



For a thriving New England

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May 30, 2014

Via Electronic Mail

Heather Hunt
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New England States Committee on Electricity
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Re: Comments on Governors' Infrastructure Initiative in New England – Incremental Gas for Electric Reliability (“IGER”) Concept and Electric Distribution Companies Proposal (“EDC”) for Management of Pipeline Capacity

Dear Ms. Hunt:

Conservation Law Foundation (“CLF”) appreciates this opportunity to provide comments on the Governor’s Infrastructure Initiative as outlined in recent documents presented to the New England Power Pool (“NEPOOL”). CLF has long advocated for developing transparent, well-coordinated, and effective market structures to ensure a reliable energy system that recognizes the need for accurate price formation and facilitates the transformation of the system as necessary to retire outdated, uneconomic sources and to develop new resources that are compatible with the clean energy and climate policies and programs established by each of the states in the New England region. Experience has proven what CLF and others accurately predicted: that the most cost-effective resource that we can invest in is energy efficiency.¹ Over time, the electric energy efficiency programs that were pioneered in the era of restructuring the electric markets have been embraced by ISO-NE, and integrated into wholesale markets, as a reliable, quantifiable resource that has resulted in millions of dollars worth of savings in deferred transmission investments alone,² in addition to the significant direct benefits to ratepayers in the form of reduced bills and reduced pollution.³ Such investments have shown themselves to be

¹Conservation Law Foundation, Conservation Services Group and New England Energy Policy Council, *Power to Spare: A Plan for Increasing New England’s Competitiveness through Energy Efficiency* (1987); Dep’t of Energy Resources, *Energy Efficiency in Massachusetts: Our First Fuel*, available at <http://www.mass.gov/eea/docs/doer/energy-efficiency/ee-story-booklet-web.pdf>; ISO-NE, *2013 Regional Energy Outlook*, at 27 (approximating that energy efficiency resulted in a savings of \$260 million by deferring the need for transmission upgrades) available at http://www.iso-ne.com/aboutiso/fin/annl_reports/2000/2013_reo.pdf.

²ISO-NE, *2013 Regional Energy Outlook*, at 27.

³A detailed analysis of the “avoided energy costs” attributable to energy efficiency programs in New England is available in the *Avoided Energy Supply Costs in New England: 2013 Report*, prepared by Synapse Energy Economics, available at <http://www.synapse-energy.com/Downloads/SynapseReport.2013-07.AESC.AESC-2013.13-029-Report.pdf>. In Massachusetts, for example, the Energy Efficiency Advisory Report to the legislature estimated over \$5 billion in benefits to Massachusetts business and residents from the energy efficiency programs. *Staying on Top: Energy Efficiency Continues to Deliver Benefits to Massachusetts Residents and Businesses*, The

particularly effective in reducing peak demands on the system that would otherwise necessitate new electric transmission infrastructure.⁴

Yet, now, in the face of natural gas deliverability constraints on the system, the New England Governors, acting through NESCOE, appear to have largely overlooked the role for energy efficiency and market reforms as more well-tailored and cost-effective tools for dealing with incremental capacity issues. These solutions are especially effective in dealing with a capacity issue that is as limited in time and scope as the “basis differential” problem that primarily presents itself in needle peaks during the winter heating season. Nonetheless, the NESCOE proposal has focused on securing additional firm pipeline capacity in an amount of 1000 mmcf/day above 2013 levels as the primary solution with very little attention to the implications of such additional capacity on the climate mandates and policies of the states in addition to the resolutions between the New England Governors and the Canadian provinces.⁵ Therefore, CLF’s comments focus on the need to examine other solutions such as market reforms and energy efficiency, the potential market distortions that may already have been caused by NESCOE’s and Maine’s proposed out-of-market solutions, and to the extent that NESCOE determines to move forward with such a proposal despite its drawbacks, the need to limit and mitigate the economic and environmental impacts of any effort to socialize the costs of new fossil fuel infrastructure on the backs of electric customers.⁶

The Problem

CLF agrees that the increased reliance on natural gas for power generation in the past few years has contributed to episodic basis spikes during periods of peak demand on the system in recent winters. CLF also recognizes that the shift to natural gas for power generation has, in some

2012 Report of the Massachusetts Energy Efficiency Advisory Council (November 2013) available at <http://www.mass.gov/eea/docs/doer/energy-efficiency/ma-advisory-council-2012-report.pdf>.

⁴ISO-NE, *2013 Regional Energy Outlook*, *supra* note 2.

⁵Massachusetts established mandates to reduce greenhouse gas emissions by 25% below 1990 levels by 2020 and at least 80% below 1990 levels by 2050 through the Global Warming Solutions Act, St. 2008, c. 298, codified in part as M.G.L. c. 21N; Connecticut established greenhouse gas reduction mandates of at least 10% below 1990 levels by 2020 and at least 80% below 2001 levels by 2050 in Conn. Gen. Stat. § 22a-200a; Maine established greenhouse gas reduction goals of 10% below 1990 levels by 2020 and long term reductions of 75% to 80% below 2003 levels at 38 Maine Rev. Stat. § 576; Vermont established greenhouse gas reduction goals of 25% below 1990 levels by 2012, 50% below 1990 levels by 2028, and 75% below 1990 levels by 2050. 10 Vt. Stat. § 578; New Hampshire’s Climate Action Plan recommended goals of 20% below 1990 levels by 2025 and 80% below 1990 levels by 2050, available at http://des.nh.gov/organization/divisions/air/tsb/tps/climate/action_plan/documents/nhcap_xsum.pdf; The New England Governors and Eastern Canadian Premiers (“NEG/ECP”) established a Climate Action Plan in 2001 that recommended a long-term greenhouse gas reduction goal of 75% to 85% below 2001 levels. New England Governors/Eastern Canadian Premiers, Climate Action Plan 2001 (August 2001) available at <http://negc.org/uploads/file/Reports/ClimateChangeAP%5B1%5D.pdf>; The NEG/ECP reaffirmed their commitment to reducing greenhouse gas emissions in Resolution 36-3, available at <http://negc.org/uploads/file/NEG-ECP%20Resolutions/NEG-ECP%20Resolution%2036-3.pdf>.

⁶ Although NESCOE asserts that it has been “open” to receiving stakeholder comments throughout the development of its proposal to increase natural gas and electric transmission infrastructure, the fact is that NESCOE and its managers have focused their “outreach” primarily on industry stakeholders (such as natural gas pipeline owners, marketers, local distribution companies, or large industrial customers who stand to benefit most from spreading the costs of such infrastructure) in closed-door meetings rather than an open public process to inform and engage the vast majority of residential customers who will actually bear the largest proportion of the costs of this proposal.

measure, facilitated the retirement of aging, out-dated, and uneconomic coal and oil units. This reduced reliance on coal and oil has had significant, positive impacts on air quality in the region by resulting in substantially lower emissions of sulfur dioxide and particulate matter.⁷ In addition, to the extent that natural gas has displaced coal and oil units, it has also resulted in reduced carbon dioxide emissions from the stack.⁸ However, the solutions proposed by NESCOE as represented in the Black & Veatch study, fail to acknowledge (1) that the basis problem is not solely the result of physical constraints on the pipeline system; (2) that a set of market reforms, increased natural gas energy efficiency, and more efficient utilization of existing supply would lay the groundwork for far more cost-effective solutions; and (3) that passing the costs of a massive new greenfield pipeline on to customers is likely to result in overbuilding long-lived fossil fuel infrastructure that is incompatible with the climate policies of the New England states and ultimately results in stranded costs.

The Basis Problem is Limited in Scope and Duration such that a Cross-Regional Pipeline is Unlikely to Be the Most Cost-Effective Solution

Depending on the study and the particular scenario, episodic basis spikes are expected to occur between 18-60 days a year.⁹ Over the past three years, price spikes have been limited to a period of between 10 to 27 days a year.¹⁰ However, the duration of these spikes is extremely short, and results in “needle spikes” early in the morning hours and in the evening hours when demands for gas-fired space heating compete with demands for electric generation. While these spikes may extend through the day on extremely cold days, for the most part, it is the simultaneous pull of supply during these two peaks that drives the basis differential. That means that the need for additional capacity is limited to very specific portions of the day and to a limited number of days of the year. While additional pipeline capacity is one means to meet the demand created by such peaks, it is unlikely to be either the cost effective or compatible with the greenhouse gas reduction requirements that most New England states agree are necessary to mitigate climate change. For example, the Black & Veatch report indicated an extremely low transportation rate for a new cross-regional pipeline with a capacity of 1.2 Bcf/day, but that rate assumes that 100% of the capacity is contracted,¹¹ an assumption that is extremely unlikely given that the existing needle peaks on the system only occur for portions of up to 27 days or a few full days of the

⁷Sulfur dioxide emissions have fallen 92% from 2001-2012. See ISO-NE, *2012 ISO-NE Electric Generator Air Emissions Report* at 20 (January 2014) available at http://www.iso-ne.com/committees/comm_wkgrps/prtcpnts_comm/eag/mtrls/2014/mar52014/2012_emissions_report.pdf.

⁸Carbon dioxide rates have only fallen by 21% in the same time frame. *Id.* However, the overall impact of fuel switching from coal and oil to natural gas is largely dependent upon how much methane is lost from wellhead to burner tip. Recent peer reviewed studies have indicated that unless the total leakage rate is less than 3%, natural gas may actually have a higher greenhouse gas emissions footprint than coal. Alvarez, R.A., et al., *Greater focus needed on methane leakage from natural gas infrastructure*. Proc. Natl. Acad. Sci. USA 109:6435-6440. (2012) doi: 10.1073/pnas.1202407109; Howarth, et al., *A bridge to nowhere: methane emissions and the greenhouse gas footprint of natural gas*. Energy Sci. Eng. (May 21, 2014) doi: 10.1002/ese3.35.

⁹ICF, *Assessment of New England's Natural Gas Pipeline Capacity to Satisfy Short and Near- Term Electric Generation Needs: Phase II, Draft Report*, submitted to ISO-NE, at 39 (December 16, 2013); Black & Veatch, *New England Natural Gas Infrastructure and Electric Generation: Constraints and Solutions, Phase II*, prepared for NESCOE, at 1, April 16, 2013 [hereinafter Phase II]. ICF, *Options for Serving New England Natural Gas Demand*, prepared for GDF Suez, 4 (October 22, 2013).

¹⁰Black & Veatch, *Phase II* at 6.

¹¹Black & Veatch, *Phase III* at 11.

year. Even with such rosy assumptions about the transportation rate, the Black & Veatch study concluded that an investment in such a pipeline would incur economic losses from the capital investments during the first six years of the pipeline's operation and admitted that the costs could easily turn out to be more than double the estimate.¹²

Moreover, several studies have confirmed that these basis spikes are not the result of fully subscribed pipelines, but instead, begin to occur at roughly 75% of subscribed pipeline capacity.¹³ One of the reasons for the spikes that occur on the system beginning at this level is the fact that “most natural gas –fired power generation capacity in New England is not supported by firm transportation contracts on natural gas pipelines.”¹⁴ Although the pipelines are fully subscribed, they are not actually being fully utilized even at time of peak demands. As described more fully below, CLF and others have proposed market refinements and new services that would create more opportunities for intra-day and short term releases, greater liquidity and transparency, and incremental expansion of existing pipelines (which is already occurring, largely due to the market signals created by the basis differential). Such options, further described below, would resolve the basis differential without saddling ratepayers with billions in debt and without building continued over-reliance on natural gas into the system.¹⁵

Tailored, Blended Solutions are More Cost Effective

The Black & Veatch study explained that “solutions must be tailored, and when appropriate blended, to solve the type of constraints expected to occur,” and yet, the study called for a solution that is clearly not tailored to address the needle spikes that New England has experienced but rather appears to be designed to ensure continued and expanded use of natural gas for decades more. The proposal by NESCOE ignores more targeted, cost-effective and available solutions to the crisis that New England faces, and it does so at the peril of the economic and public health interests of its residents.

The issue of natural gas deliverability is not new, but the region's increased reliance on natural gas for electric generation is a relatively new wrinkle. For the past two years, CLF has been advocating for market refinements and new services that would address the natural gas deliverability issues facing New England without requiring significant, new greenfield projects to be put in place. In March, the Federal Energy Regulatory Commission (“FERC”) issued a Notice of Proposed Rulemaking to address the coordination of the scheduling process of

¹²Black & Veatch explained that “it must be noted that the transportation rates offered by this pipeline could greatly exceed this estimate. Even if construction cost overruns are not experienced, lower-than-anticipated capacity subscription could lead to significant increases in the per-unit rate. For example, the per-unit rate would double if the pipeline capacity is only 50% subscribed.” *Phase III* at 34.

¹³Black & Veatch, *Phase II* at 1.

¹⁴Black & Veatch, *Phase III* at 8.

¹⁵Similar risks may attend the companion large-scale infrastructure proposal that NESCOE is pursuing—its forthcoming solicitation for gigawatts of north-south transmission capacity. According to Black & Veatch, large-scale transmission projects for hydropower imports would result in economic losses to New England customers through the 2022 timeframe in much the same way as a cross-regional pipeline project. Black & Veatch, *Phase III* at 45. Moreover, given recent winter experiences of constrained imports over existing ties during Canadian winter peak periods, which coincide with New England needle peak constraints, such transmission projects will not meaningfully address winter basis differentials unless such projects facilitate import of firm power products, which would likely come at a premium to average market rates.

interstate natural gas pipelines and public utilities. FERC also issued an order opening an investigation into better coordination of the electric day ahead market and the gas day to facilitate more transparency regarding fuel availability. In addition, FERC opened an investigation into requiring interstate pipelines to revise their tariffs to provide for posting of offers to purchase released (unscheduled) capacity which would increase liquidity. CLF is also pursuing market reforms through proceedings at the North American Energy Standards Board (“NAESB”) to further increase liquidity and transparency in natural gas markets.¹⁶ Unfortunately, none of the states has been as actively engaged in seeking and expediting market solutions to the basis problem. In addition to these market refinements, CLF also proposed a winter reliability solution for the 2013-2014 winter that would have allowed LNG supplies to compete with oil capacity.¹⁷ Such a solution would have reduced air pollution and cost less than the solution that was ultimately adopted by ISO-NE, but ISO-NE and others in the market have expressed an interest in maintaining the price volatility of natural gas in order to support the construction of new pipelines.¹⁸

These market reforms, when coupled with the impacts that the Algonquin Incremental Market (“AIM”) project is already having on basis would provide New England with the time that it needs to continue retiring outdated oil and coal capacity while building new, clean resources and ramping up energy efficiency and storage to achieve the climate mandates that each state has embraced as necessary to preserving New England and protecting its residents. Such a set of solutions may include reliance upon LNG supplies and the buildout of incremental projects such as the AIM project and the Iroquois Constitution project, but these solutions could be implemented without abandoning the market principles that have guided New England since the early 2000s, and they could be done in a far more cost effective manner. For example, ICF estimated that additional LNG spot supplies could be purchased for \$14.50-15.50/MMBtu as compared to a cost of \$16-20/MMBtu for a greenfield pipeline.¹⁹

The key calculation to be made, before determining the proper course of action, is that of anticipated need—that calculation must reflect the unfolding and expandable impact of efficiency efforts by the states—and the potential that market reforms being developed by FERC and at NAESB will lead to greater liquidity and gas availability, among other factors. Instead, NESCOE did not even consider the potential impacts of these pending market reforms,²⁰ nor did the Black & Veatch study provide any analysis of the potential for natural gas energy efficiency or other

¹⁶ For a more detailed description of these proposed market refinements see

http://www.naesb.org/pdf4/geh042214clf_skipping_stone.pdf.

¹⁷ CLF’s proposal is available on the ISO-NE website at http://www.iso-ne.com/key_projects/win_relbilty_sol/mc_mtrls/ and is entitled *A2.2 CLF Winter 2013/2014 Reliability Solution Proposal*.

¹⁸ As one gas pipeline owner astutely explained in its comments on the ISO-NE proposed 2013-2014 winter reliability solution, ISO-NE explicitly chose to rely solely on oil, knowing that it would result in higher electricity costs because it was concerned that:

an ISO solution [that] reduced the opportunity costs priced into the gas market during a time of high gas demand, . . . would lower gas prices and send the wrong signal about the relative scarcity of natural gas. These lower prices would also be reflected in the electricity market.

FERC docket ER13-1851, Motion to Intervene and Comments of Algonquin Gas Transmission, LLC and Maritimes and Northeast Pipeline, L.L.C., 3 (quoting ISO-NE filing at 7) (July 19, 2013).

¹⁹ ICF, *Options for Serving New England Natural Gas Demand* at 20.

²⁰ *Phase II* at 25.

methods to reduce the demand for natural gas supplies.²¹ Instead, Black & Veatch simply acknowledged that under the “Low Demand” scenario, no new infrastructure would be needed.²² For some reason, NESCOE did not ask Black & Veatch to consider whether implementing measures to achieve the “Low Demand Scenario” would be cost effective or how it would compare to the other solutions from a cost-benefit standpoint.²³

The IGER Proposal is far more risky than NESCOE has Indicated

NESCOE has understated the significant risks that electric customers will be exposed to if an Integrated Gas for Electric Reliability (“IGER”) proposal moves forward. In its analysis, Black & Veatch was extremely careful to explain that its conclusions were highly dependent upon the assumptions that it made:

While Black & Veatch believes that such assumptions and methodologies as summarized in this report are reasonable and appropriate for the purpose for which they are used; depending upon conditions, events and circumstances that actually occur but are unknown at this time, actual results may materially differ from those projected.

Phase III at 7. Among the many assumptions that Black & Veatch relied upon, several are likely to be proven wrong. For example, several pipeline owners have already noted that the costs of a proposed greenfield pipeline was significantly understated, the study assumed no additional regulations on hydraulic fracturing (including the use of water and disposal of wastewater) even though multiple states are moving forward with regulation,²⁴ and the study’s estimation of potential benefits from subsidizing a cross-regional pipeline did not reflect the real possibility that domestic and global natural gas prices will converge,²⁵ leading to increased LNG imports (using existing terminals) especially during the peak period of concern during the winter.

²¹ Notably, the benefit-cost ratio established by Black & Veatch for the cross-regional pipeline is 1.67. This benefit-cost ratio is far lower than some of the benefit-cost ratios for natural gas energy efficiency programs in Massachusetts. *See* Statewide Cost-Effectiveness Tables, Gas, Cost-Effectiveness by Initiative (showing benefit-cost ratios ranging from 1.61 to 6.46) available at <http://www.ma-eeac.org/Three%20Year%20Plans.html>. Moreover, though ICF concluded that demand-side management could not play a significant role in reducing natural gas demand in New England, that study only considered the savings from existing electric energy efficiency programs and did not review recent analyses of potential for natural gas energy efficiency in the region. In 2012, the consultants to the Massachusetts Energy Efficiency Advisory Council estimated that there was the potential for natural gas energy efficiency measures to reduce load by 1.4%-6.4% annually even though the current programs only target a little over 1%. Preliminary Assessment of Potential, Massachusetts EEAC Consultant Team, at 3 (April 13, 2012).

²² *Phase III* at 62.

²³ Ben D’Antonio, NESCOE staff, NECA Presentation re Gas-Electric Study Phase III, at 33 (September 26, 2013) noting that “No long-term infrastructure solutions are necessary under the Low Demand Scenario; The costs of measures that could bring about the Low Demand Scenario, an additional alternative, would require study.”

²⁴ Jennifer Oldham, Bloomberg, Colorado First State to Clamp Down on Fracking Methane Pollution (February 23, 2014) available at <http://www.bloomberg.com/news/2014-02-24/colorado-first-state-to-clamp-down-on-fracking-methane-pollution.html>; Ryan Koronowski, Climate Progress, Breaking Down the New Proposed Fracking Rules Released in Illinois and California (November 16, 2013) available at <http://thinkprogress.org/climate/2013/11/16/2956011/proposed-fracking-rules-illinois-california/>.

²⁵ Platts Energy, *Interview: US, Australia LNG Exports to promote price convergence: Moniz*, available at <http://www.platts.com/latest-news/natural-gas/rome/interview-us-australia-lng-exports-to-promote-26784758>

A critical flaw with the IGER model is its failure to provide for efficient price formation so that generators and/or other consumers of gas supplied by a pipeline expansion reflect the true gas supply and infrastructure costs, including the transportation rate imposed to fund the construction of new pipeline capacity. In effect, IGER would allocate the costs in the first instance upon New England Retail Electric Customers without accurately passing those costs on to generators and secondary market consumers that would be using and benefitting from the additional natural gas supplies to generate power. In other words, IGER would essentially subsidize the use of natural gas by electric generators thereby altering the generators' marginal costs and reference pricing. Such an outcome is the embodiment of market manipulation by intentionally upsetting, if not discarding altogether, the price signals upon which the wholesale electric market design relies upon to function efficiently. As a result, IGER will violate the underpinnings of standard market design which is constructed upon a foundation of sending accurate price signals and allocation of cost through cost causation principles. This creates a real question of whether such a proposal could meet the legal standards for a FERC-approved tariff.

Further, the cost-effectiveness of the construction of such a pipeline depends upon a vision of the future of the region as becoming even more dependent on natural gas even though for decades the states and ISO-NE have emphasized the importance of fuel diversity to reliability.²⁶ As we face additional retirements of our aging infrastructure, the choices that we make now will shape the energy landscape for the next 40 years. Now is the time for New England to invest in a new kind of fuel diversity that relies less and less on centralized fossil fuel plants and more and more on renewable generation, efficiency, energy storage, and limited natural gas where necessary for firming. The IGER will not only lock us in to decades more of fossil fuel dependence, but it will do so at substantial economic risk to customers.

Finally, from a climate perspective, it is clear that the IGER proposal will do nothing to advance the greenhouse gas reduction mandates and policies of the New England states. None of the studies conducted for NESCOE by Black & Veatch nor the studies conducted by ICF for ISO-NE even attempted to quantify the potential greenhouse gas emissions impacts of the construction of a massive new greenfield natural gas pipeline on the policies and mandates that have been adopted by virtually every New England state. This is especially concerning given the recent scholarship relating to the methane emissions from natural gas on a life cycle basis. A robust greenhouse gas emissions analysis should have been conducted for each of the proposed alternatives.

Conclusion

Based upon the data and the analysis of the current causes of natural gas deliverability issues in New England, CLF recommends that NESCOE abandon the IGER approach and prioritize compensation and incentives for increased use of existing infrastructure first and incremental expansion of gas import capacity second and explain how such steps have been fully exhausted before turning to expensive and long-lived infrastructure. NESCOE should also engage a consultant to conduct region wide analyses of natural gas energy efficiency potential to

²⁶See ISO-NE, *Strategic Planning Problem Statement* (February 2011) available at http://www.iso-ne.com/committees/comm_wkgrps/strategic_planning_discussion/materials/problem_statement.pdf.

determine whether the same types of programs that have so successfully deferred the need for new electric transmission could be deployed to defer the need for new natural gas transmission while delivering local benefits and local jobs.

NESCOE's decision to send signals to the market indicating that a state subsidized solution was at hand may have already resulted in negative impacts on incremental projects that have been proposed, and NESCOE should be mindful of the potential for the existence and progress of IGER and the Governors statements about seeking out-of-market solutions to send a signal that squelch market solutions from meeting the need that does exist.

If NESCOE determines to move forward with a scheme like IGER despite its substantial risks and the significant greenhouse gas impacts associated with new natural gas infrastructure, then the utilities or the entity that is charged with implementing the IGER must explain what mechanisms are being put in place to ensure that the projects that are being funded will actually help the New England to meet its short- and long-term greenhouse gas reduction policies. In the context of existing dockets, CLF has proposed that any new natural gas infrastructure should be subject to a "system transformation charge," similar to a "system benefit charge" on the electric side, that would be directed into a fund to advance natural gas energy efficiency measures targeted to address peak demand and to support renewable energy including renewable thermal space heating.²⁷ Without such measures to mitigate the impacts of additional fossil fuel infrastructure, natural gas will not serve as a bridge, but will instead create a barrier to building the clean energy infrastructure that is needed to meet the challenges of climate change.

Respectfully submitted,



Shanna Cleveland
Senior Attorney



N. Jonathan Peress
Vice President and Director

²⁷ See Massachusetts D.P.U. 13-157, 13-158, and 13-159 (2013) documents available at www.mass.gov/dpu.