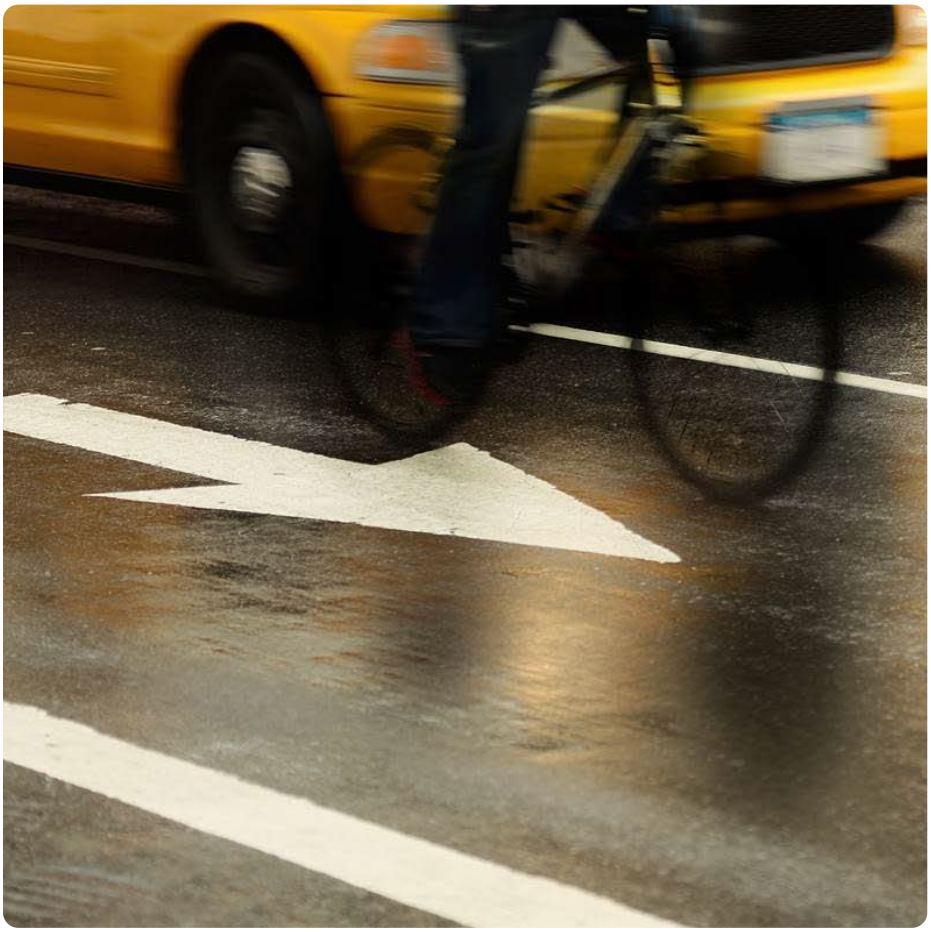

Report on National Grid's Final Gas System Long-Term Plan Addendum

24-G-0248

Prepared for New York Department of Public Service

August 6, 2025

Bringing Ingenuity to Life.

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Version:

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Glossary

AMA - Asset management agreement
BCA - Benefit-Cost Analysis
BQI - Brooklyn-Queens Interconnect
CapEx - Capital Expenditure
CLCPA - Climate Leadership and Community Protection Act
CNG - Compressed Natural Gas
CPCN - Certificate of Public Convenience
DEC - Department of Environmental Conservation
DMM - Document and Matter Management
DPS - New York State Department of Public Service
DSNY - Downstate New York
ExC - Iroquois Enhancement by Compression
FBF - Floyd Bennett Field
FERC - Federal Energy Regulatory Commission
FLT - Final Long-Term Plan
GHG - Greenhouse gas
GPCM - Gas Price Competition Model
GSLTP - Gas System Long-Term Plan
Supplement – National Grid's "Final Gas System Long Term Gas Plan Addendum"
KEDLI - KeySpan Gas East Corporation
KEDNY - Brooklyn Union Gas Company
LAI Study - Levitan Associates, Inc. Report
LCF - Low-carbon fuel
LIPA - Long Island Power Authority
LNG - Liquified Natural Gas
$MTCO_2e$ - Metric tons of carbon dioxide equivalent
NESE - Northeast Supply Enhancement
NPA - Non-Pipe Alternative
NPCC - Northeast Power Coordinating Council
NYFS - New York Facilities System
NYISO - New York Independent System Operator
NYSERDA - New York State Energy Research and Development Authority
OSW - Offshore wind
PA - PA Consulting Group, Inc.
PSC - Public Service Commission
PV - Present Value
RFP - Request for Proposal
SME - Subject Matter Expert
TETCO - Texas Eastern Transmission
TGP - Tennessee Gas Pipeline
Department - New York State Department of Public Service
the Project - Northeast Supply Enhancement
Transco - Transcontinental Gas Pipe Line Company, LLC

1 Executive Summary

As background, PA Consulting Group, Inc. (PA) was engaged by the New York State Department of Public Service (the Department) to review National Grid's Gas System Long-Term Plan (GSLTP) filed in Case No. 24-G-0248 and submitted its Final Report in that Case on May 19, 2025. On July 2, 2025, National Grid (the Company) filed an addendum in that same proceeding to its Gas System Long-Term Plan (GSLTP) comprised of two documents (collectively the Supplement):

1. "Final Gas System Long-Term Plan Addendum" (the Supplement), prepared by National Grid (the Company), and
2. "Assessment of Economic Benefits in NYSIO's Wholesale Electricity Market Attributable to Transco's Northeast Supply Enhancement Project" (LAI Study), prepared by Levitan & Associates, Inc. on behalf of the Company.

Within the Supplement the Company cites "urgent challenges and emergent potential solutions to near-term system reliability,"[1] which drives its evaluation of Transcontinental Gas Pipe Line Company, LLC's (Transco) proposed Northeast Supply Enhancement (NESE or the Project) project and its impacts on National Grid's gas distribution system customers and energy consumers statewide. The Company writes that the Supplement provides "the Commission with its latest findings on the potential benefits of NESE, and requests that the Commission review and acknowledge the findings and recommendations presented in this evaluation." [2]

On June 2, 2025, National Grid filed a letter in Case No. 24-G-0248 requesting time to file an update to its GSLTP to assess the Project. The contract between PA, the Company, and the Department was amended to establish the framework under which PA would submit a report summarizing our observations (this Report) of the Supplement.[3] Our review of the Supplement was informed by data and other pertinent information provided by the Company through a data request process. PA also held multiple conversations with various Company Subject Matter Experts (SMEs), attended the July 22nd Technical Conference, and reviewed filed comments. PA redeployed its Supply Portfolio, Capital Expenditures (CapEx), Demand Forecast, Economic, and Environmental workstream approach to evaluate the pertinent considerations.

PA observes the Company's Supplement is in response to Transco's petition for reissuance of a Certificate of Public Convenience and Necessity (CPCN) for construction and operation of NESE.[4] Transco's request cites executive orders signed by President Trump and, most notably, suggests the urgent need for energy supply in the Northeastern United States. Transco identifies NESE's ability to address persistent natural gas supply constraints in the Northeast that have led to higher energy costs for consumers and increased reliance on high-emission fuels like fuel oil[5]. In this May 29 filing, Transco requests the Federal Energy Regulatory Commission (FERC) to reauthorize the Project by August 29, 2025, to allow for commencement of construction by the end of 2025. On July 11th, 2025, FERC determined its January 2019 Final Environmental Impact Statement[6] related to the Project is sufficient for the review under Transco's refiled petition.

Given these macro factors, in the Supplement, the Company includes an evaluation of the relationship between the Project and wholesale and retail electric energy prices in New York. PA has reviewed that relationship and provides some high-level observations. Given the broader implications of NESE to deliver increased gas volumes into the heart of the constrained Downstate New York (DSNY) market, and as a result support potential reductions in wholesale energy prices, PA observes the LAI Study focused on the anticipated value of these economic benefits and notably quantifies savings in wholesale electric energy costs but did not monetize gas resilience benefits. Therefore, in Section 8 of this Report, PA discusses broader energy demands within the State of New York, requiring natural gas to reliably and economically serve both natural

[1] Source: Supplement, p. 6.
[2] *Ibid*.
[3] Source: Contract Amendment No. 2.
[4] Source: Transco, LLC. "Petition for Supplemental Certificate for the Northeast Supply Enhancement Project," Docket No. CP20-49-001, filed May 31, 2025. FERC eLibrary.
[5] Source: Williams "Northeast Supply Enhancement Project Fact Sheet," 1443-NESE-Project-Fact-Sheet_DRAFT_v3.pdf
[6] Source: Final Environmental Impact Statement- Northeast Supply Enhancement Project | Federal Energy Regulatory Commission

gas end-uses as well as power generation, particularly within the gas-constrained DSNY area. PA also observes the convergence of heating and transportation sector demands within the New York electric sector, which presents increasing complexity and, in this situation, underscores the need for a more comprehensive perspective on the NYISO energy system. It also highlights a growing trend toward integrated planning of electric and natural gas distribution systems—an area that has traditionally remained siloed.[7] However, this Report focuses primarily on the implications of NESE to the Company's natural gas customers, with the understanding that many of those customers are also electric customers who may potentially realize electric cost savings.

Notably, firm pipeline capacity provides reliability benefits that cannot be provided by other incremental supply options like CNG or delivered services – both of which pose unique reliability challenges. Incremental firm pipeline capacity lacks the re-contracting and expense risks that come with market solicitations of incremental delivered services. Firm pipeline capacity lacks the operational risks that are paired with CNG; namely, delivery risks during Design Day conditions, logistical risks associated with trailer availability, and the execution risks associated with calling on CNG capacity when necessary to supplement the design day portfolio NESE Background

As further discussed within Section 3.2 of this Report, NESE is an interstate natural gas pipeline project proposed by Transco with the potential to deliver an incremental 400 MDth of natural gas supply per day into National Grid's gas distribution system at the Floyd Bennett Field (FBF) citygate. In 2019, FERC approved Transco's request for a CPCN for construction and operation of the Project. The Supplement also references pertinent and material energy system developments in near- and long-term electric sector reliability as the State of New York progresses towards its Climate Leadership and Community Protection Act (CLCPA) targets. Notably, expectations around electric sector demand from the Northeast Power Coordinating Council (NPCC) and New York Independent System Operator (NYISO), delays in offshore wind development, coupled with demand increases from electric vehicles, electrification of heating load, and large energy-intensive economic development projects are highlighted within the Supplement. With respect to natural gas system reliability, within the GSLTP Update the Company finds NESE would reduce reliance on single points of failure, provide a firm supply source under which the Company would lessen dependence on trucked CNG operations and address energy supply system deficiencies.

1.1 Summary of Key Outcomes

The long-term planning process is ongoing in nature which means regular updates and assessments are required to ensure the natural gas utility's ability to reliably serve its customers. In the case of National Grid's KEDNY and KEDLI service territory, PA observes that incremental pipeline deliveries from NESE may result in a number of outcomes for National Grid's DSNY customers, including (but not limited to) the following:

- Enhanced system reliability,
- Lower commodity costs,
- Reduced GHG and air pollution emissions, and
- Potential for excess capacity costs.

Within the LAI Study, the following economic benefits are cited. To better illustrate and identify what, if any economic benefits are included within two key outputs of the Supplement – the Average Residential Bill Impact and the Benefit Cost Impact - PA prepared Table 1-1 below.

[7] National Grid acknowledged the importance of integrated gas-electric planning in its response to a SANE Energy data request, stating "the Company views integrated gas-electric planning and coordination as a critical element of a "modernized gas planning process,"" (Company's response to SANE-034.)

Table 1-1 LAI Study Benefits Summary[8]

Benefit	Included in Average Residential Bill Impact?	Included in Benefit Cost Impact?	Assumption Uncertainty (H / M / L)
Benefits from improved gas system resilience	No	No	Low
Avoided CNG costs	Yes	Yes	Medium
Avoided GHG emissions	No	No	Medium
Benefits from the reduction in wholesale electric energy prices	No	Yes	High

NESE would be expected to enhance the reliability of the distribution system in at least two ways: (1) improving gas pressure at key points in the system to well above their design minimum levels, and (2) reducing reliance on transfers from Con Edison at Newtown Creek and Lake Success on a design day. With NESE in service (and even with NESE delivering less than its maximum capacity of 400 MDth/d until additional National Grid infrastructure is constructed), not only is National Grid's risk that Con Edison may not be able to provide gas on a design day diminished (since Con Edison might need to limit transfers to serve its own customers), reliability on the Con Edison system further improves since it can plan to retain more gas on its own system.

An additional reliability benefit from the construction of NESE includes additional gas that can be "stored" on the pipeline system. Because NESE includes additional miles of pipeline, more natural gas will be available in the Transco system in close proximity to DSNY than is currently the case. Moreover, with the installation of the Marine Park Regulator Station (which is discussed in Section 4), the pressure on the Company's existing transmission pipeline will be increased – again meaning more natural gas "stored" at the doorstep of the distribution system.[9] Having this additional gas available can be important in circumstances where upstream supplies may be temporarily disrupted; at the very least, with the additional gas "stored" in the pipelines, the Company would be able to provide service to its customers for a longer period of time – additional time to troubleshoot and remedy the cause of the supply disruption. As result, any consideration of curtailments of customers or potentially isolating segments of the distribution system (which would later require a labor-intensive effort to re-energize those isolated segments) can be delayed or perhaps avoided.

Given the location of its service territories, during winter months when demand for natural gas is at its highest, the Company employs a number of supply sources to meet firm demand. If NESE is ultimately placed in-service, the corresponding increase in available supply would provide National Grid with more peak day operational reliability and market flexibility via removing comparatively expensive components of its supply portfolio over time. While there are a number of potential changes to the Company's supply portfolio, as a result of additional volumes from NESE, outcomes resulting in lower customer costs are likely to include (1) a reduced need for CNG resources, (2) reduced dependence on costly peaking services, (3) reduced commodity costs due to market fundamentals, and (4) potential revenues from released of unutilized capacity. Alternatively, the addition of 400 MDth/d of pipeline capacity could result in DSNY customers paying for more capacity than is needed – particularly in the near term and until such time as the Company is able to appropriately identify which resources (such as CNG facilities) can be removed from the supply stack without impacting service reliability.

PA observes the Company estimates the impact of the Project and National Grid's Required Capital Investments[10] translates into an average residential customer bill increase for customers in KEDLI of $7.44/month (an increase of 3.5%), and for customers in KEDNY of $7.61 per month (an increase of 3.5%).[11]

[8] Source: LAI Study, p. 4. and PA's analysis of the LAI Study and Supplement.
[9] The higher the gas pressure in a given pipeline segment, the greater the volume of natural gas within that segment at any point in time.
[10] The "Required Capital Investments," National Grid's Marine Park Regulator Station and Additional Flow Control at Lake Success Meter Station, are further discussed in Section 4 of this Report.
[11] Source: Supplement, p. 35.

This is driven by both the NESE demand charge, which would be recouped by Transco, of $1.47/Dth[12] (approximately $214.6 million per year[13]) and the cost of the additional National Grid gas distribution infrastructure necessary to ensure the incremental gas supply from the Project can be delivered to customers. The Company's analysis does not include (or attempt to quantify) savings from optimization of the gas supply portfolio, such as savings from non-renewal of peaking services contracts, as noted above. While included as part of the estimated bill impacts, PA believes that it would be useful if the Company were to identify the savings per therm (and in absolute dollars) on the customer bill associated with reduced use of CNG, as well as in absolute dollars. We also agree with the Company that it should evaluate any and all cost recovery mechanisms or revenue arrangements that would further reduce the costs to its customers. To further illustrate and identify what, if any, of these cost savings are included within two key outputs of the Supplement – the Average Residential Bill Impact and the Benefit Cost Impact - PA prepared Table 1-2 below.

Table 1-2: NESE Cost Implications Summary

Cost / Revenue Component	Included in Average Residential Bill Impact?	Included in Benefit Cost Impact?	Assumption Uncertainty (H / M / L)
Demand Charge (Set by FERC Ratemaking, paid over the duration of the contract), net of certain avoided peaking costs	Yes	Yes	Low
Revenue requirement associated with National Grid's Required Capital Investments	Yes	Yes	Low
Change in Commodity Cost (Set by supply and demand market implications and may include CNG and LNG commodity costs in addition to the cost of gas received from interstate pipelines, Delivered Services and other sources)	No	Yes	High
Capacity Release and AMA Revenues	No	No	Medium
Discontinued Delivered Services Contracts	No	No	Medium

PA also observes the Supplement focuses on the reduction of GHG emissions and other air pollutants, including PM 2.5, Nitrogen Oxides, Sulfur Oxides, and mercury, associated with the Project, with the two primary drivers of emission reduction potential being: (1) reductions in diesel fuel consumption, and associated emissions, from CNG trucks, and (2) emission reductions associated with increased natural gas availability for electric generation. Within the LAI Study, avoided truck-related tailpipe emissions associated with the avoidance of 48 daily truck roundtrips, or about 36 short tons of CO2 emissions per day per site and, estimated GHG emission reductions in the power sector range from approximately 23,200 to 88,800 short tons of CO_2e, depending on the level of oil displacement in each year. LAI estimates avoided emissions would be approximately $6,200 per CNG site per day. The LAI Study estimates, based on Social Cost of Carbon values, representative avoided climate damages averaging $9.1 million per year, in nominal terms.[14]

However, natural gas demand uncertainties exist,[15] and, in review of the 2025 Forecast referenced within the Supplement, PA finds that the 2025 Forecast is noticeably lower than the 2024 Forecast. As a result of PAs analysis of the 2025 Forecast we observe that the unprecedented disruptions of COVID-19 and the speed of economic recovery was overly optimistic within 2024 Forecast and observes significantly lower 2023 and 2024 actuals across all forecasted customer segments for both KEDNY and KEDLI. As a result, the Company's

[12] *Ibid.*
[13] The annual amount is calculated as $1.47/Dth times 400,000 Dth/day times 365 days per year.
[14] Source: LAI Study, p. 4-5.
[15] PA observed the Company's 2025 demand forecast for KEDLI and KEDNY is lower than its 2024 forecast and is more in-line with PA's expectations as outlined in great detail within PA's Final Report, filed May 19, 2025.

2025 forecast now suggests a slower rate of demand growth and may delay the projected supply-demand gap until 2041/42. It is important to note that the 2025 Forecast remains in its initial stages, is subject to further refinement, and requires comprehensive hydraulic modeling to accurately determine the timing and extent of any supply shortfall.

2 Stakeholder Engagement

PA understands our role is not only to evaluate the Supplement but also to assess and facilitate a robust Stakeholder engagement process. Within this section of our Report, we discuss any filed comments in the proceeding since PA filed its Final Report and the Company's Technical Conference.

2.1 Summary of Stakeholder Comments on the Supplement

Sane Energy filed a response on June 3, 2025, to National Grid's request to amend the GSLTP to include NESE. They note that this would undermine the gas planning process as NESE was not included in the Company's supply plan and suggests reopening the proceeding to include additional modeling, new Stakeholder input, demand response and Non-Pipe Alternative (NPA) studies, a re-evaluation of design day methodology, a Greenpoint liquified natural gas (LNG) assessment, and a full emissions and environmental justice impact assessment.

2.1.1 Stakeholder Comments on PA's Final Report

Sane Energy and Margot Spindelman filed comments on PA's Final Report on June 3, 2025. While Sane supports PA's findings, they note that PA should dive deeper in a few areas. Their comments discuss PA's view of National Grid's 2025 Forecast, capital investment considerations, and Greenpoint LNG. SANE mentions that PA's stance on Greenpoint LNG is consistent with community beliefs. SANE calls on the Commission to reject National Grid's long-term plan and mentions four areas in which the Company can provide substantial revisions, including more community engagement.

Margot Spindelman's comments are also supportive of PA's Final Report, with respect to selection of a scenario, design day assumptions, the Company's 2025 Forecast, Greenpoint, a moratorium, and low-carbon fuels (LCFs). Her comments frequently quote PA's Final Report and are ultimately critical of National Grid's Final Long-Term (FLT) Plan. Spindelman also calls on the PSC to reject the FLT Plan.

2.2 Technical Conferences

In addition to the filed comments discussed in Section 2.1, the Department, customers and Stakeholders engaged in a comprehensive process with public comments available in the Department's Document and Matter Management (DMM) system. Additionally, Stakeholders had the opportunity to participate in a number of Technical Conferences throughout this proceeding and within the section below, PA summarizes the Technical Conference held on the Supplement.

July 22, 2025

Long-Term Plan Supplement Technical Conference

The Company held a Technical Conference to provide stakeholders with the opportunity to ask questions of the Company regarding its Supplement. In this Technical conference, the Company presented the key aspects of the Supplement, with an emphasis on the Project's reliability and the economic benefits of the Project. Manyf stakeholders engaged in lengthy dialogue with representatives of the Company.

3 Supply Portfolio

Interstate pipelines that operate within the Northeastern US are subject to delivery constraints, especially in moving natural gas to final delivery points. Within the DSNY region, constraints on these pipelines (and on interconnections to gas distribution systems) present challenges, especially during extreme winter conditions (including design days), when operating pressures on upstream pipelines can decline, resulting in capacity shortages.

Given the location of its KEDNY and KEDLI service territories (as illustrated by Figure 3-1, below), during winter months when demand for natural gas is at its highest, the Company employs a number of supply sources to meet firm demand, as discussed in greater detail within Section 3.1.

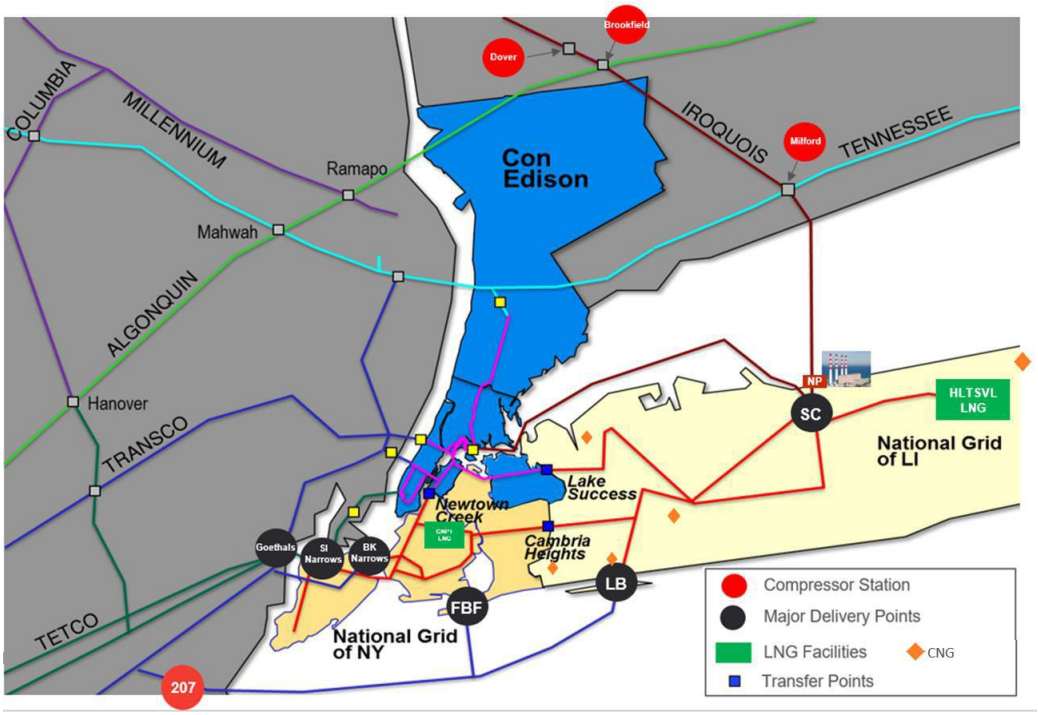
We provide an overview of the NESE Project within Section 3.2, and discuss potential changes to the Company's supply Portfolio within Section 3.3. We then discuss the results of supply portfolio scenarios that represent the supply stack with –and without NESE – visible in Sections 3.3.1 and 3.3.2. and in Section 3.2.3. PA also formulated a third scenario that tests the degree to which city-gate peaking supplies can be released. Each of these scenarios are evaluated against both the 2024 Forecast and the 2025 Forecast. Finally, Section 3.4 discusses our review and observations of the six New York Facilities System (NYFS) modeling scenarios associated with winter 2027-28 (the first winter NESE is assumed to be in service), made available to PA by the Company. [16]

3.1 Downstate Supply Stack

National Grid's DSNY territory, comprised of KEDNY and KEDLI, is served by four interstate pipelines: Transco, Iroquois, Texas Eastern Transmission Pipeline (TETCO), and Tennessee Gas Pipeline (TGP). These pipelines either deliver gas directly to city gates connected to the National Grid distribution system, or indirectly to city gates on Con Edison's distribution system with gas delivered to National Grid at transfer points on the New York Facilities System (NYFS). The New York Facilities Agreement governs how the severally owned pipeline system will operate and, among other things, specifies each utility's allocated share of interstate pipeline capacity entitlements at each city gate (e.g., each interconnection with an upstream transmission pipeline) as well as maximum hourly volumes of gas that are permitted to flow from one utility to the other. The Lake Success and Newtown Creek transfer points are bidirectional, with gas flowing from Con Edison to National Grid under design day conditions. Additionally, gas can be transferred between KEDNY and KEDLI at Cambria Heights. These transfer points are identified in Figure 3-1.

[16] Source: Company's confidential response to PA-234.

Figure 3-1: National Grid DSNY Map[17]



3.1.1 Existing Supply Stack

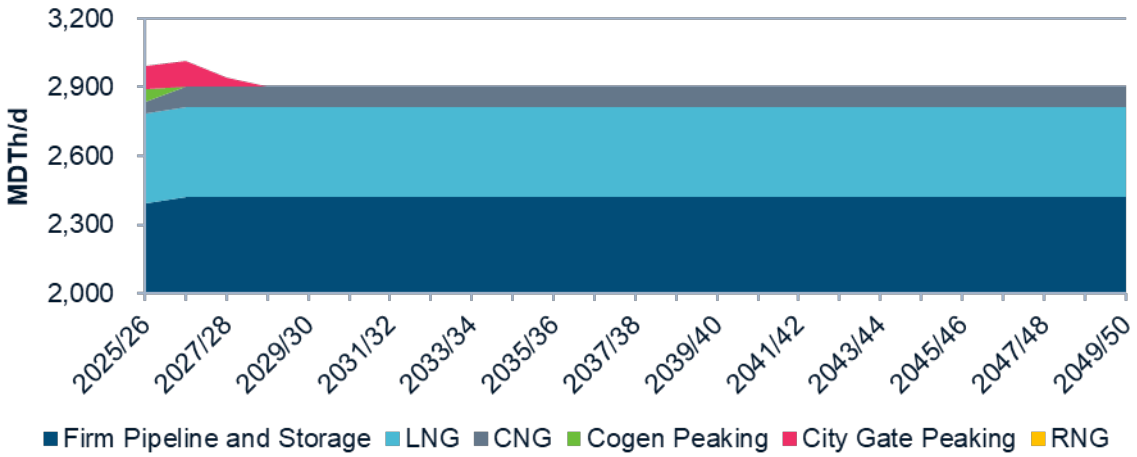
PA evaluated the various supply categories comprising National Grid's existing DSNY supply stack. PA first verified the supply stack as it currently exists, and the extent to which supply stack components may be relied upon in the next 20-year study period. The total contracted supply stack for the upcoming 2025-26 winter season stands at just over 2,992 MDth/d of Design Day capacity in DSNY.[18] This volume includes all existing long-term contracted capacity, storage, existing LNG capacity at Greenpoint and Holtsville, peaking and released capacity from contracts with other entities, city gate peaking contracts, existing and planned CNG facilities, and RNG. Figure 3-2 shows the existing supply stacks.

Across the 2025 Forecast period, there are a few notable changes to the contracted supply stack. These changes include:

- The expiration of cogen peaking contracts,
- Incremental capacity from new and expanded CNG injection facilities,
- The reversion of cogen peaking contracts to long-term contracted volumes, and
- The expiration and addition of city gate peaking volumes.

[17] Source: FLT Plan, Section 2.2.2.
[18] Source: Company's response to PA-0232.

Figure 3-2: DSNY Design Day Supply Stack[19]



In Figure 3-2, above, notable changes to the supply portfolio over time include the inclusion of additional City Gate Peaking contracts through 2026-27, the expiration of various Cogen Peaking contracts through 2025-26, the expansion of CNG capacity, and the reversion of released supply to the Company's Firm Pipeline and Storage category in 2026-27. A more detailed explanation of each component of the supply portfolio is visible in Section 4.2.2 of the PA Final Report – National Grid Long Term Gas Plan filed on May 19, 2025.

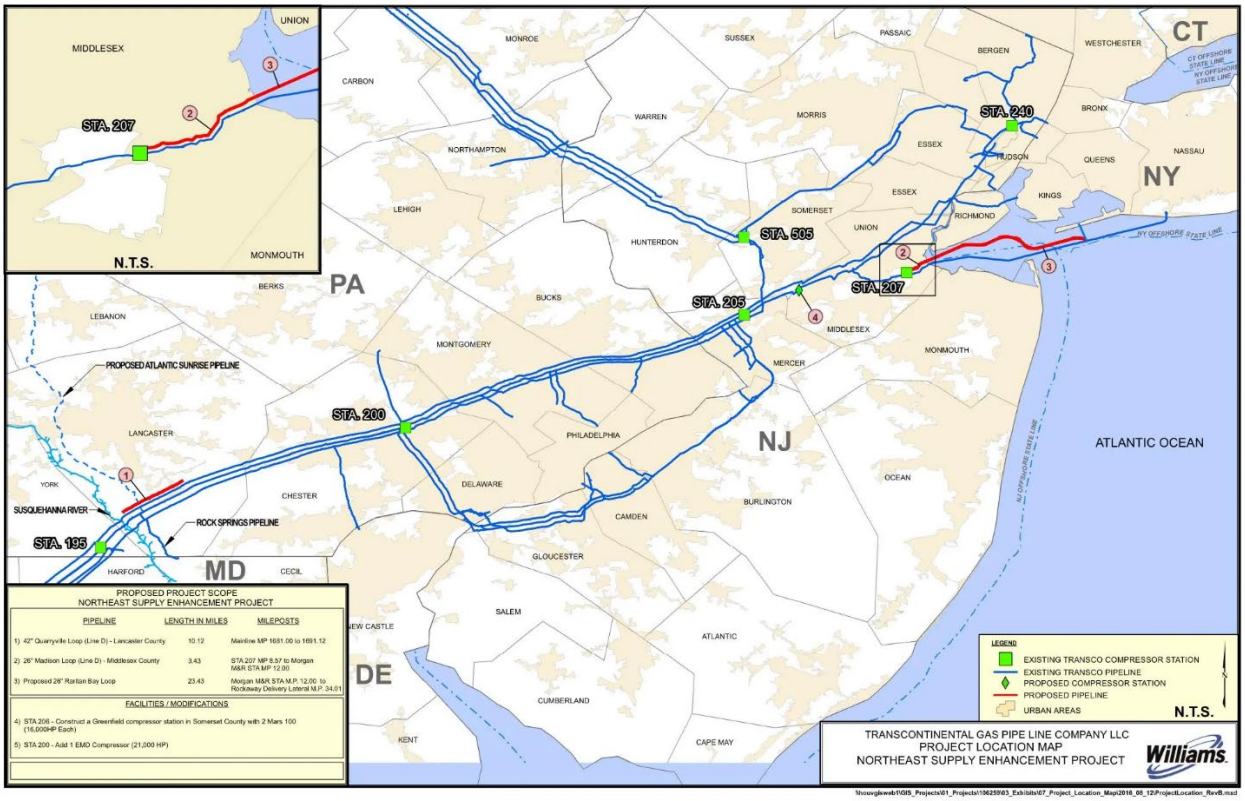
3.2 NESE Project Overview

The NESE project is a natural gas infrastructure development involving new pipeline loops (additional pipe within existing rights-of-way), modifications to existing facilities, including compressor stations and the interconnection of new infrastructure to existing infrastructure with the ultimate goal of delivering up to 400 MDth/d of natural gas to the Rockaway Delivery Lateral and from there to National Grid's distribution system at the Floyd Bennett Field citygate. The project was initially proposed in 2012 and experienced a series of delays and challenges. NESE was cancelled in 2024 after Williams chose to allow its most recent approval extension from FERC to lapse.[20]

In mid-February 2025, President Trump signaled support for reviving natural gas infrastructure – specifically the Constitution Pipeline which was cancelled in early 2020. The pipeline developer, Williams, also expressed interest in renewing development of the Constitution pipeline.[21] This revitalized interest in developing Constitution extended to the NESE project. In late May, Williams indicated that it would resume its efforts to acquire permits to construct both the Constitution Pipeline and NESE. Williams petitioned FERC to reissue an expedited certificate of public convenience and necessity for NESE, requesting authorization by August 29, 2025, so that construction could begin by the end of this year which would allow the NESE facilities to be placed in service by November 2027. See Figure 3-3.

[19] Source: Company's response to PA-0232.
[20] Source: Pipeline & Gas Journal article "Williams to Revive Constitution, NESE Pipelines in Joint Effort with Regulators." https://pgjonline.com/news/2025/may/williams-to-revive-constitution-nese-pipelines-in-joint-effort-with-regulators. Subsequent to Transco's April 10, 2024 communication that it planned to let the NESE Project certificate expire and would not seek an additional extension, FERC issued an order in Docket No. CP17-101-000 on June 10, 2024, which vacated the Certificate Order granted to Transco for the NESE Project.
[21] Source: Reuter's article "Williams says it welcomes Trump's support for Constitution gas pipeline" https://www.reuters.com/world/us/williams-says-it-welcomes-trumps-support-constitution-gas-pipeline-2025-03-14/ March 14, 2025.

Figure 3-3: Natural Gas Pipelines[22]



3.2.1 Potential Changes to the Supply Portfolio with the Addition of NESE

If NESE is ultimately placed in-service in November 2027, the corresponding increase in available supply would provide National Grid with more peak day operational reliability and market flexibility via removing comparatively expensive components of its supply portfolio over time. Within this section, we will discuss the potential changes to the Company's supply portfolio, which would result in additional volumes from NESE.

CNG

National Grid utilizes CNG facilities to supplement supply and enhance system reliability. The facilities can be called upon in a variety of circumstances, including under design day conditions. PA discussed the Company's CNG operations in more detail in Section 4.2.2 of its Final Report.

National Grid identified the CNG portion of its supply portfolio as the most likely assets to be removed from the supply stack – pending sufficient replacement capacity – based on a confluence of factors including[23]:

- Operational limitations,
- Dispatch risk, and
- Market limitations (in securing additional capacity).

These findings are consistent with PA's understanding of the relative strengths and weaknesses of CNG as a flexible component of the supply portfolio. Should NESE be placed in service, National Grid has indicated that reliance on CNG could indeed be reduced, but that CNG would be retained in the portfolio temporarily; specifically:

[22] Source: NESE Project Website.
[23] Source: GSLTP Addendum Section 2.4.2

- National Grid expects to complete the expansion at the Riverhead CNG facility to be available in time for winter 2025-26.
- All five CNG facilities would remain available for use at least through 2026-27, assuming NESE is in-service in time for 2027-28.[24]

National Grid envisions the retention of the Riverhead facility in the event that either: 1) there are delays in bringing NESE to operation, 2) there are delays in returning the Holtsville LNG tank back to operation following planned maintenance in summer 2026, or 3) there are increases in demand that would justify retaining a CNG site. National Grid acknowledged that, after NESE is placed in-service, it may be possible to reduce the number of functional CNG sites to only two facilities.[25] This acknowledgement came with the caveat that National Grid would need to conduct incremental hydraulic modeling to verify that three facilities could indeed be removed from the supply portfolio and to identify which facilities would need to be retained.

Removing CNG facilities from service that are no longer necessary to ensure peak day reliability is a valuable step that National Grid can take in providing least-cost service to customers and optimizing its supply portfolio to reduce redundant investments.[26] The Company estimates avoided gas supply costs associated with these three CNG facilities to be $48.3 million per year, in nominal terms, over the 15-year period.[27] Historically, the five DSNY CNG facilities have been collectively called upon 65 times for either testing or pressure support purposes. While CNG site use is variable, calling on the facilities can be expensive when considering costs on a dollar-per-dekatherm basis. See Table 3-1, below.

Table 3-1: Annual Instances of CNG Facility Use[28]

Year	Barrett	Farmingdale	Glenwood	Inwood	Riverhead
2020	-	-	4	3	6
2021	2	-	3	3	1
2022	3	-	5	3	4
2023	4	1	3	2	3
2024	4	1	1	1	1
2025	2	4	0	2	0

Delivered Services and City Gate Peaking Supplies

Delivered Services and City Gate Peaking Supplies may be another component of the supply portfolio that National Grid can reduce if NESE is placed in-service. Under a Delivered Services contract, holders of interstate pipeline capacity agree to purchase gas volumes on behalf of the contractual counterparty (in this case, KEDNY or KEDLI) and deliver those volumes to a National Grid city gate at a bundled (capacity plus commodity) price per Dth. These contracts are typically short-term in nature, only lasting a single season or perhaps a couple of years. Renewal of these supplies is not guaranteed (especially in a market in which gas supply is not plentiful). On a dollar-per-dekatherm basis, city gate peaking contracts also tend to be more expensive than long-term contracts due to FERC rules allowing prices for short-term capacity releases to be set at what the market will bear rather than based on the cost of service of the involved asset. Because these contracts are generally used to bridge the gap between supply and demand for an upcoming winter season, the availability of additional volumes from NESE may reduce or obviate National Grid's need for city gate peaking supplies. National Grid indicated that, if NESE were placed in service, it would consider removing unnecessary components of the supply portfolio, pending hydraulic modeling and evaluation of the overall

[24] Source: Company's response to PA-0237.
[25] Source: National Grid LTP Addendum Section 4.1.1.
[26] It appears that two of these three CNG facilities are located within Disadvantaged Communities (DACs) based on our review of NYSERDA's DAC map found at Disadvantaged Communities - NYSERDA.
[27] Source: Supplement, p 31-32.
[28] Source: Company's response to PA-0263.

supply portfolio[29]. Because Delivered Services and City Gate Peaking Supplies are delivered to city gates throughout the distribution system, those volumes may better support reliable design day gas delivery than a like amount of gas from NESE. Therefore, National Grid would need to conduct additional hydraulic modeling to verify which contracts it could remove from the supply stack if NESE is placed in service.

Due to these uncertainties, the Company did not include in its bill impact analysis estimated potential savings associated with removing Delivered Services contracts from the supply stack. Conceptually, PA expects there to be opportunities to reduce Delivered Services, yielding savings over time that can be netted against costs related to NESE. PA acknowledges that the uncertainties (e.g., the timing and scale of changes to the 2025 Forecast, the need to develop hydraulic models over time that reflect updated data and forecasts, and the timing of Delivered Services contract expiration) do exist. It may be reasonable to consider a scenario in which a simplifying assumption is made that no Delivered Services are contracted unless and until forecasted demand cannot be satisfied otherwise and use the associated estimated savings as a sensitivity to the bill impact analysis.

3.3 Supply Stack Scenarios

To evaluate the overall supply-demand impact of the potential inclusion of NESE, PA evaluated scenarios that do and do not include NESE – – which are discussed in Sections 3.3.1 and 3.3.2. These scenarios are built upon National Grid's existing supply portfolio and simply add in additional components like NESE and Iroquois ExC. PA also evaluated a third scenario that tests the degree to which city-gate peaking supplies can be reduced or eliminated from the portfolio. Each of these scenarios will be evaluated against both the 2024 Forecast and the 2025 Forecast. Additional discussion of the design day forecasts is addressed in Section 5. PA notes that the below scenarios are not yet supported by hydraulic modeling that incorporates the 2025 Forecast and only represents a high-level view of available supply and expected demand.

In the following sub-sections, PA discusses the results of its analysis of three potential supply portfolio scenarios.

3.3.1 Supply Portfolio Scenario: NESE Not In-Service

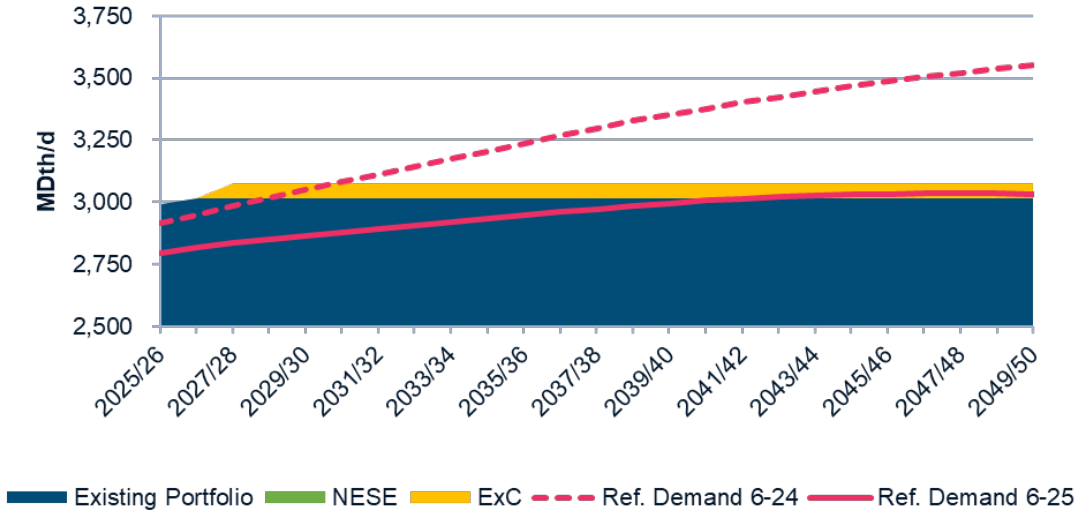
In evaluating this scenario, PA has made the following assumptions with respect to each component of the supply portfolio:

- **Firm Pipeline and Storage Capacity:** In 2025-26, design day capacity stands at nearly 2,390 MDth/d and increases by approximately 30 MDth/d to a total of just over 2,420 MDth/d in 2026-27 when capacity previously released to another entity returns to National Grid. This capacity remains at just over 2,420 for the remainder of the study period.
- **LNG** Capacity stands at 394.5 MDth/d for the study period, with no increase in capacity from Greenpoint Vaporizers 13 &14.
- **CNG** Capacity is 52.8 MDth/d in 2025-26. In this season, all CNG facilities are available but do not necessarily have contracted supply. This reflects the CNG component of the supply portfolio provided by National Grid.[30] In 2026-27, CNG capacity increases to 88 MDth/d, reflecting all five CNG facilities being fully contracted and available, and remains at this level for the remainder of the study period.[31]
- **Cogeneration Peaking Contracts** representing over 55 MDth/d of capacity which will expire and no longer be available for the 2026-27 season or thereafter.
- **City Gate Peaking Contracts** represent 98 MDth/d of capacity in 2025-26, increasing to 110.5 MDth/d in 2027-28, and remain at that level for the remainder of the study period.
- **Iroquois ExC** (Iroquois ExC or ExC), representing 62.5 MDth/d of capacity, is placed in-service in time to be available for the 2027-28 season. In this scenario, federal support for incremental pipeline capacity combined with the relatively mature nature of development (in terms of regulatory approvals) culminates in the completion of the ExC project.

[29] Source: Company's response to PA-240
[30] Source: Company's response to PA-0247.
[31] National Grid indicated in the Supplement, on page 31, that it would only contract for supply for two of the five CNG sites if NESE were placed in service. This would reduce CNG supply to as little as 35.2 MDth/d (the daily capacity of a single CNG site is 17.6 MDth.

In the scenario outlined above, and under the 2025 Forecast Reference Case Design Day demand forecast (illustrated by the solid red line), the portfolio of available supply is capable of serving demand through the end of the study period[32]. There is approximately 199 MDth/d of unutilized design day capacity in 2025-26, which grows to a high of 211 MDth/d in 2029-30 and thereafter shrinks to 44 MDth/d in 2049-50. Under the 2024 Forecast Reference Case Design Day demand forecast (illustrated by the dashed red line), there was a net need for incremental natural gas supply beginning in 2030-31. See Figure 3-4 below.

Figure 3-4: Design Day Supply-Demand – NESE Not In-Service[33]



The degree to which there is unutilized capacity over time depends upon whether and when the Company is able to determine whether it can allow certain supply stack components to be eliminated, as well as whether and when design day demand related to power generation (along with organic demand growth) arises. In other words, the amount of unused capacity is subject to being pinched from both directions.

Scenario Outcomes: Benefits

This scenario satisfies 2025 Forecast Reference Case Design Day demand without incremental infrastructure investment, limiting the degree to which additional costs are passed on to customers. This scenario also reduces the risk that any incremental infrastructure becomes a stranded cost – especially if future updates to the Design Day demand forecast continue to exhibit downward revisions.

Scenario Outcomes: Risks

In this scenario, PA must acknowledge that, while the 2025 Forecast Reference Case design day demand is met with the existing supply portfolio and Iroquois ExC, the scenario remains reliant on supply components that contain a series of risks, namely:

- Operational and deliverability risks: CNG facilities in particular have intrinsic operational and deliverability risks. National Grid appropriately indicated that CNG facilities are heavily reliant on long-distance trucking during severe weather, and execution risks are inherent in the ability to call on CNG capabilities in time to supply the Company's system during periods of high need.
- Market risks: Both CNG supply and city gate peaking contracts represent some degree of risk of renewal going forward. For CNG, there is a limited number of marketers, CNG trailers, and level of skilled labor. For city gate peaking contracts, given tight market conditions for natural gas in the Northeast, it is difficult to guarantee that National Grid will be able to secure sufficient peaking capacity to meet demand going forward and National Grid will have to outbid other takers for the limited available peaking contracts.

[32] As noted in Section 3.2.1, this conclusion does not consider incremental hydraulic modeling that may be required, including that which incorporates the June 2025 Reference Case Demand Forecast.
[33] Source: Company's response to PA-0247.

This scenario also preserves some of the more expensive (on a dollar-per-dekatherm basis) components of the supply portfolio in perpetuity – exposing customers to elevated bills. A discussion of the relative cost of city gate peaking contracts is visible in Section 4.2.2 of PA's Final Report.

This scenario incorporates a very minimal reserve margin and exposes National Grid to an increased risk of a shortfall in the future, especially given the potential variability of future design day forecasts. While the most recent revision to the design day demand forecast reduced demand substantially, it is not unreasonable to believe that the load forecast could increase in future iterations, depending on the development of macroeconomic trends. More discussion of the demand forecast is included in Section 5.

3.3.2 Supply Portfolio Scenario: NESE In-Service

In this scenario, all of the components of the supply portfolio that are active in the scenario described in Section 3.3.1 apply with the following alterations:

- NESE is assumed to be placed in-service at a capacity of 400 MDth/d in time for the 2027-28 heating season.
- CNG capacity is reduced by the equivalent of three facilities – or 52.8 MDth/d – beginning in 2027-28. CNG capacity is assumed to remain at 35.2 MDth/d – the equivalent of two facilities – for the remainder of the study period. It is PA's understanding that, at least in the near term, National Grid would only remove contracts for CNG services at the three sites and would continue to evaluate the appropriateness and timing of physically retiring the facilities themselves. PA does not disagree with that strategy and recommends that the Company continue to keep the Commission apprised of how it views these assets going forward in future GSLTP updates.
    - In the FLTP, National Grid did not make any assertions that it would consider retiring its CNG contracts with the inclusion of other infrastructure, like Iroquois ExC. It only noted that it has concerns about the over-reliance on CNG to meet design-day demand.[34]

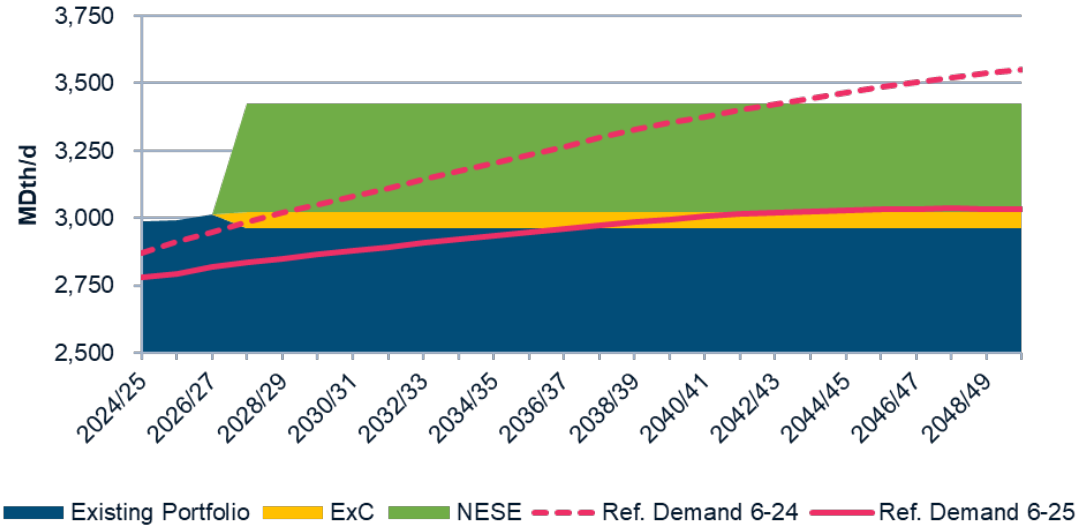
No changes are assumed for the City Gate Peaking component of the supply portfolio because it is not yet certain which contracts might be eligible for removal from the supply portfolio. Some contracts may need to be retained for pressure support at specific delivery points and National Grid has not yet conducted the hydraulic modeling necessary to confirm which contracts are no longer necessary.

Similarly, the Iroquois ExC project is also included in this supply scenario despite NESE's inclusion. According to National Grid,[35] Iroquois ExC is needed "to serve firm requirements on east Long Island and future growth in that part of the gas system.[36]" National Grid has indicated that NESE cannot provide the same supply and reliability benefits to that region of its service territory[37].

In this scenario, under the 2025 Forecast Reference Case design day demand forecast, National Grid is able to serve design day demand for the remainder of the study period. Available supply over near-term demand stands at approximately 195 MDth/d in 2025-26 and grows to a peak of 559 MDth/d in 2029-30 and thereafter shrinks to 391 MDth/d by 2049-50.[38] Under the 2024 Forecast Reference Case Design Day forecast, National Grid can expect to experience a supply shortfall beginning in 2043-44.

[34] Source: FLT Plan, Section 5.4.2.
[35] Source: Company's response to PA-0239.
[36] Source: Company's response to PA-239.
[37] Source: Company's response to PA-240.
[38] Capacity additions to any supply portfolio tend to be "lumpy" as natural gas pipeline developments bring large volumes into service all at once instead of gradually. When acquiring capacity on new pipeline developments, utilities must acquire their incremental supply all at once as well.

Figure 3-5: Design Day Supply-Demand – NESE In-Service[39]



Scenario Outcomes: Benefits

In this scenario, the 2025 Forecast Reference Case Design Day demand forecast is met with a sizeable available excess capacity to serve potential growth. Excess supply may enable National Grid to eliminate some of the more risk-prone and expensive supply components from its portfolio – increasing the resiliency of its portfolio and reducing costs to customers. The Supplement indicated that approximately $48.3 million in supply costs associated with CNG could be avoided.[40] While National Grid has yet to conduct hydraulic modeling to verify and quantify the volumes it can retire from its portfolio, the volume of excess firm pipeline capacity should provide a degree of flexibility for National Grid and its gas delivery system.

Generally, incremental pipeline infrastructure should grant National Grid additional resiliency, especially in instances where other pipelines that the utility is reliant on experience operational issues that force National Grid to shift its reliance to a different piece of infrastructure. While there are instances where upstream interruptions can impact multiple regions and pipelines, incremental capacity on a newer piece of infrastructure can be considered beneficial diversification of the utility's supply portfolio – especially in a region where older pipelines (like TETCO) can be subject to more frequent outages[41] and failures[42] that impact gas service. Existing constraints in natural gas pipelines may be amplified by oncoming load from datacenter development in nearby power markets. This risk is coupled with the potential for upstream offtakers to use more gas than allowed as pipeline networks grow more constrained. PA observes that incremental capacity can help to mitigate some of these risks.

In addition to securing greater flexibility and resiliency, National Grid has the opportunity to release a portion of its excess capacity to other market participants including gas-fired generators, cogeneration units, or industrial consumers, among others. National Grid can make use of available capacity through either capacity releases – which are short-term arrangements (sometimes as little as 30 days) wherein a third party can pay for and use National Grid's capacity – or through asset management agreements (AMAs). Under an AMA, National Grid can release capacity to a marketer who then sells that capacity to other offtakers. The marketer shares profits with National Grid, which the Company returns to its customers. AMA contract terms can last up to a few years, and both parties must agree to renewal terms, meaning if National Grid requires more capacity in the future, it will retain the right to keep that capacity to serve Design Day demand. There can also be seasonal provisions to these contracts, which grant National Grid the ability to retain the capacity during the winter season to serve design day demand. The capacity releases can be recallable, meaning National

[39] Source: Company's response to PA-0247.
[40] Source: Supplement, Section 4.1.2.
[41] Source: Natural Gas Intel Article, dated May 5, 2020, available at https://naturalgasintel.com/news/tetco-explosion-more-production-cuts-send-natural-gas-futures-blasting-past-2mmbtu/.
[42] Source: "National Transportation Safety Board Preliminary Report on the Enbridge Inc. Natural Gas Pipeline Rupture and Fire" dated August 1, 2019.

Grid can recall or stop the release if needed for reliability reasons. We would expect National Grid to be able to release capacities during summer and shoulder seasons when its year-round capacity is not necessary to meet peak-day conditions, but some volume of the capacity could be considered for release during the winter peaking season if the Company confirmed through hydraulic modeling that it does not need its full available capacity, or if the capacity is released on a recallable basis. In general, National Grid would need to conduct hydraulic modeling to verify the extent to which its capacity could be used for AMAs or capacity release arrangements, and where that capacity is available for release.

Incremental capacity provided by NESE may also enable the Company to provide additional service (either directly, or via release of that capacity) to power generation customers. These customers typically receive non-firm service that is subject to interruption when gas system capacity is required to serve National Grid's firm customers. Fuel oil is often the substitute when natural gas supply is not available.[43] With NESE in service, there may be opportunities for power generation customers to continue to use natural gas during colder temperatures than is possible currently. PA recommends the Company work with the Commission to ensure that it is prepared to provide additional power generation service while ensuring National Grid's gas customers are not paying for capacity that is used by power generation facilities. From an emissions perspective service interruptions to generators, who rely on interruptible services due largely to their lower cost, can lead to carbon-intensive fuel-oil use. See Table 3-2. Incremental gas capacity could limit the degree to which non-firm customers are interrupted and the amount of fuel oil burned as a replacement. PA does acknowledge that providing firm service to more and diverse types of customers may be accompanied by a related risk: adding more demand to the Company's design day demand forecast would reduce the potential reserve margin afforded by NESE.

Table 3-2: Hours of Interrupted Service for Non-Firm Customers[44,45]

Season	KEDNY	KEDLI
2020-21	162	187.58
2021-22	340.75	364.25
2022-23	190	190
2023-24	37	71
2024-25	249	327.83

Scenario Outcomes: Risks

If NESE is placed in-service and design day demand trends downward, the value of the additional capacity (and portfolio flexibility) is reduced. Without incremental design day demand, it is possible that the investment in NESE will be a stranded cost that National Grid's customers are responsible for. The Supplement attests that incremental natural gas infrastructure may be necessary to address electric reliability challenges[46] – a premise that PA generally agrees with. The risk inherent with placing NESE in-service is that gas service customers may be responsible for subsidizing natural gas infrastructure that benefits generators. This risk can be mitigated with adequate cost allocation to gas generators that benefit from increased gas availability – either through AMAs (such that National Grid can return value directly to its customers) or by shifting incremental infrastructure costs onto service classifications that most benefit from the increased availability of natural gas or a combination of both.

[43] Source: Supplement, Section 2.2.
[44] Source: Company's response to PA-0260.
[45] Electric generators are mostly served on an interruptible basis but are not interrupted on the basis of temperature and therefore not included. Additionally, this does not include interruptions for equipment testing.
[46] Source: Supplement, Section 2.4.3.

A potential risk of incorporating additional Transco capacity into National Grid's supply portfolio is the increased reliance on pipeline capacity served by the Marcellus and Utica shale plays in Appalachia. As DPS staff noted,[47] National Grid is heavily reliant on natural gas sourced from this region.

To the extent that there are pipeline interruptions that impact a specific supply region – like the wellhead freeze-offs that occurred during Winter Storm Elliott[48] – it is possible such impacts will have an outsized effect on pipelines that source gas mostly from that region. Overreliance on Appalachian gas is a risk that is systemic to metropolitan areas across the Eastern seaboard. While infrastructure solutions like Iroquois ExC may help to alleviate some upstream supply risk by increasing the diversification of natural gas sources, NESE does not carry the same benefit. This risk is somewhat mitigated because NESE would be connected to Transco's existing pipeline which can access supply from regions other than the Marcellus Shale, regions as far away as Texas. Moreover, even if Transco were to find it necessary to cut supply (in circumstances such as Winter Storm Elliott), those cuts are typically allocated to all of the pipeline's customers on a percentage basis. With NESE in service, that still means that more supply will flow to the Company's citygates than would be the case without NESE.[49]

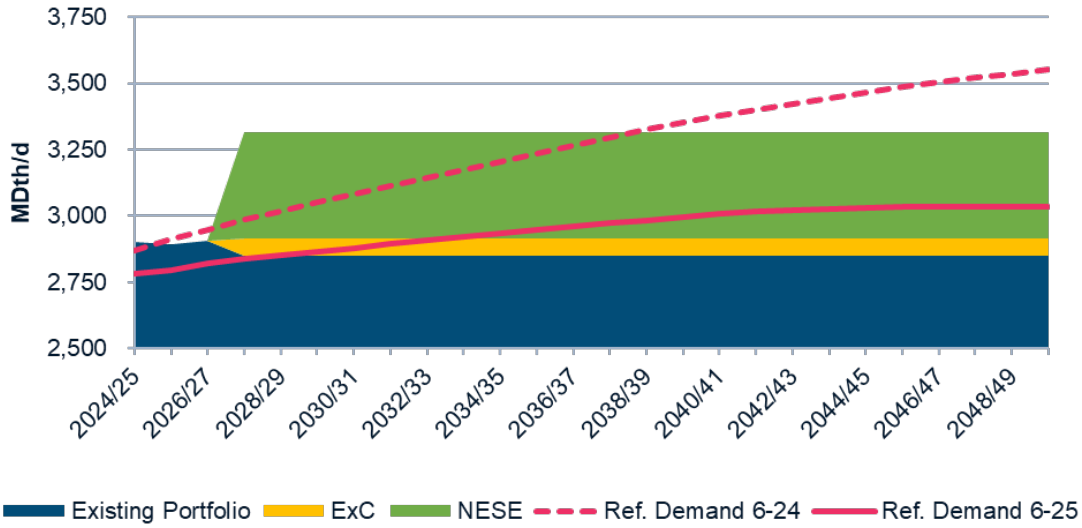
3.3.3 Supply Portfolio Scenario: NESE In-Service, No City Gate Peaking Supplies

In this scenario, all components of the supply portfolio available in Section 3.3.2, above, are in place with the following alterations:

- All City Gate Peaking (or delivered service) supplies are removed from the supply stack.

This scenario is meant to test if NESE's availability allows National Grid to eliminate some of the most expensive components of its supply portfolio. This scenario is only meant to consider high-level supply-demand dynamics and does not incorporate the nuances of hydraulic modeling or any analysis of specific segments of National Grid's gas network. City gate peaking supplies may still be necessary to meet design day demand in specific segments of the Company's gas network.

Figure 3-6: Design Day Supply-Demand – NESE In-Service, City Gate Peaking Eliminated[50]



In this scenario, National Grid is capable of serving June 2025 design day demand throughout the entire study period. Under the 2024 Forecast, National Grid experiences a shortfall in 2025-26 and 2026-27 but is able to continue serving design day demand in 2027-28 through 2037-38, after NESE and Iroquois ExC are assumed to be placed in-service. Under the 2024 Forecast, a shortfall re-emerges in 2038-39 and persists through the remainder of the study period.

[47] Source: February 26, 2024, Letter to DEC.
[48] Source: FERC Report on Winter Storm Elliott Lessons Learned.
[49] Source: Company's response to SANE-35.
[50] Source: Company's response to PA-0247.

Scenario Outcomes: Benefits

Much like the preceding scenario in Section 3.3.2, the benefits of this scenario are centralized on the ability to remove the most expensive components of the supply portfolio, the potential to use reserve capacity (from NESE) to generate revenues to return to customers via (e.g.) capacity release, and the existence of available capacity for potential demand growth, like the 700 Dth/hr of proposals mentioned in Section 2.2 of the National Grid LTP Addendum.

Scenario Outcomes: Risks

Also like the preceding scenario in Section 3.3.2, the risks in this scenario are mostly related to the potential for stranded infrastructure costs or non-optimal subsidization of new infrastructure. There is a small risk that eliminating city gate peaking contracts from the supply stack lessens the available capacity in the period 2026-27 and 2027-28, and that other market participants may acquire the delivered services that National Grid might otherwise rely upon for balancing supply and demand in specific regions within its service territory.

3.4 Hydraulic Modeling

As part of our review of the Company's Supplement, PA requested that National Grid provide all available hydraulic models of the New York Facilities System that incorporate supply from NESE. The Company made available six modeling scenarios associated with winter 2027-28 (the first winter NESE is assumed to be in service). It is our understanding that no models for other winter seasons have been prepared.[51] Two of the six scenarios reflect NESE in service; the other scenarios were provided as a basis to compare how the system is expected to operate with and without NESE (and other supply assets) in service. Our observations about those modeling scenarios are as follows:

- We note that the modeling results provided to PA are based on the Company's 2024 Forecast. As discussed in more detail in Section 6, National Grid's 2025 Forecast reflects lower Design Day demand than the 2024 Forecast. That being the case, we would expect future models of the NYFS that reflect the more recent forecast to produce more favorable operating conditions than those depicted in the results provided by the Company (assuming the reduction in design day demand is equally distributed across the National Grid distribution system).
- Of the two scenarios that reflect NESE in service, one assumes ExC is in service and the other assumes ExC is not in service. Both scenarios that include NESE also reflect utilization of only two of five existing CNG sites.[52] The system performs well in both scenarios.
- A third modeling scenario assumes that ExC is in service, but NESE is not. In this scenario, all five existing CNG facilities are utilized. This model also produces favorable system operating conditions.
- As noted in the Supplement and discussed in Section 5, there are two capital projects that National Grid states it must complete in order for the Company to receive the full 400 MDth of incremental supply that NESE will provide. Further, the modeling scenarios provided by National Grid do not include those capital investments. While the Company can redeliver some gas supplies from NESE (according to the winter 2027-28 modeling results), PA cannot independently confirm: (1) the maximum volume of gas supply that can flow through the Floyd Bennett Field citygate absent completion of the two capital projects,[53] or (2) how the distribution system may operate once those two capital projects have been completed.
- We observe that with NESE in service (and even with NESE delivering less than its maximum capacity of 400 MDth/d), National Grid's dependence on design day transfers from the Con Edison system at Newtown Creek and Lake Success is reduced. This would result in increased reliability on Con Edison's distribution system. In fact, in the modeling scenarios provided to PA for winter 2027-28 that reflect NESE in service, as much as 50+ MDth of supply that would be required to flow to National Grid on a design day without NESE in service could remain on the Con Edison system.

[51] Source: Company's response to PA-0234.
[52] In these two scenarios, only the Riverhead and Glenwood CNG sites are in service.
[53] During a July 15, 2025, SME discussion, National Grid verbally stated that the maximum NESE-related supply that can flow into the distribution system is reflected in the hydraulic modeling scenario in which ExC is not in service and only two CNG facilities are utilized. Those modeling results reflect use of approximately 56% of NESE's full capability.

As is more fully discussed in Section 4, none of the hydraulic modeling scenarios provided for winter 2027-28 incorporate either of the capital projects that would allow National Grid to utilize NESE's maximum daily capacity.

3.5 Recommendations

PA recommends that National Grid highlight and quantify, in its annual long-term plan updates filed with the Commission and in future long-term planning proceedings, the reliability benefits to the Con Edison system resulting from the completion of the NESE project if the NESE project is completed.

PA recommends that National Grid assemble a comprehensive analysis of bill impacts, in its annual long-term plan updates filed with the Commission and in future long-term planning proceedings, that consider all dimensions of the potential inclusion of NESE within the supply stack, including:

- The cost of incremental contracts for transportation capacity on NESE,
- Potential revenue returned to customers via capacity releases or AMAs using any capacities that are not necessary to serve design day demand if NESE were placed in service,
- Potential customer savings associated with discontinuing CNG contracts and delivered services / city gate peaking contracts,
- Any potential savings to customers resulting from NESE's suppressive effect on commodity prices,
- Potential savings from reduced reliance on (though not necessarily retirement of) more expensive supply portfolio components like CNG and delivered services / city gate peaking contracts.

Finally, PA recommends that National Grid prepare hydraulic modeling scenarios of the NYFS that incorporate, individually and collectively, the two capital projects it identified in Section 4.2.1 of the Supplement.

4 CapEx Considerations

National Grid indicates in the Supplement that two capital projects (Required Capital Investments) not previously included in its projections are required in order for the full 400 MDth/d of supply to flow on the incremental capacity provided by NESE. The two projects are:

Table 4-1: Required Capital Investment Projects[54]

	Marine Park	Lake Success
Cost	$40 million	$10-15 million
In-Service Date	As soon as practical	Within 5 years

4.1 Marine Park Regulator Station

The first project (Marine Park) is a proposed regulator station, to be sited north of the existing FBF facility, which would move gas from FBF to National Grid's Brooklyn-Queens Interconnect (BQI) pipeline at a higher pressure than is possible currently. It would also allow the Company to accept all incremental NESE gas and, by moving the higher-pressure gas closer to the distribution system, improve reliability and system efficiency. National Grid has stated that this project would need to be in service as soon as practical following NESE's in-service date and is expected to cost approximately $40 million.[55]

4.2 Additional Flow Control at Lake Success Metering Facility

The second project (Lake Success) proposes modifications to the Lake Success Metering Facility Station and will also facilitate the Company's ability to receive the full 400 MDth/d of supply from NESE. The Supplement reflects an estimated cost of $10-15 million for the project and states that it needs to be online within the first five years after NESE is in service.[56] Our analysis concludes that these modifications will allow National Grid to better control how gas received from Con Edison flows into and through its distribution system. Gas flowing into the Company's system at the Lake Success transfer point is expected to be at a higher pressure on a design day than gas from Floyd Bennett Field (and other citygates) flowing from the south and west. Without additional flow control, gas pressure at Lake Success will restrict those other supplies.

As indicated in Section 3.4, PA has received hydraulic models of the NYFS, inclusive of NESE, for only winter 2027-28. Importantly, in those models National Grid has not incorporated the Marine Park or Lake Success capital projects. Instead, the modeling scenarios reflect incremental volumes of gas from NESE that are able to flow on a design day without those projects being completed. We observe in those modeling results that the Company can receive and distribute as much as 224 MDth/d of supply flowing on NESE, without the Marine Park and Lake Success projects being completed.

4.3 Observations

Given the limited hydraulic models available to PA that incorporate NESE, we cannot independently confirm that the Marine Park and Lake Success projects are required for the Company to utilize the full capability of NESE. Nor can we independently confirm that these are the only capital investments required to fully utilize NESE. However, given our understanding of the Marine Park project in particular, it is reasonable to assume that once that project is completed more supply can flow to that location on the system given the operating pressure will be substantially higher.

We note that the Marine Park Regulator Station was included as part of the proposed capital investment plan in the National Grid's 2019 rate case (Case No. 19-G-0309). Given it is directly associated with NESE, it is reasonable that the project would have been considered at that time and also reasonable that it would not have been included in the capital plan in the more recent rate case (Case No. 23-G-0225) since NESE was

[54] Source: Supplement, p. 36.
[55] *Ibid.*
[56] Source: Supplement, p. 37.

not being pursued at the time that case was filed. The purpose and scope of the Marine Park project now under consideration is consistent with how the project was described in the 2019 rate case.[57]

4.4 Recommendations

PA makes the following recommendations regarding information to be included in the Company's annual long-term plan updates and in future long-term planning proceedings. The recommendations would apply during the term NESE continues to progress towards construction:

- Updates on the progress of the NESE project, until the project is (a) in service, or (b) Transco determines it will no longer pursue the project, and
- The expected timing of completion of the Marine Park Regulator Station and the Lake Success Additional Flow Control projects, until such time as those projects are completed or discontinued.

[57] Source: Direct Testimony of the Gas Infrastructure and Operations Panel in Case No. 19-G-0309.

5 Demand Forecast

As outlined in PA's Final Report, the Company's 2024 Forecast projected a potential supply-demand imbalance in DSNY as early as the winter of 2027/28, under the Reference Case. However, in its Supplement, the Company's latest forecast, the 2025 Forecast, now suggests a slower rate of demand growth that may delay the projected supply-demand gap until 2041/42. PA acknowledges that the 2025 Forecast remains in its initial stages, is subject to further refinement, and requires comprehensive hydraulic modeling to accurately determine the timing and extent of any supply shortfall.

In reviewing the 2025 Forecast, PA finds that the updated sales volume forecast is noticeably lower than the 2024 Forecast. The downward shift in the forecast for all future years in the 2025 Forecast is attributed by the Company to two factors: revised assumptions of lower regional economic growth and the influence of declining oil prices on fuel-switching behavior. In its Supplement, the Company cites:

"External indicators were less robust than anticipated due to a general economic slowdown, resulting in a lower demand forecast and a delayed projected supply gap for NY. Should New York's economy undergo a robust recovery in the upcoming months, the subsequent forecast will incorporate the corresponding rise in energy demand. This increase, which is not accounted for in the preliminary GLF 25, has the potential to significantly accelerate the projected supply gap, potentially aligning with the date forecasted for 2024."[58]

As a result of PA's analysis of the 2025 Forecast, we observe that the 2024 Forecast was overly optimistic concerning the speed of recovery from the unprecedented disruptions caused by COVID-19. The 2025 Forecast is more closely aligned with PA's previously estimated Reference Case – PA Adj. forecast. In a review of 2023 and 2024 actual and forecasted customer counts and volumes, PA observes significantly lower actuals across all of the forecasted customer segments for both KEDNY and KEDLI.

In this section, PA presents its review of the 2025 Forecast, discusses notable improvements made by the Company, given recent forecast results, and also identifies opportunities to enhance the Company's forecasting methodology to reduce the likelihood of substantial year-over-year changes, such as those observed in the 2025 Forecast.

5.1 General Overview

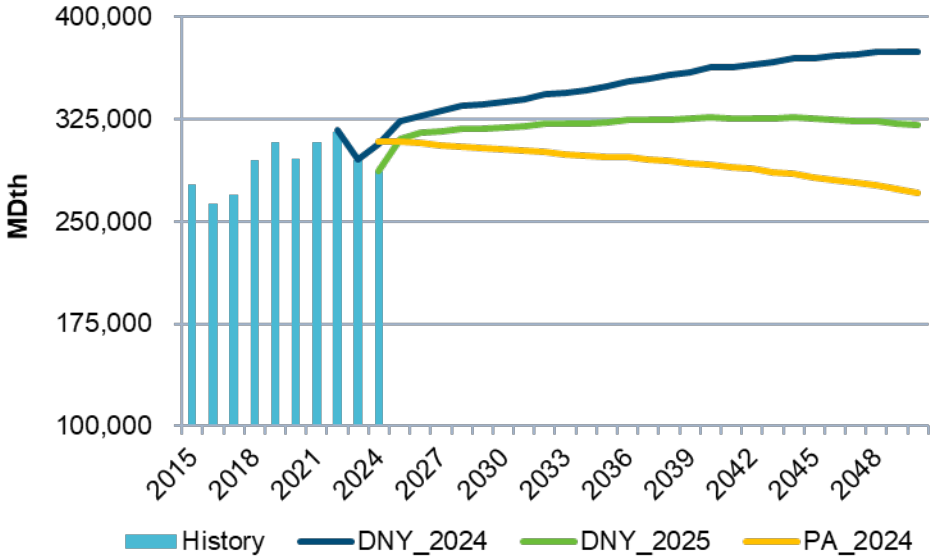
To better understand the assumptions underpinning the 2025 Forecast, PA requested and assessed the Company's design day demand, volumetric and customer count forecasts individually for KDELI and KEDNY and, combined as DSNY. In reviewing the 2025 Forecast volumetric forecasts, PA finds it is noticeably lower than the volumes assumed within the 2024 Forecast[59] both in terms of magnitude and the growth rate.

As shown in Figure 5-1, the 2025 Forecast DSNY volumetric forecast (illustrated by the green line) starts at a level that is 8.5% lower than the corresponding level in the 2024 Forecast (illustrated by the dark blue line) and that difference grows to 12.7% by 2030, 17.0% in 2035, and reaches 30.1% by 2050. According to the Supplement, National Grid attributes this rather substantial revision to a combination of "... assumptions of lower regional economic growth rates and the impact of declining oil prices on fuel switching behavior".[60] In PA's opinion, the 2024 Forecast reflected levels that showed deviations from the trend that were both high and rising, whereas the 2025 Forecast, on the other hand, is far more consistent with the historical trend. In PA's opinion, incorporating insights drawn from observable trends is prudent and the changes made by the Company in this 2025 Forecast make for a more reasonable forecast.

Analysis by PA reveals that National Grid interpreted these forecast errors as reflections of a structural shift in the marketplace. The post-COVID-19 era appears to have ushered in altered gas-usage patterns whereby changes that were once perceived as temporary (i.e., Covid-induced energy usage shifts) have developed into a seemingly permanent or structural phenomenon. As we discuss further, PA believes this experience has led the Company to incorporate a 'data-driven' perspective into its standard forecasting methodology - one that factors in insights from observed market trends along with the standard macroeconomic drivers.

[58] Source: Supplement, p. 14
[59] Even though the final load forecast in the GSLTP was developed in 2024, PA identifies it as the '2024 Forecast' for purposes of this discussion.
[60] Source: Supplement, p.12.

Figure 5-1: DSNY Volumetric Forecast



It is important to bear in mind that the 2024 Forecast models were driven by macroeconomic data from Moody's Analytics obtained in March 2023[61] that presumably reflected observed/actual historical levels through late 2022 – implying that the magnitudes of key regional macroeconomic variables (i.e., Real Gross Metro Product, Employment, Households and Population) for 2023 and 2024 (and beyond) were forecasts. The 2025 Forecast is based on Moody's Analytics data obtained in February 2025 that, PA assumes, reflects actual/observed historical values for 2023 and 2024. An added complication that makes a comparative assessment of the two macroeconomic datasets difficult is that Moody's Analytics has recently implemented substantial revisions to its historical (and, hence, forecasted) data for a number of variables logically related to regional population levels. PA's review has found that this recasting of county-level data by Moody's Analytics was due to incorporation of newly available decennial Census data.

While a more detailed assessment of the macroeconomic forecasts is provided below, PA surmises that given the unprecedented nature of disruptions brought about by COVID-19, the prior near-term projected speed of economic recovery reflected in the 2024 Forecast was overly optimistic. In particular, PA observes the near-term forecast of key variables that led to the higher than observed volumetric forecasts (and, hence, the Design Day), as shown previously within Figure 5-2. PA's comparison of 2024 Forecast customer counts and volumes with observed 2023 and 2024 actuals in Table 5-1 shows a disaggregation of the deviations across KEDNY and KEDLI territories.

Table 5-1: Deviations between 2024 Forecast and Actuals Levels

		KEDNY				KEDLI			
		Residential	Commercial	Multi-family	Other	Residential	Commercial	Multi-family	Other
Customer Counts	2023	(370)	595	(357)	32	(1,959)	195	5	1
		0.0%	1.2%	-1.8%	1.3%	-0.3%	0.3%	0.3%	0.4%
	2024	(1,363)	83	(476)	125	(1,640)	1	(15)	1
		-0.1%	0.2%	-2.4%	5.6%	-0.3%	0.0%	-0.8%	0.3%
Volumes (MDths)	2023	(29)	213	(234)	3	(0)	50	0	17
		0.0%	0.8%	-0.7%	0.0%	0.0%	0.1%	0.0%	0.1%
	2024	(3,763)	(1,504)	(2,759)	(5,264)	(2,857)	(2,261)	(284)	(1,583)
		-5.1%	-5.4%	-7.7%	-10.1%	-5.0%	-5.8%	-5.9%	-9.4%

[61] Source: Company's response to PA-0152.

As can be seen, the forecast error for 2024 was largely manifest in the volumes across all customer segments and in both KEDNY and KEDLI. In aggregate, the deviations were relatively higher for KEDNY (in percentage terms) with the actual volume in 2024 being 7.0% below the projected level; the corresponding differences for KEDLI were 5.9%. Typically, utility forecasts are relatively accurate in the near term (i.e., 1-3 years) so therefore these observations suggest that the Company's fundamental modeling assumption was responsible for these deviations.

A disaggregated analysis of the 2023 and 2025 Moody's Analytics datasets shows that while the trends in variables are remarkably similar across both service territories, the data-revisions point to KEDLI's service territory experiencing a decline that was a bit slower that in KEDNY's. See Figure 5-2 and Figure 5-3, below.

Figure 5-2: 2023 and 2025 Moody's Datasets Compared: Households

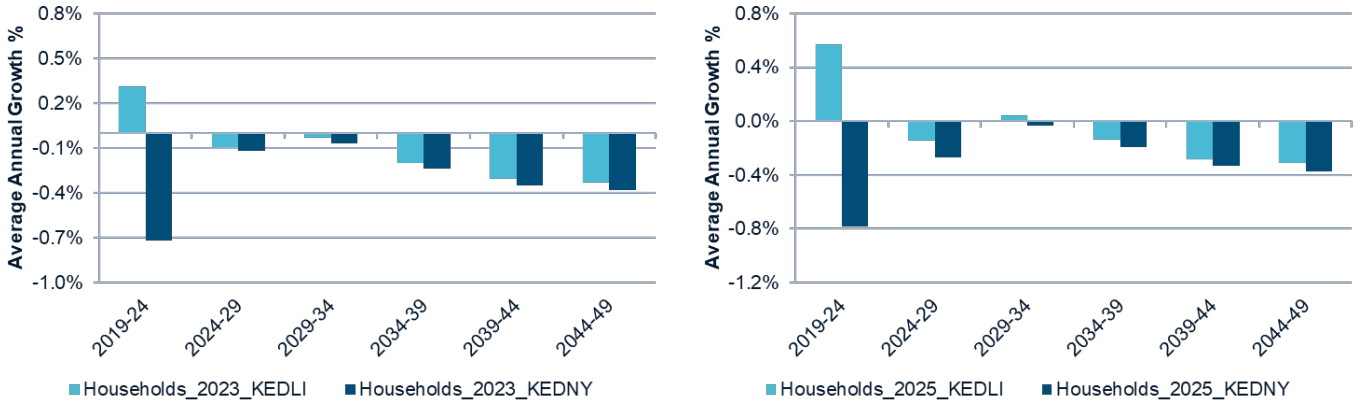
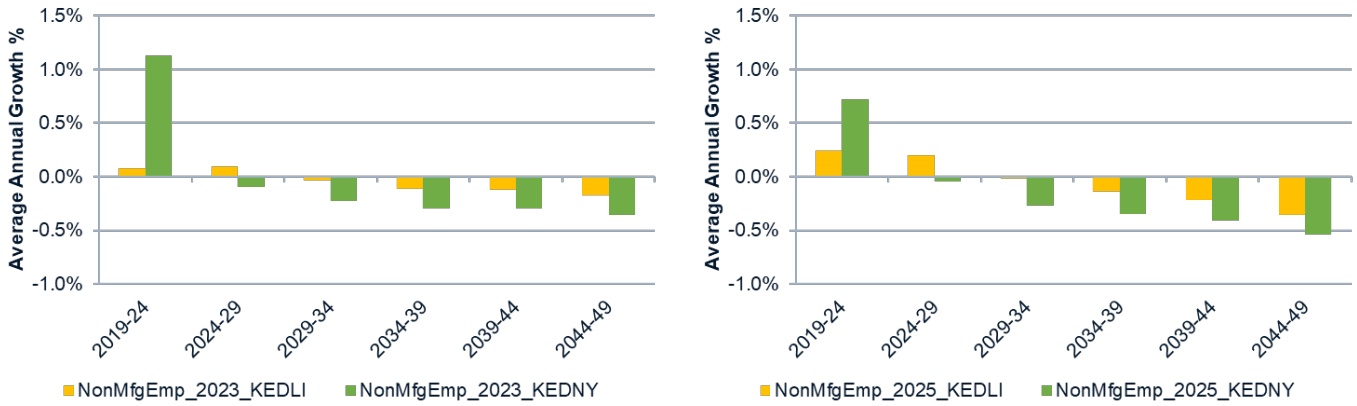


Figure 5-3: 2023 and 2025 Moody's Datasets Compared: Non-Manufacturing Employment



Relevant observations based on the above comparison of Households and Non-manufacturing Employment in the 2023 and 2025 Moody's data are summarized below[62]:

- In KEDNY's service territory the number of Households (and Population) declined faster during the 2019-2024 period than originally forecast – pointing to a greater Covid-related impact. Conversely, KEDLI saw an inflow higher than initially expected.
- The long-term demographic trends remain practically the same with KEDNY's territory projected to see faster declines than KEDLI's.
- KEDNY's post-Covid recovery for the 2019-2024 period in Non-manufacturing Employment – and the economy at large, was not as vigorous as initially projected. Consonant with the Household dynamics, KEDLI saw a stronger than expected job-market during the same period.

[62] The patterns in Population and Households mirror each other with a small difference due to a slow decline in Persons per Household. PA did not show a similar chart for Real Gross Metro Product because Moody's changed the base-year, and we could not reconcile histories in the two datasets presumably because of the recasting of population.

- The latest Moody's Analytics forecast projects a slightly stronger economy in the KEDLI territory while KEDNY is forecast to see faster declines in employment – a more pessimistic scenario.
- While Table 5-1 above exhibits relative magnitudes of forecast errors for 2023 and 2024 are approximately at par between KEDNY and KEDLI territories, the small differences in the growth rates imply that the forecasted growth in volume consumed in the near- to mid-term, through early 2030s is attributed to KEDLI's load.
- A study of the statistics exhibited above indicates that while the two vintages of Moody's Analytics macroeconomic forecasts differ and reflect some non-trivial changes in the near-term, i.e., for 2024-2029, the growth rates and the trends are remarkably similar. In other words, there does not seem to be a material change in the long-term.

PA infers that while a portion of changes in the Customer Count and Volumetric forecasts across customer segments might have been shaped by the altered macroeconomic landscape in the next five years or so, a relatively greater attribution can be placed on a change in forecasting approach and incorporation of market trends and the determination that changes that were once considered transient by National Grid did actually have a permanence to their nature. Since the 2023 and 2025 Moody's forecasts bear great resemblance beyond five years, we think that the changed forecast had a limited impact on the forecast and rather it is the assumption that recent changes in gas usage patterns are likely to be persistent that had a greater influence.

5.2 Review of Volumes and Customer Counts by Segment

In order to develop a detailed analysis of the load forecast, PA analyzed forecasts for each of the customer segments. A detailed comparative analysis of the 2024 and 2025 Forecasts reveals that the downward revision takes place in both territories across all customer segments except the 'Other' segment in KEDNY. (This is ostensibly due to some growth in the Non-Firm Demand response customer class.) See Table 5-2.

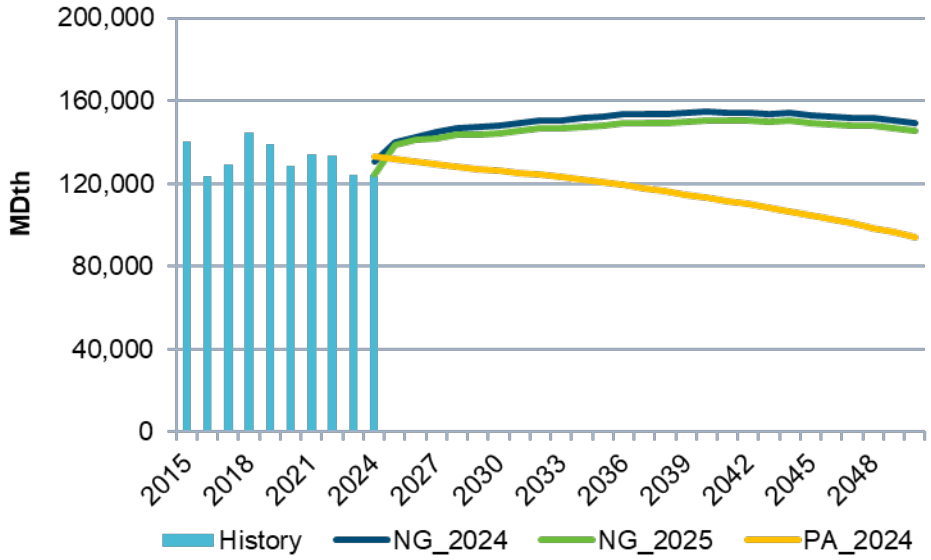
Table 5-2: Deviations in Volume between the 2024 and 2025 Forecasts

	KEDNY				KEDLI			
	Residential	Commercial	Multi-family	Other	Residential	Commercial	Multi-family	Other
2025	-1.3%	-3.4%	-10.7%	-3.2%	-0.5%	-5.0%	-8.7%	-14.0%
2030	-4.1%	-6.4%	-13.0%	4.6%	-0.2%	-10.8%	-11.8%	-24.9%
2035	-4.6%	-8.1%	-18.0%	8.1%	-0.6%	-14.5%	-17.4%	-33.1%
2040	-4.4%	-10.3%	-23.4%	6.7%	-0.5%	-18.1%	-22.3%	-41.1%
2045	-4.0%	-12.1%	-28.4%	5.2%	-0.4%	-21.0%	-27.4%	-45.8%
2050	-3.5%	-14.0%	-33.2%	3.8%	-1.4%	-23.4%	-33.1%	-50.6%

5.2.1 Residential Segment

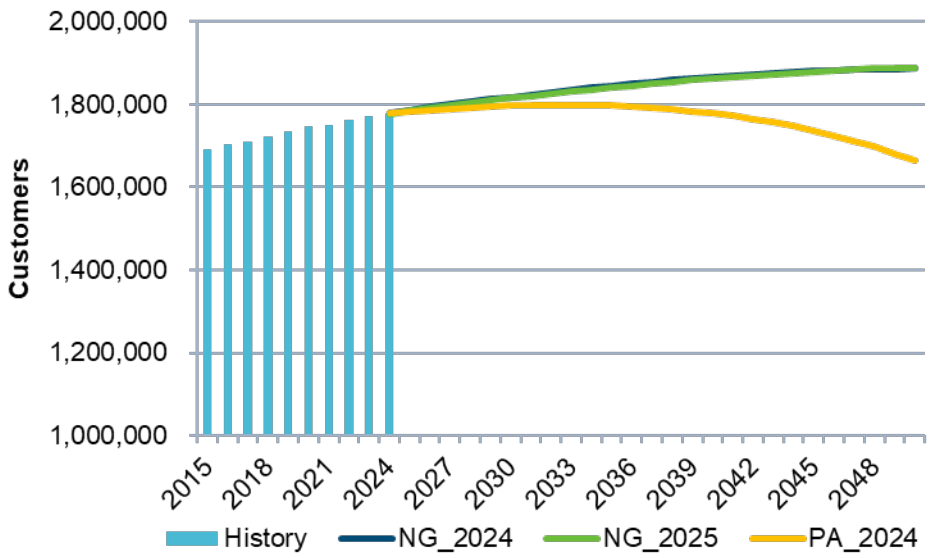
, As shown in Figure 5-4, the combined 2025 Forecast Residential Non-Heating + Residential Heating volumetric forecast is noticeably lower than the 2024 Forecast – starting at 5.0% lower in 2025, the new projected levels become 8.0% lower by 2030 and grow to 15.5% lower by 2050. This shift is due to a combination of lower Customer Count and UPC forecasts although the bulk of the downward revision occurs due to the recast UPC forecast.

Figure 5-4: DSNY Residential Volumetric Forecast[63]



There is no meaningful change in the Residential Customer Count forecast as the 2025 Forecast of Customer Counts grows at an annual average rate of 0.23% between 2024 and 2050 as compared to 0.22% in the 2024 forecast. Whereas KEDNY's customer base grows slowly through the late 2030s, flattens in 2040, and then begins to decline, KEDLI's customer base, on the other hand, continues to see sustained growth through the horizon. Despite a lower projection of oil-to-gas conversions – overwhelmingly in the KEDLI territory – this fuel switching feeds gas load growth. Despite both regions being projected to have similar demographic trends in the coming decades, PA surmises that KEDLI's positive contribution is due to oil customers switching to gas.[64] The Company's forecast shows that 113,000 of its non-heating customers in DSNY shall switch to gas – split evenly across the two territories. This suggests that KEDLI is expected to show a relatively slower electrification trend.

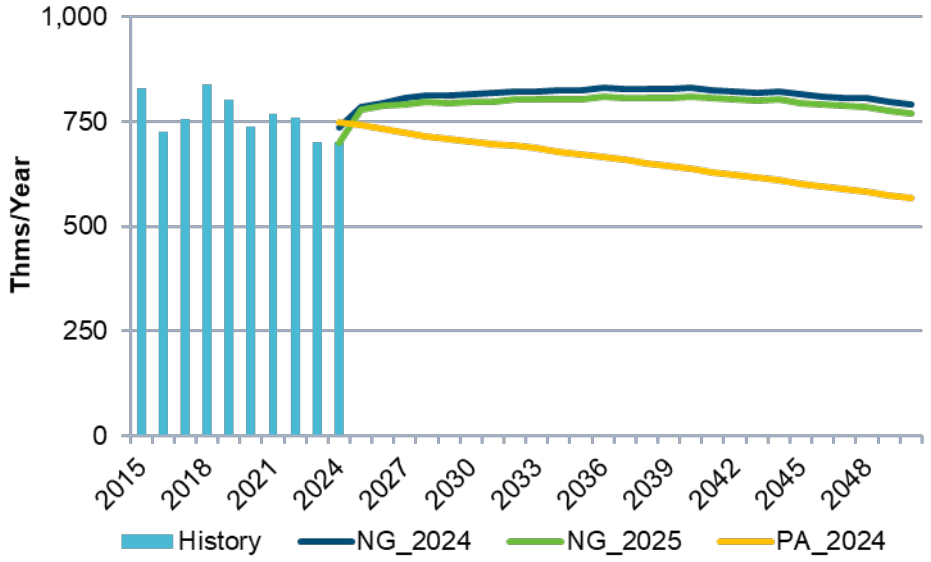
Figure 5-5: DSNY Residential Customer Count Forecast[65]



The UPC still exhibits a step change of 79 Thms or 11% between years 2024 and 2025 (see Figure 5-8) and maintains a gentle rising trend through the early 2030s and then begins a descent, despite an observable negative trend reflected in the data for the last 8-10 years (especially in KEDNY).

[63] Source: Company's response to PA-0258.
[64] Based on American Community Survey data, at least 25% of Long Island's households use oil for heating.
[65] Source: Company's response to PA-0258.

Figure 5-6: DSNY Residential UPC Forecast[66]

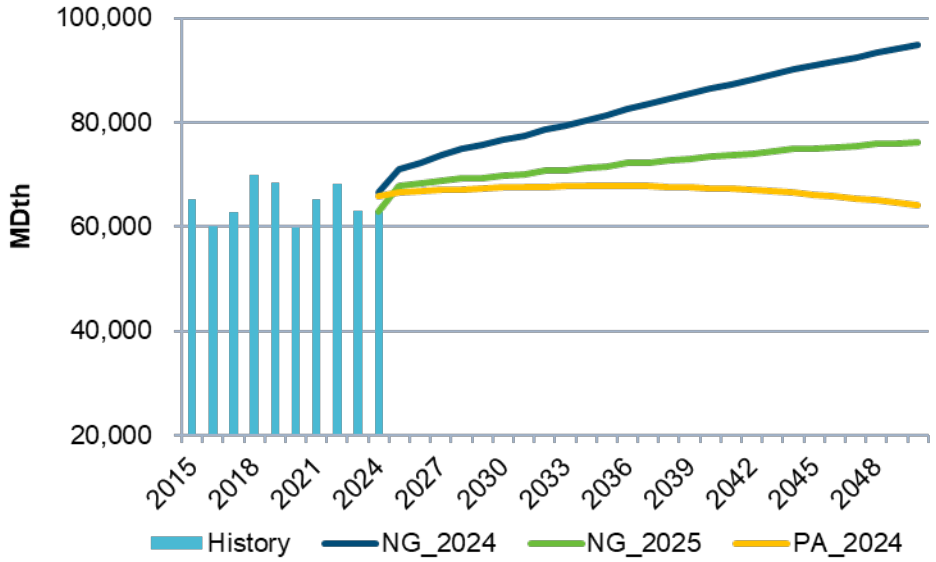


As with the previous version, the 2025 Forecast of Residential Customer Counts still does not reflect any significant negative impact of either heating electrification – whether due to customer disconnections or falling heating load – or due to falling customer growth stemming from weaker projected demographic trends or the cumulative impact of the local laws aimed at encouraging a shift away from fossil-fuel usage.

5.2.2 Commercial Segment

The 2025 Commercial Volumes forecast, on the other hand, shows a considerable departure from the 2024 Forecast. As shown by Figure 5-7, the growth trajectory is moderated such that the level is 9.0% lower in 2030 and 15.0% lower by 2040. This downward revision was predicted by several factors that are not unrelated.

Figure 5-7: DSNY Commercial Volumetric Forecast[67]



A firming of projections of post-COVID-19 recovery in the Commercial sector: While it was initially expected that businesses and commercial offices would bounce back quickly after the Covid-era setbacks, a persistence in the data since 2021 suggests that this customer segment does not have the anticipated

[66] *Ibid.*
[67] *Ibid.*

elasticity in its gas usage patterns and that a new 'normal' of lower growth in both Customer and UPC growth has been established – as shown in Figure 5-7 and Figure 5-8. This shift has effectively flattened the UPC trajectory and has brough it closer to the historical trend, as shown in Figure 5-9.

Figure 5-8: DSNY Commercial Customer Count Forecast[68]

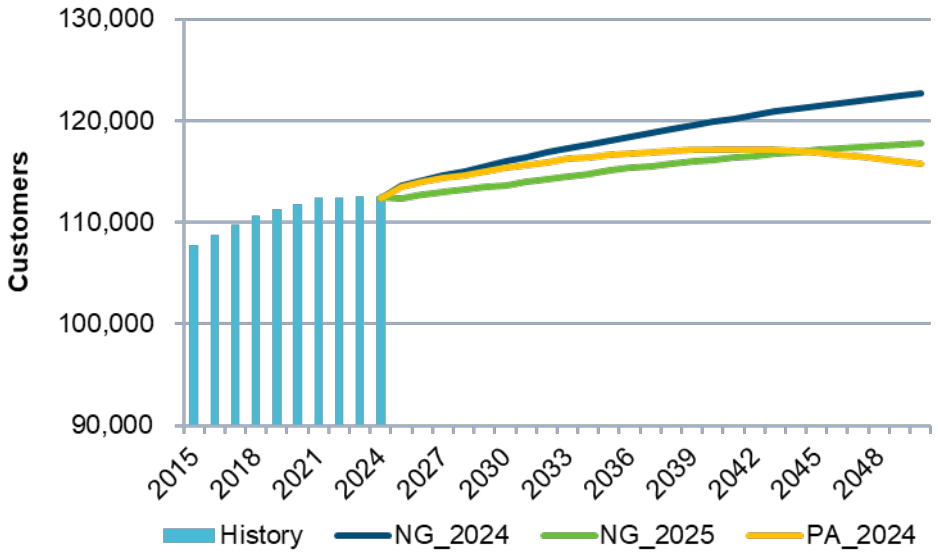
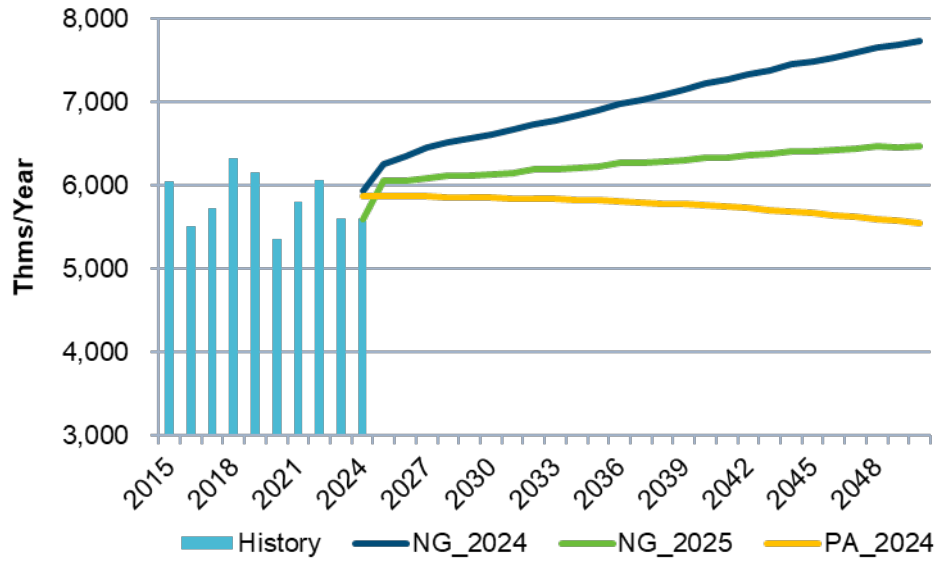


Figure 5-9: DSNY Commercial UPC Forecast[69]



A relatively pessimistic updated forecast for Total Non-Farm Employment from Moody's Analytics, especially for the KEDNY region, shows not only lower post Covid levels, but also reflects faster declines in the future (See Figure 5-9) (with similar patterns for Payrolls too).

A closer look reveals contrasting sets of market dynamics in the KEDNY and KEDLI territories. On the Customer Count front, much like the Residential segment, the KEDNY territory shows almost no growth – suggesting a rather permanent post-COVID-19 shift and a solidifying effect of the projected demographic trend[70] - a new 'normal. KEDLI's Commercial customer-base, however, is projected to keep expanding despite

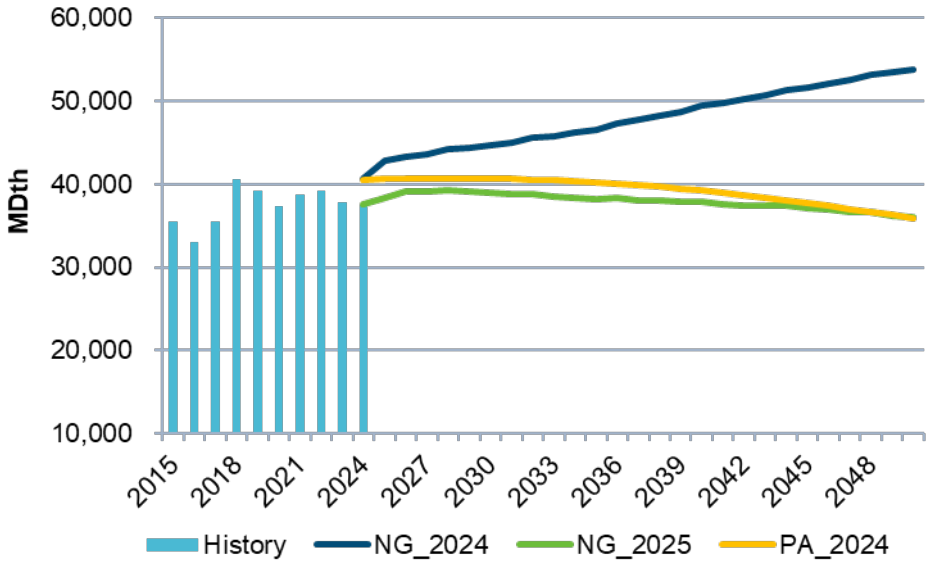
[68] *Ibid.*
[69] *Ibid.*
[70] Across both KEDNY and KEDLI territories, Population and Non-farm Employment are projected to have negative trends through the horizon with the former already showing signs of the secular decline and the latter expected to begin seeing it in after the early 2030s.

a shrinking population – presumably due to fuel switching since there is little basis for organic growth. On the other hand, the KEDNY's UPC is expected to have a sustained rise while KEDLI's stays relatively flat.

5.2.3 Multifamily Segment

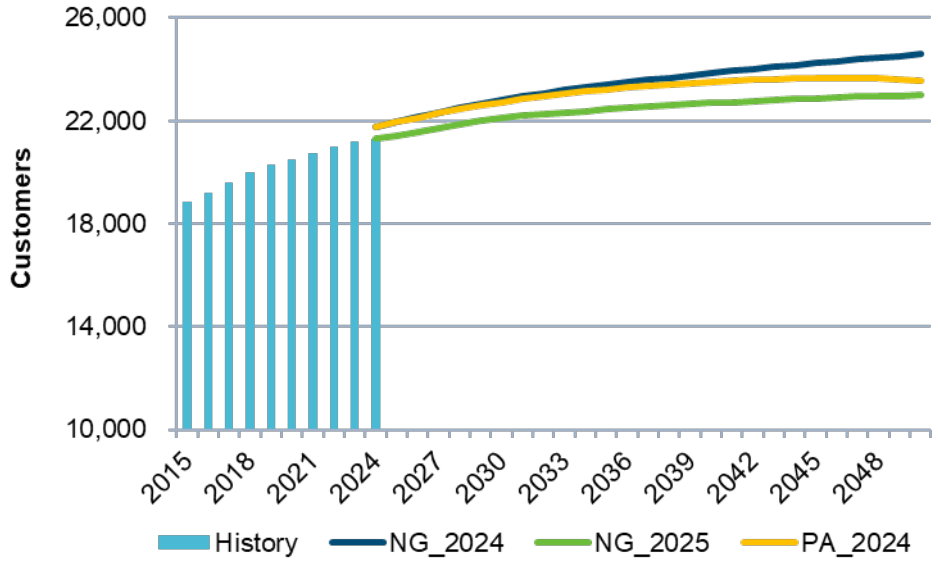
The Multifamily segment saw the most dramatic downward revision in its volumetric forecast as compared to other customer classes. As shown in Figure 5-10, the contrast with the previous forecast is very stark. The glide path has become firmly negative and reflects an average annual growth rate of -0.17% over the 2024-2050 period as compared to the rising trajectory previously leading to a corresponding growth rate of 1.09%. The 2025 Forecast starts at a level 10.4% below the previous projected level for 2025, and it becomes 12.9% lower in 2030 and 23.3% lower by 2040. The lower forecast is due to changes in both the Customer Count and the UPC forecasts.

Figure 5-10: DSNY Multifamily Volumetric Forecast[71]



As shown in Figure 5-11, the 2025 Multifamily Customer Count forecast, now consistent with the historical trend, is not only lower than the previous forecast but it also reflects a lower average growth rate.

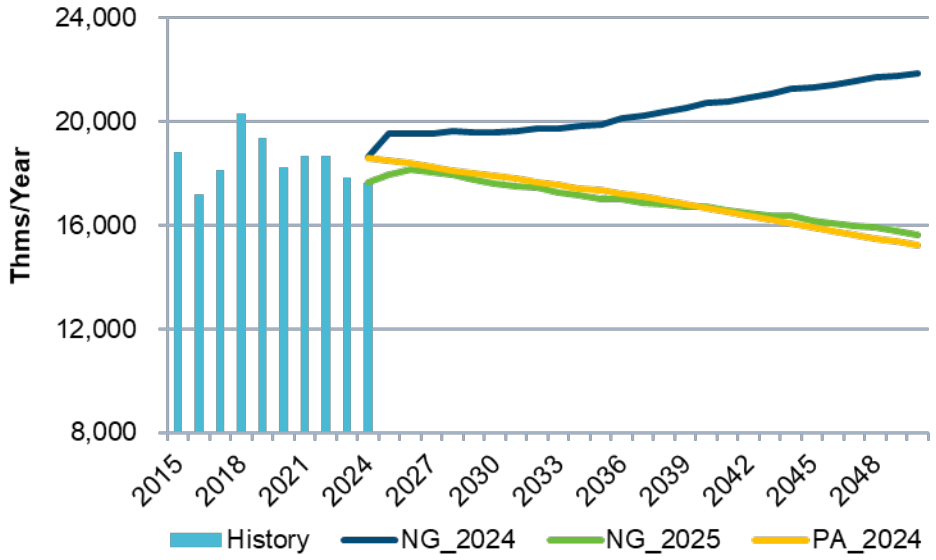
Figure 5-11: DSNY Multifamily Customer Count Forecast[72]



[71] Source: Company's response to PA-0258.
[72] *Ibid.*

There is a dramatic switch in the Multifamily UPC forecast. Contrasting with the sharply rising trajectory previously, the 2025 Forecast conforms to the trend over the last 7-8 years and has a firmly declining glidepath. The decline in UPC more than offsets the effect of a rising customer base to yield a Volumes forecast that declines after 2027.

Figure 5-12: DSNY Multifamily UPC Forecast[73]

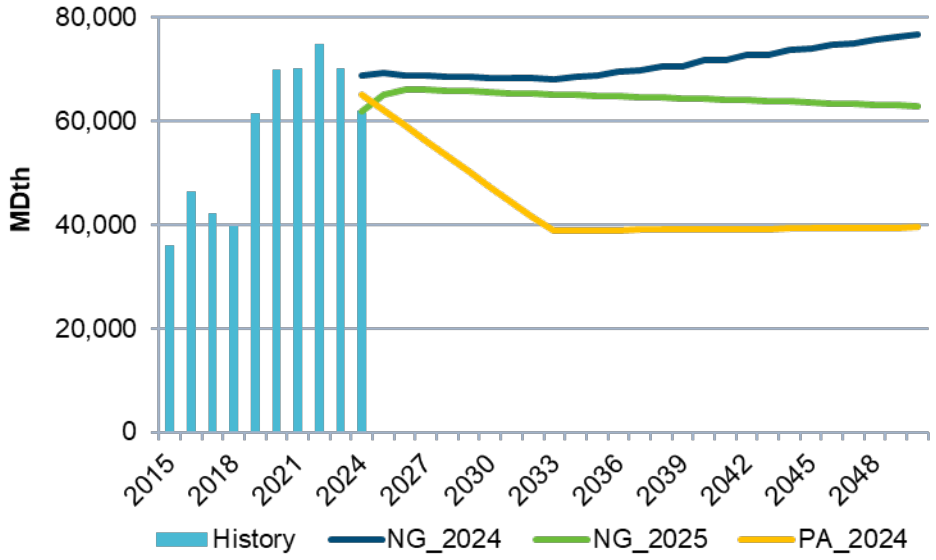


5.2.4 Other Segments

The overwhelming majority of customers in the 'Other' category are the Non-firm Demand Response customers. As Figure 5-13 shows, the 2025 Forecast has a gently declining trend as compared to the previous forecast that remained flat through the current decade and then rose steadily through the end of the horizon. Given the relative shapes of the glidepaths, the 2025 Forecast starts 6.0% below the previous level for 2025, is 4.1% lower in 2030 and then 10.4% lower by 2040. This shift in Volumes can be attributed to a combination of a higher Customer Count forecast and a considerably lower UPC forecast.

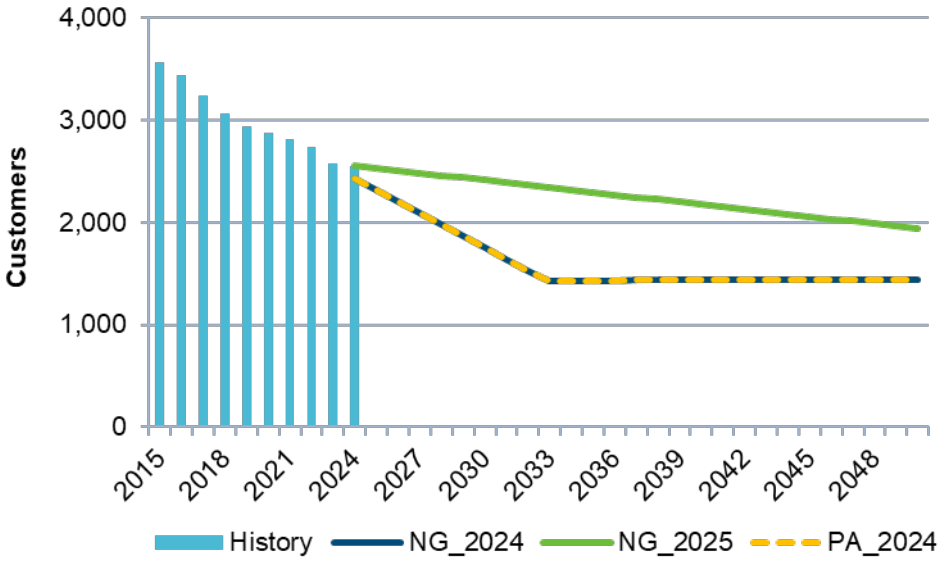
[73] *Ibid.*

Figure 5-13: DSNY Other Volumetric Forecast[74]



As shown in Figure 5-14, the Customer Count forecast sees a steady but moderate decline through the forecast as compared to the previous forecast that had a sharper decline through 2033 and then remained flat. PA has previously adopted the Company's Customer Count forecast for this segment in its Final Report and thus overlaps with the 2024 Forecast within the figure below.

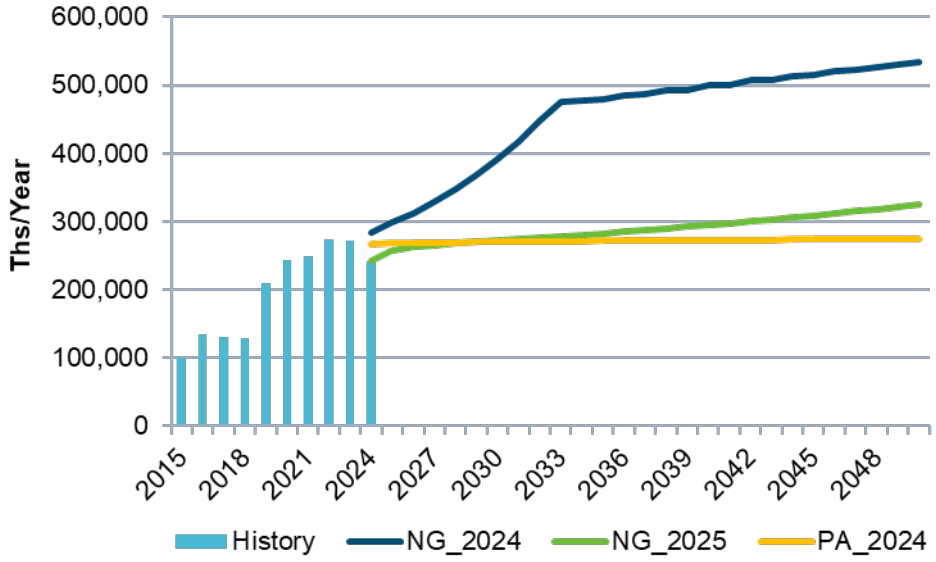
Figure 5-14: DSNY Other Customer Count Forecast[75]



As shown in Figure 5-15, the 2025 Forecast of UPC has low positive growth starting in 2025 – which contrasts with an accelerating pattern followed by a slower steady trend in the 2024 Forecast.

[74] *Ibid.*
[75] *Ibid.*

Figure 5-15: DSNY Other UPC Forecast[76]



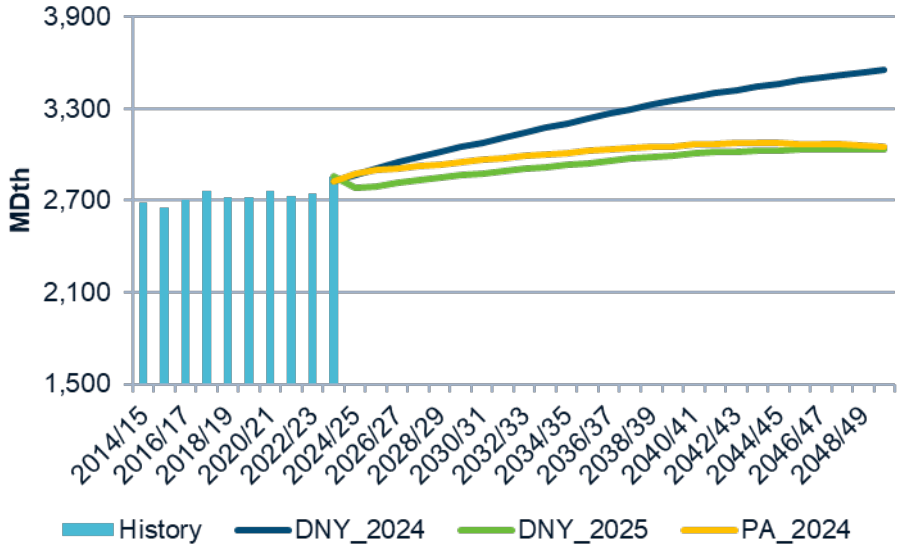
5.3 Review of the Design Day Forecast

In PA's assessment, the 2025 Forecast of Design Day Peak constitutes quite a significant adjustment, which is a combination of substantially lower levels and a lower growth rate. Consonant with the downward revision of the 2025 Forecast Volumes forecast, the 2025 Forecast Design Day forecast, as shown in Figure 5-16, is both noticeably lower (the new 2025 starting level is 120 MDth or 4.1% below the level projected in the previous forecast and that difference becomes 202 MDTh by 2030/31 and 71 MDTh in 2040). Furthermore, the 2025 Forecast Design Day forecast represents lower average annual growth rates – the average annual growth rate during 2025-35 is now 0.54% as compared to 1.05% previously; accordingly, 2035-45 rates are 0.75% and 0.29%, respectively.

At a disaggregated level, the Design Day forecast follows the patterns projected on the volumetric side with KEDNY's Design Day forecast seeing a relatively greater downward revision. Whereas historically the relative shares of KEDNY and KEDLI in the DSNY market have been remarkably stable – with KEDLI accounting for around 40.7% in the 10 years preceding the Covid-19-era, that share is projected to rise steadily approaching 45% by 2050.

[76] *Ibid.*

Figure 5-16: DSNY Design Day Forecast[77]

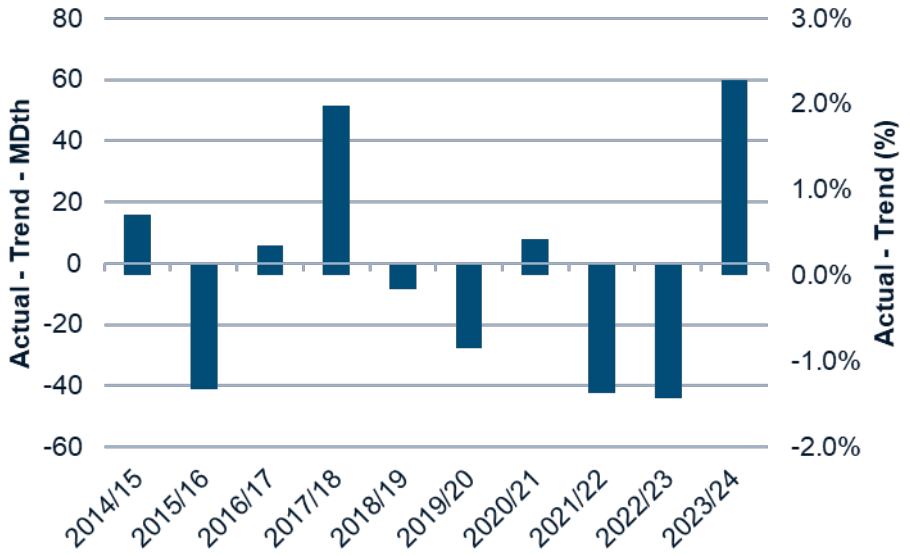


The revisions to the Company's 2025 Forecast of DSNY Design Day is both substantial and consequential for the DSNY gas system. Given the magnitude of the change, we feel it pertinent to offer some perspectives on improvements. In PA's opinion, consistency and continuity between successive forecasts is critical to long-term energy planning and major departures from preceding forecasts should suggest possible reassessment of the forecasting approach.

In the absence of abnormal and unusually disruptive events like COVID-19, the weather-normalized Design Day Demand exhibits a relatively stable glidepath/trend with year-to-year changes that are within a relatively modest range. These deviations from trend could be the result of one or more of the following factors: an unexpected change in the size or composition of the customer base, an anomalous change in the macroeconomic landscape or an unavoidable by-product of the weather-normalization process. As shown in Figure 5-17, the last decade has seen DSNY Design Day demand deviations from trend[78] within a relatively narrow band of +/- 60 MDThs or +/- 2%. (A similar statement can be made about most key market determinants of the sales volume, e.g., UPC.)

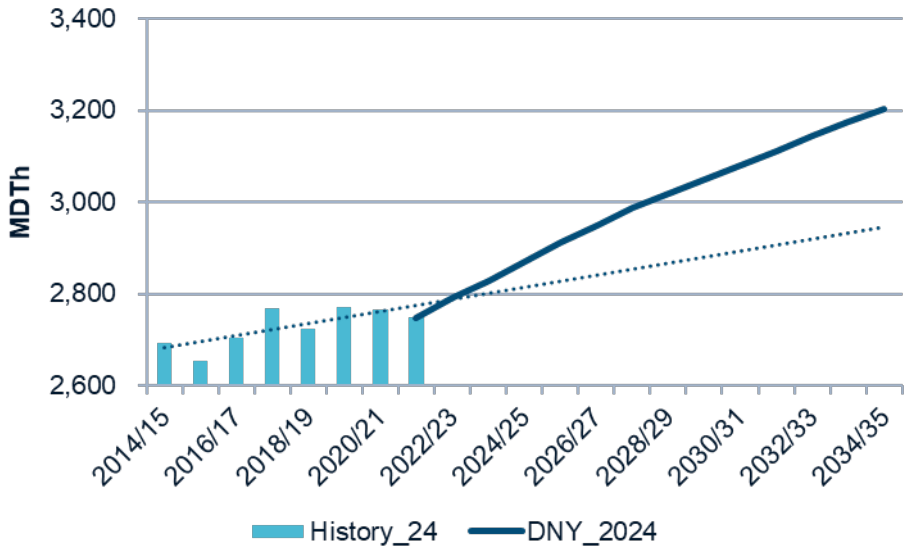
[77] Source: Company's response to PA-0254.
[78] For illustrative purposes, PA developed a trend of the historical data for the 2014/15 – 2023/24 interval.

Figure 5-17: DSNY Deviations from Trend: Historical Design Day Peak Demand[79]



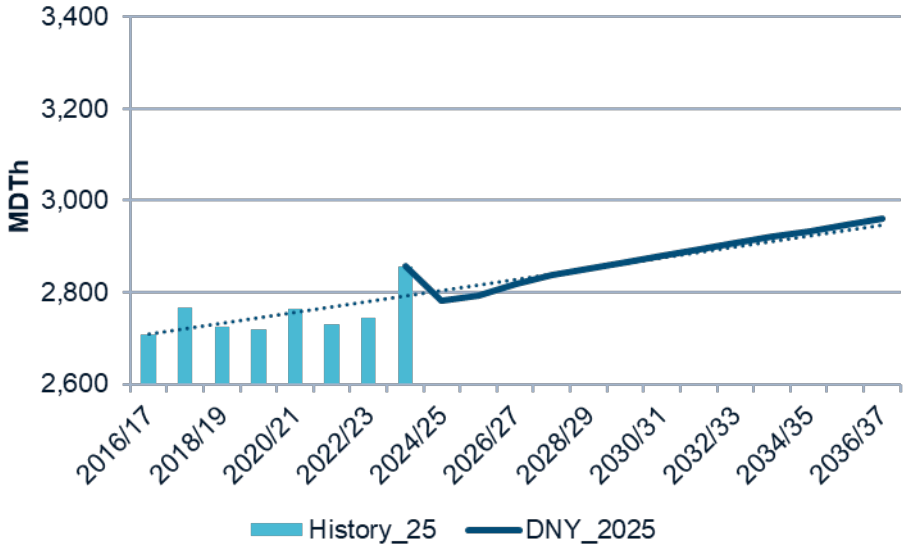
In other words, there is some merit in treating the recent historical trend as a guideline for statistically modeled outcomes and, we observe that, as compared to the 2024 Forecast, the 2025 updated version reflects changes that show a recognition of that norm – especially the Design Day forecast. To illustrate the significance, consider Figure 5-18 and Figure 5-19 showing the 2024 and 2025 Forecasts along with the 8-year history and its simple linear trend.[80] In PA's opinion, the 2024 Forecast reflected levels that showed deviations from the trend that were both high and rising, whereas the 2025 Forecast, on the other hand, is far more consistent with the trend.

Figure 5-18: 2024 DSNY Design Day Peak Forecast[81]



[79] Source: Company's response to PA-0254.
[80] Note that for the 2024 Forecast PA assumes that 2021-22 was the last observed historical value and for the 2025 Forecast that is the 2023-24 Peak.
[81] Source: Company's response to PA-0254.

Figure 5-19: 2025 DSNY Design Day Peak Forecast[82]



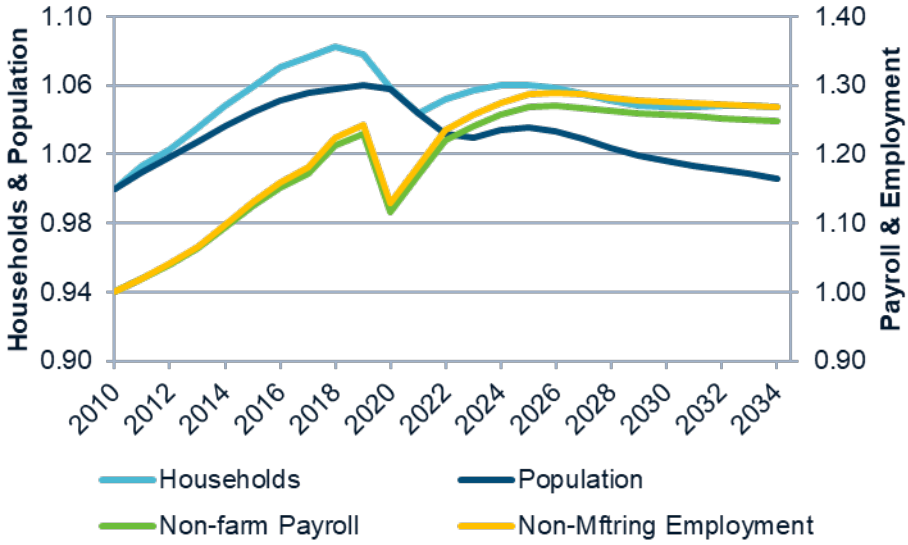
Correspondingly, the Customer Count and UPC forecasts for the Commercial and Multifamily segments also reflect a greater conformity with historical trends. In PA's opinion, incorporating insights drawn from observable trends is prudent and the fact that the changes made by the Company make for a more reasonable load forecast are evidence of that.

It is PA's assessment that these forecast errors were due, in part, to Moody's aggressive macroeconomic forecast but largely due to structural shifts in the marketplace. The post-COVID-19 era appears to have ushered in altered gas-usage patterns whereby changes that were once treated as temporary (i.e., Covid-induced energy usage shifts) have developed into a seemingly permanent or structural phenomenon. The fact that this assessment has taken place at a juncture when demographic and macroeconomic variables also show a departure from historical trends is not a coincidence, in our opinion. As we discuss in detail, this experience has led the Companies to incorporate more information related to recent changes in demand into its standard forecasting modeling methodology. In PA's opinion, it is a welcome change in approach that factors in observed market trends along with the standard macroeconomic drivers. Rather than relying primarily on third party macroeconomic forecasts as the core basis for driving gas usage forecasts, utilities can benefit from incorporating market intelligence drawn via additional analysis of their billing data. Upon examining recently observed changes in usage trends we suggest that the Company develop and track new indicators/metrics characterizing certain deep-rooted aspects of its market to gain valuable insights into how it is evolving and, of course, to inform the forecasting process. For instance, it is possible that customer preferences favoring decarbonization are firming or that the move toward electrification is stronger than initially projected or that the customer-base, especially in the commercial and multi-family segments, is already responding to impending local laws encouraging a shift away from fossil-fuel usage.

PA finds that it is reasonable to consider that the Covid-period coincided with certain ongoing structural changes – e.g., long-term demographic trends of falling birthrates and rising death-rates leading to declining organic changes in the region's Population and Households. As Figure 5-20 shows,[83] even prior to the onset of COVID-19 all four key variables that influence the size and growth trends of the region's customer base had begun showing signs of saturation or attaining a maximum before developing a sustained negative trend. We think that this is useful information for developing the load forecast and that the 2024 Forecast did not reflect\ a recognition of impacts of these unfolding patterns.

[82] *Ibid.*
[83] For exhibition ease, PA converted the data from Moody's Analytics for the said variables into index numbers such that the respective values in 2010 are treated as being equal to 1.00. Subsequent values, there, appear as ratios of the 'base level' in 2010.

Figure 5-20: Moody's Analytics Data: Index Numbers (2010 = 1.00) [84]



As mentioned in the Supplement, it is the Company's practice to develop 10-year forecasts and that beyond that period "the Reference Case forecast is extrapolated through 2050 and is considered a scenario demand assessment rather than a precise forecast, reflecting the increasing uncertainty over longer time horizons."[85] We think that along with the acknowledgement of market trends a factor determining the load forecast, the Company ought to reconsider this stance. Given that the market dynamics are certainly evolving – with the structure of the customer mix and UPCs being affected by electrification, established demographic trends, local and state-level laws curbing fossil fuel usage etc. it is reasonable to expect that a definitive manifestation of the resulting impacts will be seen beyond the 10-year horizon. (Example: Current politics notwithstanding, the move toward electrification of space heating is projected to have a slow start – as evidenced by the relatively small penetration of heat-pumps – but technological improvements, price declines and a growing customer preference are projected to yield a trajectory that picks up speed by the end of this decade and accelerates in the following.). Hence, the case for modifying the forecasting methodology. Furthermore, we think that extrapolation of a 10-year Reference Case forecast implicitly assumes that the future will resemble the preceding decade. Based on the arguments offered above, that is not likely to be the case. And several of the socio-economic phenomena that shape variables contained in Moody's long-term forecasts evolve slowly and, given the close inter-relationships between them - it can take one or more decades for the trends to fully take shape. Based on this we recommend that the Company consider changing the time horizon of their fundamental load forecast.

5.4 Recommendations

PA makes the following recommendations regarding information to be included in the Company's annual long-term plan updates and in future long-term planning proceedings:

- Continue to evolve the forecasting modeling methodology by incorporating insights drawn from observable near-term historical trends, along with the standard macroeconomic drivers, to make for more reasonable forecasts going forward. This includes focusing on trends in billing data variables (Customer Counts and UPC), evolving phenomena affecting the gas market like electrification/heat-pump adoption and oil-to-gas conversions as well as scrutinizing the Design Day forecast relative to patterns revealed by historical data. We think that the Company's existing forecasting methodology can benefit by incorporating measurable insights into market dynamics that are currently not considered. In other words, explore a forecasting approach that goes beyond the conventional drivers like billing data and macroeconomic variables.

[84] Source: Company response to PA-0246.
[85] Source: Supplement, p.13.

- Consider developing the Reference Case forecast for 20 years as opposed to the current practice of a 10-year forecast. Covid-related impacts aside, there are several forces at work that are leading to gas usage not behaving like it did historically, reflecting causing a structural change in the market. Despite changes in the political environment, we think that electrification, demographic changes, local and state-level initiatives to encourage a shift away from fossil-fuel usage are all likely to produce impacts that might move slowly in the near-term but are projected to accelerate in the future and warrant an examination of a 20-year horizon for the forecasted demand.

6 Economic Assessment

In PA's data request, the Company explains that the bill impact assessment includes 1) incremental demand (pipeline) costs, calculated by comparing the currently effective demand rates for residential customers to the projected demand rates including projected incremental annual pipeline costs for the NESE pipeline offset by the removal of the current cost of peaking supplies, and 2) incremental capital costs that will be incurred by National Grid associated with the Marine Park and Lake Success Projects.[86] As previously discussed within Section 3, we understand that any potential cost impact, and any potential capacity release or related revenues that would be passed along to customers, are excluded. We also assume that any savings associated with discontinuing use of three of the existing five CNG facilities are also excluded from the calculation.

6.1 Bill Impact

Included in the Supplement is an estimated bill impact of the Project for the average residential gas customer. It is important to note that the Company has focused on the relationship between the Project and wholesale and retail electric energy prices in New York. This report will focus on the bill impact to residential gas customers in the service territory, with the understanding that some of those customers may be electric customers with the potential for electric cost savings.

PA observes the Company estimates the impact of the Project and National Grid's Required Capital Investments[87] results in an average residential customer bill increase for customers in KEDLI of $7.44/month, an increase of 3.5%, and for customers in KEDNY of $7.61 per month, an increase of 3.5%.[88] These monthly increases are based on residential heating customer usage of 83 therms/month. Additionally, the Company reports the percentage increases will change over time, as these increases are intended to be a snapshot in time based on projected total bill amounts in Fiscal Year 2027. Percentages are expected to change over time as the bill impact analysis did not include a forecast for future commodity rates or delivery rate changes that may be considered in future rate cases.[89]

This bill increase is driven by both the NESE demand charge, which would be recouped by Transco, of $1.47/Dth[90] and to a lesser degree, the revenue requirement associated with National Grid's Required Capital Investments, the necessary gas distribution infrastructure capital upgrades to ensure the incremental gas supply can be delivered to customers. The Company confirms that the results of their bill impact analysis do not include incremental gas customer bill savings from optimization of the gas supply portfolio. In addition, the Company intends to seek cost recovery for all gas costs, via existing mechanisms such as the Gas Adjustment Clause and the Transportation Adjustment Clause and evaluate other cost recovery mechanisms that could reduce costs to customers.[91]

The LAI Study's conclusion that the addition of NESE might help to reduce natural gas commodity costs, at least during peak demand periods, seems reasonable given the nature of supply constraints in the region. Although overall natural gas commodity costs might be reduced, it is difficult to verify the degree to which suppressed prices would drive down customer bills – especially if commodity cost reductions are isolated to periods of peak demand. PA agrees that attempting to quantify savings related to downward movement of commodity prices would be difficult and could even yield unreliable expectations. It should be noted that New York City and Long Island experience some of the highest natural gas commodity prices in the country due to the constraints noted above. Adding additional capacity to a constrained market should, if only temporarily, produce some downward pressure on market prices, especially for spot deliveries during periods of high

[86] Source: Company response to PA-0266.
[87] The "Required Capital Investments," National Grid's Marine Park Regulator Station and Additional Flow Control at Lake Success Meter Station, are further discussed in Section 4 of this Report.
[88] Supplement, p. 35. PA notes that in its Notice of Petition included in its May 29, 2025 FERC filing in CP20-49-001, Transco states the estimated cost of the project is $926.5 million.
[89] Source: Company response to PA-0266.
[90] Source: Supplement, p. 35.
[91] *Ibid.*

demand in both summer and winter. The Commission does not typically consider price changes in benefit-cost analysis.[92]

If NESE is placed in-service, National Grid has indicated that it would enable the Company to contract only two of the five CNG sites, providing an estimated avoided gas supply cost associated with CNG of approximately $48.3 million per year.[93] This amount would offset costs related to NESE. Additionally, if the NESE project reduces National Grid's need to continue to acquire city gate peaking contracts, customers could realize savings through both reduced contract costs and reduced commodity costs.

6.1.1 Methodology

The Company updated its bill impact analysis to include costs associated with the Project. Bill impacts reflected above include incremental demand, or pipeline, costs that would be included in the commodity portion of a residential customer's bill. These incremental demand costs were calculated by "comparing the currently effective demand rates for residential customers to the projected demand rates, which include projected incremental annual pipeline costs for the NESE pipeline offset by the removal of the current cost of peaking supplies (CNG contracts)."[94] In addition to changes to the commodity portion of the bill, the delivery portion of customer bills would be adjusted to include incremental capital costs incurred by the Company associated with the Marine Park Regulator Station in KEDNY and Lake Success Metering Facility in KEDLI.[95] Costs of these capital projects were estimated over 15 years and 14 years, respectively, and the average revenue requirement over those periods was included in the updated bill impact analysis. The Company confirmed that the bill impact results do not include any assumed changes to the commodity cost of gas.

6.2 Benefit-Cost Analysis

The Supplement filed by the Company does not include an update to the Benefit-Cost Analysis (BCA) model or results presented in the FLT Plan. The Supplement focuses on the costs and benefits of the Project. To quantify this, National Grid retained the services of Levitan & Associates, Inc. to perform a long-term economic benefits analysis of NESE to calculate the resulting electricity market cost savings, given natural gas price reductions associated with NESE would translate into lower wholesale electricity prices.

Citing concern for system reliability, continued risk of gas service disruptions, and inadequate upstream gas supply infrastructure for the New York City and Long Island territory, National Grid outlines the key benefits associated with the Project. National Grid states these benefits have the potential to generate net societal benefits of approximately $4 billion or more from 2028 to 2043.[96] Among these benefits are:

- Enhanced energy system reliability,
- Lower energy costs, and
- Reduced GHG and air pollution emissions.

In addition, the Company describes lower electricity costs for New Yorkers, driven by increased supply of natural gas to electric generator facilities driving electricity costs down, and avoided costs associated with procuring supplies for three CNG sites.[97] The Company did not quantify the benefits of improved system reliability and the reduction of probability of a catastrophic energy system outage but hypothesize these benefits further strengthen the value case for the Project.[98]

The Company evaluated the anticipated benefits associated with NESE against its costs and concluded projected wholesale electric costs, and avoided CNG costs generate net benefits resulting in a benefit-cost ratio between 2.5 and 3.[99] Table 6-1 shows a breakdown of the Company's reported estimated benefits and costs, by category and present value (PV) in millions of 2028 dollars.

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[92] January 21, 2016 BCA Framework order in Case 14-M-0101., p. 24. Price suppression is not included in the SCT BCA because wholesale market prices adjust quickly, and any additional reductions are a transfer. Price effects, however, are properly reflected in bill impact calculations."
[93] Source: Supplement, citing Levitan & Associates, Inc. 2025 Report, p. 31.
[94] Source: Company's response to PA-0266.
[95] *Ibid.*
[96] Source: Supplement, citing Levitan & Associates, Inc. 2025 Report, p. 9.
[97] Source: Supplement, p. 10.
[98] Source: Supplement, p. 29.
[99] *Ibid.*

Table 6-1 Supplement 2028 - 2042 Estimated Benefits and Costs Summary Table[100]

Benefits	2028 PV ($M)
Upstate New York	$1,946
Capital District and Lower Hudson Valley	$1,318
Downstate New York	$2,750
Total Wholesale Electricity Savings Benefit	**$6,013**
CNG Savings	$520
Total Benefits	**$6,534**
Costs	**2028 PV ($M)**
Expected Pipeline Costs	$2,092 - $2,518
Preliminary Capitalized Infrastructure Upgrades	$69
Total Costs	**$2,160 - $2,587**
Benefit Costs	**2028 PV ($M)**
Cost Benefit Ratio	2.5 – 3.0
Net Cost Benefit	$3,946 - $4,373

Levitan & Associates, Inc's modeling (found within the LAI Study) quantified the anticipated reduction NYISO's leading price indices used by NYISO for Zone 6-New York, Iroquois Zone 2 and Texas Eastern M-3 in order to derive Mark-to-Market savings in wholesale electric energy costs over a 15-year horizon, 2028 through 2042. The LAI Study indicates the foundation of these results is a "but-for-test" formulated in RBAC Inc.'s Gas Price Competition Model (GPCM) and Energy Exemplar's Aurora power market model[101], and assumes the economic benefits are synonymous with lower wholesale electric energy prices in Downstate New York (Zones J-K), the Capital District and Lower Hudson Valley (Zones F/G-H-I), and upstate New York (Zones A-E). The present value of the wholesale benefits, and the levelized price impact for each of the three aggregated zones, can be found within the first three rows of Table 6-1.

Additionally, given NESE will allow the Company to reduce its reliance on three CNG facilities, the resulting avoided supply costs for these three sites is presented in 2028 PV terms as "CNG Savings" within the table above. PA further discusses changes in CNG supplies in greater detail within Section 3.3

The Supplement indicates Transco's preliminary cost estimate for the Project is approximately $1.064 billion and, a portion of these costs would be applicable to residential customers, as further described in Section 6.1, above. Within the table above, the 2028 PV of the associated Project Capacity Costs are presented as "Expected Pipeline Costs". Finally, National Grid indicates that two capital projects are required in order for the full 400 MDth/d of supply to flow on the incremental capacity provided by NESE, represented as "Preliminary Capitalized Infrastructure Upgrades" within the table above and further discussed within Section 4 of this Report.

[100] Supplement, p. 32; PA understands all values are expressed as 2028 PV, using a discount rate of 7%.

[101] GPCM is a gas pipeline market simulation program which gives users tools to model natural gas pricing under different supply, demand, and infrastructure scenarios in the US natural gas market. Aurora is a power market simulation system which gives users the ability to model power market operations and pricing under different supply, demand, fuel pricing, transmission, and infrastructure scenarios.

6.3 Non-Pipeline Alternatives

The Supplement confirms that the Company did not make any changes to its FLT Plan in reference to execution of energy efficiency, electrification, or non-pipeline alternative (NPA) measures.[102] Nevertheless, the Company identifies their expansion of NPA consideration, given the continuing supply constraints facing its system.

In response to a data request from PA, the Company shared a progress report on its solicitation for NPAs to date.[103] The Company states that it has issued a limited number of Requests for Proposals (RFP) for projects within the KEDNY and KEDLI service territories. The Company describes the impracticality of a traditional RFP process for Leak-Prone Pipe and New Connection NPAs, as these projects have a relatively small scale and accelerated timeline. Instead, the Company opted for a combination of internal resources and external vendors.

The Company confirms responses for NPA solicitations have been submitted to the Commission in the KEDNY-KEDLI Capacity Demand Metric Reports, filed quarterly in Cases 19-G-0309 and 19-G-0310 from November 1, 2021, through July 30, 2024, and Cases 23-G-0225 and 23-G-0226 from October 30, 2024, through April 30, 2025. The Company plans to include information regarding its current NPA solicitations in the upcoming annual NPA Opportunities and Programmatic Success Report, to be filed for the first time on July 31, 2025. The Company is working to evaluate bids received in response to three NPA solicitations for their downstate territories.[104]

The Company is required, under the Non-Pipe/Third Party Solution Metric, to issue at least one RFP for non-traditional, cost-effective supply alternatives, such as NPAs. The Company successfully issued one RFP from 2021-2023 for reliability and reinforcement projects that could potentially be met by NPAs.[105] However, in 2024, the Company did not issue an RFP for KEDNY or KEDLI.[106]

6.4 Recommendations

PA makes the following recommendations regarding information to be included in the Company's annual long-term plan updates and in future long-term planning proceedings. The recommendations would apply during the term NESE continues to progress towards construction, or at such time NESE is placed in service:

- Complete a Share of Wallet analysis to further develop an analysis of residential customer whole home utility costs. A Share of Wallet analysis could accurately describe the impact of NESE on a residential customer who would not only contribute to the cost of NESE through their gas bill but also receive potential electric cost savings. This information would be beneficial to Stakeholders to understand the full customer impact of NESE.
- Accelerate the solicitation for and adoption of NPAs across the service territories to continue progress towards CLCPA targets and work with DPS Staff on potential improvements to the NPA solicitation process.

[102] Source: Supplement, p. 37.
[103] Source: Company's response to PA-0262.
[104] *Ibid.*
[105] *Ibid.*
[106] *Ibid.*

7 Environmental Assessment

For this report, PA assessed the environmental implications of the Project, with a focus on changes to predicted greenhouse gas emissions associated with the opportunity for additional gas supply. PA observed, and the Company confirmed that no changes to the integration of LCFs into the FLT Plan scenarios were included in the Supplement.[107] Therefore, Section 7 of this report focuses on emission reductions from the Project.

7.1 GHG Emissions

The Supplement focuses on the reduction of GHG emissions and other air pollutants, including PM 2.5, Nitrogen Oxides, Sulfur Oxides, and mercury, associated with the Project. The two primary drivers of emission reduction potential are:

- Conversions from heating oil to natural gas for residential heating, and
- Reductions in diesel fuel consumption, and associated emissions, from CNG trucks.

The Company projects that the Project will enable approximately 13,400 additional residential customers to convert from a heating oil heating system to a natural gas heating system 2042, reducing emissions from residential heating by 7,370 metric tons of carbon dioxide equivalent ($MTCO_2e$) during that time.[108] PA observes this analysis illustrates the potential decarbonization impact from NESE, under a conservative assumption of oil to gas conversions.

Additionally, NESE firm pipeline capacity is expected to eliminate the need for three CNG injection sites, removing emissions from 144 diesel trucks used to supply those sites. From 2025-42, the Company reports a cumulative reduction of 5,562 $MTCO_2e$.[109] In total, the Company projects that NESE could reduce GHG emissions by approximately 13,000 $MTCO_2e$ from 2025-2042.[110]

Lastly, the LAI Study quantified emission reductions from the power sector, stating that NESE would result in GHG emission reduction of approximately 23,200 to 88,800 short tons of CO_2e, dependent on the level of oil displacement per year.[111]

7.2 Recommendations

PA makes the following recommendations regarding information to be included in the Company's annual long-term plan updates and in future long-term planning proceedings. The recommendations would apply during the term NESE continues to progress towards construction:

- Consider the impact of GHG emissions given the competitive nature of electric heat pump heating systems. Residential heating customers switching from fuel oil heating systems, despite the newly available gas supply, may opt for electric heating.
- Consider the commodity cost difference of NESE pipeline gas, as compared to other LCFs.

[107] Source: Company's response to PA-0249.
[108] Source: Supplement, p. 34.; In the Company's response to PA-0268, the Company restates its estimated conversions to be 6,700, reducing emissions by 3,685 $MTCO_2e$, an immaterial amount.
[109] *Ibid.*
[110] Source: Supplement, p. 10.
[111] Source: LAI Study, p. 4.

8 LAI Study on DSNY Electricity Implications

PA identifies New York as one of the US states with significant potential for clean energy transformation, particularly due to its landmark CLCPA, which mandates economy-wide net-zero GHG emissions by 2050. Currently, electricity prices in New York are primarily influenced by natural gas prices, the supply-demand dynamics of the NYISO market, transmission congestion, and CO_2 pricing. As a result, the Project has several implications for how transported gas will be utilized, as well as for its net impact on natural gas and electricity prices, ratepayer costs, and foreseeable GHG emissions. The document titled "Assessment of Economic Benefits in NYISO's Wholesale Electricity Market Attributable to Transco's Northeast Supply Enhancement Project," prepared by Levitan & Associates, Inc. (LAI Study), addresses this relationship.

Accordingly, this section of PA's Report also explores broader energy demand implications within New York State. While PA did not independently verify the modeling exercises presented in the LAI study. PA leveraged its extensive knowledge of the NYISO market to identify key concepts and qualitatively assess their implications.

8.1 NYISO Market Overview and Assumptions

New York State is actively working to achieve its ambitious clean energy goals. However, there are several challenges the State faces in achieving its targets. These challenges include shifting federal policies on clean energy technologies, recent delays in offshore wind development, supply chain constraints, significant growing electric demand requirements from the electrification of heating, large-scale energy-intensive economic development projects, and the increasing frequency of extreme weather events. [112]

NYISO continues to express concerns about the potential for electric system reliability challenges. In its 2025 Power Trends Report, NYISO notes that "reliability margins in winter are sufficient" and emphasized the ongoing importance of natural gas-fired generation, which accounts for over 60% of the generation capacity. NYISO anticipates that natural gas will remain a critical component of the energy system during the clean energy transition. The 2025 Power Trends Report also underscores that as New York progresses toward the goal of decarbonizing the electric grid by 2040, "natural gas will continue to be necessary to maintain grid reliability during the transition period."[113] Additionally, NYISO calls for modifications to reliability planning modeling to better accommodate for winter peak conditions. PA observes that with winter peak demand expected to surpass summer peak demand levels by 2040 or so, the role of gas-fired generation in ensuring system reliability during winter peak conditions is expected to become increasingly critical.[113]

In terms of natural gas infrastructure, the State has demonstrated growing resistance to new development both to achieve the emissions reductions targets of the CLCPA and through new policies that have been recently adopted.[114] However, constraints during peak demand periods, especially in winter, are expected to persist in the near-to-medium-term, likely keeping natural gas and electricity prices elevated during those times. The LAI Study quantifies the anticipated economic benefits of the NESE Project by estimating reductions in wholesale electric energy costs. These estimates are based on Mark-to-Market savings derived from average monthly changes in key price indices, with and without NESE, using two widely accepted market modeling tools - RBAC Inc.'s GPCM, along with electric production cost simulations conducted in Energy Exemplar's Aurora.[115]

While PA agrees that additional volumes from NESE would influence NYISO commodity prices, we did not independently run our proprietary market models to validate the LAI Study's findings. Instead, we offer our observations on the Load and Resource Forecast Assumptions used in the LAI Study, as these assumptions form the basis for the projected wholesale electricity savings.

[112] Source: Case 15-E-0302, Proceeding on Motion of the Commission to Implement a Large-Scale Renewable Program and a Clean Energy Standard, Order Adopting Clean Energy Standard Biennial Review as Final and Making Other Findings (Issued May 15,2025).
[113] Source: NYISO 2025 Power Trends, The New York ISO Annual Grid and Markets Report. 2025 Power Trends Report
[114] Source: Energy Law Section 11-104(6)(b).
[115] Source: LAI Study, pg. 2.

Forecast Assumptions

NYISO Gold Book

Given NYSIO's Gold Book 2025 represents a key source of reference within the Supplement and the LAI Study, PA's evaluation discusses the Gold Book and a number of respective LAI Study assumptions. For background, NYISO develops its load forecasts by analyzing projections of end-use intensities, economic indicators, and long-term weather trends. It then incorporates the anticipated impacts of policy-driven energy efficiency measures, building codes, behind-the-meter generation and storage, electric vehicle adoption, and the electrification of heating and other end uses. NYISO publishes these projections annually in its Load and Capacity Data report (Gold Book). The Gold Book also projects generating capacity. The information reported within the latest Gold Book is current as of March 15, 2025, and is referenced herein as the 2025 Gold Book, and includes a Baseline forecast, scenario (High and Low) forecasts and historical data.

Load Forecast

PA observes the LAI Study relies on the NYISO 2025 Gold Book's[116] "Low Load" scenario, with an approximate 3% upward adjustment. This adjustment positions the demand trajectory below NYISO's Baseline. For reference, NYISO's Low Load forecast projects winter peaks of around 31 GW by 2034, compared to approximately 34 GW in the Baseline and roughly 37 GW in the "High Load" scenario. LAI's modeling is aligned more closely with the Low Load forecast, being about 10% below the Baseline.

Using a modified Low-Load trajectory may underestimate the pace and scale of electrification-driven winter demand. NYISO's 2025 Power Trends indicates that under scenarios of high electrification and digital infrastructure growth, NYISO demand could rise by an additional 1,600 MW by 2030. This highlights how rapidly evolving load drivers can outpace conservative planning projections. By not fully accounting for these scenarios, the model may risk underestimating the near- and mid-term pressures on winter peaks.

Offshore Wind

The LAI Study includes projects that have accepted cost allocation or reached a subsequent milestone, including projects with awarded and active NYSERDA Tier 1 contracts. LAI assumes offshore wind (OSW) development projects Sunrise and Empire begin operation in 2027, and additional generic capacity additions will begin in 2035 and scale up to 9 GW by 2040, ultimately reaching the CLCPA target with a five-year delay. This assumption is reasonable given recent delays in project timelines, rising capital costs, and contract cancellations within the OSW industry. NYSERDA's solicitations for 2023-24 faced significant challenges, causing many projects to seek renegotiation or withdrawal. And most recently, the Commission ordered its withdrawal of its Public Policy Transmission Need finding, an effort to protect New York State ratepayers by recalibrating the timeline of offshore transmission development. The Commission notes "recent actions taken by the federal government have drastically reduced the prospects for the development and construction of offshore wind resources that the PRR Order anticipated would be served by the proposed transmission solutions." [117] However, he Commission still plans to "press forward regarding infrastructure needs for OSW in the future once the federal government resumes leasing and permitting for wind energy generation projects"[118] Ramping-up operations in 2035 reflects current market and permitting challenges more accurately than the original 2030 CLCPA schedule. The target of 9 GW by 2040 aligns with long-term state goals, making this trajectory moderately conservative yet fundamentally plausible.

Solar

LAI predicts 2.7 GW of additional solar capacity by 2035 and 6 GW by 2050. However, this estimate seems quite conservative. In 2023 alone, New York added over 900 MW of solar capacity, and projections from NYISO and DPS indicate a potential growth of 10 to 20 GW by 2035 to meet the state's goals. Therefore, the modeled solar capacity likely underestimates the feasible deployment, considering the current procurement efforts and favorable economic conditions. The proliferation of renewable generation resources within a power market tends to drive down average energy production costs. By taking a conservative view of solar capacity additions, the study risks over-valuing the cost of energy production.

[116] Source: 2025 Gold Book, nyiso.com/documents/20142/2226333/2025-Gold-Book-Public.pdf
[117] Source: Case 22-E-02192 "Order Withdrawing Public Policy Transmission Need", July 17, 2025, p.2.
[118] Source: Case 22-E-02192 "Press Release – Commission Acts to Protect Ratepayers as Federal Offshore Wind Permitting Stalls", July 12, 2025, p.1.

Land-Based Wind

The LAI Study assumes 4.8 GW of additional land-based wind capacity by 2035 and 9 GW by 2050. These assumptions appear overly optimistic. Over the last five years, New York has added just under 200 MW of onshore wind capacity each year[119], and significant permitting and interconnection constraints still exist. Reaching the 4.8 GW target by 2035 included in the LAI Study would require a sustained acceleration in project development that is not yet evident in the current project pipeline.

Retirement Assumptions

LAI's model only includes the Department of Environmental Conservation (DEC) Peaker Rule and the retirements announced by the Long Island Power Authority (LIPA), without considering economic retirements. This approach has its limitations, as it focuses solely on regulatory requirements and does not take into account economic or market-driven retirements, which are becoming increasingly significant in a rapidly changing market. Older thermal units, particularly small gas turbines and steam units, are highly vulnerable to fluctuations in capacity market revenues and may struggle to remain viable in a low-price environment. Additionally, a combination of low demand, strong renewable energy sources, and static thermal capacity could result in an extended capacity market and reduced prices. These conditions would render aging thermal units uneconomic.

Key Findings

The LAI Study quantifies the anticipated economic benefits of the NESE Project by estimating reductions in wholesale electric energy costs. These estimates are based on Mark-to-Market savings derived from average monthly changes in key price indices, with and without NESE, using RBAC's GPCM, along with electric production cost simulations conducted in Aurora. We observe the LAI Study cites the following key findings (however, PA has not conducted independent modeling to assess):[120]

1. Reduction of pipeline congestion in New Jersey puts sustained downward pressure on delivered natural gas prices in Transco Zone 6-NY and TETCO M3. For the month of January, when the price impact is largest, the reduction in Transco Z6-NY and TETCO M3 prices ranges from $0.76 in 2028-2032 to $1.00 per MMBtu in 2038-2042.
2. No reportable difference (and hence no economic benefits) observed during the summer or shoulder season attributable to NESE.
3. Wholesale energy prices across NYISO stay level on average as renewable and clean energy reduce the use of gas-fired generation, but prices during winter and summer peak months increase.
4. Importance of thermal fleet for NYISO Resource Adequacy objectives associated with winter peak season demand growth is underscored by modeled results for 2035-2040, in which additional offshore wind generation contemplated to achieve the 9 GW target is not enough to reduce the number of gas constrained days in the Without NESE case, but it does reduce the total gas burn enough to unlock additional days in the With NESE case.

Levitan & Associates then expressed the annual Mark-to-Market in 2028 PV terms in 2028 (using a 7% nominal discount rate) to calculate the resulting Upstate (Zones A-E), Capital District and Lower Hudson and Downstate (Zones J-K) wholesale electricity savings benefits, summarized within Table 8-1 below.

Table 8-1 Wholesale Electricity Benefits

Benefits	2028 PV ($M)
Upstate New York	$1,946
Capital District and Lower Hudson Valley	$1,318
Downstate New York	$2,750
Total Wholesale Electricity Savings Benefit	**$6,013**

[119] Source: 2025 Gold Book, NYCA Existing Generating Facilities Table II-a NYISO Market Generators, nyiso.com/documents/20142/2226333/2025-Gold-Book-Public.pdf
[120] Source: Supplement, p. 2.

Conclusions

PA compared a number of LAI Study assumptions, with the Gold Book's scenarios to find the load forecast is aligned more closely with the Gold Book's "Low Load" scenario reflecting modest NYSIO load growth assumptions. PA finds the modest growth forecast utilized in the LAI Study may underestimate the pace and scale of electrification-driven demand and, given rapidly evolving load drivers can outpace conservative planning projections, this may underestimate the near-and mid-term pressures on winter peaks. With conservative load forecasts and strong growth in renewable energy, regions outside of major markets may face excess capacity and declining prices, which could threaten the viability of certain units. However, the model used by LAI does not account for this market feedback. The lack of sensitivity testing limits our understanding of the system's fundamental dynamics. Issues like localized shortages, economic retirements, and capacity price impacts are not addressed, yet they are crucial for grasping the need for reliable gas capacity. LAI's model's assumptions present a simplified and overly optimistic view of long-term system development. From a market fundamentals perspective, several of these assumptions underestimate realistic demand growth, challenges related to renewable energy, and dynamics of unit retirements.

PA notes that the future convergence of the heating and transportation sector demands within the New York electric sector presents increasing complexity, given many of the gas and electric service territories do not fully overlap. This situation underscores the need for a more comprehensive perspective on the NYISO energy system, considering both summer and winter peak demands. It also highlights a growing trend toward integrated planning of electric and natural gas distribution systems—an area that has traditionally remained siloed. One possible solution is to consider enhancing the gas planning process to further support integrated planning across affiliated and non-affiliated utilities and their respective electric and gas demand forecasts and system investments. National Grid could implement a more integrated approach in its annual long-term updates.

8.2 Recommendation

PA makes the following recommendations regarding information to be included in the Company's annual long-term plan updates and in future long-term planning proceedings.

- Consider a more comprehensive approach on the evolving NYSIO Energy System via a more integrated natural gas and electric distribution company long-term planning process.

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