June 2, 2015

Mr. Alexander Speidel
Staff Attorney Hearings Examiner
Public Utilities Commission
21 S. Fruit St., Suite 10
Concord, N.H. 03301 -2429

Dear Mr. Speidel,

In response to your letter of May 14, 2015 to Ms. Debra A. Howland, Executive Director, New Hampshire Public Utilities Commission inviting stakeholders to submit comments to the Investigation into Potential Approaches to Mitigate Wholesale Electricity Prices, Anbaric is pleased to submit the following responses to the questions contained in your May 14 letter.

To provide context for our submission, Anbaric is an independent transmission development company headquartered in Wakefield, Massachusetts. We have been part of enterprises that have successfully developed two 660MW HVDC underground electric transmission projects between PJM (the power market of the mid-Atlantic states) and New York (see www.NeptuneRTS.com, and www.HudsonProject.com).

In 2014, Anbaric teamed up with National Grid to create the "Green Line Infrastructure Alliance" (GLIA) which proposes to build an underground clean energy transmission system sufficient to bring 2,800MW of REC-eligible wind, "firmed up" by hydropower, into southern New England (see www.GreenLineInfrastructureAlliance.com).

The GLIA projects are slated (if selected in forthcoming competitive procurements) to come on-line as follows: the first 400MW phase of the Vermont Green Line (2019); the first 1000MW phase of the Maine Green Line (2021); the second 400MW phase of the Vermont Green Line (2023); the second 1000MW phase of the Maine Green Line (2025).

Each of these projects has been engineered to provide a transmission path for wind and hydro into the bulk transmission system of New England: the Vermont projects terminate at the 345kV bus at New Haven, VT; the first Maine Green Line will terminate at the 345kV bus at Wakefield, MA.

Our Vermont project is in the ISO-NE queue and both projects are being proposed by Anbaric and National Grid, companies who have the experience, the capital, and the commitment to New England to resolve, not only the electricity price spikes of the winters of 2013/14 and 2014/15, but also the problems of ever-increasing dependence on natural gas as a power fuel, and the looming shortages of clean energy resources.

We have briefed the office of Governor Maggie Hassan on our projects, and would be happy to provide a briefing to the Commission at your convenience.

1. Identification of the root cause of the high winter wholesale and/or retail electricity prices.

As was discussed at the Governors' meeting regarding the region's energy crisis last April 23rd in Hartford, energy consultant Richard Levitan argued that the root cause of the high winter electric prices was supply and demand conditions in the natural gas commodity market and the adequacy of its infrastructure. Gas prices are volatile not only endogenously (as a result of changes in supply and demand within the overall commodity market for gas), but also as a result of transportation constraints. New England is at the proverbial end of the pipeline, and in a severe winter the rather limited surge capacity of the region's gas supply is inadequate to meet the simultaneous surge in demand from both households and from a New England electric power system that is ever more dependent on natural gas.

The solution can be found not only in adding gas capacity (via increased pipeline deliverability and/or by firming up LNG supply sources), but also in decreasing demand for gas-fired electricity and increasing the diversity of the region's energy portfolio. The 2,800 MW proposed by GLIA will take a substantial amount of pressure off the New England gas supply.

Additionally, the region is committed to reducing greenhouse gas emissions by transitioning from fossil fuels to clean energy. New England's wind resources when combined with Eastern Canada's hydroelectric resources offer an economical path forward. The very nature of those resources matched with the different seasonal demands of Canada and New England make such a combination even more attractive.

It is particularly noteworthy that New England and New York on-shore wind is strongest in the winter, when the gas supply situation tends to be tightest. Canadian hydropower is of limited help on cold winter days, since eastern Canada is a winter peaking system driven by electric heating demand, yet during intense cold periods when outdoor temperatures are 20 degrees and wind chill drives the temperature down to 10 degree below zero, the wind also drives wind turbines that produce energy to reduce the demand for natural gas fired generation. Conversely, on hazy, hot and humid summer days with little wind blowing, excess hydroelectric power from Canada is available to meet New England's peak demand thus reducing gas powered generation

2. How the preferred solution results in lower wholesale and/or retail electricity prices for New Hampshire consumers. For example, if the preferred solution requires one or more New Hampshire EDCs to purchase firm pipeline capacity, explain in detail how that purchase translates into lower Load Marginal Prices (LMPs) for wholesale electricity customers and eventually lower electric energy rates for retail customers. Identify all steps in the process and specify all assumptions.

The GLIA projects will bring up to 2800 MW of wind into the New England system. 2800 MW of transmission capacity could deliver 8 TWH/yr of wind and 16 TWH of hydro. Wind energy is known as a "zero bid" resource: once built, wind has no fuel cost, thus wind owners bid "zero" into the ISO-NE competitive energy auction. As a result their presence in the market results in lower energy prices.

The effect of hydro energy imports on the price of energy in New England depends on the commercial terms of those imports. Based on the history of the Northern Pass project, the power may be priced at market rates (if there is no long-term contract), or it may be priced at a fixed level or an index level (if the power is subject to a long-term contract).

3. Whether the preferred solution is part of a regional solution to reduce wholesale electricity prices. If so, describe the regional solution and specify all approvals needed to ensure such solution moves forward.

GLIA's projects have been conceived and designed to participate in regional procurement opportunities stemming from what has been an ongoing effort by the New England States Committee on Electricity (NESCOE) to develop a regionally based competitive procurement of clean energy and the infrastructure necessary to deliver it. We see the current Three State Request for Proposals as a necessary first step of regional activity. This current solicitation, scheduled for release in June of 2015, seeks 400 megawatts of clean energy. The request dovetails nicely with GLIA's Vermont Green Line.

Significant reduction and/or stabilization of wholesale electric prices cannot occur, however, until the region creates significant opportunities for private investment in infrastructure. Connecticut and Massachusetts both have legislation pending that would authorize both states to procure larger amounts of clean energy and to participate in additional and larger regional procurement processes. Rhode Island and Maine currently have the authority to work with other states while New Hampshire, through this and other processes, also appears ready to participate.

Simply put, on the supply side, any legitimate attempt to address wholesale electric prices is best accomplished by a regional approach. Each of our states has clean energy goals, each is tending towards an over dependence on gas and each are held hostage by the region's inadequate investment in infrastructure.

Meeting Renewable Portfolio Standards (RPS) and a reduction of greenhouse gas emissions cannot happen without new transmission capacity. "Dual purpose transmission", transmission projects that can carry wind and hydro would be the most economical and efficient approach to bringing these much-needed resources online. New Hampshire ratepayers need not pay for sole source transmission.

A consistent regionally organized system of investment in infrastructure as well as energy procurement offers an economical path forward for more stable pricing and transition to clean energy.

4. For pipeline-based solutions, specify the firm pipeline capacity in Dth/day to be purchased by each EDC, the associated annual cost and the contract term, identify the pipeline project to which the estimated annual cost relates, provide the estimated benefit-cost ratio for such project and the projected reduction in wholesale and/or retail electricity prices.

Not relevant to our submission.

5. For LNG-based solutions, describe the product/service offered, specify the quantity to be purchased by each EDC, the associated annual cost and the contract term, identify the storage facilities underlying the LNG product/service and their location(s), and provide the estimated benefit-cost ratio for such solution and the projected reduction in wholesale and/or retail electricity prices.

Not relevant to our submission.

6. For energy efficiency-based solutions, provide the incremental winter kWh savings projection for each EDC for the ten year period beginning 2018 and the associated annual costs, identify the energy efficiency measures underlying the winter period kWh savings and related lifetime benefit-cost ratios and the projected reduction in wholesale and/or retail electricity prices.

Not relevant to our submission.

7. Whether the preferred solution will enhance reliability of the electric power system in New Hampshire and the region. If so, explain how the preferred solution enhances reliability.

The Green Line projects will utilize unrivalled efficiency and controllability, security, and black-start Voltage Source Conversion (VSC) technology to the New England region.

The technology allows fully independent control of both the active and the reactive power flow within the operating range of the VSC system. The active power can be continuously controlled from full power export to full power import. Additionally the converter stations can be set to generate reactive power and to maintain a desired voltage level in the connected AC network.

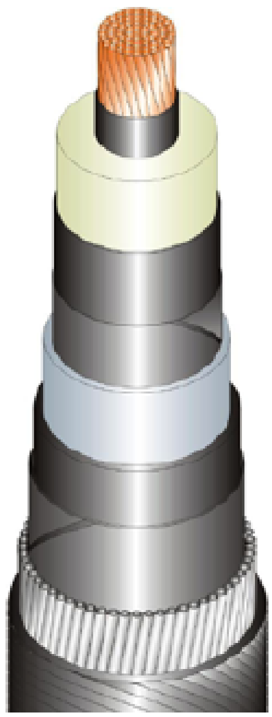
Limiting factors for power transfer in the transmission grid also include voltage stability. If such grid conditions occur where the grid is exposed to an imminent voltage collapse, HVDC-VSC can support the grid with the necessary reactive power. Unlike HVDC Classic converters, the HVDC-VSC systems GLIA intends to deploy in our projects can operate at very low power, or even zero power. The active and reactive powers are controlled independently and at zero active power the full range of reactive power can be utilized. In this way the HVDC-VSC converter can operate as a Static VAr Compensator (SVC).

Black Start Capability

HVDC-VSC can aid grid restoration in the event of power disruptions, when voltage and frequency support are much needed. In the event of a voltage collapse or black-out, the HVDC-VSC converter can instantaneously switch over to its own internal voltage and frequency reference and disconnect itself from the grid. The converter can then operate as an idling “static” generator, ready to be connected to a “black” network to provide the first electricity to important loads. The only precondition is that the converter at the other end of the DC cable is unaffected by the black-out. During the August 2003 blackout in the Northeastern U.S, the Cross Sound Cable linking Connecticut and Long Island offered power transfer and voltage control during the restoration.

HVDC Light Converter Stations and Cable Design

The HVDC-VSC converter stations contain second-to-none reliability and efficiency technology as well as small f footprint and unobtrusive operations. HVDC-VSC converter stations are compact; need little space and blend into the local natural and human environment. Much of the equipment is installed in enclosures at the factory, which minimizes construction and testing time. The stations are designed to operate virtually maintenance free with operation either carried out remotely or even partly automated.



The HVDC Light Cable

The HVDC Light power cable is a polymer insulated, extruded cable, specifically adapted for direct current. It contains no insulating or cooling fluids and its strength and flexibility makes it well suited for severe installation conditions as an underground land and a submarine cable. The two HVDC Light power cables crossing under the Raritan River and outer New York Bay and Atlantic Ocean making land fall at Long Island's Jones Beach will be laid bundled together to minimize the impact on the sea bottom. The cables are to be buried up to six feet into the sea floor to give protection against fishing gear and ship anchors. The jet-plow uses jets of water to fluidize bottom sediments, creating a narrow trench within which the cable system can be laid. The cables settle via gravity into the trenches then the fluidized sediments quickly settle around the cable after the plow has passed. The seabed bottom returns naturally to pre-construction contours.

8. Provide all studies that support the claimed: (i) benefit-cost ratio(s); (ii) reduction in wholesale and/or retail electricity prices and (iii) reliability enhancement.

GLIA will release a consultant study on the economic benefits of the Green Line projects later in the summer of 2015.

In conclusion, as a region New England needs to diversify its energy mix in order to address the seasonal volatility of high winter wholesale electric prices. New England's increased dependence on natural gas as a fuel for electric generation is the root of the problem, especially in periods of low winter temperatures when heating demand and electric demand compete for limited gas supply across congested gas pipelines.

Combined with the individual state's commitment to clean energy development the need for a public investment in transmission is undeniable.

New electric transmission projects, such as the Vermont Green Line and Maine Green Line that combine wind power and hydroelectric power can and must be part of the solution. The two energy sources complement each other daily and seasonally, would contribute to the reduction of Green House Gas Emissions and are critical to reducing our dependence on natural gas by increasing fuel diversity.