

# EXHIBIT-12

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*Lovelace et al., v. United States*

**EXPERT REPORT OF DAVID KEITH  
FILED WITH FIRST AMENDED  
COMPLAINT**

August 20, 2015

David Gilbert Keith

41 Old Main St. (Box 304)  
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August 19, 2015

Attorney Cristobal Bonifaz  
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180 Maple Street  
P.O. Box 180  
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Dear Attorney Bonifaz:

Thank you for asking me to examine the question of how much of the gas to be transported by Kinder Morgan's Northeast Energy Direct Project [NED] is likely to be exported. Virtually all studies relating to this project have focused on meeting peak demand for gas in New England. The additional fuel needed to meet peak demand is: A.) going to be delivered by Spectra's Access Northeast and AIM pipeline expansions and B.) a small fraction of the volume of gas Kinder Morgan's pipeline will be capable of delivering.

As an independent researcher I have provided environmental analysis for over 20 years in a number of legal cases involving oil spills as well as noise, air, and water pollution related to aircraft. I am co-author of "The Hidden Cost of Oil: New Orleans to Indonesia" and "After the Gold Rush." I am currently a member of the Deerfield Energy Resources Committee.

As I will show below, most of the 1.2 to 2.2 Billion cubic feet per day of gas NED will transport cannot be used in New England and will be exported.

## **1: New England Natural Gas Capacity and Demand**

Meeting peak demand is about the ability of pipelines to deliver gas at the maximum *rate* of consumption. This is entirely different from a shortage of gas and is only important at all for a matter of hours each year.

When prolonged cold weather causes increased residential demand, existing pipelines approach their flow-rate capacities, much as a household shower may lose power when all the other taps in the building are opened. Long before that, however, they are considered constrained when they are using more than 75% of the capacity that has been subscribed with forward

contracts and this condition is associated with spot market price hikes.<sup>1</sup> While one of many ways to avoid this situation is to increase pipeline capacity, such cold weather seldom lasts more than 40 days of the year. Furthermore, it is only for the two or three hours of maximum consumption within those days that current physical capacities are tested.

Estimates vary on how much pipeline capacity would have to be added to avoid any constraint. ICF International has suggested it would require an additional 0.60 Bcf/d to 0.90 Bcf/d. Yet the actual volume of gas that would be consumed in those hours of highest demand is small—which helps explain why such expansions have not already been built. A 0.9 Bcf/d pipe could deliver 328 Bcf in a year, but ICF’s projection of the size of gas supply deficit for winter of 2019-2020 is between 0 and 22 Bcf/year, less than 7% of what the pipe could deliver.<sup>i</sup> The question of exports moves the focus from the “demand day” needle, to the haystack of overall volumes.

To address export volumes, I look at how much of NED’s capacity will be needed in New England. This study assumes that export volumes will be inversely proportional to the amount of NED-transported gas that *can* be used in New England. This approach is conservative because it disregards the effect exports are likely to have in New England as competition with world prices will most likely raise the price of gas to New England and thus act to lower consumption and encourage further exports.<sup>ii</sup>

[A note on terminology: Several types of units are commonly applied to natural gas. I have converted thermal units to equivalent volume measures, including primarily Billion cubic feet. Similarly, I have converted Million cubic feet [MMcf] and Thousand cubic feet [Mcf] to Billions [Bcf]. It remains important to notice durations, such as per day, month, or year.]

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<sup>1</sup> “Historical load and price analyses show that the region experienced supply stress, expressed as spot market basis spikes, when load levels approached 75% or more of existing firm contract capacity serving the market.” —Black and Veatch, “New England Natural Gas Infrastructure and Electric Generation: Constraints and Solutions,” 4/16/2013

| Pipeline                     | From          | State To       | Bcf/day      | Bcf/year     |
|------------------------------|---------------|----------------|--------------|--------------|
| Tennessee Gas Pipeline Co    | New York      | Connecticut    | 0.150        | 55           |
| Iroquois Pipeline Co         | New York      | Connecticut    | 0.866        | 316          |
| Algonquin Gas Trans Co       | New York      | Connecticut    | 1.355        | 495          |
| Maritimes/Northeast PL Co    | New Brunswick | Maine          | 0.865        | 316          |
| Tennessee Gas Pipeline Co    | New York      | Massachusetts  | 1.169        | 427          |
| Portland Gas Trans Co        | Quebec        | New Hampshire  | 0.216        | 79           |
| Vermont Gas Sys Inc          | Quebec        | Vermont        | 0.062        | 23           |
| <b>Existing TOTAL</b>        |               |                | <b>4.683</b> | <b>1,709</b> |
| <b>Non-NED Planned:</b>      |               |                |              |              |
| Algonquin Incremental Market | New York      | Connecticut/MA | 0.330        | 120          |
| Access Northeast             | New York      | Connecticut/MA | 1.000        | 365          |
| <b>Combined TOTAL</b>        |               |                | <b>6.013</b> | <b>2,195</b> |

**Figure 1. New England Net Inflow Capacity<sup>2</sup>** (US EIA data)

New England pipeline capacity can already more than meet forward contracted “firm” demand. Local Distribution Companies [LDCs] serve the residential, commercial, and industrial sectors that together represent just over 50% of New England’s natural gas consumption.<sup>iii</sup> Almost all the rest of New England’s natural gas consumption belongs to the electric generation sector. Electric power companies have relied on supplies from excess capacity and leftovers from what the LDCs have released from their capacity assignments. This surplus gas comes at discounted rates because it is “interruptible.” Interruptions of supply to electric generators can occur when LDCs need all the gas their contracts guarantee, usually during prolonged cold weather when residential customers need more gas for heat.<sup>3</sup>

Most of new demand and price volatility in New England has come from increased use of natural gas to power electrical generation. The consulting firm ICF International notes that the shortage of capacity can occur on “design days” when demand approaches the reserve inflow capacity rate. Even for these days, ICF reports: “The projected deficits in gas supply apply only

<sup>2</sup> “Net” includes only capacity that stays in New England. According to Todd White, Director, Business & Transportation Services, Iroquois Pipeline Operating Company, on those days when New England is nearing constraints, the Iroquois pipeline that transits from New York through New England can redirect its usual flow (which goes back to New York) to provide up 0.9 Bcf/d to New England. (Email to Mark Babula, ISO-NE, 12/28/2011) The region can also re-gasify stored and Liquid Natural Gas for “peak shaving.”

<sup>3</sup> “Therefore, in the context of this report, a gas supply ‘deficiency’ suggests that the firm shippers are at or near their full contract limits and there is insufficient interruptible pipeline capacity remaining to meet the overall needs of the electric generators. A potential deficit of supplies available to electric generators does not mean that the pipelines serving New England are under-designed or otherwise incapable of meeting their contractual firm shipper obligations; rather it raises a number of questions about how to address potential supply shortages for electric generators.” ICF International, LLC., “Assessment of New England’s Natural Gas Pipeline Capacity to Satisfy Short and Near Term Electric Generation Needs: Phase II,” p.1, Nov. 20, 2014

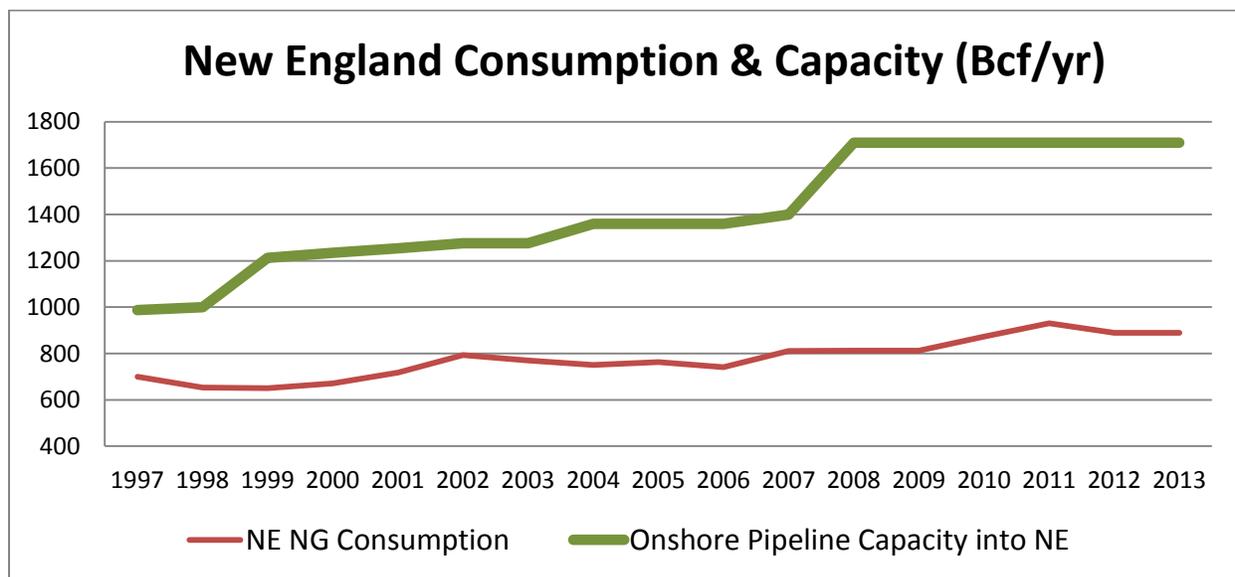
[http://www.iso-ne.com/static-assets/documents/2014/11/final\\_icf\\_phii\\_gas\\_study\\_report\\_with\\_appendices\\_112014.pdf](http://www.iso-ne.com/static-assets/documents/2014/11/final_icf_phii_gas_study_report_with_appendices_112014.pdf)

to the power sector; gas supply capabilities are adequate to meet non-power, firm gas demand.<sup>viv</sup> Virtually all demand for additional capacity into New England is for electric generation.

## 2. The “Missing Money” Problem and Releases to the Electric Sector

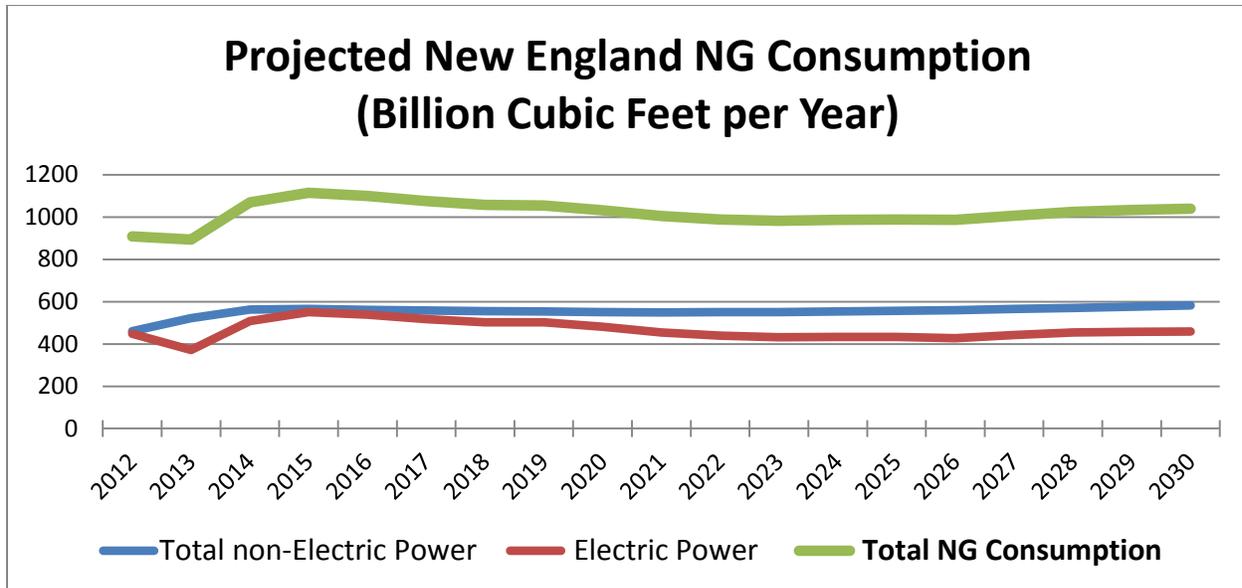
The reluctance of the electric sector to buy forward contracts for gas has led to what economists have called a “missing money” problem.<sup>v</sup> Without guaranteed sales, pipeline companies have been reluctant to spend on incremental expansions. Yet purchasers do not need enough of the expanded capacity to pay higher rates for firm-contracted gas.

*In 2011, Spectra Energy (operator of the Algonquin pipeline) proposed the Algonquin Incremental Market (AIM) Project to expand its citygate capacity by a nonbinding nomination of 1 Bcf/day. In December 2013, the proposed capacity expansion was 0.33 Bcf/day, with the target completion in November 2016. The size of the pipeline capacity expansion was reduced 65% from the original proposal because of lack of interest in signing up for long-term firm transport capacity contracts.<sup>vi</sup> [My emphasis.] —U.S. EIA*



**Figure 2.** US EIA data: [http://www.eia.gov/dnav/ng/ng\\_cons\\_sum\\_a\\_epg0\\_vc0\\_mmcf\\_a.htm](http://www.eia.gov/dnav/ng/ng_cons_sum_a_epg0_vc0_mmcf_a.htm)  
[http://www.eia.gov/dnav/ng/NG\\_MOVE\\_IST\\_A2DCU\\_SMA\\_A.htm](http://www.eia.gov/dnav/ng/NG_MOVE_IST_A2DCU_SMA_A.htm)

Announced non-gas-powered electric generation plant retirements have a combined total of 2,564 MegaWatts [MW] of generating capacity.<sup>vii</sup> To replace that generation with gas would consume 164 Bcf/y. In fact, converting all coal, petroleum, and even nuclear plants in New England to natural gas fuel would create an additional demand for gas of 401 Bcf/y. More realistic estimates of electric sector consumption, moreover, project an overall decline.



**Figure 3.** (From US EIA AEO 2015 data.) “Non-Electric Power” includes the residential, commercial, industrial, and transportation sectors.<sup>viii</sup>

Despite this anticipated decline in demand, Spectra Energy has already begun work on the Algonquin Incremental Market project to bring 0.33 Bcf/d to New England by next year. And significantly, Spectra has announced a partnership with Eversource and National Grid to build its Access Northeast project to bring another 1.0 Bcf/d to New England. Although this project is not much farther along in the regulatory process than NED, it has two compelling advantages. First, it will use the route of existing pipelines. NED will require takings for large portions of “greenfield” development. Second, the two partner energy companies, Eversource and National Grid, control purchase of 70% of current gas-powered electrical generation stations in New England as well as the largest non-gas fueled stations that might “repower” to natural gas.

The AIM project’s additional 0.33 Bcf/d will easily meet expected short-term growth in overall non-electric demand. Eversource and National Grid clearly anticipate using additional supply from Spectra’s Access Northeast. Therefore, the sole remaining market in New England for NED’s capacity is for some LDCs that may find it geographically convenient to connect with NED and a maximum of 30% of the gas-fueled electric plant demand. Though gas-powered electric generation is expected to lower demand through efficiency improvements, average generation-sector consumption in the three years from 2012 through 2014 was 433 Bcf per year. Therefore, the most NED can expect to deliver for electric generation (30% of the sector) is 165 Bcf per year.

### 3. Contracts vs. Consumption

Kinder Morgan has announced precedent agreements for NED reserving 0.5 Bcf/d of incremental capacity, but there are two reasons not to assume this guarantees use of that volume of natural gas in New England. First, Kinder Morgan has not shown that it really has that high a subscription.<sup>ix</sup> One of the subscribers, National Grid, is not applying for the announced 0.187 Bcf/d, but instead for 0.152 Bcf/d.<sup>4</sup> A considerable portion of other commitments to NED may be *transfers* of commitments which replace existing contracts and will therefore not be filling new demand. New capacity is referred to as “incremental,” while transfers of assignments formerly contracted with other pipelines is considered “replacement capacity.” Much of NED’s announced capacity is replacement, not incremental, capacity. In terms of use of NED’s gas, this point matters to the degree that NED is accepting replacement contracts from the other Kinder Morgan pipeline, which is not public information.<sup>5</sup>

Second, precedent agreements guarantee that on any given day the party to that agreement can demand and receive the volume of gas it has reserved. It does not, however, mean that those companies need their reserved amount every day.<sup>6</sup> For most of the year, holders of assigned demand use only a fraction of the volume they have reserved.

### 4. Firm and Non-firm Supply: Electric Generation

*“Consequently, most gas-fired generation in New England relies on pipeline capacity that is available in the market only if it is not otherwise required by the parties that have contracted for the capacity.”—*  
Tennessee Gas Pipeline Co., L.L.C., to MA D.P.U.<sup>x</sup>

Pipeline capacity into New England is said to be fully subscribed with forward, firm contracts.<sup>xi</sup> Yet New England’s electric sector has historically relied on interruptible, non-firm supply. Assuming pipelines are indeed fully subscribed, that means that the holders of firm contracts—the Local Distributor Companies—are releasing from their reserved portions nearly as much gas as they use, because that is primarily what the electric sector has relied on for gas supply.<sup>7</sup> As Figure 4 shows, the non-firm electric sector has consumed roughly 46% of New

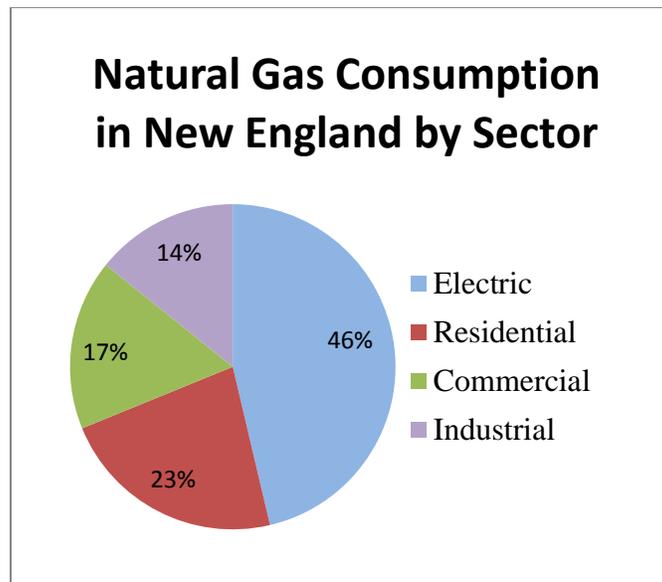
<sup>4</sup> While National Grid is a partner with Spectra on its pipeline expansions, National Grid also does business as Colonial Gas and Boston Gas, both of which are LDCs and therefore mandated to hold firm contracts.

<sup>5</sup> For a thorough evaluation of this issue, see: Letter from Kathryn Eiseman to Kimberly D. Bose, FERC, 4/8/2015. Dkt # PF14-22

<sup>6</sup> The Massachusetts LDC Berkshire Gas Company reported to the MA DPU in 2013 that it sold about 4.5 Bcf of gas to its customers. It is currently seeking permission to purchase 36,000Dth/d from NED, which works out to 131.4 Bcf/y or 29 times what it sold to customers last year.

<sup>7</sup> Kinder Morgan itself described the issue well in comments to the Massachusetts Department of Public Utilities: “The existing structure of the New England wholesale electric market does not incent gas-fired generation in the region to contract for and support the construction of additional pipeline capacity,

England's incoming pipeline gas, most of which must have been released from the unused portion of the gas subscribed by all the other, firm-contracted, sectors.

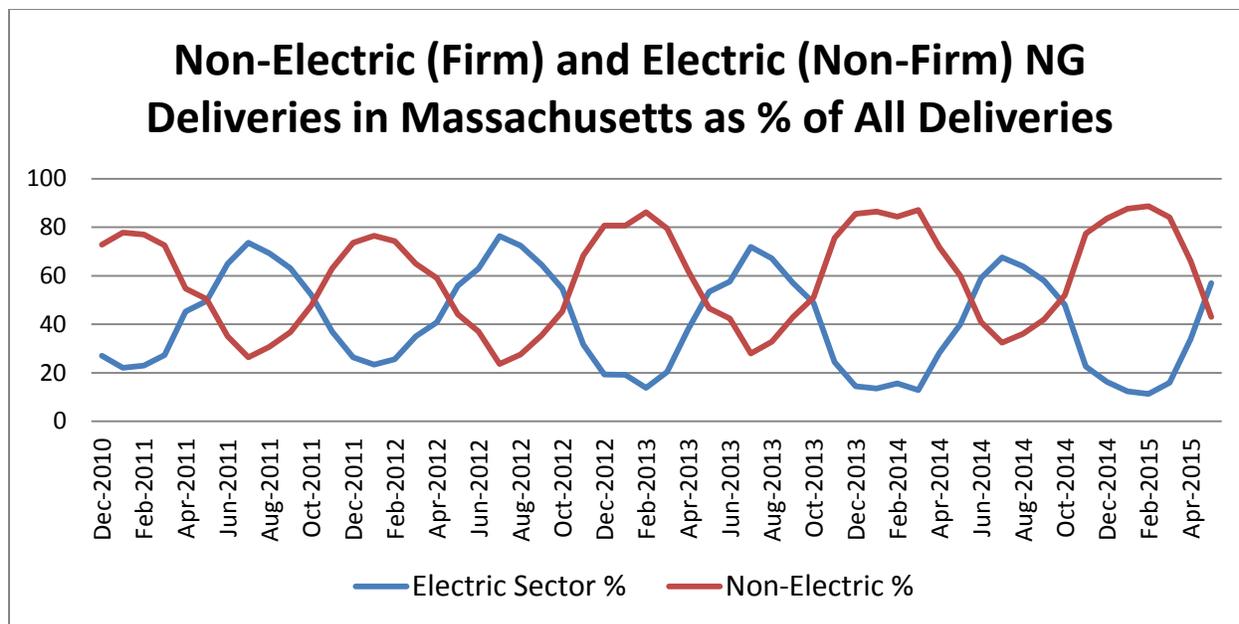


**Figure 4.** (Average for last 3 years of complete EIA data; 2012-2014.) Only the Electric Generation sector buys non-firm, interruptible supply even though it consumes almost as much as all the “firm” sectors.

A comparison of the total deliveries of gas to the firm, forward contracted LDCs and the non-firm, interruptible electric sector in Massachusetts shows the reciprocal relationship of firm/non-firm consumption (see Figure 5).

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because the generators are not assured that they will be able to recover the long-term costs associated with contracting for new capacity and, therefore, in most cases cannot financially justify the required long-term contractual pipeline commitments.” —Deweese, Robt. L. et al., “Investigation into the Means by Which New Natural Gas Delivery Capacity May be Added to the New England Market, Including Actions to be Taken by the Electric Distribution Companies,” Initial Comments of Tennessee Gas Pipeline Company, L.L.C., June 15, 2015, D.P.U. 15-37 [http://www.kindermorgan.com/content/docs/NED\\_TGP\\_Comments.pdf](http://www.kindermorgan.com/content/docs/NED_TGP_Comments.pdf)



**Figure 5.** (From EIA data.) The electric sector relies on natural gas released from forward contracts held by LDCs serving the other sectors. When LDCs need what they have reserved, the electric sector receives less gas.

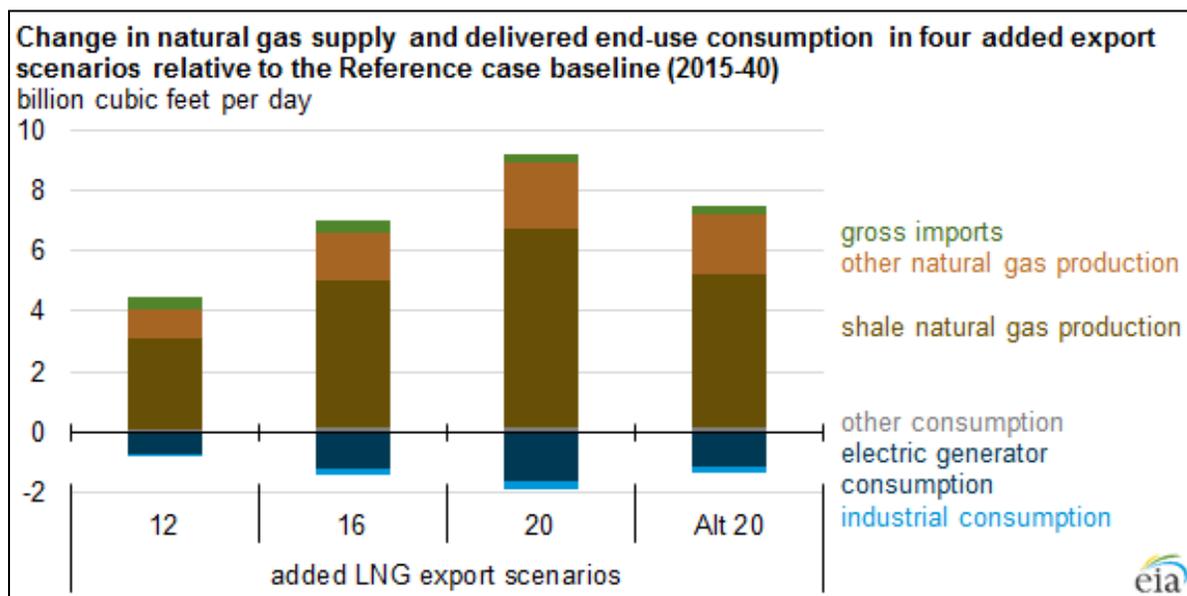
The electric sector uses roughly 40% of all gas consumed in New England (see Figure 5). Also historically, that 40% has been released by LDCs supplying gas to all other sectors. In other words, those holding firm contracts have on average used only 50% to 60% of the amount of gas they have reserved by precedent agreements. If Kinder Morgan has 0.50 Bcf/d in precedent agreements, 40% of that, or 0.20 Bcf/d, is likely to be released. Yet the portion of the gas-powered electric demand not belonging to Spectra partners is a maximum of 0.165 Bcf/d. Therefore, roughly 0.035 Bcf/d of even NED's forward contracts will have no market in New England. Although this is a comparatively small amount of gas, the larger point is that there is no market in New England for the remaining capacity of NED.

As recently as 2012 Kinder Morgan's Tennessee Gas Pipeline, Co. was seriously considering "looping" its existing Line 200 into Massachusetts, proposing to increase Line 200's capacity up to 1.0 Bcf/d by expanding some sections of pipe and running parallel pipe in the same right-of-way.<sup>xii</sup> The consulting firm Black & Veatch estimated the cost of the project to be \$653 Million.<sup>xiii</sup> Even if this cost estimate was low, it was certainly considered cheaper to loop Line 200 to bring 1.0 Bcf/d to Boston than to build the "greenfield" NED project which is estimated to cost between \$3 Billion and \$6 Billion. That Kinder Morgan has only demonstrated a market for half of what the cheaper project could provide, yet is proceeding with the more expensive project, indicates that it anticipates a market beyond New England.

## 5. Exports

Total demand for natural gas in New England is expected to decrease. NED already cannot expect to sell even the full 0.50 Bcf/d that have been reserved. Presumably Kinder Morgan has another market in mind.

Regarding increased production in general, the U.S. Energy Information Agency concludes, “Increased natural gas production would meet most demand from added LNG exports.... In the export scenarios that EIA was asked to analyze, LNG exports from the Lower 48 states start in 2015 and increase at a rate of 2 billion cubic feet (Bcf) per day per year, ultimately reaching 12, 16 or 20 Bcf/d.”<sup>xiv</sup> Note that “demand” in this context is not from consumers, but instead demand by producers and shippers to get gas away from the fields where the “fracking” boom has created surpluses of gas.



**Figure 6. Source:** U.S. Energy Information Administration, *Effect of Increased Levels of Liquefied Natural Gas Exports on U.S. Energy Market* **Note:** Excludes natural gas used to fuel added liquefaction. Scenarios 12, 16, 20, and Alt 20 refer to different liquefied natural gas export scenarios, explained in the article text and in the [full report](#). Reference Case baseline comes from EIA's *Annual Energy Outlook 2014*.<sup>xv</sup>

*Two proposed liquefied natural gas projects have received approval from the National Energy Board to export LNG, but they are counting on the United States to build pipeline capacity into New England in order for them to obtain the supply needed to underpin their ambitious plans.*

—*Globe & Mail*, 8/19/15<sup>xvi</sup>

The Canadian Broadcast Corporation reports: “The company that owns majority interest in the Maritimes and Northeast Pipeline has announced plans to reverse its flow from south to north, putting pressure on New Brunswick's Saint John's Canaport liquefied natural gas terminal to convert into an export facility.”<sup>8</sup> The same report notes that another LNG export facility is also proposed for Guysborough County in Nova Scotia and adds: “The Saint John’s terminal is idle for extended periods each year. For the most part, it sends gas into the United States during peak winter-demand periods.”<sup>xvii</sup> The Maritimes & Northeast pipeline was built to bring Canadian gas south, ending in Dracut, Massachusetts, but demand is already proving insufficient and Canadian production is diminishing. The far greater flood of gas Kinder Morgan proposes to deliver will not “sit idle.” The natural gas transported through Kinder Morgan’s NED pipeline will likely find much of its demand in exports as liquefied natural gas.

The bulk of NED’s gas is clearly destined for export terminals on the northern Atlantic coast. Pieridae Energy has applied to the Canadian National Energy Board for permission to import up to 1.0 Bcf/d from the northeast U.S. Another terminal is close to final approval in Maine. That company, Downeast LNG, reports: “The project plans to source gas at Wright, N.Y., and transport it via the existing pipeline system through Canada to Maine or via the currently proposed Kinder Morgan Northeast Direct project that would run from Wright to Dracut, Mass.”

## 6. Conclusion

1. Peak flow rates may be slightly slower than consumption in extreme and long lasting cold weather, but the total volume of extra gas needed to keep up with those “needle peaks” is very small (between 0 and 22 Bcf/y) compared to total capacities.
2. At least in the next 20 years, New England is unlikely to use more than 1,300 Bcf/y. Demand is expected to continue growing moderately for only another year or two, when it is expected to decline.
3. New England can already receive 1,709 Bcf/y on existing pipelines. Should Spectra’s subscribed AIM and Access Northeast pipelines begin delivery, New England’s onshore pipeline net inflow capacity will be 2,195 Bcf/y.
4. NED is unlikely to sell even its declared subscribed amount of gas, 0.50 Bcf/d.
5. Depending on whether NED is built to carry 1.2 Bcf/d or the 2.2 Bcf/d option that is still being applied for, 0.7 Bcf/d or 1.7 Bcf/d of its capacity will be available for export.
6. Kinder Morgan is proceeding with its Northeast Energy Direct project even though it is undersubscribed and even though there is a far less expensive way (Looping Line 200) to meet that subscription.

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<sup>8</sup> While this change is cited as removing 0.883 Bcf/d of inflow capacity to New England, the most gas New England actually received from the pipeline was 0.576 Bcf/d and the average for 1989-2013 was 0.302 Bcf/d, while Spectra’s new AIM project is bringing 0.333 Bcf/d to New England by the end of 2016 (US EIA data).

Most of the gas transported by NED will be available for export. Because there seems to be little economic justification for building a \$3 Billion to \$6 Billion greenfield project in the absence of export income, I conclude that Kinder Morgan is depending on getting most of the natural gas NED will transport to LNG export terminals on the northern Atlantic seaboard for shipment and sale on the international market.

Thank you for allowing me this opportunity to examine this important issue.

Sincerely,



David Gilbert Keith

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<sup>i</sup> ICF, Intl., “Assessment of New England’s Natural Gas Pipeline Capacity to Satisfy Short and Near-Term Electric Generation Needs: Phase II,” Fairfax, VA 12/16, 2013, p. 39 [http://www.iso-ne.com/committees/comm\\_wkgrps/prtcpnts\\_comm/pac/mtrls/2013/dec182013/a3\\_draft\\_icf\\_phase\\_2\\_gas\\_study\\_report\\_without\\_appendices.pdf](http://www.iso-ne.com/committees/comm_wkgrps/prtcpnts_comm/pac/mtrls/2013/dec182013/a3_draft_icf_phase_2_gas_study_report_without_appendices.pdf)

<sup>ii</sup> New England is already experiencing a similar effect as cheaper gas from the Marcellus fields has led to reduced investment in and, therefore, production from Canada’s Sable and Deep Panuke fields as well as LNG import terminals, reducing receipts from the Maritimes & Northeast pipeline. While this has not raised costs in New England, it is affecting at least the perception of inflow capacity.

<sup>iii</sup> According to U.S. EIA data related to EIA’s Annual Energy Outlook for 2015:

<http://www.eia.gov/beta/aeo/#/?id=2-AEO2015&region=1-1&cases=ref2015&start=2012&end=2040&f=A&linechart=2-AEO2015.7.~2-AEO2015.21.~2-AEO2015.130.~2-AEO2015.37.~2-AEO2015.111.&map=&ctype=linechart>

Also, in New England’s largest gas consuming state, Massachusetts, LDCs are mandated to forward contract for “firm” supplies. “DTE [MA Dept. of Public Utilities] concluded that the upstream capacity market is not yet sufficiently competitive to change the current mandatory capacity assignment approach.”

[http://www.eia.gov/oil\\_gas/natural\\_gas/restructure/historical/2005/state/ma.html](http://www.eia.gov/oil_gas/natural_gas/restructure/historical/2005/state/ma.html)

<sup>iv</sup> “Assessment of New England’s Natural Gas Pipeline Capacity to Satisfy Short and Near-Term Power Generation Needs: Phase 1,” ICF International, LLC, p. 34, 6/24/2012 Public Version

<sup>v</sup> Hogan, Wm. W., “Electricity Market Design and Efficient Pricing: Applications for New England and Beyond,” Harvard, 6/24/2014

[http://www.hks.harvard.edu/fs/whogan/Hogan\\_Pricing\\_062414r.pdf](http://www.hks.harvard.edu/fs/whogan/Hogan_Pricing_062414r.pdf)

<sup>vi</sup> U.S. EIA, “High prices show stresses in New England natural gas delivery system,” Feb. 7, 2014

<http://www.eia.gov/naturalgas/review/deliverysystem/2013/> (Accessed 2/2/2015)

<sup>vii</sup> London Economics International LLC “Maine Energy Cost Reduction Act: Cost benefit analysis of ECRC proposals,” report for Maine Public Utilities Commission 6/20/15 p. 69 Figure 45.

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<sup>viii</sup> See also *ibid.* p.61. London Economics notes that GPCM model projects somewhat higher consumption than the EIA, but still with an overall decline in demand led by efficiency improvements in electricity generation as well as direct electric power purchases from Canada.

US EIA, “Annual Energy Outlook-2015” Note that the sum of non-electric sectors and generation consumption is less than total consumption because the former do not include gas storage or gas used or lost in the transportation of natural gas. <http://www.eia.gov/beta/aeo/#/?id=2-AEO2015&region=1->

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<sup>ix</sup> Kinder Morgan, Inc. Press release 3/5/15: “Kinder Morgan Confirms Anchor Shippers for Northeast Energy Direct Project,” <http://www.kindermorgan.com/content/docs/0305NEDPR.pdf>

<sup>x</sup> Dewees, Jr., et al., to MA Department of Public Utilities, [D.P.U. 15-37] “Investigation into the Means by Which New Natural Gas Delivery Capacity May be Added to the New England Market, Including Action to be Taken by the Electric Distribution Companies,” Tennessee Gas Pipeline Company, L.L.C., 6/15/15. p. 10  
[http://www.kindermorgan.com/content/docs/NED\\_TGP\\_Comments.pdf](http://www.kindermorgan.com/content/docs/NED_TGP_Comments.pdf)

<sup>xi</sup> E.G., “

<sup>xii</sup> Skipworth, Dodson “Northeast Gas Association Pre-Winter Briefing 2012/2013,” Tennessee Gas Pipeline Co. L.L.C., 12/3/12 Slide 17 “TGP Northeast Expansion—200 Line Looping”  
[http://www.northeastgas.org/pdf/d\\_skipworth.pdf](http://www.northeastgas.org/pdf/d_skipworth.pdf)

<sup>xiii</sup> Black & Veatch, “New England Natural Gas Infrastructure and Electric Generation: Constraints and Solutions,” Prepared for the New England States Committee on Electricity, 4/6/13, p. 26  
[http://www.nescoe.com/uploads/Phase\\_II\\_Report\\_FINAL\\_04-16-2013.pdf](http://www.nescoe.com/uploads/Phase_II_Report_FINAL_04-16-2013.pdf)

<sup>xiv</sup> U.S. Energy Information Agency, “Today in Energy: Increased natural gas production would meet most demand from added LNG exports,” 11/12/14 <http://www.eia.gov/todayinenergy/detail.cfm?id=18771> (Accessed 1/25/15)  
See also: U.S. EIA “Annual Energy Outlook with projections to 2040,” Marcellus natural gas exceeds 100% of the demand projected for the New England and Mid-Atlantic Census Divisions from 2016 through 2040 in the Reference case, requiring transportation of some Marcellus gas to other markets. During the expected peak production period for the Marcellus shale, from 2022 through 2025, its total production exceeds natural gas consumption in the New England and Middle Atlantic regions by more than 1.0 Tcf over the period.  
[http://www.eia.gov/forecasts/aeo/MT\\_naturalgas.cfm](http://www.eia.gov/forecasts/aeo/MT_naturalgas.cfm) (Accessed 2/3/2015)

<sup>xv</sup> Ibid.

<sup>xvi</sup> McCarthy, Shawn, “Two National Energy Board-approved LNG projects hinge on U.S. permits,” Ottawa, Globe & Mail, 8/19/15 <http://www.theglobeandmail.com/report-on-business/industry-news/energy-and-resources/two-national-energy-board-approved-lng-projects-hinge-on-us-permits/article25995937/>

<sup>xvii</sup> CBC News: “New uses sought for Saint John’s Canaport LNG terminal,” 1/23/2015  
<http://www.cbc.ca/news/canada/new-brunswick/new-uses-sought-for-saint-john-s-canaport-lng-terminal-1.2538819>  
(Accessed 1/25/2015)