

Minutes

SB 383 North Country Transmission Meeting

August 21, 2008

The meeting began at 10:09 A.M. on August 21, 2008 and concluded at 12:03 P.M.

Members in Attendance: Representative William J. Remick, Frederick W. King, Kate Peters of Office of the Governor, William Sherry of National Grid, Sandi Hennequin of Constellation New Energy, Chris Sherman of New England Power Generators Association, Michael Brunetti of Mount Washington Resort Development Office, Louis Bravakis of Laidlaw Energy Group, Doug Patch, Esq. of Orr & Reno representing Noble Power, Bill Gabler of Clean Power Development, Tom Colgan, Wagner Forest Management, Stephen P. Barba of Plymouth State University, Palmer Lewis, Colebrook Appointed Citizen, Joseph Staszowski of Public Service Company of New Hampshire, Michael Vlacich, Director of Economic of Development for DRED, Thomas G. Getz, Chairman of NH Public Utilities Commission, Representative Naida Kaen, Senator Martha Fuller Clark.

Other Speakers: Clifton Below, Commissioner of NH PUC, Michael Harrington, Senior Regulatory Advisor of NH PUC, Thomas Frantz, Director of Electric Division of NH PUC.

Other Attendees: Graham Morrison, Commissioner of NH PUC, Jack Ruderman of NH OEP, Henry Veilleroux, Esq., David Wiesner, Esq., Kristine Kraushaar, Steve Kaminski of NH Electric Co-op, Michael Giamo of ISO-NE, Adam Schmidt for ISO-NE, Heidi Kroll, Esq., Deb Hale of National Grid, Donna Gamache of PSNH, Bruce Berke, Esq. Farrell S. Seiler of Granite State Energy Consultants, Meredith Hatfield, Esq. Consumer Advocate, Joel Anderson of House Staff, Jasen Stock of NH Timberland Owners Association.

Link to Meeting Agenda: [Transmission Meeting Agenda](#)

10:09 A.M.

Martha Fuller Clark: [Welcome Statement] I know that we have a difficult task ahead of us with no easy solution with the issues of expansion of transmission capacity related to the North Country. We must find a solution to the problem in order to effectively promote renewable generation. First task is to develop background from everyone so that we are on a level playing field and then to look at identifying the barriers, where are we along the way? What else needs to be done? And is there anything that we can do legislatively?

There has been of a lot going on at the PUC, a lot going on with working developers, and a lot going on legislatively and if we could put everything all together into the same words so that we have the collective dialogue and shared inclination and use the collective energy and ingenuity and creativity of this group to see if we can get through some of the hindrances and barriers that face Coos County and also try to create new jobs, and unique jobs and economic development, which is an important piece of this. We are happy to answer questions going forward but before we do that, I'd like to go around and have members introduce themselves, and the next job that we have before us is election of chair and vice chair of the Committee. (Members in order listed above introduce themselves)

Thomas Getz: Nominates Senator Martha Fuller Clark as Chair of the Committee. - All Members Concur in Vote.

Martha Fuller Clark: Nominates Representative Naida Kaen as Vice Chair of the Committee. - All Members Concur in Vote.

Thomas Getz: Good Morning. All persons sitting at the table today are members of the Committee, both voting and non-voting members. There is also a 3rd layer of this committee which doesn't necessarily include voting and non-voting members. Members of the PUC are here, electric distribution companies, Consumer Advocate, Meredith Hatfield is here, and generation projects as well. If there is anyone that we are not aware of that should be here, then those people would need to contact the PUC. There is also a contact information form that we are asking that you all fill out and leave on the table.

As for background, there are a variety of economic and environmental forces that have come together to bring us where we are today and that is resulting in substantial interest in developing generation projects in Coos County, and there are a number of events which have occurred over the past couple of years such as Governor Lynch in 2006 announcing a goal of receiving 25% of the state's energy from renewables by 2025. Senator Clark convened the Northern NH

Electricity Transmission Upgrade Working Group because it was recognized early on that there was more interest in projects for development in the North Country than there was transmission capacity to bring all of those projects on line.

The 2007 legislative session led to 2 pieces of legislation, the Renewable Portfolio Standard, codified as RSA 362-F which was passed in 2007 and strongly promotes renewable projects, and SB 140, a precursor to SB 383, which required the PUC to prepare a report describing existing systems and current processes for generation projects to come on-line, including costs of transmission, approaches assumed by other states to encourage transmission expansion, and steps the PUC has taken to advance NH interests with respect to transmission. This report was dated December 2007 and you all have a copy of the front part of the report in front of you. [A full version of the report](#) is available on the PUC website or a hard copy can be requested from the PUC. There are 2 very helpful maps in the front end of the report which are not available on the website because it is technically secure information. We will be going over parts of this report today as we go through the agenda, Mike Harrington from the PUC staff will tell us a little bit about the existing regulatory process and the steps it takes for a transmission project upgrade to occur and Tom Frantz will be talking about what the PUC has been doing in the last year or two. They will be the primary contacts for all generators and transmission companies.

There is a provision of SB 383 which discusses engaging a consultant, and in my opinion, to have a report done by December 1st is a little bit too much of a time squeeze and more importantly, I don't think we need a consultant given the knowledge of the PUC and staff has been working on these issues, so in my opinion, I don't think we need a consultant.

We are required to have at least one meeting per month and the agenda talks about when the meeting scheduled with the Commission will be and if there is a need for additional meeting then we can talk about that. We will also be having meetings with the groups of transmission companies, distribution companies, the Consumer Advocate

and those parties that are listed in the statute in order to try to reach as great a consensus as possible with all parties.

SB 383 also allows for the PUC to come up with recommendations, if necessary, for legislation for the 2009 session and I would really like to highlight that issue to the extent that if there is some possible form of enabling legislation, or any legislation at all, that we think we need in order to achieve our goal, we would like those recommendations to be addressed in the 2009 session.

Joseph Staszowski of PSNH/NU: Good Morning. I would like to give you a quick overview of the electrical system in New England and particularly in northern New Hampshire. Homeland security issues require us to label these maps as CEII - Critical Energy Infrastructure Information, which means that we cannot distribute these maps publicly. From a security perspective, they don't want to focus any attention on weak parts of the electrical system from a terrorist perspective. So that is why this is not publicly available.

This is a diagram of the northern New England transmission system, of VT, NH & ME. The colored lines are the transmission system and the different colors denote different voltages. The higher the voltage, the more power that can be transmitted over the facility as well as the more costly the transmission facilities are. The red lines are the 115 Kv system - where most of the power is transmitted from the generating stations out to the different volt centers. In NH, power is ultimately reduced to lower voltages to go out to customers. The blue lines are the 345 Kv network - a higher voltage level, which is defined as the bulk power transmission system, enables the system to get power from neighboring states and regions when there is a need for that. The orange line is DC transmission where power goes from Quebec down to south of the NH border. There is a small amount of 230 Kv transmission in New England is in between the 115 Kv and the 345 Kv levels. Most is the NGRID network which was built in the 20's to interconnect the hydro in the Littleton area down through NH into MA.

Here is the area in question that we are focusing on - northern NH. As you can see it is a good way away from the bulk 345 Kv area. As for the NH power grid, the bulk of the load is in the southern part of the state, where the bulk of the transmission is. The highest AC voltage level in New England, the 345 Kv, comes in from Maine and goes through Seabrook into Massachusetts and into VT. There are two 230 Kv lines going through the center of the state and then there is a DC line, which gets power from Quebec down to MA. A question that has come up in the past is - can we use this DC line to interconnect power to the NH network? DC lines have some advantages as well as disadvantages. The advantage is that it is a very efficient way to transmit power - DC is like what you get out of a battery, the power stays at a constant level. AC voltage goes up and down; because of that, if you are going to use DC power to run your lights and refrigerators, etc. then you have to convert DC power to AC power. The converter station is extremely expensive. If you try to tap these lines, then we would have to build a converter stations. Right now there is one converter station in MA and three in Quebec. Also, DC lines are very difficult to have tapped. Therefore, this really is not an option (to tap load or inject generation into the DC).

The northern loop consists of the lines between Whitefield, Groveton and the 115 Kv line going over to Dummer to the hydro station and to Berlin and then back over to Whitefield again. The bulk electrical system is designed such that if you have any single event, the load which is remote from that single event will not be impacted. So if lightning hits and trips one line, power can still get around the loop by going the other way. When getting into the requirements of generation and facilities we have to build in northern NH, that becomes a key factor. You cannot add something to the system that degrades other people's electric service (a critical factor in coming up with a solution to this northern NH issue).

At the peak time, there is about 70 mw of peak demand in this area, which is about 3% of NH's peak needs. There is currently about

70 mw of generation being produced in the area. So in a sense, there is enough generation in this area if it were all up and running. No power would need to come from anywhere else. So, we really don't need a lot of transmission, if your concern is providing reliable service through the transmission system.

There are a lot of rules, regulations and requirements in the electric system. One of those requirements is a pecking order for interconnection of generation to the system: who gets to interconnect first, second, third? That is called the interconnection queue. The requirements to get into that queue are to submit a letter to NEPOOL and submit a relatively small deposit. Then the ISO will conduct electric studies to see if the unit as proposed is adequate, and then they have a relatively long period of time (up to 4-6 years) before they must either build or get out of the queue. Right now, there are proposed projects of about 400 mw of generation in the queue in this area. That is over 5 times the amount of load necessary. So if that generation connects to the system, the power is going to have to leave this area and get to the load centers because it's really not needed by the customers in Coos County. The identities of the developers of generation in the queue are kept confidential. The first generator in the queue is a 100 mw wind project in Dummer, NH. The feasibility study said that in order to reliably interconnect this unit, work needs to be done on the entire loop to avoid sagging of the lines. We would need to pull the wires tighter and build a substation to interconnect. Work would also need to be done at the Littleton substation. That work is relatively inexpensive vs. facilities for all 400 MW of generation (based on only the feasibility study) for interconnecting to the system. The next study being done is more technical and the results may require additional equipment to be added in order to interconnect this project.

Since there are 400 mw in the queue, you also need to think about what would be needed after the first 100 mw plant is built

in order to get the additional 300 mw onto the system. The lines are not big enough to carry all of that power. If lightning were to hit that system carrying that load and a line trips, then the conductors on another line carrying all the power could heat up so much that lines would sag close to the ground causing extremely low voltage or "brown outs" or worse. It could also cause damage to electrical equipment. One option (the most likely solution) is to build a higher voltage line from the Littleton area to Dummer with a transformer there. This allows the power to flow to or from the high voltage to the lower voltage, allowing interconnection of the generation. Preliminary work between PSNH & National Grid shows that there may not be a need for other facilities besides reconductoring 115 KV line and voltage devices, but we would need much more detailed studies to confirm that.

Lou Bravakis: Is it a valid argument to say that renewables impact market efficiency?

Michael Harrington: That is a question we are trying to get the ISO to look at right now through an economic study, which Massachusetts doesn't want done because they don't want to know what the results are. Renewables impact the market in many ways. Wind power, for example, is almost always a price taker because there are no costs to fuel - there is no additional cost to produce the power. Because you are adding more to the capacity market, and in the future we probably will not have as much excess capacity, theoretically you could be lowering the price of capacity. There are also Alternative Compliance Payments and the fact that you don't have to deal with RGGI when dealing with renewables.

Tom Frantz: PUC Outreach.

The glossary in the PUC December 2007 transmission will help with some of the terms that have been mentioned. The PUC has held numerous

meetings last year regarding SB 140, both in the North Country and down here. The PUC also continues to speak with developers regarding issues of: Who can build? Who will pay? etc. We have had meetings and conference calls with developers such as Laidlaw, Clean Power Development, Noble, PSNH and National Grid, & utilities as well as others to get information regarding time frames, issues, cost allocation discussions, the California model, etc. Resolving this issue will take work and compromise. We will continue to seek input from everyone until it is completed. Anybody who would like to continue to discuss these issues are urged to call or email the PUC.

Bill Remick: What is the expiration date of the DC line from Quebec?

Tom Frantz: Our contract for energy expired in 2000 so we do not have a firm contract in place now, but Vermont still has a long term contract in place. NH's contract ended when we restructured the industry.

Doug Patch, Esq. for Noble Environmental Power: Noble currently has the first project in the queue - a 99 mw wind project for Coos County. Noble filed comments regarding the issue of who should pay and supports California's ISO model but is willing to work with the PUC and parties involved to get a solution. A solution may be that developers pay a proportionate share going forward and then the gap, modeled under the California program, is covered by ratepayers. Also try to regionalize any costs possible. It is difficult for small projects to pay the entire cost in a constrained area, so it is important to get parties together to try to work something out and there may need to be some sort of contribution by ratepayers, and as we bring on more developers then the costs to ratepayers should be minimized.

Bill Remick: How many ratepayers do we currently have in NH?

Tom Frantz: Approximately 650,000 ratepayers.

Naida Kaen: Is there anything that can be done to reserve this renewable energy produced in New Hampshire or hold it hostage and somehow create a surcharge on other states?

Michael Harrington: What can be done on that is being looked into but no one has come up with a real plan yet. Ratepayers are most likely going to be looking into some sort of *quid pro quo* from the generators so that generators wouldn't buy RECs from New York, for example, but only from New Hampshire. But that has not been specifically addressed.

Fred King: The governor's position for 25% of green power by 2025 has been endorsed and is now a state policy. As a state, we need to figure out where this 25% is coming from. This has become a major political issue - if people are going to be elected on the basis of green power then they need to recognize the related costs and figure out who is going to pay. It is unrealistic to have a goal, given the costs, and we need to decide if this is a good goal or not.

Michael Harrington: Each state has its own policies on this - for example, alternative compliance payments in lieu of paying to develop alternative generation.

Bill Gabler of Clean Power Development: Second project in queue. Two projects in Berlin and Lancaster, originally with 41 mw of net generation, but downsized to 25 mw of generation as a result of the wood availability study, which found that wood resources in Berlin can support only approximately 29 mw of generation. The Berlin project is moving ahead as scheduled.

Lou Bravakis of Laidlaw Energy Group: Third project in the queue, a 60 mw biomass plant in Berlin. Laidlaw currently has financing arranged and are only weeks away from financing the purchase of property and have identified a turbine. The project is expected to be up and running within a couple of years and will mean a lot of development for Berlin; 750,000 tons of wood will be used. Building a biomass

plant in today's market is difficult - there is turmoil in the capital markets and futures markets, the cost of steel is rising, etc. The developers are willing to pay their fair share for transmission upgrades, but placing the burden fully on individual generators would bring many projects to a halt. New England is heavily dependent on natural gas for energy. We need a collaborative effort and realistic approach to carry the burden of the transmission highway if we are to bring renewables to the North Country.

Tom Colgan of Wagner Forest Management: Tillotson Corporation/Balsams - a 24 mw project which should be interconnected by 2010. The project is not listed in the queue because ISO said the project was small enough to not be listed. They are currently working with PSNH and hope to be up and running soon. As a large landowner in Coos County, Wagner plans to install towers to measure the potential of remaining windy sites in the area.

Michael Vlacich: Has any analysis been done such as an economic impact or job creation study?

Clean Power Development: Estimated approximately 3-5 jobs per megawatt of generation.

Laidlaw: Plan to hire approximately 30-40 workers and millions of dollars in purchases. The project will be one of the largest taxpayers in Berlin.

Kate Peters: The economic studies done in the RPS process would be helpful to look at.

Michael Vlacich: It would be helpful to have information from projects regarding potential revenues, jobs, taxes, potential state revenues, investments for the state and communities or any other important information.

Clean Power Development: For consistency, could you send a list of all of the information that you would like and the projects could all fill them out?

Clifton Below: Regional Efforts. There are 4 groups that the PUC has been actively involved with in regard to transmission issues - NECPUC, ISO-NE, the New England Governors' Conference, and Northeast International Committee on Energy (which includes the New England governors and Eastern Canadian premiers). For the benefit of members, Commissioner Below handed out and reviewed a packet of material consisting of the following documents:

- 1) Presentation of Gordon Van Welie, Head of ISO-NE, evaluating the economics of additional transmission expansion. This provides a good context regarding regional and national transmission and deals with transmission cost allocation and renewable resources.
- 2) PowerPoint presentation of Bob Ethier of ISO-NE, providing an overview of Attachments N & K of the Open Access Transmission Tariff (OATT), which are basically the FERC rules that ISO-NE operates under with regard to transmission.
- 3) NECPUC Economic Study proposals dealing with study parameters, cost recovery methods, scope of work, background information and reliability and economic value of North Country transmission interconnections.
- 4) New England Governors and Eastern Canadian Premiers (NEG-ECP) 2008 energy dialogue and power point presentation which provides insight into power trade issues, long term contracts, opportunities and barriers of transmission and long term contracts, policies and mechanisms and recommendations for the future.
- 5) PowerPoint presentation of Paul J. Hibbard, Chairman of the Massachusetts PUC, dealing with new power source issues, market

resource needs, forward capacity market, price formation and implications, as well as environmental issues.

6) Set of six pieces of correspondence and memoranda to and from the Economic Studies Working Group intended to establish guidelines for the evaluation of benefits and costs of potential market efficiency transmission upgrades under Attachments N and K of OATT.

This packet can be viewed on the PUC website:

<http://www.puc.nh.gov/Electric/SB383/082108Meeting/Regional%20Developments.pdf>

Kate Peters: The Governor has had a lot of back-and-forth with the other states in our region. There has been a lot of discussion between Governor Lynch and other state Governors regarding interstate disagreements; additional discussions will continue until resolution is reached. The next meeting with the Governors will be held in September.

ENDING NOTES

Next Meeting scheduled for September 29, 2008. Monthly meetings will be held on the last Monday of every month. For questions and additional information, please contact Michael Harrington (Michael.harrington@puc.nh.gov) or Tom Frantz (Tom.Frantz@puc.nh.gov) at the PUC. For copies of materials discussed at the meeting please visit the PUC website at www.puc.nh.gov/Electric/electric.htm or contact the PUC Legal Assistant, Jennifer Ducharme at Jennifer.ducharme@puc.nh.gov.

Ended at 12:03 P.M.