Wholesale Investigation (IR 15-124) Initial Staff Questions for New Hampshire PLAN - July 13, 2015

Instructions for responses: Please e-mail responses in PDF format by July 24, 2015 to alexander.speidel@puc.nh.gov

1. To the degree that NH PLAN has a specific solution to the region's high and volatile winter electricity prices that it would like Staff to consider as part of its investigation , please provide the details of that solution. For example, if the solution is LNG based, identify the type, scale, and cost of the required facilities, specify how the proposed products/services (including LNG commodity service) would be priced, and state whether the source of the LNG commodity is domestic or foreign and whether the project owners/developers are non-regulated. Finally, provide a clear explanation of how the project will reduce winter wholesale electricity prices.

   NH PLAN believes that energy efficiency and demand reduction provide the greatest cost savings and energy market price reductions.[1] Energy efficiency also provides peak demand benefits[2] and effects wholesale prices[3]. The AESC Study predates new rules on methane emissions[4] and does not identify social costs associated with CH4[5]. The life cycle emissions cost of fugitive methane[6] is expected to affect regulation[7] and possibly the value of additional gas on large volume infrastructure projects such as the NED. Assuming favorable outcomes on future legal rulings[8], demand response may also reduce peak demand on future wholesale power markets[9] making large infrastructure projects like NED an obsolete means of solving such problems.

   The regulated cost of methane is likely to further incent renewable energy projects[10]. The magnitude of the NED project is symbolic of what appears to be a 30 year industry blueprint to transition from coal and oil to gas which is unsustainable for our state, region, country and

[1] http://www.forbes.com/sites/statoil/2015/02/26/the-natural-gas-myth/
[2] P. 36, http://www.cectoxic.org/AEEE_Best_Value_is_Energy_Efficiency.pdf
[3] http://ma-eeac.org/wordpress/wp-content/uploads/2015-Regional-Avoided-Cost-Study-Report1.pdf
[4] http://www.bloomberg.com/news/articles/2014-06-04/obama-emission-rules-discount-gas-leaks-scientists-say
[5] http://thehill.com/policy/energy-environment/229450-obama-moves-to-regulate-methane-emissions-from-oil-and-gas
[6] http://blogs.edf.org/energyexchange/2013/11/05/methane-a-key-to-dealing-with-carbon-pollution/ http://www.climatecentral.org/news/abandoned-oil-wells-methane-emissions-17575?utm_hp_ref=mostpopular http://www.ucsusa.org/clean_energy/our-energy-choices/coal-and-other-fossil-fuels/infographic-climate-change-risks-natural-gas.html
[7] http://www.scientificamerican.com/article/methane-leak-rate-proves-key-to-climate-change-goals/
[8] http://www.regblog.org/2015/01/22/aagaard-eisen-ferc-demand-response/
[9] http://www.regblog.org/2015/01/22/aagaard-eisen-ferc-demand-response/
[10] http://theconversation.com/will-obamas-fugitive-methane-plan-reduce-or-increase-our-dependence-on-natural-gas-36394

planet.[11]. To the extent that an alternative 30 year transition toward a burgeoning renewable market[12] supported by distributed production[13] and storage innovations[14] is underway and better reduces economic cost and frequency associated with climate catastrophe, renewable energy would provide far better service to our anticipated future climate debt.

NH PLAN suggests that LNG serve as the bridge fuel of choice to transition New England into a renewable, sustainable economy at a cost savings, both socially and economically. Whether imported or domestic, LNG storage is a first-in-line, direct solution to fuel reliability for peak demand and adds diversity to our supply choices without the infrastructure costs of pipelines. Historically, LNG provides lower cost for addressing peak demand than oil on a dollar per MMBtu basis. Then, as renewable projects increase and gas projects diminish over time, the price suppression effects of renewable energy will steadily increase benefits to rate payers.[15]

NH PLAN has neither the expertise nor the means to conduct a full-scale analysis of the cost/benefit to various LNG supply approaches or site requirements associated with say 160,000m³ C³T storage facilities. But it encourages authorities and regulators to do so. LNG storage may provide greater self-sufficiency, fuel reliability and price stability to New England's regional power infrastructure at a cheaper, potentially safer and less invasive cost than pipeline projects. Furthermore, if gas-fired power plants or EDC's do not or cannot secure firm subscriptions for gas, it is conceivable that no incremental or even export-level gas pipeline expansion projects will produce the fuel reliability and electric price stability that is sought.

NH PLAN asserts that any real capacity shortfall to the New England region is largely being addressed through ongoing pipeline expansions such as the AIM project that will minimize '16/'17 winter volatility according to the "base case" scenario of a recent London Economics study. That study also predicts a completely flat power demand curve between now and 2028. NH PLAN believes power demand will be even lower with continued adoption of decentralized generation, deployment of new efficient lighting and appliances, etc. To the degree that New England has a fuel reliability and price stability problem for gas generators, these won't be resolved by introducing or upgrading gas supply through the traditional LDC precedent agreement model. Raising alarms of an energy crisis will not ensure New England applies better

[11] http://news.yahoo.com/un-panel-global-warming-human-105210044.html#
[12] http://www.nytimes.com/2014/11/24/business/energy-environment/solar-and-wind-energy-start-to-win-on-price-vs-conventional-fuels.html?ref=science
http://www.bostonglobe.com/business/2014/11/24/renewable-energy-starts-win-price/1qaykTeSKnfZSf5UZoLwfN/story.html
[13] http://www.motherjones.com/environment/2014/11/solar-energy-power-boom-charts
[14] http://www.csmonitor.com/World/Making-a-difference/Change-Agent/2014/1031/Innovations-in-storage-boost-renewable-energy
http://www.utilitydive.com/news/inside-sce-and-oncors-big-plans-to-deploy-utility-scale-storage/331838/#.VGP4hbAf4Zc.mailto
http://alevo.com/gridbank/stacked-services/
[15] http://www.clf.org/blog/clean-energy-climate-change/renewable-energy-saves-money/

judgment to solve such issues but will risk an overreaction that saddles ratepayers with excessive infrastructure and fails to address systemic problems.

Page 1. Please explain why NH Plan believes the NED project is the least likely alternative to result in the mitigation of price volatility and assured reliability in the electric market?

Built to either 30" or 36" pipe specification, NH PLAN believes the NED project is the most excessive, invasive and risky of all projects addressing New England's energy concerns. Many incremental gas initiatives are already underway yet the NESCOE gas study on which projects like NED are predicated disregards all other incremental gas to the region besides the Spectra AIM project. As such, the NED project appears to be sized to meet the entire high growth, high demand projections for the region beyond 2030. One promising new project, not specified in NH PLAN's first submission, involves the Iroquois and PNGTS systems and the C2C project to route gas from Wright, NY through Canada and back down into Pittsburg, NH, Eliot, ME and Dracut, MA as an incremental replacement for the NED project along existing rights of way. Incremental alternations to existing pipelines already in the ground are inherently cheaper to fund. Also, every other incremental gas project currently sited for New England exists either completely or predominantly along existing rights of way, except NED.

The environmental and land owner upheaval associated with the NED project goes unchanged by TGP's recent decision to downsize the NED project to its smaller specification and actually leaves the door open for future disruption from new projects which are increasingly sited along existing rights of way. Kinder Morgan spokesman, Allen Fore, has already stated that "the same amount of land will be required" and "we'll probably still be seeking a 50-foot permanent easement along the route".[16] The smaller pipe specification also means the cost per unit will also increase:

30" pipeline	$3.3 billion for 1.3BCF is $2.5 billion in pipeline costs per BCF.
36" pipeline	$4.4 billion for 2.2BCF is $2 billion in pipeline costs per BCF. NOTE: Earlier 36" estimates from Kinder Morgan were $1.8 billion per BCF

Kinder Morgan claims that it is "designed to serve natural gas utilities and electricity generation customers in New England"[17] yet it has not signed a single generator for its capacity. The FERC cannot claim that a pipeline project is in the public's interest and thereby worthy of regulatory approval unless a clear need for all its design capacity can be demonstrated. Under such a regime, Kinder Morgan cannot make claims that it can service the electrical market when design day conditions exist. Yet, it is these very days upon which the size of projects like NED are

[16] http://www.unionleader.com/article/20150717/NEWS05/150719244&source=RSS
[17] http://www.businesswire.com/news/home/20150716005175/en/Kinder-Morgan-Approves-Proceeding-Tennessee-Gas-Pipeline%E2%80%99s#.Va7H-_mVmao

predicated. In opening statements of Kinder Morgan's most recent pipeline announcement, an unsubstantiated claim is repeated …

> *NED is designed to supply a critical energy resource, domestically produced, abundant and clean natural gas,* ***to help alleviate New England's uniquely high*** *natural gas and* ***electricity costs*** *caused by the severely limited natural gas transportation capacity currently serving the region.*[18]

If electric price volatility is directly tied to constraints in gas capacity but "capacity" is "constrained" by firm heat load commitments sized to peak heat load demand, the suggestion that fuel reliability or price stability for the gas-electric market can be stabilized by LDC contracts is ludicrous.

In general, the Electric industry does not make firm commitments to support additional pipeline capacity. Only until exploratory dockets such as this find market-based incentives that enable pipelines to provide something more firm than flexible services to meet generator needs should any gas pipeline infrastructure be approved using winter reliability as a justification. Yet pipeline projects are being justified and approved based upon a lack of adequate interruptible natural gas transport capacity available to natural gas power generators.

p. 18 of the NESCOE Gas Study, Phase I, writes:

> The study concludes that New England's power generators should expect an **interruptible** pipeline capacity deficiency equivalent to 1,800 MW to 2,600 MW through 2020.[19]

p. 30 of NESCOE Gas Study, Phase II, warns that:

> The level of natural gas constraints projected for the year 2023-2024 represents approximately the equivalent of 4,000 MW of capacity dispatched for 10 hours every day for more than 20 days throughout the region, which could be a challenging requirement to meet primarily using demand response resources. Thus, demand response may be considered as a complement to other potential solutions in Phase III.[20]

p. 54 of NESCOE Gas Study, Phase III, concludes:

> As a result of the lower natural gas prices achieved via the cross-regional pipeline or the import of LNG, each of these solutions will reduce power prices by a respective $30/MWh and $25/MWh in peak winter months. [21]

[18] http://www.businesswire.com/news/home/20150716005175/en/Kinder-Morgan-Approves-Proceeding-Tennessee-Gas-Pipeline%E2%80%99s#.Va7H-_mVmao
[19] http://www.nescoe.com/uploads/Phase_I_Report_12-17-2012_Final.pdf
[20] http://www.nescoe.com/uploads/Phase_II_Report_FINAL_04-16-2013.pdf
[21] http://www.nescoe.com/uploads/Phase_III_Gas-Elec_Report_Sept._2013.pdf

Approving and constructing a new pipeline system based upon LDC heat load contracts with the intention of providing fuel reliability or price stability during peak demand is, at best, speculative. New LDC-based gas pipelines like NED are supposed to meet design day requirements for heat load and are supposed to be physically designed to meet firm transport obligations devoid of reserve margins that could represent stranded costs. Any additional capacity benefit from utilizing "lumpy" or fixed size infrastructure that is larger than design day requirements risks stranded costs that may never be recovered by rate payers. When and if such costs are recovered by the LDC market, they would no longer provide any potential for peak demand benefits to the electric market.

The gas industry has never successfully convinced the gas-electric market to embrace meaningful support for pipeline projects that contract for firm capacity. As gas demand increases, the risk of interruptible gas supply disruption also increases. During high demand days, contracted customers utilize all their firm pipeline capacity and customers without firm capacity cannot reserve space on the pipeline to move gas on their behalf. Pipeline customers with interruptible contracts cannot expect capacity will be available on an interruptible basis. When a pipeline cannot schedule interruptible transportation, it is not a reliability issue, it is a contracting issue. Absent firm contracts, gas must be bought on a highly volatile spot market. During high demand, which entails high price fluctuation, generators will find it difficult to clear the lowest marginal cost set for wholesale electric. When interruptible capacity cannot be provided due to contractual shortages, a flood of potential buyers are forced onto the secondary market where demand is high and contracted pipeline capacity is minimal.

Attachment 2 of Eversource's docket comments[22] uses cherry-picked data to illustrate wild fluctuations in price that occurred in the '13/'14 winter season. While I would agree with Eversource that the daily average LMPs at the Mass Hub also demonstrates significant fluctuation in the '14/'15 season, NH PLAN would also argue that this gives further credence to the notion that winter prices tied to pipeline capacity is a myth. In Part I[23] of a 3-part series[24] on "The Missing Energy Crisis" from the Acadia Center, the following chart demonstrates natural gas and wholesale electric prices have tracked closely with one another in the New England region. Significant price spikes and fluctuation are seen to occur year over year, starting long before the alleged "energy crisis" was promoted in New England in response to the high demand from the '13/'14 polar vortex winter. Fuel reliability for the electric market could be marginally and temporarily mitigated by additional gas capacity but it is not "resolved" in this way because the problem is contractual, not physical. The following chart shows that as gas

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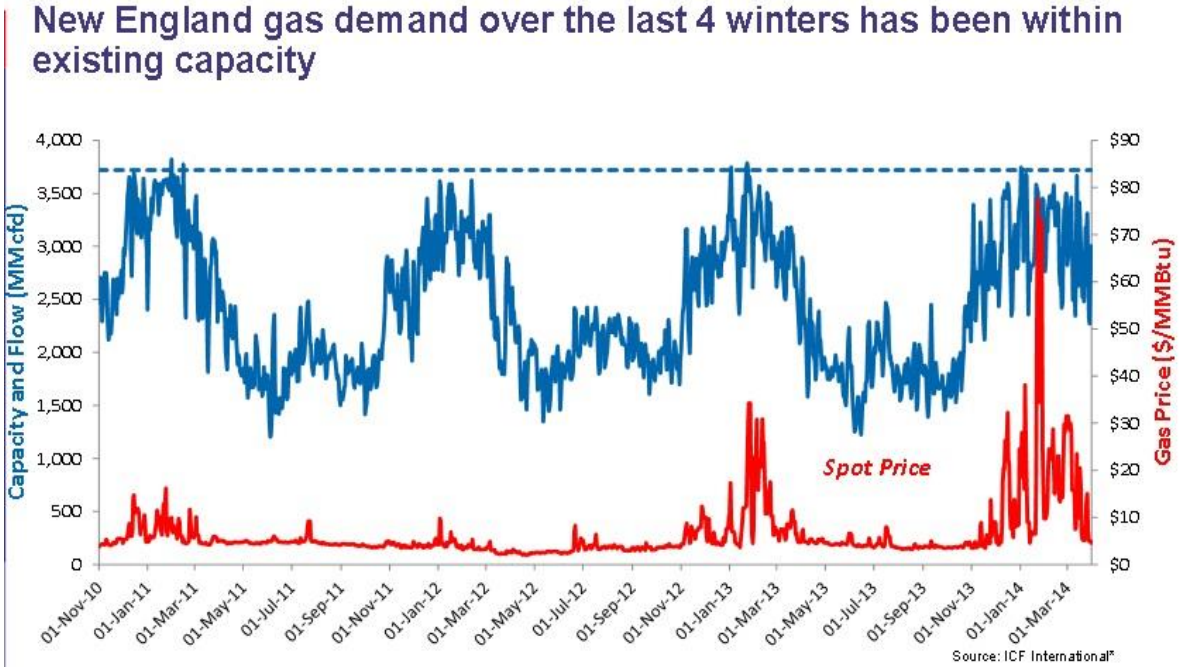
[22] http://www.businesswire.com/news/home/20150716005175/en/Kinder-Morgan-Approves-Proceeding-Tennessee-Gas-Pipeline%E2%80%99s#.Va7H-_mVmao

[23] http://acadiacenter.org/wp-content/uploads/2015/05/The-Missing-Energy-Crisis_Part-I_052215.pdf

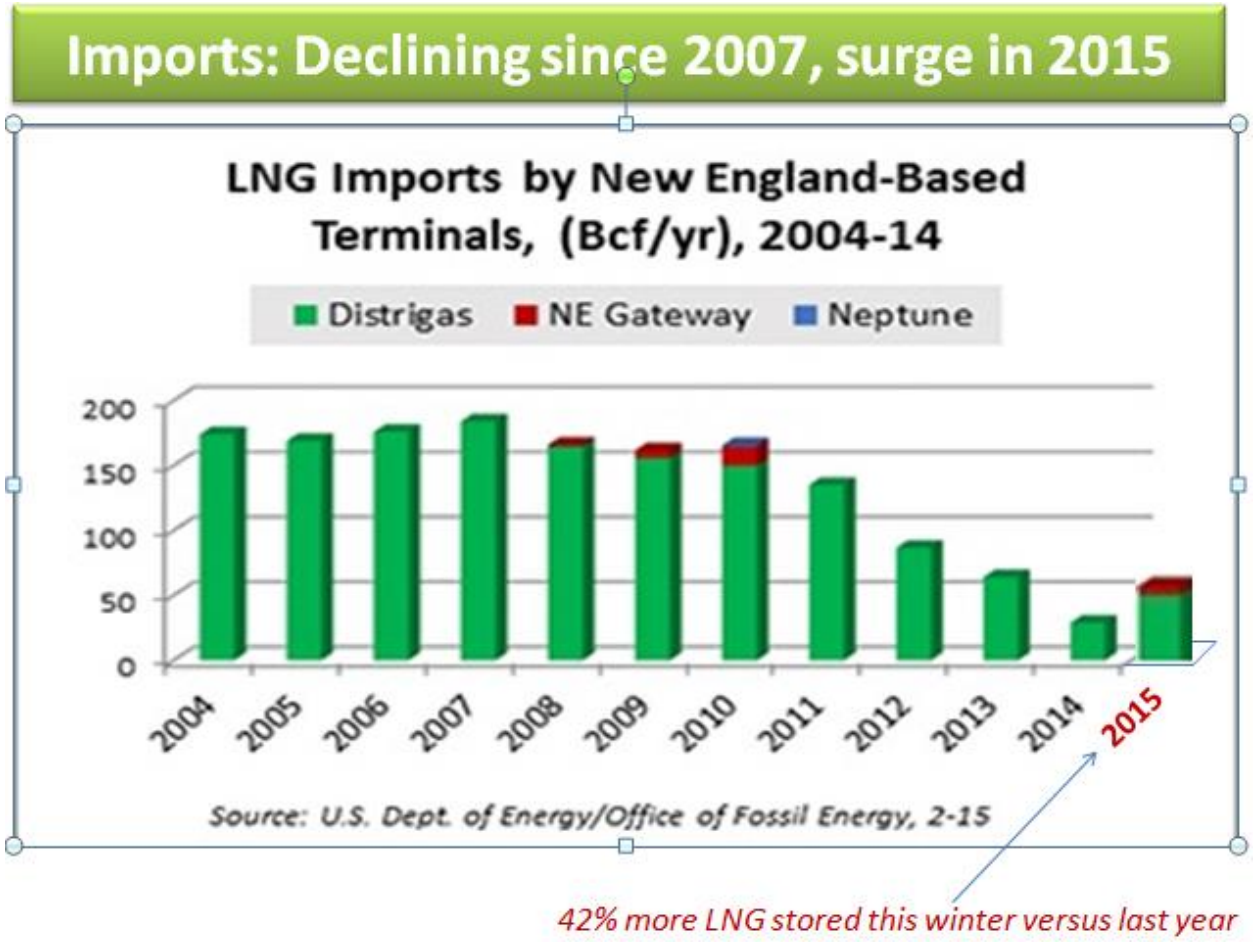
[24] http://acadiacenter.org/document/the-missing-energy-crisis/

utilization gets closer to the total contracted capacity for the region, spot prices are stimulated.[25]



Going back to Eversource's docket attachment 2, it is important to note that if we doctor the "LNG Imports by New England-based terminals, (Bcf/y), 2004-14" chart[26] and extend it into the '14/'15 winter season, we see that the influx in LNG imports appear to be linked specifically to a significant decrease in the average annual price volatility in the electrical wholesale market in the '14/'15 season as evidenced by Eversource's docket attachment 2 and despite record breaking temperatures that significantly exceeded average lows of the 13'/14' polar vortex season. National Grid appears to have realized this lesson of the 2013-2015 winter seasons and is now taking matters into its own hands to secure LNG full-cycle storage for its peak demand and winter reliability.[27]

[25] p. 37, http://www.gdfsuezenergyresources.com/assets/pdfs/Boston-Customer-Seminar-Oct-28-2014.pdf
[26] http://www.northeastgas.org/about_lng.php
[27] http://www.providencejournal.com/article/20150703/NEWS/150709734



Given that contract pipeline capacity to New England was changed in no significant way between 2014 and 2015, it is fair to conclude that with all other available gas supply being equal, winter fuel reliability and electric price stability can be directly tied to the increased use of LNG. While low oil prices in the energy market did make New England appear to be a lucrative landing spot for LNG cargoes, the previous year's volatility demonstrates the importance of early planning regardless of the specific LNG price advantages available to the market at the time.

Low priced domestic gas has caused the proliferation of gas-fired generators. But, these compete with LDC heat demand which is in higher and higher conflict with the electric market as our entire generation mix becomes further weighted toward gas demand. Proposals to build additional pipeline infrastructure can't be supported by the regional market given the seasonal duration of the problem. This also explains why LNG can maintain such a critical role in directly solving a seasonal problem at a much cheaper infrastructure cost.

2. Page 2. Please provide in Excel format the EIA data used by CLF to construct the charts shown on page 2..

CLF did not construct the chart shown on page 2. This chart was constructed by EIA itself from its own data. The link provided in the original docket submission directs the reader to a Natural Gas Weekly Update page that shows two tabs, "Supply/HDD" and "Price". The link provided (http://www.eia.gov/naturalgas/weekly/archive/2015/01_22/#itn-tabs-1) directs a web browser to information on "Supply/HDD" tab whereas the page with the "Price" tab information and the IEA graph can be found here: http://www.eia.gov/naturalgas/weekly/archive/2015/01_22/#itn-tabs-2. Please defer to EIA to obtain data pertaining to its own graph.

3. Page 2. NH PLAN asserts that there was a "lack of price volatility in 2015's gas-electric market despite having to endure record breaking cold snaps and average temperatures 26.5 degrees colder when contrasted with milder polar vortex winter temperatures of '13/'14." Please respond to the following questions:

(i) Attachment 2 to Eversource's comments in this investigation plots the daily average LMPs at the Mass Hub for the period January 2013 through March 31, 2015. Does NH PLAN dispute that the LMPs for 2015 show significant volatility? If yes, please explain the basis for this disagreement;

No, except that the same essential pattern of volatility can tracked against monthly averages (vs. GDA LMP's at MassHub) for gas over consecutive winter seasons dating back as far as 2003 and prior to any discussion of capacity constraints or of record breaking low temperatures in the '14/'15 winter season.[28]

(ii) Attachment 2 also charts daily natural gas spot prices at Algonquin Citygates for the same period. Does NH PLAN dispute that the spot prices for 2015 show significant volatility? If yes, please explain the basis for this disagreement;

No, except that this same pattern of volatility can be seen on wholesale electric averages (vs. spot market averages) over consecutive winter seasons dating back as far as 2003 and prior to any discussion of capacity constraints or of record breaking low temperatures in the '14/'15 winter season.[29]

(iii) Provide all data to support the claim of "record breaking cold snaps and average temperatures 26.5 degrees colder when contrasted with milder polar vortex winter temperatures of '13/'14."

NH PLAN meant to site 26.5 degrees as the average temperature in the '13/'14 season. The average temperature contrast between '13/'14 and '14/'15 winter seasons is about 1 degree, according to Robert Reich quoted in the response to

[28] p. 26, http://www.iso-ne.com/static-assets/documents/2015/01/stateofgrid_ppt_remarks_01212015.pdf
[29] http://www.iso-ne.com/static-assets/documents/2015/01/stateofgrid_ppt_remarks_01212015.pdf

question 5. Several articles discussing contrasting winter season temperatures and their effects on the energy market between the two winters are foot noted.[30]

4. Page 3. Please clarify whether the $13/MMBtu was the landed price of imported LNG during the 13/14 winter peak or the price sold by GDF Suez to LNG customers. Also, please provide support for the claimed $13/MMBtu.

Unfortunately, the original reference cannot be recited. For reference, an EIA chart showing U.S. import prices for LNG from 1997-2015 is being foot noted. [31]

5. Page 3. Please provide support for the claim that residents and businesses spent $2.8B on electricity during the 2014/15 winter. In your response, please define the "winter" period.

Quoted from former U.S. Labor Secretary, Robert Reich:

"ISO-NE, which runs the energy auctions and regulates the prices of gas, reported that the average temperature for New England in the winter of 2013-14 was 26.5 degrees, and that residents and businesses spent $5.1 billion on electricity, while this past winter was both colder, at 25.5 degrees, and far cheaper, with just $2.8 billion spent on power. This reduction was due in part to market conditions, but primarily to better planning, and use of existing LNG supports for "peak demand" days. If government used tariffs and tax subsidies toward the development of a renewable, non-"climate crisis producing" energy grid, along with conservation efforts and better efficiencies, wouldn't that make a lot more sense than asking consumers to once again fork over huge amounts of money to pay for more dangerous pipelines of a dying fossil fuel industry, just for profits selling to other countries?"

6. Page 4. Regarding the statement that "pipeline infrastructure on the order of magnitude of the NED project poses an excessive ….. solution to the winter peaking delivery issues of the short and mid-term", please respond to the following:

(i) Specify the capacity of the NED project in Dth/day implicit in the statement and provide the support for this quantity.

Please refer to part iii of this question for capacity figures

(ii) Please clarify the meaning of the phrase "short and mid-term."

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[30] http://www.reuters.com/article/2015/03/01/energy-natgas-newengland-idUSL1N0W125220150301
http://www.clf.org/blog/clean-energy-climate-change/the-final-word-on-winter-in-new-englands-energy-markets-part-i-the-difference-a-year-makes/
http://www.clf.org/blog/clean-energy-climate-change/the-final-word-on-winter-in-new-englands-energy-markets-part-ii-why-this-winter-was-different/
http://www.clf.org/blog/clean-energy-climate-change/the-final-word-on-winter-in-new-englands-energy-markets-part-iii-some-lessons-from-a-calm-cold-winter/

[31] http://www.eia.gov/dnav/ng/hist/n9103us3m.htm

"Short term" is considered to be a time frame of the next several years while "mid term" refers to dates approaching 2020 and some time into the next decade.

(iii) Is it NH PLAN's position that a pipeline expansion project substantially smaller than the NED project would be capable of eliminating or significantly reducing winter basis differentials in New England? If yes, please specify the minimum pipeline size that would achieve that goal and provide support for NH PLAN's position. If no, please explain why NH PLAN believes the NED project poses an excessive solution to the winter problem.

Page 5. Please provide all support for the claim that the full [investment] cost of the NED pipeline project (i.e., combined supply and market path solution) is approximately $5.5bilion.

The focus of NH PLAN's opposition is to the market path solution of the NED pipeline project. The exact cost of this component has been unknown because it has been unknown whether Kinder Morgan/TGP would file at the FERC for a 30" or 36" pipe. This past week, Kinder Morgan announced that this decision is no longer pending and has been settled at the smaller pipeline size due to their inability sign additional contracts to justify the larger pipeline. Here is an excerpt from the recently release announcement which includes its subsequent adjustments to the estimated market path price.:

KMI Board Approves $3.3 billion investment in Mainline Pipeline Project With Delivery Capacity Totaling Up to 1.3 Billion Cubic Feet per Day of Natural Gas to Serve New England's Natural Gas Utilities and Electricity Generation Customers

> HOUSTON, July 16, 2015 – Kinder Morgan, Inc. (NYSE: KMI) today announced that its board of directors authorized KMI's subsidiary, Tennessee Gas Pipeline Company (TGP) to proceed with TGP's Northeast Energy Direct (NED) project's "market path" segment from Wright, New York, to Dracut, Massachusetts, a $3.3 billion investment designed to serve natural gas utilities and electricity generation customers in New England.[32]

The monetary range of the costs Kinder Morgan estimates for the NED supply path is foot noted.[33]

1. Please clarify whether the domestic and imported LNG storage options detailed in the chart on page 6 are assumed to be developed and operated by non-regulated entities and the costs

[32] http://m.benzinga.com/article/5677187?utm_referrer=https%3A%2F%2Fwww.google.com%2F

[33] p.22, http://ir.kindermorgan.com/sites/kindermorgan.investorhq.businesswire.com/files/event/additional/KM2-02AnalystConfNatGas2015TM.pdf

recovered through market-based pricing.

The FERC regulates all domestic LNG. LNG fed into the M&N system through Canadian facilities, such as Canaport/Repsol, would be regulated by foreign entities until it reached U.S. jurisdiction. Cost schedules and regulations would be different depending upon whether the facilities were publically or privately held.

2. Page 5. Regarding the chart labeled pipeline fuel costs, please respond to the following:
   (i) Is the $5/Dth supply rate a proxy for the per Dth winter price of natural gas at the pipeline receipt point? If yes, identify the receipt and provide support for the supply rate. If no, explain what the rate represents and provide all support.

   The $5/Dth supply rate is a proxy for gas received to New England (e.g. Mass Hub) on firm contract. NH PLAN is not in a position to predict specific rates on any given day but the footnoted chart illustrates actual GDA's on Henry Hub sufficiently below $5 for the past 5 years.[34] The expectation is that liquefaction of domestic gas would occur in Spring/Fall seasons when demand is low and prices are stable and nominal variation across hubs.

   (ii) Is the $2/Dth-day transportation rate a proxy for the daily cost of firm transportation (including return on investment) on a pipeline? If yes, provide support for the transportation rate. If no, explain what the rate represents and provide all support.

   The $2/Dth transportation rate is a proxy for the daily cost of firm transportation. Rates are set by contract so this proxy represents a conservative estimate of transmission costs to New England. On one of the newest but most circuitous paths proposed to transport Marcellus gas to New England, the transmission cost has been set to a mere $1.37/Dth.[35]

   (iii) Does the last column represent the annual cost to end users (i.e., gas generators)? If no, explain what the annual cost represents?

   The last column represents an annual cost to whomever contracts for firm capacity. The point is to contrast the hypothetical annual cost of gas acquired from a pipeline to a hypothetical annual cost of domestically-produced LNG in the chart on page 6.

   (iv) Should the overall average delivered price be $17/Dth instead of $7/Dth?

[34] p. 1-13, http://ma-eeac.org/wordpress/wp-content/uploads/2015-Regional-Avoided-Cost-Study-Report1.pdf
[35] http://www.transcanada.com/news-releases-article.html?id=2796774&t=manual

No

3. Page6. Regarding the chart labeled domestic LNG fuels costs, please respond to the following:
   (i) Is the $5/Dth supply rate a proxy for the per Dth price of natural gas delivered to New England citygates during the summer months? If yes, provide support for the supply rate. If no, explain what the rate represents and provide all support.

   The $5/Dth supply rate is a proxy for gas received to New England (e.g. Mass Hub) on firm contract. NH PLAN is not in a position to predict specific rates on any given future date. But, the footnoted chart illustrates actual GDA's on Henry Hub sufficiently below $5 for the past 5 years.[36] The expectation is that liquefaction of domestic gas would occur in Spring/Fall seasons when demand is low and prices are stable and nominal variation across hubs.

   (ii) Regarding the $60.8 million annual supply cost, does this option assume the operator of the LNG storage facility sells the regasified LNG commodity to LNG customers at cost? If no, explain what the annual supply cost represents .

   NH PLAN believes that municipally-owned LNG facilities may allow gas to be sold back onto the market at cost once operational expenses are cleared and should be considered as an option. As privately-owned facilities, the anticipated spread between the cost of stored outflows versus the spot market price of gas during peak demand is likely to leave LNG providers significant room to undercut market prices and reduce the spot price for prospective buyers such as generators.

   (iii) Explain what the $5/Dth-day liquefaction rate represents and provide all support for that rate.

   Cost of liquefaction appears to be around $3/MMBtu for large volume plants that liquefy 12 months per year.[37]

   The $5 estimated assumes reliance on existing pipes and liquefying 7 months a year at a higher cost equivalent of about $5/Dth.

   (iv) Explain how the annual liquefaction cost of $30,857,143 was calculated.

   The actual cost of liquefaction can be highly variable. Extrapolations on numbers found

[36] p. 1-13, http://ma-eeac.org/wordpress/wp-content/uploads/2015-Regional-Avoided-Cost-Study-Report1.pdf
[37] http://finance.yahoo.com/news/why-liquefaction-costs-affect-liquefied-210011946.html;_ylt=A0LEVjSRDNlUvlwAYQcnnIlQ;_ylu=X3oDMTEzZzRibTkwBHNlYwNzcgRwb3MDMwRjb2xvA2JmMQR2dGlkA1lIUzAwMl8x

from various sources rendered a liquefaction cost per Dth of slightly over $5. This cost could have been re-estimated back down to an even $5/Dth before the Annual cost was calculated which would have rendered an even 30,000,000 to match the "$5/Dth" specific in a per Dth column to the left in the same row.

(v) Why are the variable costs of vaporization excluded?

Vaporization costs should be included but reliable costs were not obtained. Domestic LNG fuel costs should be adjusted accordingly. Again, the spread between anticipated peak demand spot market prices and the production costs of domestic LNG including vaporization may be significant.

(vi) Given that the pipeline option includes charges for firm transportation service, why does this option exclude charges for firm storage, liquefaction and vaporization services?

Some non-zero transport cost should be included but the number of days charged for transport would be a function of the size of the firm capacity contract. Domestic LNG fuel cost should be adjusted accordingly.

4. Page6. Regarding the chart labeled imported LNG fuel costs, please respond to the following:

(i) Is the $10/Dth supply rate a proxy for the per Dth landed cost of imported LNG? If yes, provide support for the supply rate. If no, explain what the rate represents and provide all support.

The $10/Dth supply rate is a proxy for the landing price of imported LNG. NH PLAN is not in a position to predict specific rates on any given future date.

(ii) Regarding the $60 million annual supply cost, does this option assume the operator of the LNG storage facility sells the regasified LNG commodity to LNG customers at cost? If no, explain what the annual supply cost represents.

No, gas importers are assumed to be for-profit entities and would therefore mark up the annual supply cost to achieve a margin of profit.

(iii) Does the statement that "LNG imports come from established facilities where the same fixed construction costs of the other two options do not apply" mean that the fixed costs of such facilities are sunk and therefore need not be included in any cost comparison? If no, what does the statement mean and how does it relate to this option?

Yes

(iv) Given that the pipeline option includes charges for firm transportation service, why does this option exclude charges for firm storage and vaporization services?

Because firm storage and vaporization services and their costs are not required in order to deliver pipeline capacity to city gates.

5. Page 7. NH PLAN cites to an article in the Portland Press Herald as support for the statement that "LNG imports are expected to be reasonably priced for winter reliability and fuel assurance in much of the foreseeable future." Please identify the specific passage in the article that supports that conclusion.

There is no explicit statement of the kind. However, the article correlates the price of LNG to the price of crude and there are many predicting a continue lack sustained recovery in oil prices for the foreseeable future. Also, Asian market demand appears to be on the decline which could make U.S. markets a more lucrative target for future LNG landings.

6. Page 7. NH PLAN contends that ICF International's Phase II Report on New England's natural gas pipeline capacity "demonstrates that EE can reduce winter peak day gas consumption by as much as 550,000 Dth by 2019/20." Does NH PLAN agree that the report actually states that the Phase II Energy Efficiency scenarios "reduced project[ed] winter peak day gas consumption by as much as 550,000 Dth by 2019/20" and that "the consumption reductions in the Energy Efficiency cases were not sufficient to eliminate the projected winter peak day supply deficits."

All references to costs that apply to future dates are "projected" costs. Using nominal demand reference points, consumption reductions from EE do appear to cover or very nearly cover the entire projected winter peak day supply deficits. EE is typically the least expense alternates amongst all others in helping to reduce supply deficits. Even if the entire deficit is not satisfied by reductions from EE, it would still likely represent the most attractive cost option as compared to all other measures used to drive down the remaining deficits.

7. Page 8. Please provide all support for the claim that "New Hampshire's own PUC commissioner has endorsed a plan to take New England from its current reliability of 56% on this single fuel source of natural gas to 87% gas reliability in New England."

NH PLAN could not locate the reference to a quote that was believed to have been heard at a NESCOE round table discussion. However, NH PLAN has tracked down the following statement from the ICF:
"Power generation is expected to drive 87 percent of the growth in natural gas demand between 2014 and 2025, according to ICF estimates."

NH PLAN does not believe there is a correlation between the NESCOE round table statement of achieving 87% gas reliability in New England made by the PUC commissioner and the above statements. However, in the absence of evidence to the former, NH PLAN would apologize if the commissioner's statements were either misrepresented or misinterpreted.

8. Page 8. Please provide all support for the claim that the "current sitting ISO-NE chairman and president has been on record as saying he would be happy with 100% dependence on natural gas."

   The statement was made in which Gordon Van Welie expressed a willingness to have New England depend on just one fuel source (natural gas) to meet any energy needs in an ISO Conference call on 1/21/2015. I could not find a recording of the event from ISO-NE.[38] However, one news outlet in CT did pick up a quote that said essentially the same thing.

   > ***New England could operate solely and reliably on natural gas, but only if pipelines are "robust enough to meet demand" and if sufficient local storage of gas is available, van Welie said[39]***

9. Page 9. Please provide all support for the statement that "oil and LNG are proving competitive with domestic shale gas in the current marketplace."
10. Page 11. NH PLAN states that "As can be observed from the numbers, physical pipeline capacity is not actually constrained in New England's natural gas supply nor is it expected to be for the projected future." Since the numbers on page 11 do not support the claim, please provide the numbers to which NH PLAN refers and specify the source.
11. Page 11. NH PLAN states that "on the Iroquois Gas Transmission System (IGTS) much of the potential flow to New England is captured upstream by the Mid-Atlantic states where demand for gas and its price points tend to be higher." Please explain why it would be appropriate to include Iroquois capacity that is under contract to non-New England gas users in an analysis of New England gas supply capability.

    Please Refer to docket for the Constitution Pipeline: Specifications
    Cabot/Williams Approx. 124-mile Constitution Pipeline extending from Susquehanna County, PA, to Iroquois Gas Transmission and TennesseeGas Pipeline systems in Schoharie County, N.Y.
    Proposed capacity of 650 MMCf/d Cabot and Southwestern are shippers.
    Late 2016 Announced sprint 2012. Filed with FERC, 6013. FERC issued final EIS, 10-14.
    Authorized by FERC, 12-2-14

    Please refer to Wright Interconnect Project (WIP): Specifications

[38] http://isonewswire.com/updates/2015/1/23/iso-ne-ceo-briefs-media-on-state-of-the-new-england-grid.html
[39] http://wtnh.com/2015/01/21/regional-power-operator-to-present-briefing-on-state-of-grid/

Iroquois Gas Transmission WIP will enable delivery up to 650,000 Dth/d of NG from terminus of proposed Constitution pipeline in Schoharie County, NY into both Iroquois and the Tennessee Gas Pipeline under a 15 year capacity lease agreement with Constitution. 2016 Announced 1-13. Filed with FERC, 6-13, FERC issued final EIS, 10-14, Authorized by FERC, 12-2-14.

NOTE: The constitution pipeline can be upgraded to double its current capacity of 650,000 Dth/d with the addition of a single compression station and without any further changes to existing lines.

12. Page 11. What specific upstream adjustments does NH PLAN believe should be made that would have an effect on gas supply to the New England region? For each adjustment, explain how it would relieve existing constraints and reduce the basis differentials.

The Iroquois pipeline capacity to New England is not fully subscribed. It can be placed under additional contracts and also has room for further expansion with line compaction and compressors. The Constitution pipeline, once completed will have the ability to double its capacity with added compressors creating potentials for gas flow across both Iroquois and TGP systems into New England.

13. Page 11. Please explain how Spectra's New Jersey expansion projects increase the potential for New York-contracted capacity to flow to New England anchor shippers. In your response, identify the anchor shippers and discuss why such shippers would have a need for incremental Iroquois gas supplies.

Added potential would come in the form of adjustments to the amount of compression constructed further upstream on the Algonquin line which could make its way to TGP through Wright, NY. Also, potential contracts on Iroquois could be made possible by Williams through Transco pipeline expansion projects. NH PLAN won't speculate on what anchor shippers would be identified as potential customers.

14. Page 11. Assuming the expiring mid-Atlantic contracts do make available between 0.7 and 1.5 Bcf/day of incremental gas supply to the region, how would those gas supplies be delivered to New England gas customers?
Through improvements to Algonquin and Iroquois systems and their supply paths.

15. Page 11. NH PLAN contends that the AIM and TGP CT projects are "predicted to cover based load demand projections for New England for as much as 10 years afterward." Please clarify the meaning of the phrase "base load demand projections".

Projected increases in electrical base load requirements

16. Page 12. Please explain how the Constitution pipeline can provide incremental gas supply capacity to New England.

    The Wright Interconnect has 3 supply leads: Iroquois Zone 1 from the north, Constitution Pipeline from the southwest and TGP Zone 5 from the west. Between the 3 supply routes, there is more supply than market. Low price suppliers such as the Constitution line can be expected to win out and replace more expensive contracts.

    Iroquois is more equipped for capacity as it has better support for line packing because it operates at higher pressure (1440 psi on 20 yr old pipe) over Algonquin (750 psi on 60 yr old pipe) and uses improved pipe metallurgy advances on its pipe more modern pipe system.

17. Page 13. Regarding the claim that "the ISO-NE CEO admitted that the point of the N.E. governor's plan is to "overbuild" gas pipeline", please provide the full text of the CEO's Washington D.C. statement.

    NH PLAN does not have access to the private meeting minutes is which the ISO-NE CEO describes the governor's plan.

18. Page 14. Regarding the reference to a reprieve in design day conditions, explain why a change in design day gas conditions or requirements would be appropriate and specify the extent of the proposed change.

    NH PLAN contends that increased use and servicing of LNG storage during volatile winter electrical pricing may be the ONLY viable solution to fuel reliability and price fluctuation during peak demand for gas-fired electrical generation based on previously specified reasons.

    The generic cost recovery mechanism for energy infrastructure through the ISO New England tariff proposed in 2014 is no longer considered viable and will not be executed[40]. Arguments made here by NH PLAN should further discredit any suggestion that the heat load capacity projects can be used to justify a tariff burden on electric rate payers. The Conservation Law Foundation (CLF)[41], Acadia Center[42] and others responding to a similar Massachusetts docket 15-37 make the following additional claims:

    1. There can be no state regulation of the prices of interstate wholesales of natural gas pursuant to the Natural Gas Act, 15 U.S.C §717;

    2. EDC gas capacity procurement schemes would be the exclusive jurisdiction of the Federal Energy Regulatory Commission (FERC) pursuant to 18 CFR §284.8 and

[40] http://elibrary.FERC.gov/idmws/file_list.asp?accession_num=20150626-5211
[41] http://web1.env.state.ma.us/DPU/FileRoomAPI/api/Attachments/Get/?path=15-37%2fCLF_Reply_Comments_070615.pdf
[42] http://web1.env.state.ma.us/DPU/FileRoomAPI/api/Attachments/Get/?path=15-37%2fAcadiaCenter_etal_comments_061.pdf

3. Attempting to interfere in the interstate gas market would result in securing preferential pricing for in-state natural gas fired power generators while the power itself may be distributed regionally at the expense of the state.

As NH PUC considers its options to provide fuel reliability and price stability to the electric market, it should consider consider which options fall within its jurisdiction, avoid stranded costs and unnecessary infrastructure, and are fair to the specific rate payers asked to bear their cost.