BEFORE THE NEW YORK STATE
PUBLIC SERVICE COMMISSION

Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of The Brooklyn Union Gas Company d/b/a National Grid for Gas Service.	)	**Case 23-G-0225**

Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of KeySpan Gas East Corporation d/b/a National Grid for Gas Service.	)	**Case 23-G-0226**

DIRECT TESTIMONY OF MARK D. KLEINGINNA
ON BEHALF OF ALLIANCE FOR A GREEN ECONOMY

September 1, 2023

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I. Expert Identification and Qualifications

Q. Please state your name, business name and address, and role in this proceeding.

A. My name is Mark D. Kleinginna. I work for Emergent Urban Concepts, LLC (“Emergent”), with a business address at 13 Kendall Avenue, Sleepy Hollow, NY 10591.

I appear here in my capacity as an expert witness on behalf of Alliance for a Green Economy (“AGREE”).

Q. Please summarize your experience and expertise in the utility industry.

A. I have worked for 34 years in the energy industry as a consultant, analyst, manager, executive, and professor. I have been employed by a utility consulting practice, a gas local distribution company, an end-user consulting company, a metals company, a retail energy provider, a broker, and a university, as well as being self-employed.

I received a Bachelor of Science and a Master of Arts Degree in Economics from the

Pennsylvania State University ("Penn State") in 1988 and 1990, respectively. I also earned a Master of Professional Studies in Renewable Energy Systems and Sustainability with distinction from Penn State in 2021, where I now teach classes in renewable energy project management and finance, renewable energy integration and economics, and energy markets.

Most recently, Emergent has been retained to manage a significant research project on geothermal technologies in Massachusetts, assist a utility in New York State to score utility thermal energy network applications, and develop non-pipeline alternatives ("NPAs") proposals for natural gas distribution companies in the New York City region.

My curriculum vitae is attached as Exhibit____(MDK-1).

Q. Have you ever testified before the New York Public Service Commission or other regulatory agencies?

A. Yes. I testified before the New York Public Service Commission ("PSC" or "Commission") in the 1997 St. Lawrence Gas rate case. I testified before the Pennsylvania Public Utility Commission in Equitable Gas Company's 1994 1307(f) (gas cost recovery) proceeding as well as in the 1997 West Penn Power electricity restructuring proceeding on behalf of Allegheny Industries and in Philadelphia Gas Works' most recent rate case on behalf of POWER Interfaith. I testified at the Federal Energy Regulatory Commission in proceedings leading up to Order 2000. I have submitted testimony in proceedings before the Indiana Utility Regulatory Commission and the New York Public Service Commission on natural gas cost of service and rate design. I have also sponsored testimony before both the West Virginia and Kentucky Public Service Commissions. I also sponsored testimony in the FY 2024 PGW Capital Budget and FY 2023 PGW Capital Budget and the FY 2024 and FY 2023 PGW Operating Budget proceedings before the Philadelphia Gas Commission. I testified before the Philadelphia City Council and the Massachusetts State Senate on decarbonization topics in April of last year as well.

Q. Have you ever been involved in the gas supply planning and acquisition process?

A. Yes. I was the Manager for Gas Acquisition and Planning as well as the Manager for Capacity Optimization for Equitable Gas company from 1992 through 1994. I then became the Manager for Natural Gas Strategic Planning for Strategic Energy Limited where I developed and executed gas supply and transportation programs for large commercial and industrial clients across the US and Canada.

During my time at Equitable, I was responsible for the Local Distribution Company's ("LDC") plan to respond to FERC Order 636 as well as the implementation of that plan. Notably, I was responsible for the procurement and scheduling of gas supply and transportation on the coldest day on record in the City of Pittsburgh (January 18, 1994), which is the current design day at 75 heating degree days. I draw on this experience as both an operational and planning manager to develop my testimony.

II. Purpose of Testimony

Q. What is the purpose of your testimony?

A. The purpose of my testimony is to analyze and make recommendations regarding the Brooklyn Union Gas Company d/b/a National Grid NY's ("the Company" or "KEDNY") proposed investments in the Greenpoint Energy Center ("Greenpoint").

Q. How is your testimony organized?

A. I have organized the testimony into six parts. 1. My Qualifications as an Expert Witness, 2. Purpose of the Testimony, 3. Gas Supply Planning Principles, 4. KEDNY Design and Peak Loads, 5. KEDNY Gas Supply Portfolio, 6. KEDNY Greenpoint Capital Plan, 7. Conclusions and Recommendations.

Q. Please summarize your findings and recommendations.

A. I find that certain assumptions and analysis made by the Company regarding the gas supply and demand portfolio may have led to an overstatement of the need for investment in the Greenpoint Energy Center. I base this on analysis conducted of Company-provided data.

My primary recommendation is that the Commission deny recovery of the costs associated with the Greenpoint Energy Center so that a stakeholder group can work with the Company to review the costs associated with its potential retirement, downsizing, or repurposing and review the alternatives to provide safe, reliable, and cost effective service to ratepayers. This group should ensure that all potential scenarios associated with the energy transition (which include local, state and federal policy) are considered in the assessment of demand, supply, community and environmental factors.

III. Gas Supply Planning Principles

Q. What are the primary principles of Gas Supply Planning?

A. The gas supply professional must consider four factors in the development of the LDC's gas supply plan. These factors include safety, reliability, affordability and flexibility.

Q. Please discuss the meaning of the safety factor when it comes to gas supply planning.

A. There can be no greater consideration for the gas supply professional than the safety of the general population, the workers and the management of the LDC. This means that every source of supply must be tested and re-tested in terms of the risk associated with its deployment. The use of Compressed Natural Gas ("CNG"), for instance, has a different risk profile than the use of pipeline capacity to serve loads. This also extends to the potential for leaks and exposure of certain neighborhoods to environmental factors.

Q. Please tell us what you mean by reliability in the context of gas supply planning.

A. Gas supply reliability is the risk assessment of each gas supply component's likelihood of being deployed to serve the load. Supply delivered to the distribution system must be available to serve loads every day of the year. Reliability becomes particularly important during times of high stress on the gas supply and transportation system. These occurrences usually happen during times of extremely low temperatures as demand on the gas supply system is directly and strongly correlated to heating needs in most markets. It should also be noted that reliability is an important contributor to the safety of the served population because the risk of injury and loss of life is higher during extreme cold weather events than during times of normal operation.

Q. Please discuss the important consideration of affordability when it comes to gas supply planning.

A. Affordability is very important to ratepayers as well as the other stakeholders in the LDC ecosystem. Gas supply, transportation, storage, delivery and curtailment options should all be ensured to be least cost among their individual components and then costed against each other to determine an optimal mix of options to meet annual, seasonal and daily gas supply requirements.

Q. What is the consideration of flexibility in the gas supply planning process?

A. Flexibility is the ability for the LDC to move toward and away from supply arrangement across time to meet its needs. Long-term transportation contracts on upstream pipelines can be in effect for many years, short term city gate deliveries can be contracted on a day-to-day basis. Quite often, this flexibility comes at a cost. City gate supplies can be very costly during times of high demand. On the other hand, contracts with upstream pipelines often run at low load factors meaning that unit costs could be very high over time.

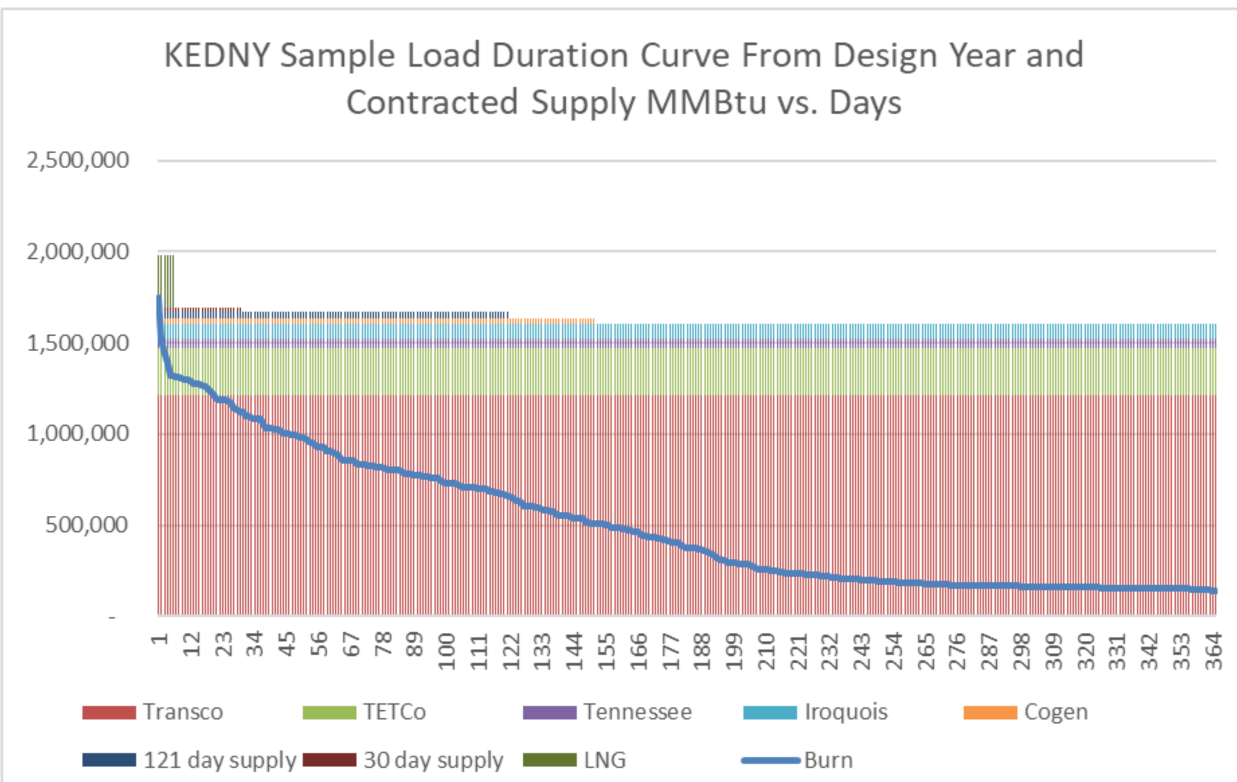
Q. Are there additional principles that a gas planner should be cognizant of?

A. The gas supply planner must also match the assets that are in the portfolio with demand.

Q. How does the gas supply planner do this matching of supply and demand?

A. To envision this process the planner develops what is called a 'Load Duration Curve." This load duration curve plots the throughput for each day of a year in a curve that is not chronological but descending from highest to lowest throughput. These curves can be based on historical throughput, projected throughput, and "design" throughput.

The analyst will then overlay that throughput – whether it be design, historical or projected (based on normal weather or other conditions) – with the annual, seasonal and daily resources available to meet those loads. As one can see this matching of supply and demand is very intuitive and gives a great picture of how effectively the assets serving the load are utilized. I have created a sample Load Duration Curve from the assets found in the Gas Supply Panel Testimony and the Design year as provided in the Company's response to AGREE-10 (attached herein as Exhibit____(MDK-2). Please see this example below:



IV. KEDNY Design and Peak Loads

Q. Please explain what a peak load is and why it is important to gas supply planning.

A. A peak load is an actual maximum historic load across a time period. So we may talk about a peak hour or a peak day. This would simply be the highest sendout of the gas system during an hour or a day over the period (usually a year, but sometimes a longer period). The importance of the peak load observation is that it shows how well the system and the dedicated gas supply assets performed during actual operations.

Q. Please explain what a design load is and why it is important to gas supply planning.

A. A design load is the load that the system must be "designed" to serve. This is a load that would be expected in the most extreme potential conditions to be served by the gas supply portfolio as well as the distribution network. We often speak of a design day and a design year. A design day is a day on which the system would be expected to experience the highest sendout based on the most extreme (cold) weather conditions. A design year is a heating season with extraordinarily low temperatures and therefore high sendout. While it is important to ensure design day deliverability, it is equally important to make sure that the natural gas supply portfolio can meet the requirements of the system across a very cold season. This is because over a long winter, the gas supply and storage of natural gas can be drawn down. This can limit the deliverability available to serve loads late in the season. Consequently both design day and design seasons are important considerations for the gas supply planner.

Q. What is the design day and why is it important?

A. Specifically the design day is the day which is projected to be the day of the delivery year which has the highest sendout. This is the day which is predicted to have the lowest temperature, as the heating load (which is the most volatile and in most cases drives sendout) will be greatest on that day. The gas supply planning function must ensure that there are enough resources to meet these requirements. This day forms the left most observation on the design load duration curve.

Q. How does the Company calculate the design day for KEDNY?

A. The company uses the following methodology as outlined in the Company's response to AGREE-10.[1] Essentially, the Company prepares a regression analysis which uses the most recent historical daily sendout data as the dependent variable and then regresses that daily sendout against three independent variables: current day heating degree days ("HDD"), two day lagged heating degree days, and weekend indicator. The results of this regression analysis are estimated coefficients that can then be utilized to predict sendout under design conditions. These estimated coefficients are typically called β (the Greek letter beta). The most important relationships in the analysis typically turn out to be the $\beta 0$ associated with the y intercept (commonly termed the baseload) and the $\beta 1$ associated with the HDD for the actual day of predicted sendout. The equation of the regression is:

$$Sendout\ = \beta 0\ +\ \beta 1 * HDD\ + \beta 2\ * (HDD - 2)\ +\ \beta 3\ *\ weekday/weekend$$

Q. Is this approach reasonable?

A. In general, this is the methodology that has been employed for many years in the natural gas supply planning field. As can be seen from the equation above there are two very important parameters that will drive the results of this equation. First, the estimation of $\beta 1$ will be very important. Under conditions which are fairly stable such as no regime changes (such as Local Law 97 and Local Law 154), expected temperature volatility being in normal ranges, non-pandemic or non-post pandemic, and other systemic factors like potential electrification, we could fairly use historical βs. However, in today's conditions where significant changes in the

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[1] AGREE-10 is attached as Exhibit____(MDK-2)

underlying parameters described above are clearly operative, the predictive value of these historical βs would be problematic.

Second, the Company uses a 65 HDD,[2] which is problematic since this is an occurrence that was last experienced in 1934.[3] This is a 1 in 89 year design day. The Company uses 30 year normals to project sales,[4] and the 1 in 30 is a 61 HDD which was experienced on January 19, 1994.[5] I calculated that over the past 30 years (since this peak was hit), the 5-year moving average of annual heating degree days has dropped by almost 8%. This warming trend would also indicate that the design day could be warmer than the current 1 in 30 design day.

Q. Have you prepared an analysis which addresses these issues?

A. Yes. I utilized the data provided in the response to AGREE-10[6] to estimate the numbers utilized by KEDNY for the coefficients ($\beta 0, \beta 1, \beta 2, and\ \beta 3$). The estimate of the $\beta 1$ is the most relevant for our purposes here. From my analysis this value is 19,419 MMBtu per HDD. This means that for each HDD that the design day may be lowered, the expected sendout would be lowered by 19,419 MMBtu per day. So for instance, if the analyst were to use 61 HDD for the design day (which is the 1 in 30 year coldest day), the design day sendout would be reduced by around 78,000 MMBtu/d. If we allowed for the trending that has occurred between the early 90s when this low temperature occurred, then we see a 7.7 percent reduction in annual degree days which might imply a similar reduction in degree days from 1994. This might mean a more reasonable design day HDD value could be 57 HDD. In fact, the most recent 10 year peak HDD was 58 HDD in 2016. A reduction to 58 HDD would lead to a design day that is approximately 136,000 MMBtu per day lower than the current design day.

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[2] AGREE-10, attached as Exhibit____(MDK-2)
[3] AGREE-13, attached as Exhibit____(MDK-3)
[4] AGREE-10, attached as Exhibit____(MDK-2)
[5] AGREE-13, attached as Exhibit____(MDK-3)
[6] AGREE-10 is attached as Exhibit____(MDK-2)

Q. Do you have any other observations about the Company's design day analysis?

A. Yes. In my review of the Company's design day projected growth, I saw that the growth in firm demand for the design day from the 22/23 period through the 27/28 period was 6.94%.[7] However, the growth in retail sales as provided by the gas forecasting panel was 3.04% over FY23 through FY28.[8] This is a wide divergence in expected annual volumetric delivery vs. design day forecasted delivery. There may be some causative factors for this, including partial electrification which would require the peak to remain stubbornly high while annual volumes decrease. However, the Company's Gas Load Forecasting Panel projects a loss of annual volume from partial load heat pumps as approximately just 1,000,000 annual dekatherms ("dt") in total over the period.[9] Given a total loss of load from all sources of 11,500,000 MMBtu,[10] this factor would not account for a significant proportion of the difference between the annual load growth and the design day load growth.

If we were to project the design load to increase at the same rate as retail annual firm sales, we would project a design day that would be about 63,000 MMBtu lower than the projected end of period design day.

Q. Please summarize the results of this analysis.

A. Please see the table below for the results of a change in the design day HDD and an adoption of a volumetric growth rate for the design day in line with annual growth.

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[7] *Ibid.*
[8] Company Gas Load Forecasting Panel, Exhibit ___ (GLF-4A), Page 1
[9] Company Gas Load Forecasting Panel, Exhibit ___ (GLF-16A), Page 1
[10] *Ibid.*

Potential Design Day Reductions

Reduce Heating Degree Days to 30 year design day

Current Design Day HDD	65
30 year design day HDD	61
Change in HDD	-4
β1	19419
Design Day Reduction	(77,676)

Reduce Heating Degree Days to 10 year design day

Current Design Day HDD	65
10 year design day HDD	58
Change in HDD	-7
β1	19419
Design Day Reduction	(135,933)

Reduction in Growth Rate to Annual Level:

Annual Growth Rate FY23-FY28	3.04%
Design Day Growth Rate 22/23-27/2	6.94%
Growth Rate Difference	-3.90%
Design Day 27/28	1,746,119
Design Day Reduction	(68,080)

The effects of the HDD reduction and the growth rate reduction are additive giving a range of design day reductions of (145,756) MMBtu to (204,013) MMBtu.

Q. What are the implications of these results?

A. The implications are that we need to seriously consider whether the Company is overestimating the design day requirement and if so, by how much.

Q. Please place this design day analysis in the context of the current regulatory and environmental context of New York gas planning.

A. On March 17, 2023, National Grid filed a report entitled "National Grid New York Climate Leadership and Community Protection Act Study" ("National Grid CLCPA Report") in the docket for its previous rate case (Case #19-G-0309).[11] The National Grid CLCPA Report posited three scenarios for the evolution of its gas and electricity utilities over the 2050 time horizon. These scenarios include "Strategic Use of Low Carbon Fuels," "Accelerated Transition away from Combustion" and "National Grid Clean Energy Vision."

The first two of these scenarios project significantly lower design day forecasts for the 2029/2030 years than the current level. Clearly, the design day forecast which is utilized in this rate case assumes the National Grid Clean Energy Vision Scenario. As previously noted, there is a great deal of uncertainty in the energy environment over the next 30 years, but it is clear that National Grid believes that the design day forecast under two scenarios that it has projected leads to a lower design day than projected in this rate case by at least 200,000 MMBtu/d for its downstate utilities in 2029/2030.

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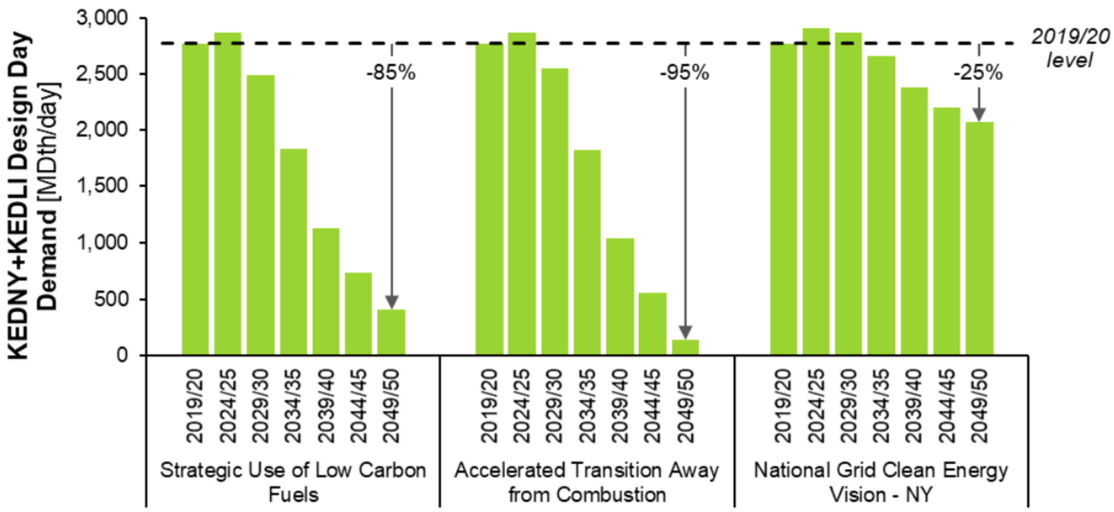
[11] Guidehouse "National Grid New York Climate Leadership and Community Protection Act Study" February 15, 2023, filed in Case #19-G-0309, March 13, 2023.

These scenarios must certainly be considered when evaluating the gas supply requirements and capital expenditures being recovered in this rate case. Please see the figure below from page 76 of the National Grid CLCPA report to illustrate the potential reduction in design day. It should be noted that these scenarios' potential design day reductions are additive to the reductions in the projected design day due to more realistic growth assumptions and more realistic HDD assumptions. It should also be pointed out that under all three scenarios the design day drops significantly in the outer years.

Figure 3-13. Downstate (KEDNY/KEDLI) Design Day Demand Forecast (MDth/day)



Note: Figures include fossil natural gas, RNG, and pipeline-blended H_2 (blended H_2 is only used in NG-CEV.NY scenario). Figures do not include gas supplied to customers that convert to 100% hydrogen service.

Source: National Grid Gas Load Forecasting

V. KEDNY Gas Supply Portfolio

Q. Please describe the KEDNY gas supply portfolio.

A. KEDNY relies upon upstream pipeline capacity, storage capacity, citygate purchases, CNG, demand response, diversion of flowing supply and LNG to serve its gas supply customers.

Q. Please list each of the components of the portfolio.

A. 1. Upstream transmission and Storage

2. Citygate purchases

3. CNG

4. Demand Response

5. Diversion

6. LNG

Q. Please describe the Greenpoint Energy Center and its role in KEDNY's system.

A. The Greenpoint LNG facility allows KEDNY to store approximately 1.6 Bcf of gas and currently has peak day vaporization capability of approximately 291,000 dekatherms (Dth) per day.[12]

The Company's Gas Supply Panel states that the Company's two LNG plants "can be used to meet hourly fluctuations in demand, maintain deliveries to customers, and balance pressures across portions of the distribution system during periods of high demand…," and "most importantly, these resources are vital in preserving delivery pressures in the event that an off-system resource becomes unavailable."[13]

Q. Please comment on the number of upstream pipeline interruptions which the Company experienced over the past 10 years.

[12] Direct Testimony of the Company Gas Supply Panel, pages 13-14
[13] *Ibid*, pg 14

A. The company said it did not keep track of the number of interruptions experienced over the period.

Q. Is this problematic?

A. It can't be determined if this is a legitimate concern if there is no reporting of upstream supply failing. It should also be noted that while the Company represents that Greenpoint provides incremental resiliency should its upstream delivery options fail, the 291,000 MMBtu/d would only cover a failure of the Iroquois or Tennessee pipelines. It could not provide coverage for the current contracted deliveries on either Texas Eastern or Transco.

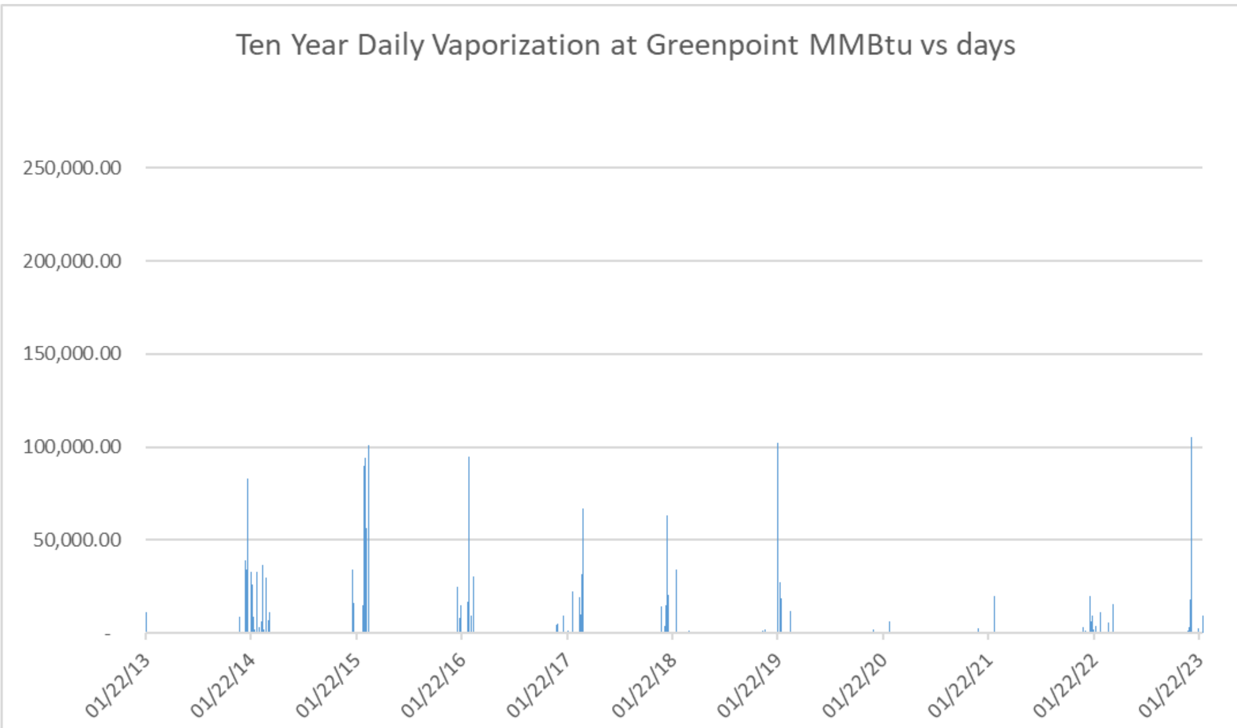
Q. Please comment on the level of dispatch for the Greenpoint facility over the past 10 years.

A. According to the Company's response to AGREE-14 (attached as Exhibit_____(MDK-4)), the plant has been dispatched 116 times with a maximum sendout of 105,352 MMbtu/d over the 10 year period. This maximum sendout is equal to 36.2% of the maximum daily deliverability of 291,000 MMBtu at Greenpoint. There are a number of further observations that can be made about this deployment of Greenpoint.

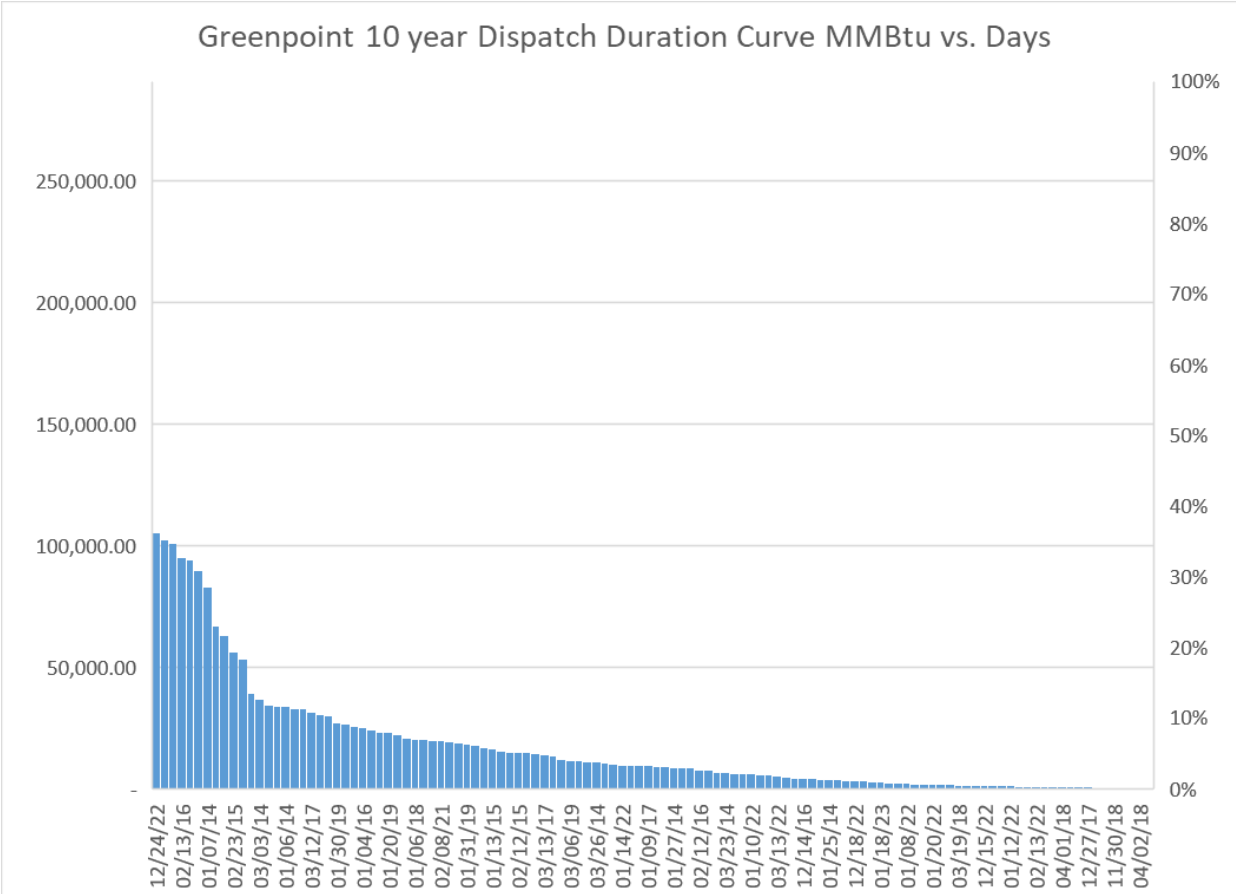
First, there are 151 days in the heating season. Given the deployment of the Greenpoint facility this means that over 10 years it has been deployed on only 7.7% of the days where it could have been deployed. Of course as a peaking resource, the gas supply planner would want it to be deployed less than other resources, as peaking resources tend to have a much lower load factor than baseload resources like upstream supply.

Second, the mean level of dispatch is about 18,000 MMBtu per day and the median is about 10,000 MMBtu/d. With a total deliverability of 291,000 MMBtu/d, this means when the liquified natural gas ("LNG") is dispatched, it is utilized at about a 6.2% level on average and about 3.5% for the median value.

Third, the total heating season deployment hit a maximum of 457,288 MMBtu during the 2014-2015 heating season while the mean deployment was 225,744 MMBtu and the median was 195,000 MMBtu over the ten year period. With total annual deliverability at 1,600,000 MMBtu, the maximum utilization of the capacity has been 28%, while the mean has been 14% and the median has been 12%. The chart below shows the daily dispatch of the facility over the last 10 years:



Below is a graph of how the Greenpoint Facility has been dispatched over the past 10 years from the highest level of dispatch to the lowest. It is shown to illustrate the full level of daily capacity at Greenpoint (291,000 MMBtu/d).



VI. KEDNY Greenpoint Capital Plan

Q. What is KEDNY requesting to be included in rates for this rate case with respect to the Greenpoint Energy Facility?

A. The Company has asked for recovery of $376,197,000 in capital costs over four years for the Greenpoint facility.[14] The majority of this investment (63%) is to occur in the first two years. Please see the table below for the complete breakdown of the proposed investment.

[14] Direct Testimony of Company's Gas Infrastructure and Operations Panel, Exhibit____(GIOP-1), pages 2-3

Greenpoint LNG Capital Spending FY2025 - FY2028

Spending category	FY 2025	FY 2026	FY 2027	FY 2028
Pipeline Integrity IMP	250	500	7,000	50
CNG Fill			500	
Transmission Main	5,806	50		
Greenpoint Masterplan				
Warehouse Demo and Temp Infrastructure	12,125	12,125	12,125	12,125
Masterplan Execution	4,600	10,300	17,500	10,000
Bathroom and Locker Refresh				
Electrical Upgrades	1,000			
S&S Building generator to Brightwaters				
Guard Booth				
LNG Barge Decommission			50	50
LNG Blanket	2,820	2,876	2,934	2,992
LNG Boiloff Heater Upgrade	475	50	3,950	4,275
LNG Bulkhead Upgrade	700	100	1,300	3,900
LNG Control Upgrade	14,850	15,858		
LNG Cyber Security				
LNG Dike Stabilization		200	200	350
LNG Fire Protection Upgrade	3,500	5,000	100	
LNG Flare Heater Refurbish	150	350	1,500	3,050
LNG Flare Refurbish	1,500			
LNG Generators Upgrade	350	250	300	1,175
LNG Hydrant Piping Upgrade	2,683	19,692	6,880	
LNG New Control	300	5,000	10,000	
LNG Nitrogen System	3,000			
LNG Piping Insulation	1,000	1,000	1,000	1,000
LNG Plant Outlet Drip Leg	50			
LNG Pump Upgrade	3,590	100		
LNG ReGen Heater Replacement			50	500

LNG Relocate Maintenance Area	19,548	12,392		
LNG RNG Blanket	204	208	212	216
LNG Salt Water Pump House	25,029	15,390		
LNG Security System Upgrade	2,000	2,000		
LNG Solar Panels			50	100
LNG Stormwater Drainage	150	800		
LNG Sub M Sub L	1,100			
LNG Tail Gas Compressor	1,319	2,352	20	
LNG Tank 2 Foundation Heat	360	190	4,720	9,930
LNG Tank 2 Upgrade				500
LNG Tank 1PC Coat	100	750	1,100	
LNG Truck Load Station				
LNG Turbo Expander			50	300
LNG Vapor Suppression	2,000	1,851		
LNG Vaporizers 3 & 4				
LNG Vaporizers 7 & 8	3,000	15,500	12,600	3,000
LNG Vaporizers 9 & 10				100
TOTAL	**113,559**	**124,884**	**84,141**	**53,613**
Four Year Total				**376,197**

Q. Did the Company's Gas Supply Panel prepare a Marginal Cost of Capacity Study for peak day supplies?

A. Yes. The most expensive cost alternative for peak day supplies is CNG delivered by truck for a unitized cost of $37.83 per dekatherm ("dt") and a Peak Day Capacity Cost of $567.51. The Grand Total Unitized Cost is $7.03/dt and a Peak Day Capacity Cost of $360.01/dt. Please see the table from the Gas Supply Panel Exhibit ____ (GSP-3) below for this analysis.

Exhibit__(GSP-9)
Page 1 of 1

KEDNY & KEDLI
Estimated Annualized Marginal Capacity Cost of Gas
For Period: November 1, 2024 through March 31, 2025
Units ($ per dt)

Marginal Supplies	Peak Day Quantity dt/day	Annual Capacity Costs Cost $	Quantity dt	Unitized $/dt	Peak Day Capacity Costs $/dt
30 Day City Gate Peaking Supplies	20,000	$ 2,114,200	600,000	$3.52	$105.71
121 Day City Gate Peaking Supplies	38,000	$ 5,985,000	4,598,000	$1.30	$157.50
CNG Supply Delivered via Trucks	61,600	$ 34,958,411	924,000	$37.83	$567.51
Grand Total	119,600	$ 43,057,611	6,122,000	$7.03	$360.01

Annualized Marginal Capacity Cost of Gas

Peak Day Capacity Cost	$360.01 per dt
Ratio: Peak Day Requirements to Annual Normalized Firm Sales	1 to 69 dt
Annual Marginal Capacity Cost	$5.22 per dt

Q. If you were to prepare a similar analysis for the incremental expenditures for peaking capacity at Greenpoint given the projected capital spend being requested for recovery in this proceeding, what would the results look like?

A. If we assume a spend of $376,197,000 (which is what is being requested) and an Annual Quantity of 1,680,000 we get a Unitized cost of $224/dt. The same spend divided by the peak day capacity yields a Peak Day Capacity Cost of $1,293/dt.

Q. Is it appropriate to compare these costs for deliverability?

A. There are some inconsistencies in this type of comparison.

First, the estimate by the company is for the 24/25 heating season, while the Greenpoint LNG spend is for the entire entire period ending in 2028. But it should be noted that after this period the Greenpoint facility will have all volumes of deliverability burdened with these costs.

Second, the argument could be made that once these investments are made, Greenpoint will be able to deliver these volumes for a long useful life. However, even if we do assume a 30 year useful life, the annual marginal capacity cost is $7.46/dt, which is higher than the projected cost from these alternatives. Moreover, there is no guarantee that Greenpoint will not require further significant capital expenditures to maintain this level of deliverability in the out years.

Third, the actual dispatch history of Greenpoint makes the cost of this investment even higher on a marginal cost basis. If we look at the highest annual level of dispatch of 457,288 MMBtu and rate the costs over that volume we get a Unitized Cost of $27.42/dt and a Peak Day Capacity Cost of $3,571dt. This comparison is relevant if we believe that the design day may be overestimated due to either temperature expectations being too low or basic parameters underlying the natural gas retail market being too aggressive.

Finally, the nature of a long term investment in deliverability such as the one being proposed at Greenpoint leads to the potential for stranded capacity while the type of investment in deliverability represented by the short term supplies will allow greater flexibility to respond to potentially different circumstances.

Q. What is your assessment of this capital request in the context of the current energy environment?

A. The current forecast for annual and design day requirements is based on much less firm underlying parameters than was the case in previous decades. First, there is uncertainty as to the level of temperature on the design day due to how rarely these types of temperatures were experienced as well as the current and irrefutable warming trend. Second, the company posits three likely scenarios for transition over the next decade. The National Grid Energy Vision is business as usual from a load expectations perspective, while the second and third cases include significant loss of heating load. The design day and therefore the capital spend on the Greenpoint facility are based on the business as usual case. If either the hybrid or the full electrification case are what is experienced over the next decade, the need for Greenpoint may be significantly reduced in the current period. In the years after 2029/2030, the design day drops even in the National Grid Clean Energy Vision case. This means that investment in the Greenpoint facility could end up being stranded in all cases.

For these reasons, I believe it is prudent to require the Company to defer the majority of its expenditures on Greenpoint while the Company studies with great vigor the potential to remove all or some of the plant from service. This would allow for either lower rates or significant redirection of these funds to alternative ways to meet the design day.

Q. What alternatives could the Company employ to investing in the Greenpoint facility?

A. There are many alternatives but generally they take three forms:

1. Increased peak day supply through either upstream transportation, city gate purchases or CNG (all of which have been outlined in the Marginal Cost Study)

2. Decreased design day requirement through demand response and interruptions

3. General lowering of design day requirements through the lowering of overall heating season requirements. These alternatives include greater efficiency in the building stock and full and partial electrification. The Company's Gas Forecasting Panel included the following exhibit which highlights its projection of load reductions as a result of these measures under the rate case parameters.

Exhibit ___ (GLF-16A)
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KEDNY End-of-Fiscal Year Volume Impact from Post-Model Adjustments FY2023 - FY2028
(units = therms)

		FY2023	FY2024	FY2025	FY2026	FY2027	FY2028
Residential Non-Heating	*Energy Efficiency (above historical trend)*	0	0	0	0	0	0
	Water Heater Heat Pumps	0	0	0	0	0	0
	Heat Pumps (Full Load Displacement)	0	0	0	0	0	0
	Heat Pumps (Partial Load Displacement)	0	0	0	0	0	0
	Local Law 97	0	0	0	0	0	0
	Local Law 154	0	0	0	0	0	0
	Total Savings - Residential Non-Heating	**0**	**0**	**0**	**0**	**0**	**0**
Residential Heating	*Energy Efficiency (above historical trend)*	2,003,381	4,333,114	7,335,829	9,733,285	11,258,855	13,111,054
	Water Heater Heat Pumps	0	0	0	0	0	0
	Heat Pumps (Full Load Displacement)	1,268,677	2,585,116	3,171,009	3,156,313	3,160,093	3,162,774
	Heat Pumps (Partial Load Displacement)	1,393,463	3,127,413	4,871,959	6,234,269	7,384,829	9,007,216
	Local Law 97	0	0	0	0	0	0
	Local Law 154	0	13,037	303,580	1,960,286	3,896,189	5,871,404
	Total Savings - Residential Heating	**4,665,521**	**10,058,680**	**15,682,377**	**21,084,153**	**25,699,966**	**31,152,448**
Commercial	*Energy Efficiency (above historical trend)*	1,377,881	3,688,626	6,591,128	9,823,338	12,719,435	15,668,681
	Water Heater Heat Pumps	0	0	0	0	0	0
	Heat Pumps (Full Load Displacement)	882,918	2,100,560	3,294,381	4,043,189	4,618,953	5,615,579
	Heat Pumps (Partial Load Displacement)	42,544	110,291	177,844	234,389	280,189	346,706
	Local Law 97	0	0	0	0	0	0
	Local Law 154	0	1,544	34,252	275,921	614,577	975,282
	Total Savings - Commercial	**2,303,343**	**5,901,021**	**10,097,605**	**14,376,837**	**18,233,154**	**22,606,248**
Multi-family	*Energy Efficiency (above historical trend)*	1,424,021	3,417,545	5,813,450	8,340,406	10,548,763	12,800,836
	Water Heater Heat Pumps	0	0	0	0	0	0
	Heat Pumps (Full Load Displacement)	3,091,765	6,712,065	9,878,279	11,717,270	13,232,716	15,525,141
	Heat Pumps (Partial Load Displacement)	0	0	0	0	0	0
	Local Law 97	0	0	0	0	0	0
	Local Law 154	0	11,784	188,886	1,161,399	2,286,345	3,450,647
	Total Savings - Multi-family	**4,515,786**	**10,141,394**	**15,880,615**	**21,219,075**	**26,067,824**	**31,776,624**
Non-firm Demand Response	*Energy Efficiency (above historical trend)*	0	0	0	0	0	0
	Water Heater Heat Pumps	0	0	0	0	0	0
	Heat Pumps (Full Load Displacement)	0	0	0	0	0	0
	Heat Pumps (Partial Load Displacement)	0	0	0	0	0	0
	Local Law 97	0	0	0	0	0	0
	Local Law 154	0	0	0	0	0	0
	Total Savings - NFDR	**0**	**0**	**0**	**0**	**0**	**0**
Other	*Energy Efficiency (above historical trend)*	0	0	0	0	0	0
	Water Heater Heat Pumps	0	0	0	0	0	0
	Heat Pumps (Full Load Displacement)	0	0	0	0	0	0
	Heat Pumps (Partial Load Displacement)	0	0	0	0	0	0
	Local Law 97	6,737,734	19,545,221	23,546,636	25,706,181	27,865,729	30,025,276
	Local Law 154	0	0	0	0	0	0
	Total Savings - Other	**6,737,734**	**19,545,221**	**23,546,636**	**25,706,181**	**27,865,729**	**30,025,276**
Total	*Energy Efficiency (above historical trend)*	4,805,283	11,439,285	19,740,407	27,897,029	34,527,053	41,580,571
	Water Heater Heat Pumps	0	0	0	0	0	0
	Heat Pumps (Full Load Displacement)	5,243,360	11,397,741	16,343,669	18,916,772	21,011,762	24,303,494
	Heat Pumps (Partial Load Displacement)	1,436,007	3,237,704	5,049,803	6,468,658	7,665,018	9,353,922
	Local Law 97	6,737,734	[illegible]	[illegible]	25,706,181	27,865,729	30,025,276
	Local Law 154	0	[illegible]	[illegible]	3,397,606	6,797,111	10,297,333
	Total Savings - All Customers	**18,222,384**	**45,646,316**	**65,207,233**	**82,386,246**	**97,866,673**	**115,560,596**

We can see from these projections that supply requirements will be lowered by 11,556,060 MMBtu by the end of FY 2028. This is without any significant investment in these measures by the Company.

All three alternatives, (increased peaking supply, design day reduction and annual load reduction opportunities) should be considered as a potential plan to be able to reduce or eliminate exposure to Greenpoint investment risks. The second and third methods of meeting design loads are clearly more in line with the measures considered to be acceptable under the Climate Leadership and Community Protection Act because they would aggressively reduce greenhouse gas emissions.

VII. Conclusions and Recommendations

Q. As a result of your analysis of the materials provided in this proceeding through the Company filing and Discovery, what conclusions have you drawn?

A. I draw the following conclusions:

1. The design day used by the Company to construct its gas supply portfolio is likely estimated at too high a level due to overestimation of the potential for cold weather as well as an assumption of too high a growth rate in design day demand.

2. The Company has used only its National Grid Clean Energy Vision parameters to develop gas supply requirements. This means that certain gas delivery assets (like Greenpoint) could become stranded and continued investment in them might not be prudent.

3. The level of dispatch of the Greenpoint facility has been significantly below its capacity for at least the last 10 years, potentially allowing for lower deliveries from the facility and implying that certain capital investments could be delayed or even avoided.

4. The Commission should consider the more flexible phasing in of the investment in Greenpoint if it is not completely disallowed.

5. A stakeholder group including the Company, Department of Public Service Staff and other interested parties should be formed to analyze alternatives for Greenpoint in order to most efficiently address the energy needs of the community.

6. Finally, the Greenpoint facility is by the Company's admission at a point in its service life where it is requiring at least $365,000,000 to keep it running at current levels. Given the current uncertainty in the energy transition, including the changes mandated by the Climate Leadership and Community Protection Act, the Company, its ratepayers, and all the other stakeholders are at an inflection point where we should be examining all relevant inputs into this decision that may lead to significant stranded costs.

Q. Does this conclude your testimony?

A. Yes.