, the places that aren't is because there are already moratoriums at the distribution level of additional interconnection. And so that does prevent that is towns are facing issues with that interconnection, right? Yeah. And, in terms of being, you know, of helping energy infrastructure to, to build their communities. And so I just want to connect land use… and of course, we're looking at energy, we're also looking at what like one of the physical pieces that underpin social infrastructure and business and, and all the other pieces. And so I just, I'm curious if in the future there might be room for back in the sort of in the load growth portion of the forecasting to just think about or maybe touch base with planning bodies around where targeted growth areas are. And see which may or may not. I mean, that can influence planning both ways, right? You know, maybe that means you just say, hey, we want more growth here and there's not enough energy infrastructure that like what does that look like and vice versa? Hey, maybe don't emphasize that area so much because we are not going to get there anytime soon, right? I mean, I think it goes both ways and I, I've massively simplifying things but, you know, we are experiencing a lot of outages in our region and again, that's mostly on at the DU scale, but I know it's not again blurring our, our scales here. But I, yeah, I'm curious about, about the, the interconnection between the two. Yes.

Hantz Presume:
Right. Yeah, definitely. I heard this also. (Inaudible) distribution substation have a certain capacity ….

Public Member:
I brought that word from them.

Hantz Presume:
Yeah, effectively. So, and I think I have a map here. It shows for GMP serves this area, you'll see what feeders, what capacity… (inaudible).

Public Member:
There is a scenario where exporting energy becomes a management strategy like we said, oh, I know Vermont and Vermont is not historically an exporter of energy, but I just tell you that like the possibility…

Hantz Presume:
That's possible exporting something yes of course, that also means that it should go to transmission system. So if you have excess generation, it forces the power and its power from the distribution system up. So the power goes to the transmission system and is going to flow out to New York, Massachusetts, get up to the transmission system.

Tom Dunn:
So certainly one is ISO-NE has done some of their work with New England in the future. These shoulder months, the ones that we're concerned about. Same dynamic is going to happen in New England that is more renewable energy is going to be produced than is needed to meet the demand. So the, the question becomes, what do you do? Do you curtail renewables? People are looking at transmission projects that are bidirectional back in…

Hantz Presume:
Yeah, that's the other. (Inaudible). OK. A yeah, what it's important, you know, it's just, it's too much.

Public Member:
These studies were done assuming imports from all of our neighbors? So the overload in the lines that you're seeing are power flowing from one community to, to another because of (inaudible)...

Tom Dunn:
So it's really hard because we made that's a pretty implausible case cause you're assuming loads and max production generators are running and if you look at the economics and there's going to be a market running like what we're seeing now more and more is Highgate converter, that it's the line that comes in from Canada over 200 megawatts, oftentimes during the day, on a sunny day it's turning, it's being turned off because of the power being produced in Vermont. It's cheaper, more cost to bring the power through the converter. That's, I mean, that's just the market response of the data.

Hantz Presume:
Yeah. And, (inaudible). Well, they're going to have three – one in Vermont, one in Massachusetts… and to be able to sell power they have to be able to decide…sell to Massachusetts today instead of Vermont. So, you can take power from Vermont and push it to Massachusetts.

So the last piece of this this is really load control and its critical. It's, I think that's one of the ways we're going to be able to meet our goals is to be able to manage load and manage generation…. So we're looking at the peak load issues. Driven by electric vehicles, heat pumps…then we'll be able to grasp the reliability concern that we're talking about (inaudible) load. By about 440 megawatts in winter, and 400 in summer. There's storage's ability (inaudible). Yes.

Next slide. So the generation, (inaudible) there's certainly a lot of… so the line is 50 miles, be able to manage more than 480 megawatts that addresses the concerns of excess generation. All these various ways you can do this. Another non-transmission alternative to do this is to install solar PV in a way that matches capacity. That's not the way it's being done today. But who decides where to install solar PV so that you avoid some constraints and you will use this pattern, install more solar PV in the south, and (inaudible). That's all that means they also provide also this table regional planning conditions and there certain targets and like (inaudible)I to be able to compare that also to be the problem, geographical distribution, you'll be able to add about 1050 megawatts. And that's lower than with the various planning commissions (inaudible). So just so if you want to go off to that level, you have to figure out a different way, storage and other things that you able to do. So I would say all of this….

Public Member:
No, I was just going say the regional targets come from breaking out the state targets in a pretty simplified way. And then we work with our towns to try to break that further down to town targets. So one of the

reasons you know that towns read the plan or they want to see something about them is that they, they've been handed this target. And they're like, well, can we even do this? And then oftentimes they look and at, at IRP they don't, I look at IRP, I also look at the plan. That's all they do. And then they say, well, we can't even come close to it. So it is this complex area and so really trying to help them do what's best for them and they're interested in local reliability and they're interested in supporting a, for community and they're interested in reducing greenhouse emission. But most of all just keeping the lights on. you know, and so I think, yeah, I think again, I, I understand that we're talking at a really high scale here but the more that we can connect the like awareness between the different scales, the better because then we won't plan for something that isn't possible. But we'll also encourage things that, you know, support our communities as well, really helps them.

Public Member:
But you know, but we all, we all set these targets high all for some reason. But part of it is how much we, we say is going become a part of the state. There's, we can toggle that. And then part of that is also based on I guess, provide, providing our town with some leverage for interacting with DUs around projects that are a lot of time.

Hantz Presume:
You know, our plan is, is it's an opportunity for us to have a conversation with others. And we're, we're talking about coordination, what's happening locally. That conversation would happen if young folks here presenting these results. I think this it's a starting conversation between Vermonters and we're providing information on our transmission system. This is our area of expertise. So it's a piece of information that we do a lot, a lot of different things. And this year we say this is a call to action because we're seeing this call, right? We got to be able to achieve our goals. Whether that's electrifying transportation, heating or keep increasing the renewable energy in a way that we want to collaborate in labor to consider all various things starts to or that both and to work together to figure it out various things. Transmission is going to be this it's tom for power for my neighbors to serve a lot or export power excess energy. We are going to export that out to New York and oh, and have you found in our analysis, we can address the loadshedding issues with the non-transmission alternatives. You are required to perform a detailed analysis to accept the viability of the solutions that cost effectiveness in the next couple of years so that we can then include that information at the next moment you plan. So we still have a lot of work to do next, next few years.

Shana Louiselle:
So that concludes the technical piece of the presentation. And then really next steps as we talked about in this public outreach phase, and there's a number of ways to submit comments. You may have heard that this meeting is being recorded and there are comments have been so grateful for the great questions and, and those comments. And there are other ways too to be able to submit your comments. You have the website which you may or may not have used to sign up for this meeting. There is a comment form Hantz and I are available. You could email us call us if you have any further questions. If you wanted to submit specific comments. We'll take those comments and include those in the final draft that get submitted to the Public utility commission and then becomes the de facto long-range transmission plan until 2027.
So it's worthwhile. So if you do have something that you want included in, in that public input section to send your comments our way. That's it that, there's an agenda that has all that information right there or contact information in ways to provide input. It's a hefty 80 page plan. The Public Utility Commission sent a, a memorandum asking VELCO to include some very specific things into the plan. Which we, the great thing is we were already doing it. We just needed the push to name it. So, you know, that's what we did and and now we have sections on, on extreme weather, which we had already done in the past plans, the Environmental justice Act and how that builds into our work, right? Right-sizing, optimizing our existing assets. And micro grids and a few other topics which all now have categories in our plan.

Tom Dunn:
So you mentioned climate change to. I think there that was one.

Shana Louiselle:
Yes, you're right. There were six or seven items.

Public Member:
I just had a question. Sorry, I don't, I mean, we know and I think I brought this up before but I'm just curious if and in terms of especially the solar PV portion of this if you are, let's say perhaps, yeah, I'm saying bold enough, but if you're going to be making a recommendation around diversifying the in-state generation types because I mean for, for example, so Vermont is one third of our generation is hydro. The number of projects of course, is extremely different, right? We have like over 2000 projects, most of those are solar PV. But I feel like because the, you know, the actual amount of energy, one third of it is hydro, but as we know, the permitting is arduous of our cost is, but if those are the types of things that we should be advocating for at a regional level because of this, the, the scenarios of solar, like that is something that I think we, I don't want to speak for all that because I don't know, but I think they would be interested in knowing or, you know, because like we can adjust or we, you know, I mean, I think having this conversation with the community but also that other thing, but I think our things that we are trying to talk about constantly all the time. And so if there is just, you know, the repeated those repeated things throughout formal plans like this, it's helpful to us, but also helpful to know if that's not the direction you should be going. I don't know, just things like that and waste heat recovery is something that we're thinking a lot about geothermal something we're thinking a lot about just how are we going to reduce, especially in our thermal sector. Are the load that we are shoving over to? Yeah, you know, the electric sector so that electrification can go faster. And so those kinds of things, that's where, you know, they're often expensive. They're not super common yet. But I mean, if they're trying to intrude for the most part, but I mean, those are the things that would be Yeah, some shout out souvenir, I think if they're, you know, if they're relevant just, you know, I mean, they will a affect load, right. So especially, you know, we, you know, we have advancement (inaudible) targets that our rhythm. So we're not, we don't have the same targets for heat pumps, you know, that we do have some, but we get combination with, with (inaudible) especially just because that's what our homes are operated for and, and that's also where the fuel systems comes in. We have a lot of (inaudible) for example. So like I think there are things like that. That would be interesting. Again, I know these are really small level things but I think the impact, I think they hold true in a lot of that part of the States. And then, so the impact of seeing them certainly mentioned would be great. And then doing that as a as a narrative versus actually the analysis, obviously several different things. But I'm also very curious like your DG data. So I've had a hard time getting good DG data that's like on the list.

Hantz Presume:
Yeah, for DG data, we have very similar issues. We are able to get the information we need from the Public Service Department. Yeah, and each of the utilities. At ISO-New England there is a survey (inaudible).

Public Member:
I'd love to compare. I did find some issues that we did readily but there were some pretty big assumptions just because they're very regular reading time mostly. But there's a difference between most of the stuff being ascribed to very city that's actually Barre town, for example, which might not matter your scale that matters with our family. So, yeah, just curious and that and obvious, I think our regions are different. So that may matter if it's done across a region, I mean, maybe not enough to matter to you all.

Hantz Presume:
It's why. So each project did it, it's kind of what we need to do is to take this project and connect it somewhere on the network. Yeah, it’s that connection is important, right?

Public Member:
OK. Yeah. So it's not where it's where its connection … that makes sense.

Hantz Presume
OK. One second.

Public Member:
So that's just some related to storage again. So which is how I ended up here. So obviously Encore Energy full disclosure, we develop energy storage projects and we have been looking at VELCO forecasts saying Vermont needs more storage and like faster than how it's being developed thus far. And the constraints that are like keeping us from developing it faster is some of it you guys identified in this plan is that costs are not like it's not like clear. The value stack of storage isn’t fully mid monetized in a way that makes sense. And so, you know, it's not like your key takeaway that like innovation and collaboration is something where we need to do

related to storage. I think there's mention of like policies as an opportunity. I appreciate the diplomatic language in here where you say that Vermont may or may not accept established an energy storage target. I can tell you as for two legislative sessions in a row now being unsuccessful in establishing an energy… I think, Vermont may not establish an energy storage target. So I'm just sort of interested in like what we need to do because so we met with the distributed utilities this session to create like an incentive to help like kind of tip the market a little bit. So to counter that fact that storage isn't accurately valued, like let's give it the value. And the utilities sort of said we feel great about what we're getting payed for what and we're doing like, we don't need more value. I mean, they would take it obviously, but they weren't going to advocate it for it. The department DPS was like, we don't, why do we need more storage? What's the problem we're developing storage? It's happening. And so I I'm just, I'm sort of at a loss of like how to like, like make what like policy makes sense for Vermont to help, you know, like, because it's going to, it, it is clearly going to be a critical part, right? And so I get that hesitation to say exactly how much of that part, right? Because again, it depends on where it's located, but to date, we're just not doing it fast enough. So like, how do we, how do we create a market for energy storage here that matches like what we're seeing down the road? Does that question makes sense? And I would love to like brainstorm, you know, I like so if you want to call Kerrick about that and so like, because I do think there could be a policy solution and maybe it's not what other states are doing, other states are setting targets, other states are maybe setting goals that are like non enforceable targets like that was also very toxic we suggested that as a solution. So I don't know what it is and like maybe it is this NTA analysis that you're doing that's going to show where it should go that, that maybe create a map that we use a different word that target. But it just feels like storage needs to be in the plan.

Tom Dunn:
The last plan have is projected large amounts of DG being deployed around the system on the solution, we back to what how much storage are we going to need offset facts to offset the effects from the DG being deployed. And then maybe we stop there. We see what's needed. I think the question is, how do you know, how do you make the economic case, the policy case?

Public Member:
So if there's financial analysis that's going to come in in this NTA like I could see if you can actually put a private dollar amount that like putting 70 megawatts of storage or 80. I don't know what the number was, but if you put 80 megawatts, you're actually saving, I'm missing billions of dollars, then that storage has a value, right? But currently it's just hypothetic. The only value it's getting right now is peak shaving, right? I'm glad that value something like it does more than just save our peak you know. Oh, the transmission solution and, and then the utilities are telling us, well, we're already required to do a least costs energy plan in their IRP. But again, storage is not valued. How do you have a least cost plan? It's like telling you like, well, we don't know how much the filet costs tonight. It could be like least cost but eat it anyways, right? And so it's like you can't have a least cost plan without like at your value of the different pieces that are going into it. And currently storage isn't valued, I would say for sport is not very accurate, which is a problem, not just in Vermont, it's everywhere. And so, but in a lot of states, they've come up with legislative solutions like New York has their energy storage. Like they basically have energy storage credits now. Like the same as RECs which I'm not advocating that we should do. In Vermont, it's very complicated. But there are some policy solutions, it just seems like the important players to move a policy solution forward, namely TJ at DPS, which I'll say on the record, I guess it to be recorded. And then like the utilities don't see there being, they don't feel like there's a problem that needs to be solved. And it's like, clearly there's a problem that needs to be solved.

Tom Dunn:
Well, again, this is, you know, if you look at the severe case, there may be, also may not be. To try to justify the storage based on the planning world is, is, is a bit of a challenge, I think. Right.

Public Member:
Well, then the interesting thing it was pilots, you know, assuming they own sword only makes money if the load materializes, right? Like, so if you use the bat, you have to use the battery, right? So I know there are instances in Maine where like a pilot has been put, they never, they didn't discharge it enough. And so the battery was decommissioned, which is maybe not what that they may want to happen. But like, so storage only makes money when it's being used. So I would love to, I would love to figure out the way to have this conversation …

Tom Dunn:
Connecting back up with Kerrick who is a good idea.

Public Member:
He's very excited about the NTA. Bill from our team who I met with a couple of times. Also very excited about the NTA. The two of them got together to talk about it. They'd probably generate enough energy that we.

Tom Dunn:
Excellent.

Public Member:
Well, thank you again, really appreciate You all coming out tonight and spending some time with us and I hope you stick around and grab some food and cookies and brownies are here... And if you have again, any questions after tonight, we're available, we're here to talk.

Public Member:
So and then if so to submit comments is the goal to have them all submitted by the 15th when someone were to submit comments?

Shana Louiselle:
By the end of May. Yeah, the 15th will be our last meeting at the public meeting, but comments we're keeping those open till the end of May and then taking those first two weeks in June to compile, get them all together to be put into the final draft.

Public Member:
I love your guys report. So thank you. We'll see you.

Public Member:
Thank you.

Tom Dunn:
Right. Thank you very much for coming out tonight. Yes, I am. Thanks for joining us.