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July 25, 2014

New Hampshire State Energy Strategy

Bandy Chambers
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107 Pleasant Street
Concord, NH 03301

**Re: Public Comments on the New Hampshire State Energy
Planning, Navigant Consulting, Inc., May 1, 2014**

Dear Brandy Chambers and all subjects pursuant to SB-191-FN-A:

Attached please find a Report on the Need for the Proposed NorthEast Expansion Pipeline Project, now referred to as the TGP Northeast Energy Direct (NED) project, in contrast to forward-looking objectives such as New Hampshire's Renewable Portfolio Standard that seeks 24% renewable by 2025 and a Greenhouse Gas emissions reductions to 80% below 1990 values by 2050. This is being submitted as comment on the Draft New Hampshire State Energy Strategy assembled by Navigant Consulting, Inc., 2014.

Thank you for this opportunity to comment.

Sincerely,

David J. Moloney

**Report on the
Need for the additional natural gas pipeline
in contrast to lagging RPS objectives for
New Hampshire**

**Analysis of the
Draft of NH State Energy Strategy, 2014**

Prepared by David J. Moloney
Software Architect
July 21, 2014

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I. Introduction

Whereas the net result of fluctuations in natural gas heating demand that has risen over time in the commercial sector, fall in the industrial sector and flat lined for residential¹, the requirement for a large influx of new natural gas distribution into New Hampshire would not only prove unwarranted due to stagnant growth but would be highly questionable under the low growth projections for New Hampshire.

Moreover, allowing greenfield gas distribution projects to be built, such as the Tennessee Gas Pipeline project being proposed for the 200 miles from Wright, NY to Dracut, MA, now referred to as the TGP Northeast Energy Direct (NED) project, places an enormous fossil fuel infrastructure investment burden onto the whole of New England economy at the expense of dollars New Hampshire could better direct toward energy efficiency programs and expanding renewable energy choices for the long term such as combined heat and power (CHP). Not to mention that other pipeline expansion projects on existing rights of way, such as Spectra Energy's Atlantic Bridge project, will already provide more than enough expansion to fill any high growth need and is anticipated to arrive much sooner than NED to meet that demand.

By refocusing investments, the anticipated shortfall on former Governor Lynch's Climate Action Plan initiative of 25 x '25 renewable portfolio standard (RPS) enacted in 2007 as HB873 could be amended. Based on 2013 VEIC report findings, current investment levels for energy efficiency amount to only one-third of that needed to keep the state on track for its 2025 RPS goals.²

Demand for electrical power in all sectors is extremely modest in New Hampshire³. Due to its nominal and incremental impact, it would be possible to meet this incremental capacity requirement using existing distribution lines, new investments in energy storage, proposed hydroelectric projects and greater reliance on energy efficiency and other renewable resources including utility scale solar PV. Incremental gas for purposes of power generation is not even considered in the SB-191 report on Resource Potential Analysis⁴. On the other hand, localized energy systems are proposed as the most promising means of meeting baseline energy forecasts as well as New Hampshire's energy vision, as stated in the SB-191 Draft:

by relying on renewable resources, they [localized energy systems] reduce reliance on imported fuels and foster self-sufficiency within communities across the state. In 2020, the combination of reduced demand and further development of diverse renewable power generation assets helps New Hampshire achieve its renewable portfolio standard target level⁵.

The desperate need for revised financial incentives, focused performance targets such as on cost effective efficiency measures, loan programs inclusive of residential investments in efficiency and renewables, a well advertised, sustainable "Green Bank" upon which to draw funds are ideal green substitutes to replace tariffs in support of gas infrastructure investment.

¹ NH OEP, *New Hampshire DRAFT State Energy Strategy*, (May. 2014), SB-191, available at <http://www.nh.gov/oep/energy/programs/documents/sb191-draft-strategy-2014-5-5.pdf> [hereinafter SB-191 Draft].

² *Id.* at page 44.

³ *Id.* at page 11.

⁴ *Id.* at page 26.

⁵ *Id.* at page 25.

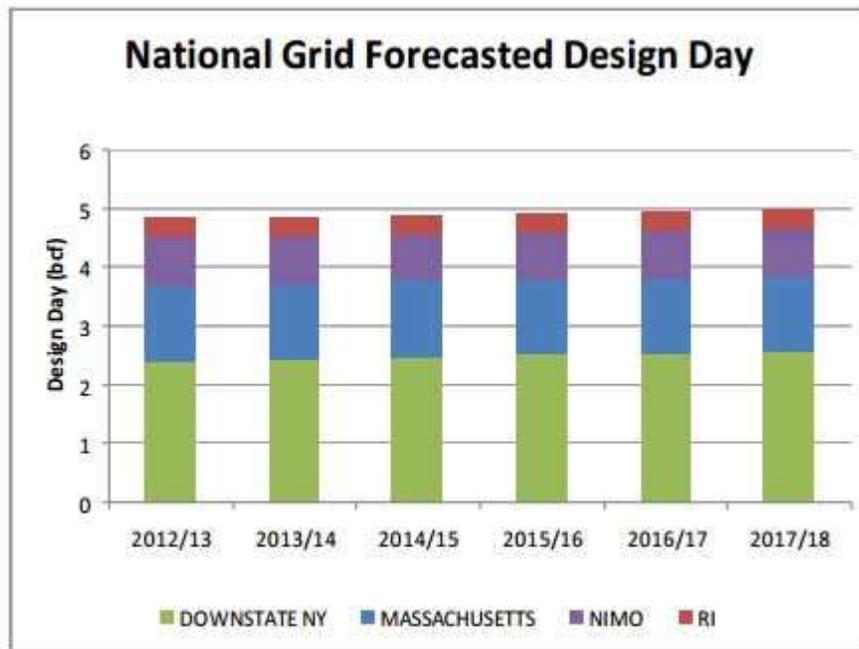
II. Credentials

David John Moloney is a Software Architect and software product designer and mentor with three decades of dedicated work in software technologies. The company of my employment, Progress Software Corporation, may perhaps be the oldest, unmerged middleware and embedded database software vendor in the North East. The company's software products are used worldwide and are the engine powering a vast array of application products for value added resellers and end user applications. We sit on the leading edge technology space in software development while also continuing to fortify a flagship interpreted language that predates Java by about 15 years. We sell to a solid customer base and enjoy a strong and favorable financial balance sheet.

I am also one of many leaders in a local group called nhpipelineawareness.org which is now organized around assessing the true cost of pipeline project expansion infrastructure and working to provide a more realistic assessments of New England and New Hampshire's true energy needs while creating awareness of the hardships endured by those directly impacted by the proposed pipeline and those who would have to live with the proliferation of a new round of fossil fuel overdependencies.

III. FERC claims gas market in New England but real demand shows otherwise

The statements made in FERC's DEIS are consistent and repetitive: the Wright Interconnect Projects feeding gas to the proposed NED pipeline project would be consumed in New York City and New England¹. Yet presentations by natural gas suppliers on May, 1 2014 at a Regional Market Trends Forum (sponsored by the Natural Gas Assoc.) show very slow growth in demand for natural gas in New England. Growth=0.6% per year or only 0.146 BCP (billion cubic feet per day) over 5 years, due to slow growth and energy conservation measures in all six New England states, according to the presentation by Elizabeth Arangio of National Grid and her chart on design capacity²:



¹ FERC, *Draft Environmental Impact Statement*, ES-1 (Feb. 2014), available at http://elibrary.ferc.gov/idmws/file_list.asp?accession_num=20140212-4002 [hereinafter DEIS].

² Chart available at: http://www.northeastgas.org/pdf/e_arangio_natgrid.pdf)

The Kinder Morgan pipeline proposal (NED) would add up to 2.200 BCF (billion cubic feet per day) of capacity according to company documents¹. This is over 15 times the expected rate of growth in gas system demand in New England. New England States Committee on Electricity (NESCOE) Restructuring Roundtable corroborates the marginal nature of incremental gas demand from Black & Veatch independent findings of the Gas-Electric Study Phase III Report:

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 study²

Reducing consumers' demand for electricity & natural gas to the extent assumed in the Low Demand Case eliminates the need for consumers to invest in infrastructure. Further analysis would be required to determine whether policies that would result in a Low Demand Scenario are cost-competitive with infrastructure investments³

While the Low Demand Scenarios are very worthy of study, no effort has been made to produce a comparable cost/benefit analysis. Nor has any measure to redirect pipeline infrastructure dollars toward energy efficiency and renewable alternatives been postulated or studied with the potential to actually stimulate the occurrence of a low demand reality. Before determining the proper course of action for any anticipated need, calculations must reflect the emerging and compounding impacts of efficiency efforts by the states and these must be factored this into cost benefit analysis for increased gas availability. Instead, NESCOE has ignored the potential impacts of such market reforms as well as any potential gas efficiency analysis or other methods that could be used to reduce demand for natural gas supplies and ignored consideration for implementing measures to achieve the "Low Demand Scenario", its cost effectiveness and its cost-benefit comparison to other proposed solutions.

It is important to note that the NESCO Gas-Electric Study Phase III Report concluded that pipeline investment would incur economic losses from capital investments for the first six years of pipeline operation and admitted that pipeline costs could easily double⁵. Adjusted estimates of pipeline's cost has in fact done just that over time and the proposed capacity has been adjusted upward and as projected cost overruns persist.

¹ http://www.kindermorgan.com/business/gas_pipelines/east/neupopenseason

² Restructuring Roundtable, November 15, 2013, Natural Gas & Electricity Interface Challenges in New England, NESCOE, page 10 *available at* http://www.nescoe.com/uploads/RR_Nov_15.2013.pdf [hereinafter NESCOE Roundtable on Gas-Electric Study Phase III Report]

³ *Id.* at page 11.

⁴ *Id.* at page 11.

⁵ Black & 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 increased in the per-unit rate. For example, the per-unit rate would double if the pipeline capacity is only 50% subscribed." NESCOE Gas-Electric Study Phase III Report, page 34. www.nescoe.com/uploads/Phase_III_Gas-Elec_Report_Sept._2013.pdf

IV. The absence of local demand for IGER

The credibility for introducing regional pipeline concerns as outlined in the NESCOE gas study, part III as a component of my public input for New Hampshire SB-191 is based on the SB-191 Draft use of Navigant's proprietary portfolio optimization model (POM) which finds New Hampshire's contribution to supply and demand is based on the entire ISO-NE territory¹. Justification for pipeline expansion begins with regional demand and is adjusted by percentages for each individual state contribution.

On behalf of the Governors' Infrastructure Initiative, NESCOE developed an exploratory concept known as the Incremental Gas for Electric Reliability (IGER)³ which it then conferred a request for comment from the New England Gas-Electric Focus Group (NEPOOL) and the Federal Energy Regulatory Commission (FERC)². In an April 30, 2014 memorandum, the opportunity for Electric Distribution Companies (EDCs) to enter long term contracts with interstate pipeline companies to support IGER projects was announced and made subject to appropriate and acceptable cost recovery through a new FERC-approved Tariff mechanism.⁴

No cost/benefit analysis exists to compare the application of IGER in New England to any other cost benefit model that could improve upon Regional Greenhouse Gas Initiative compliance (RGGI) nor determine whether an increase in New England's 2012 52% overdependence on this single, carbon-based fuel for energy production was a reasonable dependency with respect to the long term health of our economy and environment.

Extrapolating the IGER concept as it applies to New Hampshire is unfounded. In Tennessee Gas Pipeline's (TGP) open season from February 13, 2014 through March, 28, 2014, it contracted with only a single Local Distribution Company (LDC) that executed a Service Request Form (SRF) to receive gas from the Northern Lateral proposed through Hollis, NH. The company, EnergyNorth Natural Gas, Inc. d/b/a Liberty Utilities, has stated the following in its Integrated Resource Plan (November 1, 2013 – October 31, 2018) regarding gas demand in the Large-Scale Power Market:

In addition, the Company is not currently aware of any potential seasonal firm gas sales customers or large-scale gas-fired power generating facilities planned for locations within its service territory over the forecast period that would not procure their natural gas requirements from a third-party. Consistent with EnergyNorth's recent experience, if a new seasonal firm sales customer or gas-fired power plant were to be located in the Company's service territory, EnergyNorth believes that the gas requirements of such facilities would likely be served by third-party gas suppliers in conjunction with firm transportation service provided by the Company from the city gate to the facility.⁵

¹ New England Public Power Sector Representatives Memorandum to NESCOE on IGER, *available at* http://www.nescoe.com/uploads/PublicPowerResponsetoIGERProposal_8May2014.pdf

² *Id.* at page 1

³ NESCOE memorandum for comment from NEPOOL on IGER concept, *available at* http://www.nescoe.com/uploads/LettertoNEPOOL_Gas-Electric_30April2014.pdf

⁴ *Id.* at page 2

⁵ EnergyNorth Natural Gas, Inc. Integrated Resource Plan (11-1-2013 to 10-31-2018), page 29 *available at* <http://www.puc.nh.gov/Regulatory/Docketbk/2013/13-313/INITIAL%20FILING%20-%20PETITION/13-313%202013-11-01%20ENGI%20DBA%20LIBERTY%20INTEGRATED%20RESOURCE%20PLAN.PDF>

EnergyNorth’s traditional market is gas distribution as a heating source. In its Integrated Resource Plan, the company determined that its base-case design-year load requirements could be met throughout the forecast period from November 1, 2013 through October, 31, 2018. It shows the following chart for “Other Purchased Resources” in its Base Case/Design Year¹:

YEAR Volume (Dth)	YEAR Volume (Dth)
2013/14	0
2014/15	0
2015/16	0
2016/17	0
2017/18	0

On a design day, the company is able to rely on all its available resources to meet customer requirements without “back-up” capacity.

The incremental design-day capacity need shows that, based on the Company’s current projections, there is no need for incremental capacity resources in the forecast period:

YEAR	Capacity Resources (Dth)
2013/14	0
2014/15	0
2015/16	0
2016/17	0
2017/18	0

Even in the unlikely event of a High-Demand design-year load requirement, the need for the company to go out and acquire, adequate and reliable resources to address its needs is not calculated above zero until the 2016-2017 fueling season.²

The information above from EnergyNorth’s Integrated Resource Plan corroborates evidence supplied by Navigant in the New Hampshire DRAFT State Energy Strategy in which net thermal energy consumption is forecast to remain flat as the residential sector declines owing to gains in energy efficiency and in the modest growth of the commercial sector.³

While the Integrated Resource Plan goes on to explain how incremental pipeline capacity could serve to replace aging propane infrastructure in both Nashua and Manchester, there is no analysis of what it would take to replace parts and equipment of existing facilities nor the cost or plausibility of retrofitting these facilities with energy efficient upgrades.

¹ EnergyNorth Natural Gas, Inc. Integrated Resource Plan (11-1-2013 to 10-31-2018), page 65-66 available at <http://www.puc.nh.gov/Regulatory/Docketbk/2013/13-313/INITIAL%20FILING%20-%20PETITION/13-313%202013-11-01%20ENGI%20DBA%20LIBERTY%20INTEGRATED%20RESOURCE%20PLAN.PDF>

² *Id.* at page 66-67

³ NH OEP, *New Hampshire DRAFT State Energy Strategy*, (May. 2014), SB-191, page 14, available at <http://www.nh.gov/oep/energy/programs/documents/sb191-draft-strategy-2014-5-5.pdf>

An assumption behind incremental gas advocacy is that Energy North's propane customers are or can be made accessible to and metered into available gas lines. DLC's sometimes require cost sharing in order to draw a service line into locations interested in natural gas. Not only are much of New Hampshire's properties dispersed, but it is not uncommon for local ordinances to maintain a 100 foot or greater frontage setback requirement. This means that the vast majority of communities serviced by propane would need to bear significant infrastructure cost just to establish service lines as the Liberty DLC pays for a maximum of the first 100 feet of pipe.

While many propane stoves, grills, furnaces and dryers are convertible to natural gas through affordable contractor fees, most propane water heaters are not. Significant assistance may be required from contractors to perform the appropriate appliance conversion which may come at a significant cost to gas customers on top of service line costs. Furnace conversion from fuel oil to gas (rather than propane) can be at very significant additional cost to potential gas customers.

The cost savings from the conversion to natural gas at today's gas fuel prices needs to be placed in alignment with energy efficiency offerings such as those through ENERGY STAR programs and a myriad of conservation and alternative energy improvement programs recommended by the New Hampshire Independent Study of Energy Policy Issues conducted by the New Hampshire Public Utilities Commission (NH PUC).¹

Once a gas service customer is established, the promise of long term safety, reliability and affordability can also be called into question and is the subject of subsequent sections of this document.

V. Incremental Gas from Existing Supply

On a typical cold winter day, the entire North East uses only about 3.5 bcf/d of natural gas. That may be, on average, 3.0 bcf/d of natural gas from pipelines while .5 bcf is from Liquefied Natural Gas (LNG).²

Besides the proposed NED project of up to 2.2 bcf/d of gas proposed for In-service on November 2017/2018, there are four other major pipeline projects under development to serve the New England Region.³ They are the following projects with subsequent capacities and in-service dates:

- 1) *Tennessee CT Expansion (0.072 bcf) – Est. In-service Nov. 2016*
- 2) *Algonquin AIM (0.342 bcf) – Est. In-service Nov. 2016*
- 3) *Portland – C2C Expansion (up to 0.182 bcf) – Proposed Est. In-service Nov. 2016*
- 4) *Algonquin – Atlantic Bridge (up to 0.6 bcf) – Proposed Est. In-service Nov. 2017*

¹ Independent Study of Energy Policy Issues, VEIC Final Report, 9-30-2011 available at http://www.puc.nh.gov/Sustainable%20Energy/Reports/New%20Hampshire%20Independent%20Study%20of%20Energy%20Policy%20Issues%20Final%20Report_9-30-2011.pdf

² May, 1, 2014 presentation of Vince Morissette of REPSOL, a supplier of LNG available at http://www.northeastgas.org/pdf/v_morissette_2014.pdf

³ May, 1, 2014 presentation of Elizabeth Karanian of Northeast Utilities, available at http://www.northeastgas.org/pdf/e_karanian.pdf

The total load capacity of the first three projects alone is .596 bcf/d. With total expected demand increasing over five years to 0.146 bcf/d (or 146 MMcf/d), the pipeline capacity under development over existing rights of way is more than three times the increase in demand. If the NED project proposal was never built, New England would still have ample gas supply through Dracut for the foreseeable future. As gas demand would go down on days of peak demand due to the new influx of gas capacity, any shortfall could be made up in Liquid Natural Gas (LNG) which has new siting approvals in Dorchester, MA.¹ In fact, with lower demand and better utilization of existing pipeline capacity (through coordination of gas and electric trading markets), peak demand could be met using existing liquefied natural gas (LNG) from import terminals and other peak shaving facilities in all parts of the region including New Hampshire. Alternative proposals for acquiring LNG for peak demand are described later in this document.

VI. Current Deficiencies in LNG for Domestic Supply & Utilization

It is the contention of this report's author that liquid natural gas (LNG) is currently under-utilized in terms of its potential to provide both price stability and steady consumption of an abundant supply of Marcellus and Utica shale gas available in the near term. LNG has the advantage of making gas available closer to its end-use markets, provides the ability to offset supply disruptions during cold weather, and can mitigate pipeline bottlenecks during peak usage.

ISO-NE projects a 700 MW future shortfall of power supply for New England that will be experienced as needle spikes in a range of 10 to 27 days of the coldest winter season.² This speculation has been the political justification for just under .55 bcf/d of pipeline capacity included in the 2.2 bcf/d NED pipeline project. For unknown reasons, the IGER strategy is adopted exclusively to meet that shortfall but further extends capacity to the 2.2 bcf/d NED proposal numbers, orders of magnitude larger than any average or peak demand requirement even when projected shortfalls are subsumed. While subsequent sections of this document will link this proposed overcapacity to a keen private interest in delivering natural gas to export markets, it is important to recognize that existing pipeline overcapacity from existing rights of way (without the NED expansion) can already be utilized to meet the projected power shortfall.

Last year alone, renewable solar energy increased power capacity in Massachusetts by 237 MW. Extrapolating over 3 years, this progression would more than cover the projected shortfall in regional energy even if New Hampshire did nothing to improve its own RPS. Clearly, IGER does not need to be the sole solution to projected shortfalls but what is also misleading is that the natural gas shortage experience in the 2013-2014 winter season was due to limited pipeline capacity. Records show that during this period, pipelines were capable of delivering at only 75% of their capacity³ suggesting that gas distribution infrastructure, not pipeline capacity was at fault in the peak response. Also, due to heating demand and price spikes, much of the gas generating capacity went offline during the peak period.

¹ Energy and Environmental Affairs website, *available at* http://www.env.state.ma.us/DPU_FileRoom/frmDocketSingleSP.aspx?docknum=EFSB+14-1)

² ISO-NE Strategic Transmission Analysis, page 7, *available at* http://www.iso-ne.com/pubs/pubcomm/pres_spchs/2013/final_rourke_raab_061413.pdf

³ NE NG Infrastructure and Electric Generation: Constraints and Solutions, page 1, *available at* http://nescoe.com/uploads/Phase_II_Report_FINAL_04-16-2013.pdf

By improving the domestic infrastructure for the storage of LNG and by utilizing both pipeline capacity and increased LNG storage capacity during off season demand time, regional price stability and energy supply security could be maintained without new pipeline capacity. This author recommends an “LNG bank” supported by new energy security programs and funded in a similar fashion to RGGI that would establish public cryogenic storage facilities for LNG reserves at a national, regional and state level. The off-season build up of reserves could be sold back to power generators over ISO-NE’s wholesale market during peak demand. By improving long-haul transportation and vaporization capacities and other distribution bottlenecks, a coordinated peak response could surmount projected power shortfalls using LNG. Existing gas distribution running at near full pipeline capacity, supported by the overabundance of new pipeline capacity being proposed for existing rights of way would far exceed the expectations of any high demand scenario and the needs of low demand storage as LNG. Pursuant to N.H. Code Admin Rule Puc 506.03, EnergyNorth maintains a prescribed LNG storage capacity throughout the winter period¹. By eliminating constraints on their LNG supply and increasing mandatory storage volumes as supported by a public “LNG Bank”, gas power generators as well as LDC’s could compete side by side for ample reserve during peak demand.

Another strategy for supporting LNG storage from excess supply on existing gas infrastructure rights of way would be a “system transformation charge”, similar to a “system benefit charge” on the electric power side. This could be directed to a fund that advanced natural gas energy efficiency, leak repair and increased LNG storage capacity target peak demand for the foreseeable, especially when coupled with expanded RPS and increases in energy efficiency.

VII. The Dangers of LNG Export Supply

While the six New England governors and the congressional delegation have not endorsed the NED proposal, governors did endorse the .6 bcf/d of pipeline supply despite the fact that unused capacity in the Maritimes Northeast pipeline to Dracut (0.182 bcf/d) and the Kinder Morgan “200 Line Looping” proposal through existing rights of way (via Agawam, Charlton and Hopkinton - .5 bcf/d – 1.0 bcf) can adequately meet the same supply capacity without greenfield projects like NED².

¹ EnergyNorth Natural Gas, Inc. Integrated Resource Plan (11-1-2013 to 10-31-2018), page 54 *available at* <http://www.puc.nh.gov/Regulatory/Docketbk/2013/13-313/INITIAL%20FILING%20-%20PETITION/13-313%202013-11-01%20ENGI%20DBA%20LIBERTY%20INTEGRATED%20RESOURCE%20PLAN.PDF>

² Kinder Morgan on Tennessee Gas Pipeline (12-3-2012), page 17 *available at* <http://www.scribd.com/doc/206413196/Kinder-Morgan-on-Tennessee-Gas-Pipeline-Dec-3-2012>

What the six New England governors did NOT endorse was a scheme to send billions of cubic feet of gas supply via overcapacity to future export terminals in Eastern Canada. According to industry analysts¹, there is no doubt that such a plan would apply export price pressure on the domestic market. When an electric utility tariff is also applied to socialize the cost of the NED greenfield pipeline², it not only comes at the expense of domestic availability and economic growth but also results in overbuilding long lived fossil fuel infrastructure dependencies that is incompatible with the climate policies of the New England states including New Hampshire. These lead to stranded costs and artificial demand scenarios. Additional overdependence on IGER capacity further erodes the adaptability, agility and diversification of energy portfolios and exposes the market to speculative investments and upward price pressure at the first sign of supply disruption. Meanwhile export licenses are close to being approved³ and floating liquefaction (FLNG) barges are continuing construction in lieu of export delivery⁴.

But the larger problem with these exports is that LNG export markets would benefit only a very narrow section of the economy while causing great harm to a much broader spectrum.⁵ Essential players in large sectors of the U.S. domestic economy, such as Dow Chemical⁶, are leading the charge in alerting policy makers to the dangers to the of LNG exports at the expense of U.S. competitive advantage and the economic “greater good” of all U.S. states and domestic economies. Not only is future carbon-based bridge fuel like natural gas a very bad solution for our existing GHG emissions problem which is based on fossil fuel dependency but exporting LNG exacerbates this problem tremendously. It has been postulated by science that the energy cost of liquefying natural gas and transporting it to far off regions of the orient would actually cost the environment more damage in GHG than if such regions were to burn all their existing supply of coal instead.

VIII. The Benefits of a Carbon Tax versus Renewable Energy Credits (RECs) and Alternative Compliance Payments (ACPs)

Fossil fuel industries are the largest drivers of climate change in New Hampshire, the country and around the world. RGGI emission taxes are a good start for New Hampshire but do not go far enough in recovering the true costs of fossil fuel dependency. The revenues they generate provide scarce funding for efficiency programs, enable stagnant in our transition toward renewable energy and cause is to lag behind other states in addressing climate change. These concerns are all outlined in the Study of Energy Policy Issues, VEIC Final Report and do not need to be restated here.

¹ The questionable logic of U.S. natural gas exports (2-24-2013), *available at* <http://www.resilience.org/stories/2013-02-24/the-questionable-logic-of-u-s-natural-gas-exports>

² NESCOE memorandum to ISO-NE President and CEO, Gordon van Welie (1-21-2014), *available at* http://www.nescoe.com/uploads/ISO_assistance_Trans_Gas_1_21_14_final.pdf

³ Northeast Natural Gas, Pipelines and Big Decisions (10-2-2012), *available at* <https://rbnenergy.com/deja-vu-all-over-again%E2%80%93northeast-natural-gas-pipelines-and-big-decisions>

⁴ Floating Liquefaction/FLNG, *available at* <http://excelerateenergy.com/floating-liquefaction-flng>

⁵ Will LNG Exports Benefit the United States Economy (1-23-2013), *available at* <http://www.synapse-energy.com/Downloads/SynapseReport.2013-01.SC.LNG-Exports-Benefits.13-009.pdf>

⁶ Senate Energy and Natural Resources Committee Hearing on Opportunities and Challenges for Natural Gas (2-12-2013), *available at* <http://www.dow.com/company/insights/pdf/Dow-Senate-Written-Testimony.pdf>

Just over the border in Vermont, gross fuel receipts on retail sales of heating fuel are a very direct solution to the taxing carbon emissions in direct proportion to the amount consumed, that is, at the carbon's source rather than as residual pollution.¹ New Hampshire, in contrast, is plagued by a lack of funding for both services and programs run by the state. This is largely the result of a localized property tax revenues and the absence of both income and sales taxes in the state. The people of New Hampshire take pride in their low taxes. But a carbon tax in New Hampshire would do more than just provide desperately needed funding for both essential services and energy programs, they would actually promote the use and investment of non-combustion energy sources such as wind, solar, geothermal and hydropower desperately needed by the state to reach RPS targets but would also create a disincentive over the creation of new gas pipeline projects while contesting their "greater good" to the community as a whole.

Price instruments such as these need to set price points on the true social as well as atmospheric cost of carbon dioxide emissions while generating a much larger and more direct revenue stream based on carbon transactions. This larger revenue stream should be capable of helping to combat GHG emissions as well as funding other environmental problems. Taxing negative externalities such a residual pollution, as we have seen, can lead to revenue shortfalls, unfair advantages to well funded polluters and market failure overall.

IX. Conclusion

Without measures that would mitigate the impacts of additional fossil fuel infrastructure, natural gas will not serve as a bridge to our future, but will instead a fuel target unto itself creating both real and artificial barriers to the production of a clean energy infrastructure needed to meet the challenges of climate change.

Language in the New Hampshire "Sustainable Energy: Summary of Recommendations" speaks for itself in terms shortcomings in alternative energy and energy efficiency plans that limit successful adoption of renewable energy that would take us beyond ill advised bridge fuel expansion projects such as NED:

While there is language in the purpose statement for the New Hampshire RPS law (RSA 362-F) that articulates the value of stimulating investment in renewable energy, there is currently no general policy outlining the state's overall support for this sector more generally. A broad overarching statement of value and policy support is necessary to provide guidance to regulators, state government, utilities, investors, and other market stakeholders across the wide range of activities that is necessary to undertake for successful long term market development.²

If trends hold, renewable energy deficits are projected for New England, New York, and other regions as the RPS requirements ramp up. Thus, by that time, RPS requirements will lead to increased demand for new supply; if the market conditions are not conducive to new supply, then compliance through ACP will become the default.

¹ Vermont Department of Taxes, Fuel Gross Receipts, <http://www.state.vt.us/tax/majorvttaxesfuel.shtml>

² Independent Study of Energy Policy Issues, VEIC Final Report, 9-30-2011, page 7-3 available at

³ *Id.* at page 7-7.

As stated in the New Hampshire DRAFT State Energy Strategy, we need to bridge the gap between our market and economic potential:

For each resource, the gap between the market potential and economic potential can be attributed to the limitations of policies, regulations, market inefficiency, and consumer awareness. For example, as a state, New Hampshire is not achieving all cost effective energy efficiency that is available for a variety of reasons related to regulatory barriers, consumer education, and lack of access to financing.¹

One of the challenges currently facing New Hampshire's loan programs is the lack of sustainable, consistent funding sources. With most of the existing funds completely loaned out and loan repayments that revolve relatively slowly, it is difficult to maintain programs at a continuous level of service. Fear of advertising a program to customers that may not always be available prevents programs from being well promoted and undermines efforts to educate customers and support market demand.²

Energy priorities in the state of New Hampshire should be out in front with other New England states, not in the middle of the pack barely keeping up with energy efficiency and renewables programs. New pipeline infrastructure is not a "greater good" for our current nor our future economy. Any stretched argument seeking legitimacy from the "cleaner burning" nature of gas must also discount for additional wellhead, pipeline, distribution and flare methane emissions that level its playing field against dirtier fuels. The commodity pressures associated with export markets further erode any "greater good" from gas to our domestic economy. Not discussed in this report are the significant limitations in actual shale reserves that pale in comparison to resource quantity but are often conflated by proponents nonetheless. There are near term possibilities of "peak gas" for both Marcellus and Utica shale, especially at the increased consumption and export rates expected from a 2.2 bcf/d pipeline. Barnett, Eagle Ford, Fayetteville and Haynesville basins are already believed to have achieved "peak gas" scenarios for their shale play reserves. The eventuality of further regulation on the virtually unregulated fracking industry as well as environment push back on this devastating practice with regard to water, air and other natural environments will see this last gasp from the fossil fuel industry die a painful death that should not be at the expense of our New Hampshire economy, population or environment.

¹ NH OEP, *New Hampshire DRAFT State Energy Strategy*, (May. 2014), SB-191, page 27, available at <http://www.nh.gov/oep/energy/programs/documents/sb191-draft-strategy-2014-5-5.pdf> [hereinafter SB-191 Draft].

² *Id.* at page 46.