

STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

CASE 22-M-0429 - Proceeding on Motion of the Commission to
Implement the Requirements of the Utility
Thermal Energy Network and Jobs Act.

ORDER ADDRESSING MULTIPLE UTILITY THERMAL
ENERGY NETWORK PILOT PROJECTS

Issued and Effective: October 15, 2026

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STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

At a session of the Public Service
Commission held in the City of
Albany on October 15, 2026

COMMISSIONERS PRESENT:

Rory M. Christian, Chair
James S. Alesi
David J. Valesky
John B. Maggiore
Uchenna S. Bright
Denise M. Sheehan
Radina R. Valova

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BY THE COMMISSION:

INTRODUCTION

The New York State Legislature passed the Utility Thermal Energy Network and Jobs Act (the Act), and Governor Hochul signed it into law on July 5, 2022.¹ The primary purpose of the Act is to remove the legal barriers to utility development of “thermal energy networks” (TENs), which supply thermal energy, that is, “piped non-combustible fluids used for transferring heat into and out of buildings for the purpose of eliminating any resultant on-site greenhouse gas emissions of all types of heating and cooling processes, including, but not limited to, comfort heating and cooling,

¹ See Laws of 2022, Chapter 375 (enacted July 5, 2022).

domestic hot water, and refrigeration.”² As the Act states, thermal energy networks have potential as a means to decarbonize buildings at a community scale.

To test that potential, the Act directed that the seven largest gas, electric, or combination utilities³ in New York State submit to the Public Service Commission (Commission) at least one and as many as five thermal energy network (UTEN) pilot project proposals, “with at least one pilot project in each utility territory ... proposed in a disadvantaged community” as defined by the Climate Leadership and Community Protection Act (CLCPA).⁴

The Commission’s Order Providing Guidance on Development of Utility Thermal Energy Networks established a five-stage process from which a utility’s project will proceed from one stage to the next only after Department of Public Service staff (Staff) or the Commission, as appropriate, is satisfied that the utility has complied with

² PSL §2(28) and (29).

³ The Commission previously identified the “seven largest” utilities by applying the “annual intrastate gross operating revenue of the corporation” as used in PSL §25-a and §66(29)(a). Accordingly, as used herein, “Utilities” refers to all or a subset of, and pilot project requirements apply to: Central Hudson Gas & Electric Corporation (Central Hudson); Consolidated Edison Company of New York, Inc. (Con Edison); National Fuel Gas Distribution Corporation (NFG); National Grid USA (National Grid, which includes The Brooklyn Union Gas Company d/b/a National Grid NY (KEDNY), Niagara Mohawk Power Corporation d/b/a National Grid (NMPC), and KeySpan Gas East Corporation d/b/a National Grid (KEDLI)); New York State Electric & Gas Corporation (NYSEG); Orange and Rockland Utilities, Inc. (O&R); and Rochester Gas and Electric Corporation (RG&E). Case 22-M-0429, Order on Developing Thermal Energy Networks Pursuant to the Utility Thermal Energy Network and Jobs Act (issued September 15, 2022) (Initiating Order), pp. 6-7.

⁴ Public Service Law (PSL) §66-t(2).

the requirements for each stage.⁵ This stage-gating process recognizes the dynamic nature of this endeavor and imposes structure on the process to provide greater transparency for all interested stakeholders.⁶

In this Order, the Commission assesses eleven pilot projects proposed by Central Hudson, Con Edison, NFG, KEDNY, NMPC, NYSEG, and O&R,⁷ as detailed in their respective Pilot Project Engineering Design and Customer Protection Plans, referred to as Stage 2 Filings. This Order describes the review undertaken to assess the proposed pilot projects, the overall themes that emerged from this review, and the Commission's determination for each of the pilot projects. Based on this thorough and careful review, the Commission finds that it is in the public interest to advance the NFG Buffalo Pilot and the O&R West Loop Pilot to Stage 3. The Commission also addresses cost recovery for all costs incurred to date and future costs associated with the Buffalo and West Loop Pilots, including the use of \$93 million of

⁵ Case 22-M-0429, Order Providing Guidance on Development of Utility Thermal Energy Networks (issued September 14, 2023) (Guidance Order).

⁶ The stages include Stage 1: Pilot Project Scope, Feasibility, and Stakeholder Engagement; Stage 2: Pilot Project Engineering Design and Customer Protection Plan; Stage 3a: Customer Enrollment and Stage 3b: Pilot Project Construction; Stage 4: Pilot Project Operation and Management; and Stage 5: Pilot Project Review, Recommendations, and Conclusion. Guidance Order, p. 19.

⁷ O&R's Haverstraw Stage 2 Filing includes engineering design documentation and a comprehensive Customer Protection Plan for the Haverstraw Pilot, which is comprised of two separate and independent pilot projects, the East Loop Pilot and West Loop Pilot. As such, when referencing Stage 2 Filings, there are ten. However, when referencing specific pilot projects, because each Haverstraw Pilot loop is analyzed as an independent project, there are eleven pilot projects.

funding from the Sustainable Futures Program⁸ to reduce the bill impacts to ratepayers.⁹ Additionally, the Commission directs Staff to engage with stakeholders to further identify and develop the regulatory framework necessary to advance TENS, including a focus on enabling actions to leverage the potential of utilizing waste heat as a thermal resource. Lastly, the Commission calls for the experience and knowledge gained through the development of these pilot projects to be integrated into the State's energy planning efforts.

The Commission takes this opportunity to recognize the significant commitment of time and resources, frequently under compressed timelines as required by the Act, not only by the Utilities, but by community members and potential UTEN customers in the proposed pilot project areas, as well as stakeholders that have been active within this proceeding. This engagement has been instrumental to further the Commission's understanding of the challenges associated with creating a new utility service and the opportunities that TENS represent.

⁸ The Sustainable Futures Program is a component of the New York State budget intended to lower energy costs, cut emissions, and expand clean energy, among other things.

⁹ The total pilot project budgets discussed in this Order include only the proposed costs associated with the Utilities' Stage 1 through Stage 5 activities, they do not include costs associated with the post-pilot period. Once the pilot project period has concluded, all post-pilot expenses, including but not limited to the costs to maintain UTEN thermal service, the costs to decommission the UTEN if the pilot does not transition to a UTEN thermal service, and reversion costs for all customers that choose to terminate UTEN thermal service at the end of the pilot in accordance with a final Customer Agreement will require additional budget.

BACKGROUND

The Act added §66-t to the Public Service Law (PSL), which requires the Commission to commence a proceeding to consider “the appropriate ownership, market, and rate structures for thermal energy networks and whether the provision of thermal energy by gas and/or electric utilities is in the public interest.”¹⁰

PSL §66-t(1) tasks the Commission with adopting regulations addressing thermal energy networks, and to thereby: “(a) create fair market access rules for utility-owned thermal energy networks to accept thermal energy that aligns with the climate justice and greenhouse gas emissions reductions requirements of the climate leadership and community protection act and that does not increase greenhouse gas emissions or co-pollutants; (b) exempt small-scale thermal energy networks not owned by utilities from [C]ommission regulation; (c) promote the training and transition of utility workers impacted by this act; and (d) encourage third party participation and competition where it will maximize benefits to customers.”

On September 15, 2022, the Commission issued the Initiating Order, establishing expectations for the Utilities and directing Staff to convene a technical conference to gather information about thermal energy networks, as well as identify further steps toward fulfilling the Act’s directives.¹¹ The Act provided three months for the Utilities to submit pilot proposals for the Commission’s

¹⁰ PSL §66-t(1).

¹¹ Case 22-M-0429, Order on Developing Thermal Energy Networks Pursuant to the Utility Thermal Energy Network and Jobs Act (issued September 15, 2022) (Initiating Order), p. 5.

consideration.¹² As recognized in the Initiating Order, “[b]ased on past Commission experience with pilot projects, a three-month timeframe is likely insufficient for the development of well-considered, shovel-ready pilot projects that meets the intent of the Act, particularly given the new and complex nature of the projects at issue.”¹³ The Commission, acknowledging that this three-month timeframe for development of the initial proposals may be challenging, directed the Utilities to make compliance filings containing high level project information by October 5, 2022, as a first step.¹⁴ As a second step, the Commission directed the Utilities to submit for consideration final versions of their initial proposals by January 9, 2023, which the Commission noted, “is barely sufficient time to provide well-considered pilot projects that comply with the requirements”¹⁵ Lastly, the Initiating Order noted that the three-month timeframe the Act afforded the Commission to issue a final decision on the proposed pilot projects, which would have necessitated a January 5, 2023 approval for projects filed on October 7, 2022, conflicted with the public notice and comment requirements under the State Administrative Procedures Act (SAPA).¹⁶

¹² PSL §66-t(2).

¹³ Initiating Order, p. 13.

¹⁴ On September 29, 2022, the Joint Utilities filed an extension request with the Secretary to the Commission seeking approval to make their compliance filings by October 7, 2022. Case 22-M-0429, Joint Utilities Request for Extension (filed September 29, 2022). The request was granted by the Secretary on September 30, 2022. Case 22-M-0429, Ruling on Extension Request (issued September 30, 2022).

¹⁵ Initiating Order, pp. 16-17.

¹⁶ Initiating Order, p. 17.

Notwithstanding the challenging timelines imposed by the Act, the Utilities made filings between January and August 2023, representing fourteen distinct pilot projects.¹⁷ The Commission found, in the Guidance Order, that the proposals contained “varying levels of detail and reflect differing degrees of project maturity, but represent a reasonable first step in describing the pilot projects the utilities seek to undertake ... [a]s evidenced by the two project withdrawals as well as the supplemental filings providing further details or modifications, the development of these pilot projects is an ongoing and fluid undertaking.”¹⁸ Public comments received at the time indicated the proposals lacked sufficient detail for the Commission to assess their merit and recommended delaying action until the Utilities provided more information.¹⁹ The Commission ultimately found that the Utilities must supplement the record before it could authorize construction for any particular pilot project. As such the Guidance Order provided necessary Commission direction for further development of

¹⁷ NFG and KEDLI withdrew two of the 14 pilot projects proposed prior to the issuance of the Guidance Order due to viability concerns. NFG withdrew its pilot project proposal associated with the Northland Campus on May 26, 2023, and KEDLI withdrew its pilot project proposal on July 24, 2023.

¹⁸ Guidance Order, pp. 18-19.

¹⁹ In joint comments, Building Decarbonization Coalition (BDC), Alliance for a Green Economy (AGREE), New York League of Conservation Voters (NYLCV), Sierra Club Atlantic Chapter, The Alliance for a Greater New York, WE ACT for Environmental Justice, and Home Energy Efficiency Team (HEET) state that: “we are concerned about the lack of detailed information provided by many of the utilities in their proposals, and as a result, we are recommending that the Commission delay approval of projects until questions are answered and more detailed proposals are submitted for further comment.” Case 22-M-0429, Comments of Building Decarbonization Coalition et al. (filed April 4, 2023).

UTEN pilot projects, including on threshold issues applicable to all proposals, and required Staff to hold additional technical conferences to inform the work. The Guidance Order also authorized the maximum costs each utility could incur for the development of each pilot project through Stage 2: Final Engineering Design and Customer Protection Plan. Subsequently, Con Edison, NFG, NMPC, and NYSEG each filed petitions seeking Commission authorization to increase the maximum amount each utility can spend on the development of their pilot projects.²⁰ Appendix A to this Order identifies the cost caps authorized for each pilot project through Stage 2.

Accordingly, to provide the opportunity for robust stakeholder engagement throughout the UTEN proceeding, Staff held six technical conferences between December 2022 and March 2025 covering several specific topic areas. These technical conferences allowed for robust discussion and comment on: (1) "thermal energy networks" and the UTEN proceeding; (2) the types of thermal energy systems that currently exist in New York State and beyond; and (3) development of data points related to technical, safety, financial, societal, and customer performance metrics that must be collected during operation of the various pilot projects. Regarding the last topic Staff issued a Performance Metrics Report, which outlined expected pilot

²⁰ Case 22-M-0429, UTEN Pilot Funding Petition (filed May 5, 2024); NFG Petition 10% Authorization (filed January 22, 2025); NMPC UTEN Increase in Authorized Funding Petition (filed May 22, 2024); NYSEG UTEN Pilot Funding Petition (filed July 29, 2024).

project data tracking and reporting.²¹ Participants could join these conferences both in-person and online, affording robust engagement and dialogue between the regulated Utilities, external stakeholders and consultants, and Staff.

The Utilities filed a total of thirteen Final UTEN Pilot Project Proposals in November and December of 2023 seeking approval to advance to Stage 2: Pilot Project Engineering Design and Customer Protection Plan, however three of these proposals have since been withdrawn.²² Specifically, NYSEG withdrew its proposed pilot project in Norwich, KEDLI and LIPA ceased development on their second joint UTEN pilot proposal on Long Island, and RG&E terminated its Rochester UTEN pilot.²³ Of the remaining ten pilot project filings, eight received a letter from Staff in April 2024 stating that the pilot project proposal was compliant with the provisions of the Guidance Order, thereby granting approval to advance to Stage 2 and initiate development of a Pilot Project Engineering Design and Customer Protection Plan

²¹ Case 22-M-0429, UTEN Performance Metrics Final Report (issued June 13, 2025) (Performance Metrics Report). The report documents the outcomes of the performance metrics technical conferences, including the metrics and data points agreed upon for each category that utilities must track and report for their respective pilot projects, as well as a summary of metrics that were proposed, but not ultimately agreed upon.

²² While the Utilities' initial proposals represent fourteen distinct pilot projects, they only filed thirteen Final UTEN Pilot Project Proposals.

²³ Case 22-M-0429, NYSEG Norwich UTEN Pilot Project Proposal Withdrawal (filed April 8, 2024); Long Island Pilot Withdrawal (filed July 30, 2024); RGE Rochester UTEN Pilot Project Proposal Withdrawal (filed July 9, 2025). RG&E indicates its intent to submit an alternate UTEN proposal. Case 22-M-0429, RGE Intent to File Stage 1 UTEN Pilot Project Proposal (filed May 15, 2026).

(Stage 2 Filing).²⁴ Staff required further development of Central Hudson's Poughkeepsie Pilot and NFG's Buffalo Pilot, citing feasibility concerns.²⁵ Central Hudson and NFG submitted revised project proposals in June 2024 and received compliance letters from Staff with approval to advance to Stage 2 in October and December 2024, respectively.²⁶ Accordingly, the total five-year collective pilot budget estimates based on the Stage 2 Filings regarding the eleven pilot projects addressed herein, as filed in July, November, December 2025, and February, March, and May 2026, is \$1.134 billion.²⁷

In determining whether it would be in the public interest to authorize a utility to construct and operate a pilot, as set forth in the Act, the Commission considers if a pilot would aid in the development of regulations, furthers the climate justice and/or greenhouse gas (GHG) reductions in

²⁴ Case 22-M-0429, UTEN Stage 1 Compliance Letter_NG_KEDNY; UTEN Stage 1 Compliance Letters_NG_Syracuse; UTEN Stage 1 Compliance Letters_NG_Troy; UTEN Stage 1 Compliance Letters_OR_Haverstraw; UTEN Stage 1 Compliance Letters_CE_Chelsea; UTEN Stage 1 Compliance Letters_CE_Mt. Vernon; UTEN Stage 1 Compliance Letters_CE_Rockefeller Center; UTEN Stage 1 Compliance Letters_NYSEG_Ithaca (filed April 9, 2024) (Compliance Letters).

²⁵ Case 22-M-0429, UTEN Stage 1 Compliance Letter_Central Hudson; Stage 1 UTEN Compliance Letter_NFG_Buffalo (filed April 9, 2024).

²⁶ Case 22-M-0429, Stage 1 Compliance Letter CENTRAL HUDSON Revised Pilot Project Proposal (filed October 1, 2024) and UTEN Stage 1 Compliance Letter 12.23.24 (filed December 24, 2024).

²⁷ The estimated total budget for the eleven pilot projects identified in the utility's Initial Pilot Proposals filed between January and July 2023 was \$413.42 million. Appendix A to this Order identifies the initial and final estimated costs for each of the eleven pilot projects discussed in this Order.

compliance with the CLCPA,²⁸ advances equitable and affordable electrification, and creates benefits to customers and society at large.²⁹ Below are summaries of the Final Engineering Design and Customer Protection Plans (Stage 2 Filings) addressed in this Order.

SUMMARY OF STAGE 2 FILINGS

Per the Initiating Order, each proposal must include: (a) a single line drawing identifying the geothermal energy source(s); (b) engineering plans related to the project's design; (c) a description of and number of projected potential energy users; (d) customer protection plans; (e) a development schedule detailing major milestones for the pre-construction, construction, and operational phases of the project; (f) information to support any claims by the utility regarding needs related to safety and reliability; (g) the estimated capital and operations and maintenance (O&M) expenses associated with the capital and ongoing costs of the network; and (h) proposed metrics by which to measure cost-effectiveness.³⁰ Additionally, per the Guidance Order, the Final Engineering Design and Customer Protection Plan filings must include the following information: the specific objectives of the pilot project, including the novel or unique technical or business model approaches it would explore and anticipated findings; preliminary cost estimates and timeline associated with the Stages presented in the Guidance Order, and other key milestones identified by the utility; potential barriers and

²⁸ Chapter 106 of the Laws of 2019, as amended by Chapter 58 of the Laws of 2026.

²⁹ PSL §66-t(2).

³⁰ Initiating Order, pp. 14-15.

risks associated with the proposed pilot project and steps the utility will take to address them; and a description of benefits to residents of the disadvantaged community, if applicable.³¹

We note that some of the initial pilot project designs and cost estimates provided space heating and cooling via the UTEN while retaining existing fossil fuel based domestic hot water (DHW) systems. However, the Act defined "thermal energy network" in terms of assets that supply "thermal energy" and defined "thermal energy" as "eliminating any resultant on-site [GHG] emissions of all types of heating and cooling processes, including, but not limited to, comfort heating and cooling, domestic hot water, and refrigeration."³² As a result, incorporating DHW service provided by the UTEN, or otherwise converting to stand alone electrified DHW systems into the pilot projects, necessitated design revisions including expanded equipment capacities, building-level modifications, and thermal balance considerations. Accordingly, the final capital costs for the pilot projects reflect construction and operating costs to serve the DHW loads.

Central Hudson

Central Hudson's Poughkeepsie Pilot would be a one-pipe ambient closed-loop geothermal system centered around the Harriet Tubman Terrace Apartments, located within a disadvantaged community in the City of Poughkeepsie. The proposed pilot is designed to serve a total of 19 buildings, including 10 commercial buildings, six multifamily low-income

³¹ Guidance Order, p. 20.

³² PSL §2(28) and (29).

housing buildings, a privately-owned multifamily building, and two mixed-use commercial and residential buildings representing 148,408 square feet of conditioned space. The pilot would source its thermal energy from three distributed borefields consisting of 138 boreholes drilled to approximately 500 feet deep and would install underground piping to deliver 4,559 MBH of peak heating and 292 tons of peak cooling.³³ Customer heating, cooling, and DHW would be converted to the UTEN system. However, where it would be prohibitively expensive to convert existing DHW systems to geothermal, Central Hudson would use heat pump water heaters. Central Hudson states that a one-pipe ambient loop design would be favorable because it offers flexibility to disperse thermal resources along their path, thus allowing the system to take advantage of multiple resources and limited space inside urban areas.

According to Central Hudson, it sought to minimize installation costs by sizing the pilot's utility distribution system (UDS) for confirmed participating customer load only. This results in designing the system to utilize the main at approximately 94 percent of practical capacity and to rely on a limited number of geothermal bores. Both choices limit future system flexibility; additional buildings could be supported only with the inclusion of additional thermal resources, including borefields, and within the flow and pressure limitations of the UDS. The Youth Opportunity Union (YOU), a planned new community center for all Dutchess County youth and families, was originally part of the UTEN system design in Stage 1 and would have served as an anchor customer. After the Stage 1 filing, representatives of Dutchess County advised Central Hudson that the YOU construction schedule had been delayed, making its

³³ MBH represents a rate of heat energy transfer measured in 1,000 British Thermal Units (BTU/Hr).

participation in the Stage 2 design infeasible, although according to the utility it remains a candidate for a second phase should the UTEN expand.

Central Hudson would develop the Poughkeepsie Pilot in collaboration with the community-managed and federally subsidized Harriet Tubman Terrace Apartments, an existing apartment complex that requires heating, ventilation, air conditioning (HVAC), and DHW system conversions. Two of the Harriet Tubman Terrace apartment buildings are designed to be retrofitted with standalone ASHPs rather than connected to the UDS, enabling comparison of the two electrification technologies across buildings with identical layouts over the five-year pilot period. Separately, Central Hudson states that some large commercial buildings would require individual service connections for each tenant so that the associated energy costs could be appropriately allocated back to each tenant at the end of the pilot period.

Central Hudson projects the costs would be \$130.99 million in total, including \$91.65 million associated with Stage

3 costs,³⁴ which are predominantly construction costs, and \$29.78 million for Stage 4 costs,³⁵ which are predominantly O&M costs.³⁶

Central Hudson proposes recovering UTEN costs from electric and gas customers based on its common cost allocation methodology, by which it would allocate 80 percent to electric service and 20 percent to gas service, with amortization periods ranging from one to 10 years based on the cost category. Central Hudson proposes adding a UTEN Surcharge to its existing Miscellaneous Surcharge that would be determined by class or sub-class based on a delivery service revenue allocation and assessed on a volumetric basis for electric non-demand and gas customers and on a kilowatt (kW) basis for electric demand-billed customers. Additionally, Central Hudson proposes to charge pilot participants a UTEN Pilot fee based on heat pump capacity of \$15/ton for multifamily buildings and \$5/ton for non-residential buildings. Central Hudson projects that the Poughkeepsie Pilot would eliminate 609 metric tons of carbon dioxide equivalent (MTCO₂e) annually.

³⁴ The Stage 3 cost estimates provided by the Utilities are generally consistent with the CapEx cost estimates provided in their life cycle cost analysis (LCCA) Workbooks, however, there are some differences due to the exclusion of certain pilot-imposed costs, and revised cost estimates provided by the Utilities in their LCCA Workbooks subsequent to the Stage 2 Filing.

³⁵ The Stage 4 cost estimates provided by the Utilities are generally consistent with the OpEx cost estimates provided in their LCCA Workbooks, however, there are some differences due to the exclusion of certain pilot-imposed costs, and revised cost estimates provided by the Utilities in their LCCA Workbooks subsequent to the Stage 2 Filing. Also, the LCCAs assume the projects are fully operational at the beginning of the pilot period, while the Stage 4 cost estimate considers the anticipated pace of adding customers to the UTEN within the pilot period.

³⁶ Central Hudson's Poughkeepsie Pilot budget includes a post-pilot cost estimate to decommission the UTEN of \$7.86 million.

Central Hudson notes that the cost of the pilot in relation to the number of beneficiaries is significant. Specifically, Central Hudson indicates that with a total project cost exceeding \$100 million, serving 51 residential units and 11 commercial units, nearly the entire cost would require subsidization by electric and gas ratepayers across the utility's franchise area, and that this subsidization would need to continue beyond the pilot period.

Con Edison

In July 2025, Con Edison proposed three separate pilot projects, the Chelsea Pilot, Mount Vernon Pilot, and Rockefeller Center Pilot. According to Con Edison, these pilot projects are intended to provide ample learning opportunities, with designs that would use varying types of building stock across different jurisdictions, customers of different types with discrete needs, and a mix of urban and suburban communities.

1. Chelsea Pilot

The Chelsea Pilot would use waste heat from a data center in the neighborhood to provide fossil fuel-free heating, cooling, and DHW to nearby New York City Housing Authority (NYCHA) low-income multifamily buildings.³⁷ Three of the 11 buildings in NYCHA's Fulton House residences, located in a disadvantaged community, would be included in

³⁷ The commercial office building with the data center is owned by 85 Tenth Avenue Associates, LLC, a joint undertaking by Related Companies (Related) and Vornado Realty Trust.

the pilot.³⁸ The pilot would, according to Con Edison, extract excess heat from the data center via heat exchangers in the chilled water system, preventing the heat from being vented via rooftop cooling towers. Using this recovered heat as a thermal resource for the UTEN, Con Edison intends to transport it through a two-pipe, closed-loop, ambient piping network along W 16th Street where it would be repurposed and transferred into the UTEN system by plate and frame heat exchangers. The UTEN would provide DHW to all three of the buildings and space heating and cooling to only one of the buildings, 401 W 16th Street.

Con Edison states that 291 residential units would have electrified DHW at the Chelsea Pilot, covering a total of 262,000 square feet, although it does not state the number of units that would receive the full panoply of DHW, heating, and cooling. Con Edison would install approximately 2,500 linear feet of underground piping to deliver a thermal source fluid to building heat pumps that would provide DHW and, for one of the buildings, space heating and cooling, depending on the time of year. As part of the Chelsea Pilot, Con Edison would install 192 new terminal fan coil units in each room inside the 36 units of 401 W 16th Street to provide space heating and cooling to residents via a two-pipe hydronic system with a modular water-source heat pump located in the building's basement. DHW heat pumps and DHW storage tanks would be installed in the basement of each of the three buildings to provide the buildings with DHW.

³⁸ The Fulton Houses campus is managed by Related and Essence Development (Essence), under the Permanent Affordability Community Together program, allowing NYCHA to lease the land and buildings at the Fulton Houses campus to development partners.

The Chelsea Pilot is designed to include energy efficiency upgrades, as necessary, for participating buildings. Con Edison predicts that electricity consumption would increase, but building steam usage would decline, leading to a net reduction in carbon emissions. Con Edison projects that the Chelsea Pilot would eliminate approximately 15,000 MTCO₂e over the 25-year project life.

Con Edison proposes to recover UTEN costs from its electric customer base, as it considers UTENS a way to lower costs for electric system expansion through the use of high-efficiency thermal networks. As NYCHA is responsible for managing energy usage in its buildings, tenants would not be billed directly, rather NYCHA could use the UTEN to transfer thermal energy between its three participating buildings, allowing it to reuse its own space cooling waste heat. Due to third-party ownership of the thermal resource, Con Edison would compensate 85 Tenth Avenue Associates, LLC for the provision and exchange of thermal energy. These payments, according to Con Edison, would cover the cost of increases in 85 Tenth Avenue's electricity consumption to direct its waste heat to the UTEN rather than the outside air, cover the costs to remove thermal energy from the UTEN when it is not needed, and provide the thermal resource owner a modest, market-aligned return on the soft cost investments the owner has made. The proposed pricing and rate structure would have two components: (1) purchasing of thermal energy from the thermal energy resource owner to sell at cost to the thermal customers; and (2) charging the thermal customers a network connection charge proportional to their connected heat pump capacity.

The total cost of the Chelsea Pilot is \$95.53 million and includes \$52.63 million in Stage 3 costs, which

are predominately construction costs, and \$35.02 million in Stage 4 costs, which are predominately O&M costs. Con Edison proposes recovering the project costs via a surcharge to electric customers, with amortization periods ranging from five to 15 years depending on the cost category.

Con Edison states that it minimized the pilot's scope from earlier proposals to reduce costs by:

(1) decentralizing the energy center to locate it in the cellar of the data center building and one of the Fulton Houses, (2) removing a fourth NYCHA building at 434 W 17th Street from the pilot scope, and (3) providing space heating and cooling to only one of two Fulton Houses buildings. During the design stage of the Chelsea Pilot, NYCHA, Related, and Essence formally announced a proposal to demolish the existing buildings and rebuild the Fulton Houses campus. This could happen within the five-year pilot period, and nearly certainly would occur during the projected fifteen-year lifespan of the UTEN equipment. If the demolition moves forward during the pilot period, Con Edison states that it would seek Commission approval to connect the newly constructed NYCHA buildings to the Chelsea Pilot.

Following approval to advance the Chelsea Pilot to Stage 2, Con Edison submitted a petition on May 3, 2024, requesting an increase to the Interim Cost Cap prescribed by the Guidance Order. The Commission approved an increase in the Chelsea Pilot Interim Cost Cap from \$6.20 million to \$8.30 million.³⁹

³⁹ Case 22-M-0429, Order Addressing Petitions of Con Edison and National Grid for Relief of Cost Cap Through Stage 2 (issued December 20, 2024).

2. Mount Vernon Pilot

The Mount Vernon Pilot would be a two-pipe ambient loop system designed to deliver efficient, low-carbon heating, cooling, and DHW to a mix of 42 buildings, including 1-4 family homes, places of worship, a medical center, and large affordable multifamily buildings and municipal buildings. One new mixed-use building would also be used to house the energy center. It would source its thermal energy from four bore fields consisting of 127, 850-foot-deep boreholes. The Mount Vernon Pilot would install over 11,000 linear feet of underground piping to deliver 8,987 MBH of peak heating and 7,546 MBH of peak cooling to participating customers. The buildings included in the pilot project would require energy efficiency upgrades and installation of ground source heat pumps to effectively extract and exchange thermal energy. This geothermal design allows for usage of stable ground temperatures year-round to balance thermal loads across the proposed 432,170 feet of conditioned space.

Con Edison states that it has collaborated with the City of Mount Vernon to identify a potential combined hub to serve the City of Mount Vernon's emergency services as well as the UTEN energy center. The energy center would consist of equipment and infrastructure necessary to operate the UTEN, with a local controller to autonomously operate the system, while a Supervisory Control and Data Acquisition (SCADA) system would remotely monitor and analyze the overall performance of the UTEN.

Eight of the 1-4 family home buildings and a church currently receive natural gas from a 500-foot section of cast iron gas main, originally installed in 1890, that is considered leak prone. Con Edison intends to fully electrify these buildings, including heating, cooling, hot water, and

appliances like stoves and dryers, allowing the utility to remove the gas pipe, thereby avoiding costly repairs. Con Edison proposes to recover UTEN costs via a surcharge to electric customers, with amortization periods ranging from five to 15 years depending on the cost category, citing a total Mount Vernon Pilot cost of \$191.73 million, including \$137.30 associated with Stage 3 costs, which are predominately construction costs, and \$47.33 for Stage 4 costs, which are predominately O&M costs.

Con Edison proposes that it would charge residential UTEN customers living in a 1-4-unit dwelling a fixed monthly connection fee of \$10/month while it would charge multi-family buildings and commercial properties connected to the UTEN a fixed monthly connection fee at a rate of \$1.20/ton of heat exchanger capacity per year. Con Edison proposes not to impose a volumetric charge. According to Con Edison, the rate design it would implement for Mount Vernon reflects highly subsidized rates to incentivize customer participation, prevent energy burden increases, and allow for residents' thermal comfort in buildings that were found to be chronically under-heated in winter and under-cooled in summer.

The stated objectives of the Mount Vernon Pilot are to enhance learning related to: (1) retrofitting solutions on various building stock, (2) installing geothermal boreholes, (3) building community trust and participation, (4) partnering with a local municipality, (5) evaluating the effectiveness of non-pipe solutions, (6) implementing a two-pipe geothermal system, and (7) using air source heat pumps (ASHP) during shoulder seasons. Con Edison explains that as a result of modeling building loads across the community, the system is designed to use ASHPs to provide auxiliary heating

and cooling. The use of ASHPs would result in a concomitant reduction in the number of bore fields needed. The ASHPs would be located on the roof of the energy center building, utilized only during the shoulder seasons to recharge the bore fields during low load and temperate weather, and may also be utilized as emergency backup on the coldest and hottest days. Con Edison projects that the Mount Vernon Pilot would eliminate approximately 40,000 MTCO₂e over the 25-year project life.

Following approval to advance the Mount Vernon Pilot to Stage 2, Con Edison submitted a petition on May 3, 2024, requesting an increase to the Interim Cost Cap prescribed by the Guidance Order. The Commission approved an increase in the Mount Vernon Pilot Interim Cost Cap from \$5.10 million to \$7.10 million.⁴⁰

3. Rockefeller Center Pilot

Con Edison's proposed Rockefeller Center Pilot project would convert steam heating to UTEN-connected heat pumps utilizing a two-pipe ultra-low temperature hot water system designed to deliver efficient, low-carbon heating to three commercial buildings from November to April of each year. The UTEN is designed to reduce steam consumption across participating properties by, according to Con Edison, utilizing clean recycled waste heat rejected from the cooling system located at 30 Rockefeller Plaza. The three buildings served by the UTEN, located at 600 5th Avenue, 1230 Avenue of the Americas, and 1221 Avenue of the Americas, comprise approximately 3,591,000 of square footage. The Rockefeller Center Pilot would provide space heating to all three

⁴⁰ Case 22-M-0429, Order Addressing Petitions of Con Edison and National Grid for Relief of Cost Cap Through Stage 2 (issued December 20, 2024).

buildings and DHW to 1221 Avenue of the Americas from November 1 to April 30.⁴¹ According to Con Edison, the commercial customers served by the UTEN would share in the cost of the pilot project with their own capital contributions.

Con Edison proposes to recover the UTEN pilot project costs of \$128.22 million, including \$87.23 in Stage 3 costs, which are predominately construction costs and \$33.61 for Stage 4 costs, which are predominately O&M costs via a surcharge to electric customers, with amortization periods ranging from 5 to 15 years depending on the cost category, with \$5.0 million to be provided by the commercial customers served by the UTEN.

The Rockefeller Center Pilot UTEN would not run year-round because, according to Con Edison, the electric usage for DHW load would serve only a minimal need and would minimize disruption to required maintenance on the cooling equipment. Thermal energy for the UTEN would be sourced from an existing condenser water loop within the Central Chilled Water Plant at 30 Rockefeller Plaza, which currently provides space cooling to 13 commercial buildings in the Rockefeller Center campus. The excess heat captured in the condenser water loop is generated from internal building loads and information technology rooms throughout the campus. During winter, many of these spaces still require cooling due to heat produced by equipment and occupants, and this cooling process generates waste heat that is captured in the condenser water loop. The Central Chilled Water Plant has

⁴¹ The pilot participants would include building owners Tishman Speyer and 1221 Avenue Holdings, Inc., as well as the Metropolitan Transportation Authority which would allow Con Edison to install piping in the Rockefeller Center subway concourse.

the capacity to provide approximately 44,000 MBH of thermal energy to the UTEN and would be repurposing thermal energy that otherwise is rejected into the atmosphere via cooling towers.

According to Con Edison, the Rockefeller Center Pilot would assess the economic viability of UTENs in the commercial sector, which is crucial to the State's climate goals, as 70 percent of New York City's emissions come from the building stock, with large commercial office buildings being a major contributor. Con Edison asserts that the Rockefeller Center Pilot would provide essential experience in developing UTENs in the dense urban landscape of New York City, including the opportunity to establish a marketplace for waste heat and to conceptualize waste heat as a commodity. Con Edison states that this project would allow for a replicable model of collaboration between large building owners to achieve their objectives of energy reduction and decarbonization, with greater efficiency. The proposed pricing and rate structure would have two components: (1) purchasing thermal energy from the thermal energy resource owner to sell at cost to the thermal customers; and (2) charging the thermal customers a network connection charge proportional to their connected heat pump capacity. Con Edison projects that the Rockefeller Center Pilot would eliminate approximately 78,000 MTCO₂e over the 25-year project life.

Following approval to advance the Rockefeller Center Pilot to Stage 2, Con Edison submitted a petition on May 3, 2024, seeking an increase of the Interim Cost Cap prescribed by the Guidance Order. The Commission approved an increase

in the Rockefeller Center Pilot Interim Cost Cap from \$5.80 million to \$7.70 million.⁴²

NFG

NFG's proposed Buffalo Pilot would utilize a four pipe UDS consisting of a two-pipe hot water loop and a two-pipe chilled water loop operated in downtown Buffalo, located within a disadvantaged community, and integrated with the existing Buffalo District Heating System. The Buffalo Pilot is designed to serve heating, cooling, and DHW loads for 12 low-income multifamily buildings and heating load for one municipal building. The residential buildings comprise 87 apartment units and 113,387 square feet of conditioned space. The municipal building adds 218,944 square feet, for a total of 332,331 square feet of conditioned space. NFG would develop the Buffalo Pilot in collaboration with the Buffalo Sewer Authority, as well as Beacon Communities, owner of the Shoreline Apartments complex, and the City of Buffalo, owner of the municipal building, district heating energy system, and parkland allocated for the energy center.

As designed, the Buffalo Pilot would produce heating and cooling at a single energy center, located on City of Buffalo parkland near Buffalo City Hall, and would distribute thermal energy through a UDS system that supplies hot water and chilled water via energy transfer stations in each building. The proposed energy center, including the heat pumps operating within, would require 2.7 megawatts of electric interconnection, for which NMPC design and cost

⁴² Case 22-M-0429, Order Addressing Petitions of Con Edison and National Grid for Relief of Cost Cap Through Stage 2 (issued December 20, 2024).

information remain outstanding.⁴³ The energy center would source its thermal energy from a wastewater influent heat recovery system and a closed-loop vertical borefield. The wastewater system would leverage an existing brick 96-inch combined storm and sanitary sewer and serve as the primary thermal energy resource. Cascade-arranged electric heat pumps at the energy center would utilize the wastewater thermal energy to meet heating needs and produce chilled water for cooling. The borefield would be installed on a neighboring property managed by an affiliate of Beacon Communities, keeping the borefield under common management with Shoreline Apartments. The borefield would serve as a secondary thermal resource to the energy center. According to NFG, it would confirm the final configuration of the borefield following test bore installation and subsequent thermal conductivity testing.

NFG's Stage 2 Filing states that, to effectively operate as part of the Buffalo Pilot, the Shoreline Apartment buildings would require HVAC and DHW system conversions. Conversion from the existing fossil fuel hot water boilers and indirect DHW heating systems to the UTEN would eliminate on-site combustion within residential buildings. The apartment buildings currently have heating-only systems, so cooling provided to the residential properties would be a new benefit to residents. NFG does not anticipate electric panel upgrades would be required for the dwelling units or the municipal building.

Additionally, thermal energy delivered into the existing district hot water loop would displace natural gas consumption used to provide space heating to the municipal

⁴³ NMPC provides electric service in the area of the proposed Buffalo Pilot.

building, with the existing gas boilers kept for backup use only. NFG states that the pilot would demonstrate the practical use of wastewater as a heat source within a district heating and cooling system and would establish infrastructure that could support future expansion. The total estimated cost of the Buffalo Pilot is \$56.64 million.

NFG proposes to recover UTEN costs from its entire customer base via a surcharge, incorporated into its Long Term Plan Statement (LTP Statement) with amortization periods ranging from one to 10 years depending on the cost category, partially offset by a flat monthly thermal energy fee from pilot participants.⁴⁴ NFG projects that the Buffalo Pilot would eliminate 4,019 MTCO₂e over the project period.

Following approval to advance the Buffalo Pilot to Stage 2, NFG submitted a petition on January 22, 2025, supplemented on June 6, 2025, seeking to increase the Interim Cost Cap prescribed by the Guidance Order. The Commission raised the Interim Cost Cap from \$1.80 million to \$3.00 million for the Buffalo Pilot.⁴⁵

KEDNY

KEDNY's Brooklyn Pilot is proposed in partnership with NYCHA, for buildings located at 17, 47, and 77 Vandalia Avenue in Brooklyn, located in a disadvantaged community. The Brooklyn Pilot would include two 10-story apartment buildings, comprising a total of 294 apartment units, and a low-rise community center, all to be connected to the UTEN

⁴⁴ The Commission authorized NFG to establish the LTP Statement its most recent rate order for NFG. Case 23-G-0627, Order Adopting Terms of Joint Proposal and Establishing Gas Rate Plan with Minor Modifications (issued December 19, 2024).

⁴⁵ Case 22-M-0429, Order Addressing Petition of NFG for Relief of Cost Cap Through Stage 2 (issued September 22, 2025).

for heating, cooling and domestic hot water. KEDNY proposes a one-pipe ambient temperature loop to interconnect with nearby commercial buildings to balance the load profile, including a grocery store, retail store, and three restaurants. The Brooklyn Pilot would use a combination of thermal resources, including a geothermal bore field, waste heat recovery from the grocery store refrigeration systems, a sewage heat recovery system, and a cooling tower for seasonal load balancing. The Brooklyn Pilot proposes to include some building upgrades, depending on the building type, including but not limited to, natural gas boilers replaced by water-source variable refrigerant flow (VRF) condensing units in the residential buildings,⁴⁶ gas-fired rooftop units replaced by water-source heat pump rooftop units for the grocery store, and mini split units in the restaurants replaced by ground source VRF heat pumps.

According to KEDNY, the Brooklyn Pilot is expected to deliver significant benefits, including the elimination of on-site GHG emissions for space heating and cooling and DHW for participating buildings, improved comfort and energy access for residents in disadvantaged communities, and valuable insights into the scalability and cost-effectiveness of utility-led thermal energy networks. KEDNY projects that the Brooklyn Pilot would eliminate approximately 40,043 MTCO₂e over the 25-year project life.

KEDNY proposes recovering UTEN costs via a surcharge to gas sales and transportation customers with capital costs recovered through the normal rate recovery process over an

⁴⁶ The dual natural gas fired boilers would be taken out of service; however, NYCHA has requested that the gas fired boilers remain in place for emergency use as a last resort backup option.

assumed ten-year asset life and all other regulatory assets amortized over ten years, partially offset by thermal energy fees from pilot participants, citing a total pilot cost of approximately \$125.49 million, consisting of approximately \$112.60 million of construction costs and approximately \$12.85 million in O&M costs.

To monitor and assess costs, analyze customer usage patterns, and evaluate rate performance, KEDNY proposes to use a "shadow billing" system that would allow for evaluation of the business model of the UTEN pilot, while generating a monthly bill for each customer that would protect customers from exposure to experimental rates. KEDNY would prepare comprehensive reports using shadow billing data to provide transparency on customer classes, usage cost variability, and revenue impacts associated with UTEN pilot project operation.

NMPC

In July 2025, NMPC proposed two separate pilot projects, the Syracuse Pilot and the Troy Pilot.

1. Syracuse Pilot

NMPC's Syracuse Pilot would be in the Inner Harbor area of the City of Syracuse and would utilize the existing Metro Wastewater Treatment Plant outfall to Onondaga Lake (wastewater effluent) as a thermal resource. If approved, the Syracuse Pilot would serve up to 14 newly constructed buildings consisting of multifamily housing, office space, retail space, restaurants, and an aquarium. According to NMPC, the capacity of the wastewater effluent has the potential to expand by approximately 3.5 times compared to the capacity required to serve the Syracuse Pilot. NMPC avers that its Syracuse Pilot would be distinguished by its use of a four-pipe hot and chilled water system connecting

the aquarium to its existing system, with the primary system operating as an ambient temperature heating loop. The aquarium would receive direct supply heating hot water and chilled water from a utility-owned modular heat recovery chiller. According to NMPC, this unique setup would necessitate a different billing structure for the aquarium as compared to other customers connected to the ambient loop, enabling a comparative analysis of system performance and billing structure. Given NMPC's estimate that the connection to the Metro Wastewater Treatment Plant could support 3.5 times the capacity currently envisioned for the Syracuse Pilot, NMPC designed the pilot's infrastructure to enable usage of this excess capacity for potential future expansion. Project costs are projected to be \$143.65 million, including \$126.40 million for construction costs and \$17.24 million for O&M costs over the five-year pilot period.

The Syracuse Pilot would be located in a disadvantaged community and would redevelop blighted property, setting a precedent for how sustainable energy solutions could drive urban renewal, according to NMPC. Also, the development of this UTEN, and UTENS in general, could allow expensive upgrades to electrical infrastructure to be avoided, NMPC opines. Finally, by using wastewater effluent, NMPC expects the Syracuse Pilot to demonstrate a sustainable alternative thermal resource that could be replicated in other major cities with wastewater treatment plants. The Syracuse Pilot could, NMPC states, address the inefficiency of wasted heat through innovative use of existing wastewater resources, as well as provide an opportunity to pioneer a business model allowing access to thermal energy resources owned by third parties.

NMPC proposes using a shadow billing mechanism for the Syracuse Pilot to enable cost comparisons with traditional systems without imposing actual billing changes on customers. Under NMPC's proposal, it would recover the costs of the Syracuse Pilot through a surcharge to both gas and electric customers. NMPC proposes to amortize the costs over 10 years, partially offset by a fixed monthly thermal energy fee from all pilot participants except the aquarium. NMPC proposes to charge the aquarium a volumetric fee for its use of the Syracuse Pilot, which could be evaluated to determine an equitable billing strategy. NMPC projects that the Syracuse Pilot would eliminate approximately 18,946 MTCO_{2e} over the 25-year project life.

Following approval to advance the Syracuse Pilot to Stage 2, NMPC submitted a petition on May 22, 2024, seeking to increase the Interim Cost Cap prescribed by the Guidance Order. The Commission denied the Interim Cost Cap increase and retained the Cost Cap at \$6.70 million for the Syracuse Pilot.⁴⁷

2. Troy Pilot

NMPC's proposed Troy Pilot would establish a UTEN in the Central Troy Historic District. This pilot is intended to demonstrate the feasibility, benefits, and replicability of utility-owned thermal energy networks in urban environments, with a particular focus on aged building stock and a congested underground utility system. The Troy Pilot, according to NMPC, is designed to provide lessons as to the applicability of UTENS as part of an electrification strategy for historic buildings.

⁴⁷ Case 22-M-0429, Order Addressing Petitions of Con Edison and National Grid for Relief of Cost Cap Through Stage 2 (issued December 20, 2024).

The Troy Pilot would include underground distribution piping designed to minimize disruptions to existing infrastructure and the surrounding community and would also implement modern heat pump technology and a centralized energy center, thus establishing design and operational precedent for UTENS which could be replicated in other historic cities. The Troy Pilot would utilize one geothermal borefield installed on land owned by the City of Troy as its primary thermal energy resource. The UDS that would deliver the borefield's thermal energy is designed as a one-pipe ambient loop that serves a mix of residential, office, and commercial buildings. In total, the Troy Pilot would include six buildings, serving up to 101 end-use customers and 264,000 square feet of space. Highlighting the historic and diverse uses of these buildings, the proposed UTEN would connect multiuse residential and commercial buildings containing apartments, offices, restaurants, a historic music hall, and an arts center. NMPC projects that the Troy Pilot would eliminate approximately 23,019 MTCO_{2e} over the 25-year project life. Additionally, NMPC states that the Troy Pilot would provide revenue for the City of Troy through its leasing of the land used for UTEN infrastructure.

Following approval to advance the Troy Pilot to Stage 2, NMPC submitted a petition on May 22, 2024, seeking to increase the Interim Cost Cap prescribed by the Guidance Order. The Commission raised the Interim Cost Cap from \$1.20 million to \$2.10 million for the Troy Pilot.⁴⁸ NMPC estimates total costs of \$77.90 million for construction costs, and

⁴⁸ Case 22-M-0429, Order Addressing Petitions of Con Edison and National Grid for Relief of Cost Cap Through Stage 2 (issued December 20, 2024).

\$13.01 million for O&M costs. NMPC proposes to recover the total project costs of \$90.93 million amortized over ten years via a surcharge to gas and electric customers, partially offset by thermal energy fees from pilot participants.

NYSEG

NYSEG's proposed Ithaca Pilot would utilize thermal energy from an aquifer beneath the City of Ithaca to heat and cool and provide DHW for up to 36 buildings, including 27 residences, two apartment buildings, and a church. Collectively, the project would provide utility services to buildings comprising approximately 124,480 square feet and containing about 40 living units.

NYSEG asserts that the Ithaca Pilot is unique amongst the pilot projects proposed under the Act, to date, for its use of an open-loop groundwater system as a thermal source. NYSEG explains that, if approved, the Ithaca Pilot would exchange thermal energy with the aquifer to heat and cool the connected buildings, offering unique insights into the technical feasibility of such a design. According to NYSEG, the technical advantages of an open-loop groundwater design include providing a high thermal exchange capacity and reducing dependence on thermal load balancing, yet it would require fewer production wells than standard vertical ground source geothermal based UTEN systems of similar size.

NYSEG projects the costs would be \$52.48 million in total, including \$31.97 million for construction costs and \$10.33 million for O&M costs over the pilot period.⁴⁹ NYSEG

⁴⁹ NYSEG's Ithaca Pilot budget includes a \$6.70 million cost estimate to decommission the UTEN that is a post-pilot expense.

proposes recovering pilot project costs via a surcharge to electric and gas customers, with amortization periods ranging from five to 25 years depending on the cost category.

The participants in the Ithaca Pilot would retain natural gas service for appliances and use natural gas generators for backup and reliability purposes. NYSEG proposes implementing building envelope upgrades as part of the Ithaca Pilot, utilizing existing weatherization programs operated by NYSEG but eliminating the customer cost-share component, and thus these upgrades would be 100 percent funded by NYSEG's ratepayers, either through the utility's weatherization program or as part of pilot costs. NYSEG proposes to collect the costs of the Ithaca Pilot from both electric and gas ratepayers to minimize bill impacts. NYSEG states that it would not charge participating customers an additional thermal fee, as it currently lacks the historical data and cost allocation framework necessary to support the development of a rate structure that is both equitable and aligned with cost-of-service principles. NYSEG estimates that the Ithaca Pilot would eliminate approximately 19,925 MTCO₂e over the 25-year project life.

Following approval to advance the Ithaca Pilot to Stage 2, NYSEG submitted a petition on July 29, 2024, seeking to increase the Interim Cost Cap prescribed by the Guidance Order. The Commission approved an Interim Cost Cap increase from \$1.50 million to \$3.48 million for the Ithaca Pilot.⁵⁰

O&R

O&R's Haverstraw Pilot would consist of two independent UTEN systems or loops, an East Loop and a West

⁵⁰ Case 22-M-0429, Order Addressing Petition of NYSEG for Relief of Cost Cap Through Stage 2 (issued February 14, 2025).

Loop, both to be installed and operated in the downtown area of the Village of Haverstraw, within a disadvantaged community. While the design would allow for future expansion to interconnect the distinct loops into a larger integrated UTEN, each loop functions as a discrete UTEN pilot project. The East Loop Pilot and West Loop Pilot projects have distinct characteristics and therefore have been analyzed as independent projects. Accordingly, the information and discussion herein refer to the East Loop Pilot or West Loop Pilot discreetly, unless noted otherwise.

The East Loop Pilot is designed to serve up to 54 buildings, while the West Loop Pilot is designed to serve up to 29 buildings. Together, the East and West Loop Pilots would serve up to 83 buildings, over 720 residential units, and comprise approximately 1,043,749 square feet of conditioned space.

The East Loop Pilot system design would present a unique combination of multiple thermal resources including a surface water heat exchange with the Hudson River, wastewater heat extraction, as well as five geothermal borefields to provide heating and cooling via two energy center pumping stations. The West Loop Pilot would provide heating and cooling via an energy center pumping station, two borefields, and a wastewater heat exchange system to a mix of residential buildings, commercial properties, and community assets like government facilities and an elementary school. O&R decided that a one-pipe ambient loop design would be favorable for the West and East Loop Pilots because, according to O&R, it allows for the most cost-effective system for the required heating and cooling demands by leveraging the diversity of thermal loads and sources. O&R developed the East Loop Pilot project in collaboration with an anchor tenant known as the

Chair Factory Development, a proposed apartment complex that would integrate the UTEN during construction and allow for UTEN wastewater heat extraction.

The total estimated cost of the Haverstraw Pilot for both the East and West Loops is approximately \$112 million, however, given the synergies of the system and cost savings from constructing both simultaneously, the estimated cost of the Haverstraw Pilot if each loop were to be approved separately would be slightly greater. O&R estimates that the total cost of the East Loop Pilot would be approximately \$68.0 million and for the West Loop Pilot it would be approximately \$50.1 million, if constructed separately. Approval of both the East Loop Pilot and West Loop Pilot would result in some shared development costs, because according to O&R, there are some costs, including pilot development expenses and common project activities, that would not be duplicated if both loops were approved. Thus, approval of both pilots would result in a total cost that is lower than the sum of the individual pilot project estimates. Including shared development costs, the East Loop Pilot budget estimates would be \$57.05 million for Stage 3 and \$7.06 million for Stage 4. Likewise, including shared development costs, the West Loop Pilot budget is estimated to be \$31.85 million for Stage 3, which would be predominately construction costs, and \$7.78 million for Stage 4, which would be predominately O&M costs.

O&R seeks to recover costs via a surcharge to electric customers with amortization periods ranging from five to 15 years depending on the cost category. Pilot participants would pay a fixed monthly UTEN access fee based on their installed heat exchanger capacity, in addition to their new electric and gas usage costs. This fee would be

\$5/ton per month for all participants plus applicable taxes. O&R estimates that the Haverstraw Pilot, inclusive of the East Loop and West Loop would eliminate approximately 13,000 MTCO₂e over the 25-year project life.

NOTICE OF PROPOSED RULE MAKING

Pursuant to the State Administrative Procedure Act (SAPA) §202(1), Notices of Proposed Rulemaking with respect to the Customer Protection Plan provided by NYSEG and the Pilot Project Engineering Design and Customer Protection Plans provided by Con Edison, KEDNY, NMPC, and O&R on July 9 and July 25, 2025, were published in the State Register on August 27, 2025 [SAPA Nos. 22-M-0429SP17, 22-M-0429SP18, 22-M-0429SP19, 22-M-0429SP20, 22-M-0429SP21, 22-M-0429SP22, 22-M-0429SP23]. Additionally, the Secretary issued a notice of these filings on September 5, 2025. The time for submission of comments pursuant to these notices expired on October 27, 2025.

A Notice of Proposed Rulemaking regarding the filings made by NYSEG on November 7, 2025, was published in the State Register on December 10, 2025 [SAPA No. 22-M-0429SP24]. Additionally, the Secretary issued a notice of these filings on December 24, 2025. The time for submission of comments expired on March 9, 2026.

Regarding the filings made by NMPC on December 18, 2025, a Notice of Proposed Rulemaking was published in the State Register on January 7, 2026 [SAPA No. 22-M-0429SP25]. Additionally, the Secretary issued a notice of these filings on December 24, 2025. The time for submission of comments pursuant to these notices expired on March 9, 2026.

With respect to Central Hudson's March 6, 2026, filings, a Notice of Proposed Rulemaking was published in the

State Register on April 29, 2026 [SAPA No. 22-M-0429SP26]. Additionally, the Secretary issued a notice of these filings on April 29, 2026. The time for submission of comments pursuant to this notice expired on June 29, 2026.

Finally, a Notice of Proposed Rulemaking regarding the filings made by NFG on February 23, 2026, and May 18, 2026, was published in the State Register on June 24, 2026 [SAPA No. 22-M-0429SP27]. Additionally, the Secretary issued a notice of these filings on June 30, 2026. On August 25, 2026, the Secretary extended the date for submitting comments in response to the June 30, 2026 notice, until September 10, 2026.

In total, approximately 650 comments were received, including roughly 600 that utilized a letter writing campaign and approximately 50 sets of comments representing 80 individuals or organizations. Appendix B to this Order provides a summary of comments received. The comments are addressed in relevant sections below.⁵¹

LEGAL AUTHORITY

PSL §66-t(1) requires the Commission to initiate a proceeding to support the development of thermal energy networks for the purpose of meeting the GHG emissions and climate justice goals of the CLCPA. Questions that the Commission shall consider include the appropriate ownership, market, and rate structures for thermal energy networks and whether the provision of thermal energy services by gas and/or electric utilities is in the public interest.

⁵¹ Several commenters filed comments after the relevant deadlines. To ensure a complete record, the Commission considered comments received through September 21, 2026.

PSL §66-t(2) requires "each of the seven largest gas, electric, or combination gas and electric corporations" to submit at least one and as many as five proposed thermal energy projects to the Commission for approval. The pilot projects are intended to be "diverse and designed to inform the commission's decisions in the proceeding on the various ownership, market, and rate structures for thermal energy networks." PSL §66-t(2) requires that the Commission "determine whether it is in the public interest to approve or modify such pilot thermal energy network projects"

DISCUSSION

Decarbonizing New York's building stock will undoubtedly require creative and novel solutions. These solutions are not achievable solely through the deployment of advanced technologies but will depend on how we deploy such technology to support the massive transition that will be required of the energy systems that New Yorkers have relied upon for safe, reliable, and adequate service for generations. This metamorphosis will not happen quickly, nor will it be without near-term trade-offs to create longer-term benefits. When the New York State legislature passed the Act, it was with the intent to promote the successful planning and delivery of TENS while securing labor protections and workforce opportunities as the State continues its progression toward a clean energy future. Accordingly, the Act thrust the concept of thermal energy networks into the public discourse, and as a result, various stakeholders, through this proceeding and other venues, have begun to explore the opportunity that TENS may present to not only help support the State's ambitious climate goals, but also, as elaborated in the various public comments received,

to contribute in meaningful ways to related specific interests, such as enabling a just transition for the Utilities' current labor workforce, affordable and equitable access to electrification, and more.

The Commission's responsibilities under the Act focus on two primary functions: (1) determining whether proposed utility pilot projects are in the public interest, and (2) promulgating rules and regulations to support TENs. In this Order, the Commission addresses the determination of the utility pilot projects proposed to date. While the Commission began to lay the regulatory groundwork for the provision of thermal energy and the establishment of a market for TENs in its Initial Rules Order,⁵² the Act envisioned that the pilot projects would inform the development of a more comprehensive regulatory framework. To advance TENs more broadly in New York State, and to ensure that the future development of a regulatory framework is informed by the pilot projects, the Commission carefully reviewed the feedback submitted by stakeholders. The following section provides a description of substantive comments and recommendations intended for broader consideration. Comments regarding a particular pilot are addressed in the Pilot Specific Determinations section of this Order.

The New York State Energy research and Development Authority (NYSERDA) supports the development of TENs and recognizes that TENs present an opportunity to enhance efficiency and reduce infrastructure investments compared to standalone electrification. While the initial set of pilot projects face technical and economic challenges, NYSERDA advises the Commission to evaluate the pilots based on the

⁵² Case 22-M-0429, Order Adopting Initial Utility Thermal Energy Network Rules (issued July 18, 2024) (Initial Rules Order).

broader, actionable insights they provide as well as whether they test distinctive technical and/or market configurations and have the highest potential to cost-effectively identify a replicable and scalable path forward.

NYSERDA recommends prioritizing diverse thermal energy network resources and network designs that maximize ratepayer value. Incorporating natural gas into the pilot project design for limited, centralized peak heating, notes NYSERDA, could reduce geothermal borefield costs while supplying the majority of the annual heating needs from non-fossil based thermal resources. Additionally, NYSERDA states, this hybrid approach would enable the retirement of individual building-level gas connections, aligning with the Act's goal of eliminating on-site emissions, provided the cost savings are justified and there is a plan for future fossil fuel phase-out. Furthermore, NYSERDA advises that pilot project construction be initiated only after a minimum customer base has agreed to participate in the pilot project, favoring projects with long-term commitments to avoid decommissioning costs.

Regarding customer protections, NYSERDA recommends tailoring protections by customer class. NYSERDA also flags a customer acquisition risk, given that the pilot cost analyses for the Mount Vernon and Haverstraw West Loop projects assume full enrollment despite much lower contractual minimum thresholds. If actual enrollment only achieves the minimum threshold provided, the cost-per-customer would become more expensive.

For future pilot projects, NYSERDA calls for more robust, time-intensive planning frameworks to identify the most cost-effective sites. NYSERDA also recommends prioritizing pilot projects with thermal storage to assess

whether this type of project design would improve grid reliability and reduce the need for future energy infrastructure investments as compared to all-electric options. NYSERDA identifies the potential to expand thermal energy network pilots to include municipalities, private developers, and non-investor-owned utilities. Further, NYSERDA recommends aligning future TENS with long-term gas planning to strategically advance the energy transition.

In view of the ambitious timelines set forth within the Act and resultant stakeholder expectation for an expedited review and approval process, a number of commenters urge the Commission to approve all of the pilot projects pending before it, including BDC, AGREE, Climate Jobs New York, New York League of Conservation Voters, New York State Laborer's Organizing Fund, International Association of Heat & Frost Insulators & Allied Workers, New York State AFL-CIO and New York State Building & Construction Trades Council, Steamfitters Local 638, numerous state legislators, local officials, and members of the public.

Generally, those who express the opinion that all pilot projects should advance base their support on furthering scalable and accessible building electrification; reducing forecasted demand on the electric grid and reducing gas demand; and ensuring highly trained union workers continue to play a leading role in building and maintaining New York's energy infrastructure through expanded well-paying middle-class union careers.

HEET highlights several general points for the Commission's consideration of the three Con Edison pilot projects, KEDNY's Brooklyn Pilot, NMPC's Syracuse Pilot, and O&R's Haverstraw Pilot, and states its confidence that these pilots would "work" in the sense of delivering reliable,

local, decarbonized heating and cooling. However, HEET notes it lacks adequate data or capacity to justify or assess the validity of costs for New York ratepayers. HEET recommends that the noted pilots be eligible to move forward conditionally on submission of additional and standardized data alongside a subsequent opportunity for technical review to support “an ongoing process of learning and cost optimization.”

Additional stakeholders’ support for specific pilots, such as the New York State Pipe Trades Labor-Management Partnership who support the three Con Edison pilot projects and the O&R Haverstraw Pilot project as they have committed to using project labor agreements, which effectively ensures compliance with the Act’s labor standards. Assemblymember De Los Santos supports the approval of the three Con Edison pilots and the KEDNY Brooklyn Pilot, stating that they advance the mission of the Act by strengthening our infrastructure and ensuring all communities benefit from the clean energy transition. Assemblymember De Los Santos further states that the pilots advance the goals of the CLCPA and Local Law 97 while promoting environmental justice and workforce development.⁵³

Assemblymembers Hunter and Magnarelli support the Syracuse Pilot, stating that this project is a significant opportunity to promote clean energy and economic development in the City of Syracuse, and would show how neighborhood-scale thermal energy networks could provide clean, affordable, and reliable heating and cooling on a large scale. Assemblymember Carroll supports the Haverstraw Pilot stating that advancing the

⁵³ Local Law 97 requires certain large buildings located in the City of New York to adhere to GHG emissions caps. See NYC Administrative Code §§28-320.1 et seq. and 28-321.1 et seq.

project to Stage 3 is in the best interest of their constituents in Haverstraw, as well as the broader public interest.

Separately, several letters signed by multiple state Senators and Assemblymembers urge the Commission to take immediate action to advance all pending UTEN pilot projects to construction and establish a clear, predictable regulatory framework moving forward.

The Commission acknowledges the potential of TENS to advance building decarbonization across the state and sustain quality employment for the existing utility workforce. Nevertheless, approving ratepayer-funded capital for complex utility infrastructure and, essentially, creating a new utility service, is a profound responsibility. The Commission's primary mandate demands a thorough review to ensure the proposed investments are just and reasonable.

One step overlooked by the Act's ambitious timeline for developing pilots and resultant stakeholder expectations is the significant amount of time needed to educate potential pilot project participants and other stakeholders, including property owners, local governments, building management companies, and other decision makers on the multiple facets of the pilot projects. Pilot project participants require detailed explanations of the basics of thermal energy networks, including technical features and anticipated benefits of connecting to the proposed UTEN, and customer protections, among other topics. Often multiple meetings are needed to ensure full participant and stakeholder understanding.

The Commission must weigh the projected benefits from these pilot projects against the impact on individual customers participating in the pilots, and on all ratepayers responsible for covering pilot costs. Additionally, the

Commission must guard against enabling projects with risk profiles that indicate a high probability of future stranded assets, or ongoing and potentially indefinite subsidization.

Approach to Analysis

One of the primary intents of the Act is to facilitate a more affordable and equitable form of building electrification.⁵⁴ As such, the Guidance Order recognizes the importance of comparing the costs to electrify using a UTEN versus other forms of building electrification, including the use of individual ASHPs and ground source heat pumps (GSHPs). At the same time, the Commission acknowledges in the Guidance Order that costs associated with the pilot projects may be greater than those of mature UTENs deployed on a larger scale as the costs of a UTEN may decrease as additional customers join the system. To assess the potential for affordable and equitable electrification across the pilot projects, the Guidance Order required a comparative economic life cycle cost comparison be performed for each pilot project comparing the UTEN to individual ASHP and GSHP electrification as well as the continuation of pre-pilot utility service, known as the business-as-usual (BAU) scenario.⁵⁵

The Utilities' proposed pilot projects have the potential to test diverse UTEN attributes which could provide lessons and experience applicable to future UTEN development. Accordingly, a consistent and comprehensive approach was used to analyze all pilot projects to inform the Commission's review and, as presented within this Order, to provide support for the

⁵⁴ PSL §66-t(2).

⁵⁵ A technical consultant was retained to support the review and assessment of the pilot projects and to assist Staff in fulfilling their responsibility for implementing the Act.

Commission's determination of whether the various pilots are in the public interest. To provide transparency into the factors involved in this in-depth assessment and better inform the public and interested stakeholders about the analysis underpinning the Commission's decision, the process is described in detail below. It includes a description of Staff's quantitative analysis, based primarily on the life cycle cost analysis (LCCA)⁵⁶ conducted using information provided by the Utilities. It should be noted that certain types of costs are excluded from the LCCAs, such as costs that are unrelated to the actual design, construction, and operation of the UTEN, to best focus the analysis on the economics of the technologies themselves and provide the most comparable analysis between electrification options.⁵⁷ Additionally, certain pilot-imposed

⁵⁶ While the LCCAs are intended to provide a fair comparison among electrification options, it is possible that different methodologies, assumptions, and level of detail in the analyses may have been used to estimate capital and operating costs associated with ASHPs and GSHPs and could affect the LCCA comparisons. Furthermore, it is likely that several UTEN cost categories contain higher estimates for a pilot project than they might for future UTENs at a larger scale in a mature market. Despite these factors, the LCCAs provide necessary and valuable indications of the differences between electrification options.

⁵⁷ Specifically, other costs excluded from the LCCAs include the return on investment associated with plant-in-service, depreciation expense, cost of removal, the amortization of costs related to customer equipment upgrades, and the impact of the gross-up of the revenue requirement for certain items such as revenue taxes, late payment charges, and uncollectible expenses. These costs are excluded because comparable financing costs that would likely be incurred for implementation of alternative forms of electrification are not included. We note that NMPC indicates that its LCCAs include a return on investment associated with plant-in-service. However, based on Staff's analysis we conclude that such a return on investment is, in fact, not included in its LCCAs, despite NMPC's assertion.

costs, including project expenses resulting from requirements unique to pilot projects that would not otherwise apply to a non-pilot project, such as performance reporting, SCADA, and other data management systems, are excluded from the LCCAs.

Further, and as previously discussed, the total pilot project budgets indicated in the Stage 2 Filings include only the estimated costs associated with Stages 1 through 5. While the Stage 2 Filings also identify the estimated post-pilot costs, they are not included in the total pilot budgets for which the Utilities are seeking authorization for cost recovery and are excluded from the LCCAs.

Further, the identification and description of Staff's assessment of each pilot project's qualitative attributes is also provided and is included in the analysis. Assessing the unique qualitative characteristics of each pilot project is essential to ensure a holistic view of each pilot project in the Commission's determination of public interest.

1. Sources of Information Supporting the Analysis

The Stage 2 Filings include documents with various forms of descriptive, technical and financial information and associated data used to inform the Commission's review, including the main filing document and supporting appendices and filings such as the LCCA Workpapers, cost detail, construction and design detail, customer load profiles, and modeling results as well as the revenue requirement forecast models.

The main documents provided by the Utilities are generally accessible to the reader and provide considerable qualitative information, although technical and financial information is provided by the Utilities in differing structures and presentations. While the Utilities provided numerous

appendices containing the most granular information, they again vary across the Utilities in content and presentation and many, including the LCCAs for some pilot projects, are heavily redacted. Several stakeholders, including NYSERDA, BDC, AGREE, New York Geothermal Energy Organization (NY GEO), and HEET, specifically note the level of redaction in the filings, stating that, in some ways, the redactions hinder their ability to conduct in-depth reviews. While the Stage 2 Filing appendices redact key project information, including cost detail, construction and design detail, and customer load profiles and modeling, the Utilities, except for Central Hudson for the Poughkeepsie Pilot, KEDNY for the Brooklyn Pilot and NMPC for the Syracuse Pilot, provide more granular and transparent LCCA

Workpapers in supplemental filings.⁵⁸ While appreciating stakeholders' concerns with the level of redaction, the Commission notes that although all instances of redaction limit the detail and specificity of the available information, summations for all values are publicly accessible in the Stage 2 Filings.

Further, the Commission takes this opportunity to articulate that the Freedom of Information Law (FOIL)⁵⁹ and the Commission's Rules of Procedure, 16 NYCRR §6-1.3, afford

⁵⁸ Public filings by Con Edison, NFG, NYSEG, and O&R include unredacted versions of their LCCA Workpapers in Excel format. See Chelsea UTEN CECONY Stage 2 Filing (filed July 9, 2025), APPENDIX #37 - Life Cycle Cost Analysis Chelsea Part_1, and Part_2 (filed July 25, 2025); Rock Center UTEN CECONY Stage 2 Filing (filed July 10, 2025), APPENDIX #38 - Life Cycle Cost Analysis Rock Center Part_1, and Part 2 (filed July 25, 2025); MV UTEN CECONY Stage 2 Filing (filed July 10, 2025), APPENDIX #111 - Life Cycle Cost Analysis Mount Vernon_Part 1, and Part 2 (filed July 25, 2025); ORU Village of Haverstraw UTEN Pilot Stage 2 Filing (filed July 9, 2025), Appendix Q - LCCA Reporting Workbook - East Loop - Updated, and Appendix Q - LCCA Reporting Workbook - West Loop - Updated (filed December 5, 2025); and 2025-07-09 NYSEG Ithaca UTEN Pilot Stage 2 Filing - PUBLIC (22-M-0429) (filed July 9, 2025), 2026-01-19 NYSEG Ithaca UTEN Revised LCCA Model REDACTED (22-M-0429) (filed January 19, 2026). Public filings by NMPC and KEDNY include an unredacted LCCA Workpaper for the Troy Pilot, and description level redactions for cost information for the Syracuse Pilot and Brooklyn Pilot. See KEDNY UTEN Pilot Project Stage 2 Filing (filed July 9, 2025), KEDNY Brooklyn UTEN Appendix L LCCA (filed November 25, 2025); Syracuse UTEN Pilot Stage 2 Filing - Final (filed July 9, 2025), NMPC Syracuse UTEN Appendix O LCCA (filed November 25, 2025); and Troy UTEN Pilot Stage 2 Filing and Appendices (filed July 10, 2025), Troy Appendices A, D - H, J- N (Public) (filed December 18, 2025). NFG provides a partially redacted LCCA. See NFGDC UTEN Stage 2 Supplemental Filing (filed May 18, 2026), NFGDC App. H -Cost Estimate and LCCA - Partially Redacted (filed August 18, 2026).

⁵⁹ Public Officers Law (POL) §§84-90.

the Utilities an opportunity to request that records or portions thereof they submit be treated as confidential by the Department. Accordingly, the Department provides guidelines on the reasons that a utility may request the Department except certain information from disclosure, including the presence of trade secrets, confidential commercial information, and critical infrastructure information.⁶⁰

Relatedly, during pilot project development, to the extent the Utilities have requested, or may in the future request, that the Department maintain records or portions thereof confidential, such requests are publicly available for review. The Commission notes that, on the Department's initiative or upon the request of any person, the confidential status of a filing by the Utilities is subject to review under FOIL.⁶¹

Throughout the Stage 2 Filing review process, Staff engaged in routine information exchanges and requested supplemental information from Utilities and their contractors. This iterative process is designed to identify, verify, and correct any observed or perceived information discrepancies between each utility's various Stage 2 Filing documents and to ensure that the data presented within the

⁶⁰ Department of Public Service, Confidential Document Submission Guidelines, available at <https://dps.ny.gov/confidential-document-submission-guidelines>.

⁶¹ POL §89(5)(b); 16 NYCRR §6-1.3(f).

LCCAs accurately reflects the pilot project, both as designed and budgeted.⁶²

2. Life Cycle Cost Analysis

The LCCA information provided in each of the Utilities' Final UTEN Pilot Project Proposals, filed between November and December 2023, was determined by Staff to be compliant with the provisions of the Guidance Order. Because the Utilities took various approaches to the LCCA, Staff indicated in the Compliance Letters advancing the projects to Stage 2 that a more uniform approach is necessary and indicated Staff would work with the Utilities to develop a consistent approach that would provide Staff, stakeholders, and the Commission with more comparable information.

Accordingly, Staff, in coordination with the Utilities, developed guidance on the LCCA methodology, assumptions, sources for information to be used, where applicable, as well as the format in which the analysis should be reported.⁶³ The scope of the LCCA is limited to the end uses being served by the UTEN for each project, which may include space heating, space cooling, refrigeration, and/or DHW, consistent with the definition of "thermal energy" in PSL §2(28).

The LCCA requires the Utilities to provide a standardized set of key project characteristics associated with the buildings, customers, UDS, and thermal resources as

⁶² Con Edison, NYSEG, and O&R provided additional information through filings in Case 22-M-0429 on July 15, 2026. KEDNY and NMPC provided additional information through filings in Case 22-M-0429 on July 22, 2026. O&R provided additional information through filings in Case 22-M-0429 on July 30, 2026. Central Hudson and NFG provided additional information through filings in Case 22-M-0429 on October 6, 2026.

⁶³ Case 22-M-0429, LCCA Reporting Guidance - 2025-07-09 (filed July 15, 2026).

well as the total pilot cost, to inform an analysis of the technical viability and economic evaluation, or techno-economic analysis, of the pilots. Similarly, while the Utilities used their own calculation tool, Staff provided several standardized or 'prescriptive' input variables to facilitate a comparative approach to the findings. The prescriptive inputs include the use of a 25-year project period,⁶⁴ end of life values for all major assets, utility-specific electric and natural gas rate information⁶⁵ and discount and inflation rates.⁶⁶ Staff also provided the sources, methods, and assumptions to be used to calculate the GHG emission rates for each fuel, including grid electricity, for each year of the project period in each electrification scenario.

Further, to ensure consistency across the Utilities, Staff provided the Utilities with a standardized template in the form of an Excel workbook, referred to as the LCCA Workbook, that requires separate identification of utility-

⁶⁴ The 25-year project period is the prescribed time period for evaluation of life cycle costs and comparison to the electrification scenarios and BAU in the LCCA. This is separate and distinct from the five-year pilot phase of the projects.

⁶⁵ The Utilities were instructed to report rates for each service class represented in the pilot and to utilize rates applicable on January 1st of each year in lieu of calculating the average applicable rates in instances where rate terms do not coincide with the calendar years, among other guidance on assumptions.

⁶⁶ The LCCA Workbook prescribes a 2.20 percent Annual Inflation Rate and direction on calculating the nominal discount rate and real discount rate.

side and customer-side⁶⁷ initial capital costs⁶⁸ and operating costs associated with the pilot project.⁶⁹ As noted by some commenters, a uniform approach to the categorization of costs is necessary. The implementation of the standardized template establishes a clear expectation for the provision of comparable information and establishes a baseline that can be built upon and refined further. Additionally, the LCCA Workbook includes the calculation to determine the net present value (NPV)⁷⁰ of capital and operating costs.

While specific capital and operational cost line-item descriptions were provided to the Utilities in the LCCA Workbook template, the Utilities did not uniformly adopt all the template line items. To identify and more consistently assess the pilot project cost drivers, Staff further categorized the utility-side and customer-side capital costs

⁶⁷ As defined in the Performance Metrics Report, customer-side equipment represents costs of the equipment at the customer site, regardless of who owns or paid for the equipment; utility-side costs represent all non-customer-side costs.

⁶⁸ Initial capital costs include all the capital costs required to construct the pilot project but exclude any capital expenses that may be required within the 25-year project period to replace components that may have a useful life less than the entire project period.

⁶⁹ Case 22-M-0429, LCCA Reporting Workbook - 2025-07-09 (filed July 15, 2026).

⁷⁰ Using an NPV in an LCCA is the standardized method of converting all future costs and benefits (i.e., initial construction, ongoing maintenance, and residual value) into their equivalent value in today's dollars. It accounts for inflation and the time value of money. When comparing multiple design alternatives, the alternative with the lowest total NPV is generally the most economically efficient choice.

and operating costs. This categorization of capital and operational costs is provided in Appendix C to this Order.⁷¹

Of note, while the Utilities were to document and include the initial setup capital and operating costs of the pilot projects in their budgets, the specific pilot-imposed expenses which, as previously mentioned, are excluded from the LCCAs, are also excluded from the calculations of key performance indicators (KPIs).⁷² This is because these are one-time pilot project-specific costs, attributable to the requirements imposed on the projects as pilots. They largely consist of enhanced SCADA, data management, and performance reporting that exceeds what would normally apply to a standard, non-pilot project.

3. Quantitative Analysis and Key Performance Indicators

The LCCA Workbook requires the Utilities to report energy use, monthly peak demand, annual loads served, and the NPV of GHG emissions for the UTEN, including for both the utility-side and customer-side equipment, the individual ASHP and GSHP⁷³ electrification scenarios, and the BAU scenario. The LCCA Workbook calculates seasonal efficiencies and other KPIs from the inputs provided by the Utilities to inform the techno-economic analysis associated with each electrification

⁷¹ The cost categories are aligned with the terms used to identify the financial and other performance metric categories of information used in the Performance Metrics Report.

⁷² In the LCCA, a KPI is a quantifiable metric used to measure, evaluate, and compare the total economic and operational efficiency of a project or asset over its entire lifespan.

⁷³ All pilot projects include an individual ASHP scenario but only some include an individual GSHP scenario. When a utility did not include an individual GSHP scenario for a pilot project, the utility explained that it deemed the use of individual GSHPs as infeasible for the buildings being served.

scenario and the BAU scenario. The project characteristics, associated costs, and other inputs are used to calculate the following KPIs, or quantitative pilot project attributes for each scenario in the LCCA Workbook: Initial Capital Cost, Annual Operating Expense, NPV of costs, levelized cost of energy, levelized cost of carbon abatement, initial capital cost per gross square foot, annual operating expense per gross square foot, and GHG savings over the BAU Case. The KPIs are based on the reported and calculated values provided in the LCCA. The information provided in the LCCA Workbooks also informs the assessments of energy system impact, ratepayer impact, and potential scalability of the pilot projects.

Regarding energy system impact, the Utilities provide the projected winter peak electrical demand associated with the end uses being served by the UTEN for the UTEN, ASHP, GSHP (as available), and BAU scenarios. The difference between UTEN projected winter peak demand and that of the alternative scenarios provides an important comparison of the relative electrical grid impact. Similarly, in reviewing the pilots, whether a proposal incorporates active demand response capabilities, including through thermal energy storage and/or the use of non-electric heating options to enable peak shifting and demand reduction is considered. The evaluation includes the proposed UTEN energy system impact as a function of the reduction in winter peak demand compared to individual ASHPs, and also the extent of dispatchable demand response expressed as hours of peak heating load that could be shifted or avoided by the demand response functionality. As such, each pilot's capacity to reduce demand relative to ASHPs and incorporate demand flexibility for further reduction is considered.

Ratepayer impact attributable to pilot project costs, assuming all costs are borne by ratepayers, is also assessed and includes calculations to identify: (1) the estimated percent of bill increase for all ratepayers to fund the pilot project through the pilot period, (2) the estimated percent of bill increase to subsidize annual UTEN operating expenses after the pilot period, and (3) the estimated annual UTEN operating expense subsidy in dollars required after the pilot period normalized by the annual energy provided by the system (\$/MMBtu).⁷⁴

Additionally, the ability for each pilot to scale to serve more customers based on designed excess capacity in the UDS and thermal resource is assessed using the LCCA Workbook inputs provided by the Utilities. This scalability factor reflects both the excess peak heating capacity of the UDS and the thermal resources as a percentage of the capacity required for the customers included in the pilot project. While the additional UDS and thermal resource capacities are funded within the project scope, additional costs may be required to add more customers or connect future buildings.

4. Qualitative Pilot Project Attributes

The quantitative KPIs are assessed in combination with other qualitative pilot project attributes to inform the overall evaluation of the pilot projects. The qualitative characteristics of each pilot project are important to appropriately value the unique and nuanced characteristics of individual pilot projects that are relevant to the overall success of a pilot project, as well as to inform a determination of whether a particular project is in the public interest. Qualitative characteristics express project

⁷⁴ MMBtu stands for one million British thermal units.

value in ways that traditional quantitative metrics fail to capture, thus each pilot project's qualitative aspects are reviewed and evaluated to further inform the overall assessment. The primary qualitative characteristics used in the pilot assessment include learning value, repeatability or transferability, the customer profile served by the pilot, as well as other implementation considerations that may present challenges to the pilot project's success and proposed steps to mitigate them.

Assessing a pilot project's potential learning value recognizes the benefit of diversity or uniqueness in key pilot project site and design attributes, including the type of TEN configuration proposed, such as one- or two-pipe ambient loop or fully centralized, and thermal resource type. Given the nascent nature of the utility operation of a TEN and the high pilot project costs and potential ratepayer impacts, a pilot's potential learning value must be assessed in combination with the other attributes. In the context of the UTEN pilot projects, repeatability - the ability to deliver similar benefits when deployed in a similar location and under similar conditions - is considered. Repeatability assesses the extent to which the system design can be effectively replicated in other locations. Transferability accounts for the ease with which project features, for example a pilot's design aspects or business model approach, could be adapted to other locations leading to future widespread adoption.

As discussed, a key purpose of the Act is advancing affordable and equitable electrification and ensuring the benefits of a UTEN installation are prioritized in disadvantaged communities. As articulated in the Guidance Order, the Commission emphasizes the importance of ensuring

that the community and residents where the pilot project is located are expected to benefit from the pilot project, not simply that the pilot is in a disadvantaged community. As such, the character and nature of the UTEN participants, or customer profile (i.e., the end-use customers connecting and being served by the UTEN) is material to the assessment of the UTEN pilot projects.

As with any pilot, the purpose is to evaluate novel approaches and provide early-stage support to encourage broader adoption. This in turn inherently increases susceptibility to a range of risks and unpredictable outcomes that must be assessed to protect consumers, including to both the ratepayers funding the pilot project and the customers connected to the UTEN. In the context of the pilot projects, implementation considerations include varying degrees of technical complexity, construction and operational challenges such as permitting, and community and prospective customer support. The identification of pilot-specific implementation considerations is important as such considerations can materially diminish pilot learning value or impact the overall viability of the pilot and its potential for success.

General Themes

While the Commission assesses each of the pilot projects discreetly, the assessment reveals several general themes that emerge across many, or all, of the pilot project Stage 2 Filings. To further advance the overall knowledge gained, we take this opportunity to discuss these general themes across the various pilot projects.

1. Energy and Greenhouse Gas Emission Reductions

Driven by the State's ambitious climate objectives, New York is aggressively pursuing the decarbonization of its

building sector, the State's largest source of GHG emissions.⁷⁵ While individual forms of electrification, including the use of ASHPs or GSHPs, advance decarbonization building-by-building, TENS could have the potential to enable more efficient, larger-scale building decarbonization. TENS can provide the advantages of decarbonizing buildings in groups rather than individually and can provide access to thermal resources that may not be feasible for individual buildings.⁷⁶ Additionally, TENS may better accommodate demand response features,⁷⁷ which can support the electric grid. The Act requires the pilot projects to eliminate on-site GHG emissions related to building space heating and cooling, water heating, and refrigeration.⁷⁸ As expected, all the UTEN pilot projects are projected to save energy and reduce GHG emissions compared to the BAU case. As illustrated in Tables 1 and 2 below, compared to the BAU case, the UTEN pilots estimate energy savings, in terms of total input of all electricity, natural gas, or other fuel sources used for heating, cooling and water heating, to be between 44 percent to 69 percent (3,141 to 35,268 MMBtu per year) and GHG

⁷⁵ See New York State Department of Environmental Conservation 2025 Statewide Greenhouse Gas Emissions Report, available at <https://dec.ny.gov/environmental-protection/climate-change/greenhouse-gas-emissions-report#Process>. The building sector accounts for 28 percent of statewide GHG emissions.

⁷⁶ Examples of large-scale thermal resources include wastewater, surface water, and industrial waste heat. Networked geothermal may be a source for customers lacking adequate borehole space individually.

⁷⁷ Examples of demand response features include thermal energy storage and non-electric heating equipment for peaking and demand response.

⁷⁸ PSL §2(28).

emission savings between 41 percent to 96 percent (3,985 to 44,589 MTCO₂e, discounted over a 25-year period).

Although the modelling shows that all the proposed UTEN pilots would produce meaningful GHG reductions relative to the BAU case, the pilots would not uniformly produce energy and GHG savings relative to individual building electrification via ASHPs or GSHPs. The Chelsea, Mount Vernon, and Rockefeller Center Pilots estimate higher energy use under the UTEN scenario than for individual ASHPs. The Poughkeepsie, Brooklyn, Syracuse, Troy, Buffalo, Ithaca, East Loop, and West Loop Pilots project energy savings when compared to ASHPs. The filings for the Poughkeepsie, Mount Vernon, Brooklyn, Ithaca, East Loop, and West Loop Pilots evaluate electrification via individual building GSHPs and estimate that the UTEN scenario would use more energy than individual GSHPs. The filings for the Chelsea, Rockefeller Center, Brooklyn, Syracuse, Troy, and Buffalo Pilots do not evaluate electrification via individual GSHPs, primarily citing limitations at the pilot location, rendering the use case impractical.

Table 1

Utility	Pilot Project	Annual Energy Savings Compared to BAU (%) ¹			Annual Energy Savings Compared to BAU (MMBtu/y) ¹		
		UTEN	Individual ASHP	Individual GSHP	UTEN	Individual ASHP	Individual GSHP
Central Hudson	Poughkeepsie	69%	59%	70%	6,043	5,216	6,142
Con Edison	Chelsea	49%	74%	N/A	6,038	9,154	N/A
Con Edison	Mount Vernon	61%	71%	70%	12,685	14,727	14,467
Con Edison	Rockefeller Center	62%	67%	N/A	35,268	38,457	N/A
NFG	Buffalo	65%	50%	N/A	8,805	6,737	N/A
KEDNY	Brooklyn	63%	51%	N/A	13,986	11,356	N/A
NMPC	Syracuse ²	44%	0%	N/A	14,890	N/A	N/A
NMPC	Troy	51%	30%	N/A	5,919	3,491	N/A
NYSEG	Ithaca	63%	60%	74%	3,141	3,008	3,721
O&R	Haverstraw East Loop	48%	33%	53%	9,455	6,453	10,435
O&R	Haverstraw West Loop	69%	55%	72%	6,979	5,595	7,258
¹ The values are taken from the most recent LCCA Workbooks provided by the Utilities. Energy and costs relate to heating, water heating and cooling in the buildings. GHG savings are discounted over a 25-year period. ² The BAU case for the Syracuse Pilot uses ASHPs, given the new construction nature of the pilot and the assumed effective date of the All-Electric Buildings Act at the time of filing.							

Table 2

Utility	Pilot Project	GHG Savings Compared to BAU (%) ¹			GHG Savings Compared to BAU (MTCO ₂ e) ¹		
		UTEN	Individual ASHP	Individual GSHP	UTEN	Individual ASHP	Individual GSHP
Central Hudson	Poughkeepsie	66%	59%	70%	13,281	11,924	14,074
Con Edison	Chelsea	82%	91%	N/A	8,885	9,825	N/A
Con Edison	Mount Vernon	91%	93%	91%	23,028	23,587	23,028
Con Edison	Rockefeller Center	87%	89%	N/A	44,589	45,551	N/A
NFG	Buffalo	88%	83%	NA	11,826	726	N/A
KEDNY	Brooklyn	48%	42%	N/A	14,196	12,394	N/A
NMPC	Syracuse ²	41%	0%	N/A	8,255	N/A	N/A
NMPC	Troy	64%	59%	N/A	8,345	7,739	N/A
NYSEG	Ithaca	86%	85%	90%	3,985	3,939	4,184
O&R	Haverstraw East Loop	92%	90%	93%	10,219	9,958	10,304
O&R	Haverstraw West Loop	96%	96%	97%	8,547	8,489	8,634
¹ The values are taken from the most recent LCCA Workbooks provided by the Utilities. Energy and costs relate to heating, water heating and cooling in the buildings. GHG savings are discounted over a 25-year period. ² The BAU case for the Syracuse Pilot uses ASHPs, given the new construction nature of the pilot and the assumed effective date of the All-Electric Buildings Act at the time of filing.							

A key metric for measuring cost effectiveness of the proposed electrification solutions is the levelized cost of energy (LCOE).⁷⁹ Based on the information provided by the Utilities in the Stage 2 Filings, and as illustrated in Table 3, the LCOE for the pilot projects ranges from \$292 to

⁷⁹ The LCOE calculates the net present value cost per unit of combined heating and cooling energy output (\$/MMBtu) for a given solution over the 25-year project period.

\$1,912 per MMBtu. In comparison, the LCOE for the ASHP scenario ranges from \$57 to \$263 per MMBtu and for the GSHP scenario, where provided, the range is from \$144 to \$336 per MMBtu. This indicates that the UTEN serves the proposed heating and cooling end uses at a cost premium as compared to alternative forms of building electrification. The BAU LCOE is included for reference.

Table 3

Utility	Pilot Project	Levelized Cost of Energy (\$/MMBtu) ^{1,2}			
		UTEN	BAU	Individual ASHP	Individual GSHP
Central Hudson	Poughkeepsie	\$1,912	\$149	\$196	\$275
Con Edison	Chelsea	\$1,248	\$72	\$260	N/A
Con Edison	Mount Vernon	\$1,130	\$50	\$126	\$326
Con Edison	Rockefeller Center	\$292	\$74	\$156	N/A
NFG	Buffalo	\$500	\$83	\$197	N/A
KEDNY	Brooklyn	\$508	\$17	\$263	N/A
NMPC	Syracuse ³	\$320	\$158	\$158	N/A
NMPC	Troy	\$414	\$46	\$57	N/A
NYSEG	Ithaca	\$569	\$134	\$250	\$336
O&R	Haverstraw East Loop	\$475	\$107	\$123	\$144
O&R	Haverstraw West Loop	\$624	\$82	\$178	\$210

¹ The values are taken from the most recent LCCA Workbooks provided by the Utilities. Energy and costs relate to heating, water heating and cooling in the buildings. Energy provided for the end uses is discounted over the 25-year period.

² This calculation represents the NPV of all project costs, with credit given for residual value, divided by the net present value of energy provided over a 25-year period.

³ The BAU case for the Syracuse Pilot uses ASHPs, given the new construction nature of the pilot and the assumed effective date of the All-Electric Buildings Act at the time of filing.

Aligning with the purpose of the CLCPA, the Act requires that a pilot project's ability to drive GHG emission reductions be evaluated when determining if the project is in the public interest. Accordingly, the Commission views the levelized cost of carbon abatement as a key metric for measuring the effectiveness of the proposed electrification solutions.⁸⁰ Based on the information provided in the Stage 2 Filings and as illustrated in Table 4, the levelized cost of carbon abatement for the various UTEN pilots ranges from \$3,383 to \$15,804 per MTCO₂e. In comparison, the levelized cost of carbon abatement for the ASHP scenario ranges from \$200 to \$4,284 per MTCO₂e and for the GSHP scenario, where provided, the range is from \$711 to \$3,005 per MTCO₂e. This indicates that, while the UTEN pilots would provide GHG emissions reductions, it would be at a cost premium compared to alternative forms of building electrification.

⁸⁰ Levelized cost of carbon abatement calculates net present value cost per unit of carbon emissions avoided (\$/MTCO₂e) for a given solution as compared to the business-as-usual use case over the 25-year project period.

Table 4

Utility	Pilot Project	Levelized Cost of Carbon Abatement Compared to BAU (\$/MTCO ₂ e) ^{1,2}		
		UTEN	Individual ASHP	Individual GSHP
Central Hudson	Poughkeepsie	\$10,602	\$314	\$711
Con Edison	Chelsea	\$15,804	\$2,285	N/A
Con Edison	Mount Vernon	\$11,757	\$807	\$3,005
Con Edison	Rockefeller Center	\$3,383	\$1,244	N/A
NFG	Buffalo	\$4,342	\$1,263	N/A
KEDNY	Brooklyn	\$7,480	\$4,284	N/A
NMPC	Syracuse ³	\$11,048	N/A	N/A
NMPC	Troy	\$6,283	\$200	N/A
NYSEG	Ithaca	\$5,599	\$1,518	\$2,484
O&R	Haverstraw East Loop	\$8,254	\$380	\$816
O&R	Haverstraw West Loop	\$6,480	\$1,156	\$1,512
1 The values are taken from the most recent LCCA Workbooks provided by the Utilities. Energy and costs relate to heating, water heating and cooling in the buildings. GHG savings are discounted over a 25-year period. 2 This calculation represents the NPV of all project costs, with credit given for residual value, divided by the net present value of emission reductions over a 25-year period. 3 The BAU case for the Syracuse Pilot uses ASHPs, given the new construction nature of the pilot and the assumed effective date of the All-Electric Buildings Act at the time of filing.				

2. Relative Cost Compared to Alternative Forms of Building Electrification

Costs associated with UTENs can be viewed in terms of both projected capital expenditures (capital costs or CapEx) and projected operational expenditures (operational costs or OpEx).

a. CapEx

The extensive, capital-intensive infrastructure and “first-of-its-kind” nature of the utility pilot projects contribute directly to the significant capital costs detailed in the utility filings. Underground infrastructure, in-building retrofits, and acquisition of some thermal resources, including geothermal boreholes, are relatively cost-intensive to install compared to individual, decentralized electrification options, especially for ASHPs. As designed, the UTEN CapEx estimates range from \$27 to \$595 per gross square foot, as detailed in Table 5.

Table 5

Utility	Pilot Project	UTEN Pilot Project CapEx (\$ Million) ¹	UTEN Pilot Project CapEx per Floor Area of Buildings Served (\$/GSF) ¹
Central Hudson	Poughkeepsie ²	\$86.5	\$595
Con Edison	Chelsea	\$58.6	\$224
Con Edison	Mount Vernon	\$139.6	\$323
Con Edison	Rockefeller Center	\$98.1	\$27
NFG	Buffalo	\$56.5	\$170
KEDNY	Brooklyn	\$112.5	\$356
NMPC	Syracuse ³	\$168.9	\$94
NMPC	Troy	\$77.9	\$295
NYSEG	Ithaca	\$33.6	\$270
O&R	Haverstraw East Loop	\$65.4	\$105
O&R	Haverstraw West Loop	\$42.1	\$221

¹ The values are from the most recent LCCA Workbooks provided by the Utilities. The CapEx estimates provided by the Utilities in their LCCA Workbooks are generally consistent with the Stage 3 cost estimates provided in their Stage 2 Filings, however, there are some differences due to the exclusion of certain pilot-imposed costs and revised cost estimates provided by some of the Utilities in their LCCA Workbooks subsequent to their Stage 2 Filing.

² The Poughkeepsie Pilot Stage 3 cost estimate includes costs associated with retrofitting two of the apartment buildings with ASHPs to provide a comparison to identical buildings served by the UTEN. The LCCA considers only the buildings connecting to the UTEN and excludes CapEx for the ASHP buildings.

³ The Syracuse Pilot Stage 3 cost estimate includes service to the new construction buildings anticipated to connect within the pilot period. The Syracuse Pilot LCCAs consider additional costs not included in the Stage 3 cost estimate, representing further build out and the added CapEx required to serve additional buildings after the pilot period. These costs are included in the LCCAs because the planned connection of these buildings in the future is factored into the design and initial CapEx costs to ensure the infrastructure can accommodate the future capacity.

As illustrated in Table 6, the UTEN Pilot Project CapEx estimates range from 1.4 to 10.0 times as high as individual ASHPs and 1.7 to 4.3 times as high as individual GSHPs.

Table 6

Utility	Pilot Project	Ratio of UTEN CapEx to Individual HP CapEx ¹	
		UTEN CapEx/ASHP CapEx	UTEN CapEx/GSHP CapEx
Central Hudson	Poughkeepsie	6.5	4.3
Con Edison	Chelsea	2.4	N/A
Con Edison	Mount Vernon	8.3	2.2
Con Edison	Rockefeller Center	1.4	N/A
NFG	Buffalo	2.9	N/A
KEDNY	Brooklyn	2.0	N/A
NMPC	Syracuse	3.2	N/A
NMPC	Troy	10.0	N/A
NYSEG	Ithaca	2.8	1.7
O&R	Haverstraw East Loop	5.6	2.9
O&R	Haverstraw West Loop	3.8	2.3
¹ The values are taken from the most recent LCCA Workbooks provided by the Utilities.			

For each pilot project, the individual ASHP scenario and the individual GSHP scenario are shown to have lower capital costs than the UTEN. This result could be expected given that all the pilot projects require thermal resources and network infrastructure as well as building level heat pumps. Whereas the individual ASHP scenario does not require any network or thermal resource costs and the individual GSHP scenario does not require any network costs. However, the difference in CapEx between the UTEN and the ASHP or GSHP

scenario varies across the pilots, with some UTEN scenarios' CapEx being significantly higher.

On average, customer building-related costs, including the energy transfer station, in-building heat pumps, building retrofits and other in-building upgrades, account for approximately one-third of the proposed capital costs. Another approximate third of the average UTEN capital costs are related to the central component equipment, including the energy center, UDS, and thermal resources. The final approximate third of the average capital costs are broadly categorized as "other" and may include design, administrative, backup system, and miscellaneous unidentified costs depending on the pilot project.

The design choices made by the Utilities for all of the projects, except the Buffalo Pilot, require heat pumps to serve the customer loads; typically installation of one or more heat pump at each customer's premise.⁸¹ This design choice inherently limits the ability for the UTEN pilots to reduce capital costs as compared to individual forms of electrification because, as stated above, the pilot is covering the full costs of the customer-side equipment as well as the other costs associated with the UDS and related infrastructure. A design that utilizes centralized heat pumps, like the Buffalo Pilot, creates an opportunity to benefit from economies of scale in heat pump capacity, especially at larger scale applications.

⁸¹ Other types of configurations may require only the installation of a heat exchanger, not a heat pump, at the customer's premises, which is generally a lower cost piece of equipment.

b. OpEx

The annual cost estimates for operating the pilots show a range of normalized costs from \$80 to \$1,120 per MMBtu for all heating and cooling provided by the UTEN, as detailed in Table 7.

Table 7

Utility	Pilot Project	Annual OpEx of UTEN Pilot Project (\$ Million) ¹	Annual OpEx of UTEN Pilot Project per Total Heating and Cooling Energy Provided (\$/MMBtu) ¹
Central Hudson	Poughkeepsie ²	\$5.11	\$540
Con Edison	Chelsea	\$6.18	\$611
Con Edison	Mount Vernon	\$9.66	\$412
Con Edison	Rockefeller Center	\$7.23	\$123
NFG	Buffalo	\$0.94	\$80
KEDNY	Brooklyn	\$4.23	\$251
NMPC	Syracuse	\$7.24	\$159
NMPC	Troy	\$3.30	\$238
NYSEG	Ithaca	\$6.50	\$1,120
O&R	Haverstraw East Loop	\$3.10	\$153
O&R	Haverstraw West Loop	\$1.69	\$188

¹ The values are taken from the most recent LCCA Workbooks provided by the Utilities. The OpEx estimates provided by the Utilities in their LCCA Workbooks are generally consistent with the Stage 4 cost estimates for the first five years of operation provided in their Stage 2 Filings, however, there are some differences due to the exclusion of certain pilot-imposed costs and revised cost estimates provided by some Utilities in their LCCA Workbooks subsequent to their Stage 2 Filings. Also, the LCCAs assume the projects are fully operational at the beginning of the pilot period, while the Stage 4 cost estimate considers the anticipated pace of adding customers to the UTEN within the pilot period.

² The Poughkeepsie Pilot Stage 4 cost estimate includes costs associated with operating two of the apartment buildings with ASHPs to provide a comparison to identical buildings served by the UTEN. The LCCA considers only the buildings connecting to the UTEN and excludes OpEx for the ASHP buildings.

As illustrated in Table 8, OpEx estimates for the UTENs range from 1.3 to 33.7 times as high as individual ASHPs and 4.3 to 47.5 times as high as individual GSHPs.

Table 8

Utility	Pilot Project	Ratio of UTEN OpEx to Individual HP OpEx ¹	
		UTEN OpEx/ASHP OpEx	UTEN OpEx/GSHP OpEx
Central Hudson	Poughkeepsie	18.0	22.7
Con Edison	Chelsea	17.6	N/A
Con Edison	Mount Vernon	13.9	14.1
Con Edison	Rockefeller Center	4.0	N/A
NFG	Buffalo	1.9	N/A
KEDNY	Brooklyn	2.1	N/A
NMPC	Syracuse	1.3	N/A
NMPC	Troy	3.8	N/A
NYSEG	Ithaca	33.7	47.5
O&R	Haverstraw East Loop	3.0	4.3
O&R	Haverstraw West Loop	3.9	7.2
¹ The values are taken from the most recent LCCA Workbooks provided by the Utilities.			

Based on the Utilities' Stage 2 Filings, ongoing operating costs are projected to be higher for all the UTENs compared to individual ASHP or GSHP electrification scenarios. For all the pilots, the individual ASHP case would have lower operating costs than the UTEN, in some cases by a large margin. Only about one-fourth of the operating

costs, on average, would be accounted for by costs related to electricity, thermal supplier fees, and maintenance.

Across all the pilots, UTEN operating costs for both the utility-side and customer-side⁸² equipment components can be split into five broad categories, as illustrated in Table 9.⁸³ The first cost category is energy and maintenance, including the electricity, maintenance and third-party thermal fee costs required to operate all utility-side and customer-side equipment necessary to meet the customers' thermal energy needs, which accounts for 25 percent of the operating cost, on average. The second and third categories are staffing and property tax, which average 22 percent and 27 percent of operating costs, respectively. The fourth category, pilot-imposed costs,⁸⁴ averages approximately 14 percent of operating costs and constitutes the operating costs incurred only due to the nature of the projects as pilots and associated requirements that are not expected to continue during post-pilot operation; these costs are excluded from the LCCA calculations of KPIs and NPV costs.

⁸² As defined in the Performance Metrics Report, customer-side equipment represents costs of the equipment at the customer site, regardless of who owns or paid for the equipment; utility-side costs represent all non-customer-side costs.

⁸³ Appendix C provides additional granularity to the utility reported OpEx line items. The OpEx cost category of Energy and Maintenance includes electricity, O&M, thermal fees and SCADA; Staffing includes administration; Property Tax includes property tax; Pilot-Imposed includes reporting and design; and Contingency and Other include other, sales tax and contingency.

⁸⁴ Pilot-imposed costs are project costs attributed to the requirements imposed on the pilots that are beyond the costs that would otherwise pertain to the project if it were not a pilot project and include costs primarily related to performance reporting, SCADA and other data management systems.

The final category includes contingency, and other costs, which total 12 percent of OpEx, on average.

Table 9

	OpEx Cost Categories as a Percentage of Total Pilot OpEx (%) ¹				
Pilot Project	Energy and Maintenance	Staffing	Property Tax	Pilot-Imposed	Contingency and Other
Poughkeepsie	13%	11%	72%	0%	4%
Chelsea	17%	31%	19%	3%	31%
Mount Vernon	23%	22%	26%	6%	23%
Rockefeller Center	29%	23%	18%	6%	24%
Buffalo	40%	16%	25%	2%	17%
Brooklyn	41%	25%	34%	0%	0%
Syracuse	51%	15%	25%	0%	10%
Troy	20%	26%	38%	0%	15%
Ithaca	7%	73%	1%	20%	0%
Haverstraw East	18%	2%	24%	54%	2%
Haverstraw West	12%	3%	17%	65%	2%
Average	25%	22%	27%	14%	12%
¹ The values are taken from the most recent LCCA Workbooks provided by the Utilities and allocated to the five categories based on descriptions used in their LCCA Workbooks.					

The capital-intensive nature of UTENs has a direct relationship to some of the operating cost categories. For example, ratepayers pay the property taxes levied upon the utility's capital investments that would enable the UTEN. Although the analysis reveals a marginal reduction in energy costs between the UTEN and alternative forms of electrification, the high initial capital costs and associated property taxes exceed that margin and therefore

pose a significant impediment to deploying UTENs to achieve equitable and affordable building electrification.

In addition, the Utilities receive a reasonable opportunity to earn a return on investment associated with capital expenditures that the Utilities place into service. A utility's rate of return is established in the context of a rate proceeding. The rate of return includes a return on equity component, representing the rate paid to shareholders for supplying capital, and a debt component, representing the average borrowing rate associated with the utility's long-term debt. While this aligns with standard rate-making principles, the Act itself, as well as stakeholder feedback, highlights that a key advantage of utility-owned TENs is a utility's ability to finance the TEN over time.

Nevertheless, such financing does not operate as an interest-free loan, meaning these carrying costs will ultimately be recovered from ratepayers. As noted above, costs unrelated to pilot design, construction and operation, including the return on investment, are not included in the LCCAs and thus these types of costs are somewhat understated. Similarly, for the individual electrification scenarios, a customer's financing costs associated with installation of the ASHP or GSHP are not included in the LCCAs and therefore are also understated.

The capital and operating costs for the proposed UTENs identified in the Stage 2 Filings, compared to alternatives, present a significant challenge to creating a UTEN business model that could reasonably be expected to be supported by customers. Even if the projected high capital costs could be mitigated through other funding sources or be reduced through experience, the higher operating expenses are likely to persist across the operational lifespan of the UTEN

pilots. In all cases these costs exceed the BAU case, and therefore, to entice customers to remain on a UTEN it may require further, and potentially indefinite, ratepayer subsidization. Such costs have not been included in the proposed budgets considered herein.

3. Economics of Expansion

The Guidance Order recognized that "costs associated with pilot projects may be greater than those of mature UTENs deployed on a larger scale. As with the utility-scale gas and electric systems, the costs of a UTEN can decrease significantly as additional customers join the system."⁸⁵ Similarly, future cost savings for the construction and operation of UTENs may be possible as utility experience is gained and costs are able to be spread across a larger participating customer base. This sentiment is echoed in a number of stakeholder comments. The Stage 2 Filings identify specific pilot elements and design decisions that aim to simplify the expansion and scaling process of the pilot projects. For example, all the pilots except the Ithaca Pilot incorporate headroom within their UDS capacity which would enable thermal energy transmission at higher rates, including, for example, pipes sized to accommodate additional thermal capacity for additional customers. However, the pilots do not affirmatively establish that any meaningful expansion could occur without material, additional capital expenditures. For example, regarding its Rockefeller Center Pilot, Con Edison states, "the infrastructure being developed is designed to be reusable, supporting future expansion and long-term cost efficiency; however, any increase in

⁸⁵ Guidance Order, p. 39.

participation will require proportional enhancements to system capacity and infrastructure.”⁸⁶

Expansion for all of the pilot projects would require adding customer-side connections, electrical and HVAC modifications as needed, as well as heat pumps and associated supporting equipment. For most of the UTEN pilots, expansion would also necessarily require additional, often costly, thermal resource infrastructure to access new geothermal boreholes, installation of ASHPs as thermal energy resources, or the expansion of existing thermal resources.⁸⁷ Accordingly, scaling of the proposed UTEN pilots would likely increase the total cost to provide service to customers.

As such, expanding these UTEN pilots would not necessarily lower average customer energy costs. Under a utility ownership model, some costs, such as property tax or return on investment, scale directly with asset value. Without strong economies of scale to offset these costs, system expansion would not reduce costs. In terms of the UTEN pilot projects, the capital costs necessary to procure the additional thermal resources required to expand a network would in turn increase these direct costs and are likely to be higher relative to the costs to obtain the presently identified thermal energy resources. Unless the newly added customers provide additional revenue greater than the incremental costs to provide new service, the average cost for energy would increase for existing customers. While some portions of UTEN OpEx, including contingency and external

⁸⁶ Case 22-M-0429, Rock Center UTEN CECONY Stage 2 Filing (filed July 10, 2025), p. 122.

⁸⁷ Some waste heat sources, including wastewater and process waste may scale more economically leading to improved economic viability at large scale deployment.

contractor support, may conceivably be reduced at scale and with experience, other operating cost components such as electricity, thermal resource owner fees, property tax, and utility return on investment, should not be expected to decrease relative to current costs through expansion.

No utility articulates a clear pathway to reduce UTEN OpEx costs to achieve parity with alternative forms of electrification.⁸⁸ The pilot projects have not proposed ways to achieve savings over time, economies of scale, or other means to reduce OpEx costs. Consequently, while in theory costs may decrease as a UTEN expands, the Commission must consider the lack of demonstration of this possibility with the projects before us as we determine whether it is in the public interest to proceed with each of the proposed pilot projects.

4. Financial Implications of Serving Peak Loads

One strategy to achieve a significant portion of the projected GHG emissions savings but at significantly reduced capital and operating costs, which was not pursued by any of the proposed pilots, would be to utilize fossil fuels for limited peak times at a centralized location that is not within a customer building, such as an energy center.⁸⁹ While this would allow minimal use of fossil fuels in the short-term, the Commission finds this approach could: (1) maintain the requirements of the Act to eliminate on-site fossil fuel combustion, depending on the pilot project design

⁸⁸ Even at parity with alternative forms of electrification, the UTEN customers would experience significant operating cost increases above the BAU case absent continued subsidization of UTEN participating customer costs.

⁸⁹ The Buffalo Pilot would be most readily able to apply this strategy, but NFG did not provide an economic comparison for the project.

specifications; (2) potentially significantly lower costs; and (3) serve as a bridge or transition strategy, rather than a long-term commitment to fossil fuels. In its comments, NYSERDA cites the findings of a feasibility study that determined using natural gas to meet peak heating demands reduces geothermal borefield size and costs by 50 percent, while still meeting over 90 percent of the annual heating load using geothermal sources. By concentrating natural gas usage only at centralized energy centers, and only for peaking situations that may burden the thermal capacity of a UTEN pilot, it is feasible to gradually retire local gas infrastructure for certain buildings, while simultaneously electrifying the buildings' heating and other end uses. This peaking strategy could also support the intermittency of renewable energy sources, by offering a reliable thermal source for peak demand periods and emergencies.

Additionally, this strategy could allow for the time required to upgrade and build-out the electric grid and increase renewable generating capacity, reducing near-term grid impacts and constraints. The Commission finds utilizing fossil fuels in a UTEN, in targeted and specific use-cases, does not preclude achieving a fully electrified system in the future, but instead offers a pragmatic step-by-step pathway for reducing emissions while advancing both financial and technical approaches to equitable and affordable building electrification.

5. UTEN as a Grid Resource

New York's electric grid faces growing challenges from aging infrastructure in need of investment and load growth, driven, in part, by new large loads and electrification of heating and transportation. Switching building heating end-uses from fossil fuel to electrified

sources would contribute to increased winter electricity use and demand, causing the State to transition from the current “summer-peaking” grid to a “winter-peaking” grid.

TENs have the potential to help mitigate some of these challenges, but to what extent depends on how they are designed and operated. At a minimum, TENs should be able to electrify building heating needs with electric demand lower than what is required for individual ASHPs. By incorporating additional features like thermal energy storage and non-electric peak heating assets, a TEN could support the electrical grid and reduce operating costs through active demand response.

The ability of the UTEN pilots to reduce peak electric demand as compared to individual ASHP electrification is quantified as kW savings. As illustrated in Table 10, all the pilots, except Con Edison’s Chelsea Pilot, forecast between 17 to 66 percent lower winter peak electricity demand than for the individual ASHP use case. This is an important and valid comparison as the State considers potential grid constraints and costs associated with meeting a future winter peaking system.

Table 10

					Peak Electric Demand Savings (kW) ¹		Peak Electric Demand Savings (%) ¹	
Utility	Pilot Project	Winter Peak Demand (kW)			Winter	Winter	Winter	Winter
		BAU	UTEN	Individual ASHP	UTEN vs BAU	UTEN vs ASHP	UTEN vs BAU	UTEN vs ASHP
Central Hudson	Poughkeepsie	24	366	500	-342	134	-1425%	27%
Con Edison	Chelsea	0	368	300	-368	-68	N/A	-23%
Con Edison	Mount Vernon	142	840	1,258	-698	418	-492%	33%
Con Edison	Rockefeller Center	0	2,491	3,658	-2,491	1,167	N/A	32%
NFG	Buffalo	0	1,217	1,464	-1,215	247	N/A	17%
KEDNY	Brooklyn	701	1,308	3,810	-607	2,502	-87%	66%
NMPC	Syracuse ²	7,082	4,200	7,082	2,882	2,882	41%	41%
NMPC	Troy	754	1,142	1,748	-388	606	-51%	35%
NYSEG	Ithaca	51	273	408	-222	135	-435%	33%
O&R	Haverstraw East Loop	715	814	1,369	-99	555	-14%	41%
O&R	Haverstraw West Loop	322	408	641	-86	233	-27%	36%
¹ The values taken are from the most recent LCCA Workbooks provided by the Utilities. Energy and costs relate to heating, water heating, and cooling in the buildings. GHG savings are discounted over the 25-year period. ² The BAU case for the Syracuse Pilot uses ASHPs given the new construction nature of the pilot and the assumed effective date of the All-Electric Buildings Act at the time of filing. As such, the BAU and ASHP demand savings are the same.								

As discussed previously, most of the pilots except the Buffalo and Rockefeller Center Pilots propose using ambient-temperature networks, and all the pilots except the

Buffalo Pilot would require installing individual heat pumps at the building level to deliver usable heat to the building systems. The building level heat pumps are required because the ambient network delivers energy at temperatures too low for direct heating use by the building systems.

For an ambient loop UTEN, the connected thermal resources would provide source temperatures substantially warmer than the winter design-day⁹⁰ outdoor air temperatures used as the heat source by ASHPs. At low outdoor temperatures, particularly during periods of peak heating demand, ASHP efficiency and available heating capacity decline as the temperature differential between the outdoor air and the temperature required for space and water heating increases. This reduced efficiency contributes to high winter peak electric demand. Ambient loop source temperatures may be 20°F to 40°F warmer than those design-day temperatures, allowing UTEN-connected heat pumps to operate at higher efficiency and capacity and with lower winter peak electric demand than ASHPs under the same conditions. Coincidental cooling loads during winter peak conditions would provide an additional benefit by transferring heat to the ambient loop, reducing the amount of heat that must be supplied by the other thermal resources and potentially increasing source temperatures available to heat pumps, further reducing electric demand. Finally, the thermal mass of the underground network would hold a degree of passive thermal storage. Although this storage is not directly dispatchable, it buffers short-term changes in thermal demand

⁹⁰ Heating design conditions are typically expressed as outdoor air temperatures corresponding to specified annual cumulative frequency of occurrence (typically 99 percent or 99.6 percent) derived from multiyear local weather records.

and source conditions, dampening source-temperature fluctuations experienced by connected heat pumps and thereby helping to reduce peak electric demand.

Although TENs, including ambient loops, use shared thermal energy and non-electric heat, they still need thermal storage or non-electric heating at the building level to completely avoid using heat-pump electricity during electric grid peak events. In contrast, fully centralized TENs that distribute hot water can utilize centralized thermal storage or non-electric heating options to enable load shifting during winter peak events. The ability to actively decouple heat pump operation from those heating loads enables such systems to reduce winter electric peak demand. None of the pilot projects under consideration in this Order include thermal storage or non-electric generating assets designed to provide the functionality to actively reduce or shift peak demand.⁹¹

A TEN that includes these design features not only could serve as a resource to the electric grid infrastructure and enable a higher penetration of intermittent renewable generation sources but could aid in reducing operating expenses when electric prices are high. While all of the pilots except the Chelsea Pilot would result in a reduction in electric demand as compared to ASHPs, no pilot is designed

⁹¹ The NMPC Syracuse Pilot proposes to have thermal energy storage on the source side of the ambient loop to moderate fluctuations in wastewater effluent and add resiliency. The proposed configuration and operational strategy do not, however, serve as a demand response asset for the electrical grid because the building heat pumps still need to operate to meet the loads. The NFG Buffalo Pilot could use an existing Buffalo District Heating System natural gas boiler to accomplish demand response, but the system is designed to retain the boiler connection strictly for emergency backup.

to operate with features that would translate into creating system-wide benefits by providing demand flexibility. The Buffalo Pilot design does include the ability to reduce electric demand by providing heat from the existing heating district fossil fuel boilers, but they are assumed to operate only as backup and not for peak demand reduction.

Finally, when implemented at scale, the use of TENS to electrify building heating needs could potentially reduce costs associated with maintaining the natural gas grid or upgrading the electric grid. Compared to BAU, a TEN may in some cases allow for the complete retirement of natural gas service to the area served or at least minimize service to only a central energy center. When compared to individual building ASHPs, TENS are likely to reduce the extent of needed building electrical upgrades. This is true even for TENS that utilize building-level heat pumps. In some cases, no building-level electrical upgrades may be needed. Thus, incorporating the avoided costs of gas and electric system infrastructure, such as reduced investment in pipelines and electric grid upgrades, could help TENS compete more effectively against BAU and individual building electrification methods. Within the LCCA, the Utilities had the opportunity to incorporate some monetary value associated with the benefits the UTEN may provide to the electric grid or natural gas network. While the Commission acknowledges the challenges to develop such a monetary value, particularly at the pilot stage, we note that none of the Utilities attempted to quantify this value in their Stage 2 Filings. As a result, the Commission finds that, while the value is most likely not zero, the record before us does not provide supporting evidence to factor this potential value into our analysis.

6. Affordable and Equitable Access to Electrification Options

In determining the potential of a UTEN to provide an affordable and equitable alternative to individual electrification, it is important to assess all facets of the various forms of electrification. Such considerations include site suitability, potential building-level retrofits that may be needed, and the practicality of installation, as well as a customer's ability to pay for any necessary equipment installation and associated building retrofits. For example, access to a UTEN may provide electrification opportunities for buildings that cannot readily accommodate ASHPs due to lack of space, noise, access to exterior roofs or walls, among other things. Likewise, a building owner may prefer the performance of a GSHP as an electrification strategy but lack the space necessary for the boreholes. Similarly, while a UTEN could enable a customer to utilize GSHP technology despite site limitations, potentially at a reduced thermal resource cost (e.g., fewer boreholes are required due to load diversity of the buildings in aggregate), the installation of the distribution network would add utility-side costs.

With regard to whether a UTEN provides a more affordable and equitable alternative for customers who cannot afford individual forms of electrification, while the proposed pilots would cover the customer-side equipment installation costs, this would not be a sustainable model beyond the pilot. For a UTEN to truly provide a more equitable form of electrification, it must offer the potential for affordable access to building electrification outside of a highly subsidized pilot. Therefore, based on the record before us, the proposals do not demonstrate UTENS as a more affordable and equitable form of electrification,

as the costs customers would experience are not projected to be lower than other forms of electrification.

7. Customer Protection Plans

The Act requires that: “[t]he pilot project proposals shall include specific customer protection plans [which] shall be made publicly available on the [C]ommission’s website and shall be subject to a public comment period”⁹² A successful pilot project should clearly articulate the benefits of the UTEN to customers and explain customer protections for UTEN pilot project participants. The Guidance Order directed the Utilities to provide a final Customer Protection Plan (CPP) with its Stage 2 Filing, including a description of customer engagement activities (subsequently referred to generically as outreach and education, or O&E, plans) and a customer agreement template that documents customers’ rights and responsibilities associated with a pilot project.⁹³ The Guidance Order further directed the Utilities to include in their CPPs, at a minimum: a detailed description of the project, a recruitment plan, a list of specific outreach materials and the languages the materials would be available in, a schedule of outreach activities; and a method for ensuring customers are aware of, understand, and acknowledge all aspects of the CPP. Further, the Commission requires that the customer agreement template “shall detail the customer’s rights and responsibilities and is essential to

⁹² PSL §66-t(2).

⁹³ Guidance Order, pp. 40-41.

the recruitment of customers and ultimate success of the pilot projects.”⁹⁴

The Utilities developed and submitted their CPPs in conjunction with the preparation of their Stage 2 Filings. The CPP for each of the pilot projects submitted by the Utilities meet the minimum requirements directed by the Commission in the Guidance Order. While all the CPPs submitted with the Stage 2 Filings include an outreach and education plan and customer agreement template, these final Customer Protection Plans largely reflect the best information and understanding of the Utilities as of the design phase of the pilot projects. These customer protection plans will be refined and finalized for the projects that advance to Stage 3. As discussed earlier, there are distinct components that comprise the CPP, which are individually discussed in the body of this Order. The Commission observes that the O&E plan and customer agreement components of the CPP reveal differences in the quality and completeness of information provided, with several of the Utilities’ submissions lacking important details. The Commission’s findings discussed herein pertain to the utility’s proposed O&E plan and customer agreement components of the CPP and as such, note the differences among the CPPs provided by the Utilities in their Stage 2 Filings.

⁹⁴ The Guidance Order explains further that, “[t]he customer agreement template shall include, at a minimum: (1) Home Energy Fair Practices Act protections, including, but not limited to, language regarding service terminations and the complaint process; (2) customers’ participation/withdrawal options; (3) pricing options to minimize the risk of higher energy bills; (4) metering, billing process, fees, and payment options; (5) installation and maintenance responsibilities; customer exit options during the UTEN pilot project operation and at the conclusion of the pilot phase; and (6) customer consent and customer privacy.” Guidance Order, pp.41-42.

a. Outreach & Education Plans

The O&E plans for Con Edison's Mount Vernon Pilot, NFG's Buffalo Pilot, and O&R's Haverstraw Pilot⁹⁵ all detail extensive prospective outreach and education efforts. Central Hudson proposes activities such as letters to the public and interested stakeholders, dedicated websites for interested parties including contact information for its UTEN team, phone calls, virtual and in-person meetings, and presentations with stakeholders. The Mount Vernon O&E plan proposes community outreach events, energy assessments for over 40 buildings of potential UTEN customers, presentations to the Mount Vernon City Council, a customer experience "Journey Map," as well as handouts, door hangers, brochures, letters, energy efficiency kits, and emails sent to customers.

NFG states that it has already commenced a significant amount of outreach and engagement with various communities in the Buffalo area. NFG's proposed O&E plan utilizes a phased approach to inform and engage customers throughout the various stages of the Buffalo Pilot. NFG states that it will provide a dedicated, multilingual project microsite; email and text notifications, if the customers opt-in to receiving these messages; printed materials; community meetings; an online contact form and phone line; digital advertising and social media campaign; radio advertisements; and media briefings.

As part of the Haverstraw Pilot O&E plan, O&R proposes multiple public outreach efforts including a UTEN-dedicated webpage, informational handouts and posters, banners, and online community boards. Specific outreach to

⁹⁵ In its CPP, O&R refers broadly to the Haverstraw Pilot, with limited distinction between the East Loop and West Loop.

eligible customers would include letters and emails, doorhangers, informational kits, and promotional items. NMPC's O&E plan for its Troy Pilot references a project website, project maps, a dedicated hotline, signage near the pilot project residences and businesses, direct mailings, fact sheets, notification letters, and post cards. The O&E plan for the Troy Pilot also provides a series of estimated timelines for the dissemination of various outreach activities, some of which would finish in 2028 and align with post-construction. NYSEG indicates it has initiated community outreach activities for the Ithaca Pilot, both in-person and digitally, throughout the development of the pilot project, with a focus on engaging customers who wish to participate in the pilot as well as other community members. The Ithaca Pilot O&E plan includes dedicated hotlines, press releases, newsletters, community meetings, as well as website updates.

Successful O&E plans include details on how the utilities would address feedback from customer surveys. For example, NFG states it will implement a "Trigger-Based Investigation" to conduct root-cause analyses for customer contacts who are dissatisfied or have an issue with the pilot that has not been addressed. Likewise, O&R proposes conducting surveys to assess a connected customer's satisfaction with the Haverstraw Pilot, as well as performing a root cause analysis to identify a customer's non-interest in participating in the pilot. Additionally, Con Edison's O&E plans for the Mount Vernon and Rockefeller Center Pilots provide information on how Con Edison would address the feedback loop from customer surveys, allowing for the adjustment of messaging and potential improvement to the projects.

In comparison to the strong points of the O&E plans described above, certain aspects of the Utilities' O&E plans could be improved. For example, Central Hudson did not include extensive details on its intended outreach efforts. Regarding KEDNY's Brooklyn Pilot and Con Edison's Chelsea Pilot, their respective O&E plans did not include details on how the utility would resolve customer issues raised through surveys. In its O&E plans for its Troy and Syracuse Pilots NMPC did not offer details on whether NMPC would provide customers who speak a language other than English with information in an alternate language. NMPC's O&E plans for both pilots also lack a process to follow up with customers who provide survey responses indicating dissatisfaction with the UTEN. Additionally, NFG's O&E plan for the Buffalo Pilot lacks a proposed strategy development timeline.

b. Customer Agreement Template

Generally, the customer agreement template provided by each utility establishes the rights and responsibilities of both the utility and pilot project participants, including terms related to service, equipment ownership, billing, and protections, among other things. Based on the review and analysis of the Utilities' proffered customer agreement templates and recognizing that the Utilities will continue to refine and finalize the customer agreements for those pilot projects advancing to Stage 3, the Commission notes the unique attributes of each pilot's approach. Additionally, the Commission addresses the Home Energy Fair Practices Act (HEFPA) protections and customer billing components separately, below.

KEDNY's customer agreement template for the Brooklyn Pilot details pricing information, billing process information, and payment options afforded to customers.

NFG's customer agreement template includes information on the installation and maintenance of the UTEN equipment; site accessibility; customer participation; information sharing and; pricing, payment charges, and fees. Similarly, NFG allows customers to leave the pilot if the UTEN is unable to meet specific standards and if deficiencies cannot be addressed, triggering an offer of alternative options for service or to return a customer to a system comparable to their original heating system. NFG's customer agreement template explains that NFG would evaluate options for the thermal network post-pilot period, which could include NFG or another entity operating the system, or developing alternative ownership arrangements including transfer ownership of the UTEN equipment to the customer. Further, NFG states that should the thermal network not continue to operate, participants would be transferred to a system comparable to their original heating system.

O&R's customer agreement template for the Haverstraw Pilot includes an opt-out policy that allows customers to exit the pilot project during the pilot period. However, customers may only opt out in circumstances where O&R is unable to supply them with adequate heating or cooling.

In lieu of a customer agreement template, Con Edison developed draft term sheets for both the Chelsea Pilot and Rockefeller Center Pilot, which serve to outline key components that would be included within a finalized customer agreement.⁹⁶ The Chelsea Pilot thermal energy resource owner term sheet details information regarding purchasing thermal energy, pricing structure for production costs, measurement and quality control of the metering system, maintenance

⁹⁶ Case 22-M-0429, Chelsea UTEN CECONY Stage 2 Filing (filed July 9, 2025), pp. 106-108.

responsibilities, and safety protocols. Con Edison also includes commercial customer term sheets for both its Chelsea Pilot and Rockefeller Center Pilot that provide detail concerning the eligibility for service, standards of service, pricing and payment information related to billing, the customer's responsibilities, and details on exiting the pilot.

i. Home Energy Fair Practices Act Protections (HEFPA)

The Central Hudson, KEDNY, and NMPC customer agreement templates all include sufficient details regarding the customer protections provided by HEFPA. Central Hudson states that its customer agreement template incorporates all HEFPA requirements, including information on terminations, and how Central Hudson would address customer complaints. The customer agreement template provided by KEDNY for the Brooklyn Pilot includes high-level details on customer and utility rights and responsibilities, as well as HEFPA protections including sufficient detail related to the customer complaint process. NMPC's customer agreement templates for the Syracuse Pilot and Troy Pilot include detailed language on how NMPC would provide pilot project customers with HEFPA protections, address the process for terminating customers from the pilot, and include information on the billing process, payment options, and handling of customer complaints. NYSEG's customer agreement template for the Ithaca Pilot provides information on complaint procedures and includes details regarding HEFPA protections that would be afforded to pilot participants.

The customer agreement templates provided by NFG and O&R did not provide details on final termination notices and procedures or special protections for customers who have medical emergencies or are on life support. Additionally,

neither NFG nor O&R provide information on DPS's customer service hotline in their respective customer templates. NFG only includes a high-level statement that customer protections are outlined in its tariff and contained within HEFPA.

Of note, regarding its Mount Vernon Pilot, Con Edison fails to include in-depth language regarding residential customers' HEFPA protections. However, Con Edison provides information that Part 13 protections would be applicable for non-residential customers for its Chelsea and Rockefeller Center Pilots.

ii. Customer Billing

The Commission notes that the Utilities propose various billing methods for pilot project customers, including the use of flat monthly fees, bill protection mechanisms, and shadow billing. Additionally, many of the Utilities, with the exception of Central Hudson and NYSEG, propose to utilize "shadow billing" throughout the pilot period to analyze the pilot rate and pricing structures against what a true cost-based rate would be and to inform future rate design or thermal energy fees. The Commission analyzes some of the different aspects of the Utilities' customer billing proposals below.

Central Hudson, NFG, KEDNY, NMPC and O&R all propose a fee for customers' use of the UTEN. KEDNY and NMPC would both charge customers a flat thermal energy fee during the term of the pilot. NFG proposes charging customers a flat monthly thermal energy fee, calculated based on the individual customer's three-year historical average gas bill, which NFG would increase annually by an "appropriate," undefined rate of inflation. Central Hudson and O&R propose an access fee calculated using the heating capacity of the

pilot customer's heat pump. Specifically, O&R proposes a fee of \$5 per ton of heating capacity per month, plus taxes. However, O&R does not explain how it would convey this information to customers. The CPPs for the three Con Edison pilots do not specify the participant fee that will be charged, however, Con Edison does explain it will charge participants fees in the rate design sections of each of its Stage 2 Filings. Notably, all Utilities propose bill protection mechanisms for their pilot projects.

Central Hudson, Con Edison, KEDNY, NMPC, NYSEG, and O&R all propose some form of bill guarantee, which would ensure customers do not pay more than they would have without participating in the pilot project. Central Hudson proposes to limit a customer's bills to the UTEN pilot fee, discussed above, and any incremental electric charges to what the customer had paid for using their legacy system.⁹⁷ However, Central Hudson does not explain how it would provide billing information to customers, nor how it would confirm that customers understand the various components of the bill guarantee. For the Mount Vernon Pilot, Con Edison would guarantee residential customers would pay no more than a "protected amount," which would serve as the customer's maximum annual payment during the pilot period. Con Edison would calculate the protected amount for each customer using the lowest annual energy cost from the past three calendar years.⁹⁸ For the Chelsea Pilot, Con Edison proposes a thermal customer rate that would be low enough for the NYCHA Fulton Houses to see estimated net operating cost savings by

⁹⁷ Case 22-M-0429, Central Hudson Stage 2 Filing - Part 2: Final Customer Protection Plan (filed December 15, 2025), pp. 18-19.

⁹⁸ Case 22-M-0429, Mount Vernon UTEN CECONY Stage 2 Filing (filed July 10, 2025), p. 115.

participating in the pilot. KEDNY and NMPC provide that they would calculate the thermal fee, described above, to ensure that a customer's total energy costs during the pilot do not exceed what they would have incurred if they had not participated in the pilot. NYSEG proposes implementing a comprehensive bill protection and reconciliation framework as part of the Ithaca Pilot that would ensure no customer incurs higher energy costs than they would have under conventional electric and natural gas service. O&R proposes a "customer cost guarantee" that would guarantee the participating customers' total annual utility costs using the UTEN would be equal to, or lower than, their annual utility costs using their legacy equipment. However, O&R does not explain how it would confirm customers understand the components of the cost guarantee.

Con Edison proposes utilizing shadow billing for all three of its pilot projects to allow it to evaluate various pilot rates and pricing structures against a true cost-based rate that could inform future rate design or thermal energy fees.⁹⁹ KEDNY and NMPC also propose using shadow billing to monitor and assess customer usage costs, analyze customer usage patterns, and evaluate rate performances and associated revenues without imposing actual bill fluctuations on customers. KEDNY and NMPC would also use shadow billing to inform development of the thermal energy fee structure for the post-pilot period. O&R also plans to conduct shadow billing to assess what a true cost-based rate would be without the cost guarantee to inform post-pilot rate design. NFG states shadow billing would be used to determine what a customer would pay in a potential fully scaled geothermal

⁹⁹ Case 22-M-0429, Mount Vernon UTEN CECONY Stage 2 Filing (filed July 10, 2025), p. 112.

network. NFG states that this would allow for residential and commercial rates to be developed using both fixed and variable rates to recover cost of service while assessing proper allocations of costs to specific customers or groups of customers.

Pilot Specific Determinations

Based on the general assessment described above and guided by the Act's intent that the Utilities bring forward proposals for pilot projects that reduce emissions, lower energy costs, and provide family-sustaining union jobs, this section presents specific comments regarding each pilot, followed by the Commission's determination of whether is in the public interest to proceed with each pilot project at this time.

1. Central Hudson - Poughkeepsie Pilot

BDC & AGREE state that the Poughkeepsie Pilot, given its cost and complexity, should only be authorized to proceed if it offers distinctive learning value that is not already being generated or cannot be generated more cost-effectively by the other utility pilot projects. BDC & AGREE comment that the Customer Protection Plan includes meaningful safeguards, such as a monthly bill guarantee, however, they find that the CPP places significant risk on customers who wish to leave mid-pilot. BDC & AGREE suggest that the Poughkeepsie Pilot's value may lie more in cost-containment lessons than in serving as a template for scaling.

NYSERDA finds that the pilot project design of the Poughkeepsie Pilot, including the use of standalone heat pumps in some buildings is a distinctive feature that enables a real-world comparison of networked and standalone systems. NYSERDA comments that the Poughkeepsie Pilot is estimated to reduce electric demand compared to ASHPs, however that customer-side

retrofit costs account for a large share of the pilot capital cost. NYSERDA also notes that asbestos, lead and polychlorinated biphenyl remediation may be required in several of the buildings and would require temporary resident relocation. NYSERDA further identifies the potential challenges in customer acquisition, noting the loss of an earlier identified anchor customer.

The Commission finds that Central Hudson's Poughkeepsie Pilot is a technically feasible design. It is one of six one-pipe ambient loop configuration projects submitted and one of six designs utilizing closed-loop boreholes as a primary thermal energy resource. It is the only project that would utilize closed-loop boreholes as its exclusive thermal resource. Three borefields would be distributed along the UDS route to maintain acceptable supply temperatures to each customer. The building loads would be heating dominant, and dry coolers are included in the design to inject heat back into the borefields during mild outdoor temperatures.

The project would serve ten commercial buildings, one private multifamily building and six similar low-income multifamily buildings. Two of the low-income multifamily buildings would be retrofitted with new ASHPs instead of connecting to the UTEN. Some of the multifamily buildings would receive envelope upgrades, and some would not. The buildings that are proposed to include envelope upgrades and those that would be retrofitted with new ASHPs, as opposed to connecting to the UTEN, would enable measurable comparisons in implementation and performance for different levels of energy efficiency improvements and electrification options by comparing a UTEN versus ASHPs. This is the only pilot that proposes such an in-field test case to allow for these types of real-world

comparisons, therefore representing a unique learning opportunity.

The economic analysis of the Poughkeepsie Pilot shows high capital and operating expenses, resulting in the highest capital cost per square foot at \$595/SF and the third highest annual operating cost per energy output at \$540/MMBtu. The project levelized cost of carbon abatement is \$10,602/MTCO₂e. Compared to individual ASHP electrification, the UTEN would have 5.5 times higher capital expense, equating to an additional \$73 million and 17 times higher operating expense, costing an additional \$4.8 million per year. Central Hudson also provides a comparison to individual GSHP electrification, which shows that the UTEN capital expenses would be 3.3 times higher, requiring an additional \$66 million expenditure, and operating expenses would be 22 times higher, necessitating an additional \$4.9 million per year.

The cost to operate the UTEN would be very high and is projected to remain high beyond the pilot period, requiring significant subsidization of customers connected to the UTEN after the pilot period, otherwise customers may choose to leave the UTEN system. Based on the information before us, it is estimated that Poughkeepsie Pilot participants would require a projected annual subsidy of \$4.94 million or \$522/MMBtu of combined heating and cooling loads served.

Central Hudson estimates that the Poughkeepsie Pilot would have UTEN winter electric peak demand savings of 27 percent, compared to the use of ASHPs for electrification of the customers' space and domestic water heating needs. Alternatively, compared to using GSHPs, the UTEN winter peak demand would be 3 percent higher. While the UTEN demand savings relative to individual ASHP electrification would benefit the electrical grid, further grid benefits could be realized by

including demand response capabilities, including provisions for active demand response, such as thermal energy storage or non-electric source heat options that would further benefit the electric grid, which the design does not include.

The Poughkeepsie Pilot design includes enough capacity in the borefields and UDS to serve the buildings proposed within the design. While the UDS could support future expansion of the UTEN within the pressure and flow limits of the system, additional thermal resources, for example additional borefields, would be required to accommodate additional loads.

The Poughkeepsie Pilot could allow for the transfer of results and insights for existing buildings located in a similar mixed-use urban environment, served by a one-pipe ambient loop and geothermal borefields. The Poughkeepsie Pilot design includes only one thermal resource. This system could benefit from additional types of thermal resources, particularly given the system design utilizes a one-pipe ambient loop system and could benefit from the use of distributed thermal resources.

A significant consideration for the Poughkeepsie Pilot is the extensive building modifications that would be required for HVAC, electrical, and plumbing systems within the connected buildings. While the design addresses the requirements for connecting to the UTEN, the costs are high. Central Hudson also highlights concerns associated with asbestos and other regulated building materials, as well as the potential for environmental contamination to delay construction and increase cost.

Central Hudson states there has been positive engagement with both the City of Poughkeepsie and the property owner hosting one of the proposed borefields and energy center. The Poughkeepsie Pilot would be contingent on the approval of several State and local permits, including from the New York State Department of Environmental Conservation (NYS DEC), New

York State Historic Preservation Office, and various City of Poughkeepsie entities. Participants in the Poughkeepsie Pilot would include residents of affordable multifamily buildings, whose customer profile aligns with the goal of the Act in providing opportunities for equitable electrification. However, customer acquisition and commitments from an appropriate number and mix of customers would be required to proceed to implementation, considering not just the total load connecting but also the ability to maintain consistent loop supply temperature and keep the borefield thermally balanced.

Central Hudson itself concludes that while the Poughkeepsie Pilot project could yield learnings, the cost to obtain these learnings should be assessed against the possibility that the same types of learnings can be obtained through other pilot projects under consideration in this proceeding. Central Hudson also notes that the estimated cost of the Poughkeepsie Pilot and the relatively few customers who would take service from the UTEN, in combination with the corresponding level of subsidization that all of Central Hudson's customers would be required to make to fund this UTEN, raises an affordability concern should the Poughkeepsie Pilot be authorized to advance to Stage 3. Based on the record before us and the issues outlined herein, we decline to advance the Poughkeepsie Pilot to Stage 3.

2. Con Edison - Chelsea Pilot

The City of New York (City) believes Con Edison's Chelsea Pilot would improve indoor air quality, comfort, and enhance reliability at no upfront cost to NYCHA and its customers. This would provide health and affordability benefits to residents of a disadvantaged community. While the City states the technical design is sound, it notes that there is significant risk associated with the project due to NYCHA's plan

to tear down and rebuild the buildings that would be served by the Chelsea Pilot. Further, the City states that it is doubtful that the UTEN facilities could be cost-effectively removed and reused in the new development. Therefore, the City supports deferral of the pilot approval until the reconstruction of the NYCHA buildings is complete and recommends Con Edison continue developing the project in the meantime.

The owner of the potential thermal resource, 85 Tenth Avenue Associates, LLC, notes that no formal agreement exists with Con Edison. The parties have not agreed on a term sheet or non-binding statement of principles and until such agreement is reached the project cannot move forward. Additionally, 85 Tenth Avenue Associates, LLC states that it has not yet agreed to participate, lacks adequate information from Con Edison, and objects to Con Edison's expectation that it incur costs for technical and financial analyses, regulatory assessment, overheads, review of information and legal and engineering expenses.

BDC & AGREE believe the Chelsea Pilot would inform future TENS across New York City and other constrained urban areas where similar redevelopment pressures and thermal opportunities exist. According to BDC & AGREE, the pilot could act as a strategic down payment on long-term energy and infrastructure modernization.

The International District Energy Association's (IDEA) comments focus primarily on the technical parameters and associated costs of the proposed pilot projects. For the Chelsea Pilot filing, IDEA identifies some discrepancies related to O&M costs, while noting that such costs are very high.

The Commission finds that Con Edison's Chelsea Pilot is a technically feasible design. It is one of three pilot project designs that proposes a two-pipe ambient loop

configuration and is the only project that would use data center waste heat as the thermal resource. The network would provide DHW and heating and cooling to one multifamily public housing building and only DHW to two other similar buildings located in the NYCHA Fulton Houses campus. According to Con Edison, the decision to provide heating and cooling to just one of these buildings is intended to balance cost considerations with potential UTEN findings, as retrofitting more than one building for heating and cooling would result in few additional insights.

An economic analysis of the Chelsea Pilot shows high capital and operating expenses, which would result in the highest levelized cost of carbon abatement of any pilot at \$15,804/MTCO₂e. Compared to individual ASHP electrification, the Chelsea Pilot would have 1.4 times higher capital expenses, equating to an additional \$33.7 million, and 17 times higher operating expenses, costing an additional \$5.83 million per year. According to Con Edison, it did not conduct an LCCA of a GSHP alternative because the project site and surrounding area could not accommodate a sufficient number of boreholes to meet the Chelsea Pilot's anticipated load. The cost to operate the UTEN would be very high and is projected to remain high beyond the pilot period, thus requiring significant subsidization of customers connected to the UTEN after the pilot period, presumably to be covered by all other ratepayers. Otherwise, UTEN pilot participants would be faced with high post-pilot rate increases that would far exceed the cost of alternative means of heating and cooling, presenting energy affordability challenges or resulting in customers leaving the UTEN system. Based on the information provided, we estimate that the Chelsea Pilot UTEN participants would require a projected ongoing annual subsidy of

\$5.67 million or \$561/MMBtu¹⁰⁰ of combined heating and cooling loads served.¹⁰¹

The Chelsea Pilot is the only proposal that predicts a higher winter electric peak demand for the UTEN than for individual electrification using ASHPs. This is significant because it indicates that the pilot could have a negative impact on the electric grid as compared to individual ASHP electrification, which is counter to the reduced winter electric peak that most TENs can provide. The Con Edison electric grid currently peaks in summer but may transition to winter peaking if enough heating loads are electrified. Based on information provided by the utility, the Chelsea Pilot UTEN summer peak would be 63 percent higher than for the individual ASHP option and 219 percent higher for the UTEN than it is for the BAU scenario. Forecasted growth in electric peak demand is of particular concern in the Con Edison service territory where the Commission is actively assessing reliability concerns.¹⁰² The Chelsea Pilot design does not provide for active demand response, such as thermal energy storage or non-electric source heat options, which could benefit the electric grid.

The design includes excess capacity in the UDS and in the thermal resource to allow for the potential expansion of the pilot project to serve additional loads up to 85 percent of the current proposed load. We do recognize that the technical

¹⁰⁰ Calculated as the difference of annual operating costs for the UTEN compared to BAU divided by the total annual heating and cooling loads served in the customer buildings.

¹⁰¹ The annual subsidy estimate provided herein is the mathematical difference between the annual operating expense of the UTEN compared to the BAU scenario as provided in the LCCA Workbooks; the estimate does not include capital expenses.

¹⁰² See generally, Case 25-E-0764, Proceeding on Motion of the Commission to Address New York City Reliability Needs.

findings from the Chelsea Pilot could transfer or be adapted to improve prospects for future UTENs in similar scenarios across the State. Additionally, the Chelsea Pilot could provide insights related to building and operating a TEN in a dense urban environment and developing a business model related to third-party ownership of the thermal resource including the associated pricing and rate structure. The main participants of the Chelsea Pilot would be NYCHA residents, whose customer profile aligns with the goal of the Act in providing opportunities for affordable and equitable electrification.

The Chelsea Pilot, due to its data center thermal resource, may provide unique knowledge related to developing rate models for waste heat to test future potential for thermal energy to become a commodified, low-carbon resource. Similarly, there are significant insights that have already been gained, including solving complex technical design considerations as well as negotiating legal, operational, and infrastructure complexities that may be transferable to future UTEN projects seeking to utilize data center or other commercial or industrial process waste heat.

A significant consideration regarding the Chelsea Pilot, however, is the planned demolition of the three buildings proposed to be served by the UTEN, which could occur prior to the end of the five-year pilot operating period. This puts at risk the ability of the pilot to deliver robust data and experience if its operation is cut short. Moreover, advancing the Chelsea Pilot to Stage 3 would likely result in stranded assets, requiring ratepayers to fund a pilot project that could not operate for the full useful life of the project equipment. Although Con Edison indicates that \$40.4 million out of the \$52.4 million construction cost would be associated with infrastructure that would not be impacted by the rebuild or

could be utilized by the new buildings; \$12.0 million would be stranded due to the demolition. The planned demolition of the buildings relatively soon after installing such equipment would waste the investment in the building systems, especially if the components are not salvaged for other uses or repurposed to serve other buildings after the demolition.

Another notable consideration stems from the absence of a formal agreement between Con Edison and 85 Tenth Avenue Associates, LLC regarding the use of the waste heat. As noted in the comments, the parties have yet to establish even a non-binding statement of principles and there appears to be several outstanding issues, including the funding of 85 Tenth Avenue Associates, LLC's participation in the Chelsea Pilot and how it would be compensated for the waste heat being used as the thermal resource, which could prevent the project from moving forward. The Commission views the reliance on the use of data center waste heat as the sole thermal resource as an important pilot project implementation consideration. If the data center waste heat becomes unavailable due to relocation, closure, or operational changes, the project could face disruptions. In such instances, the Chelsea Pilot proposes using steam to add heat to the loop and connecting to a roll-up rental dry-cooler for cooling until a replacement thermal source could be found and implemented.

Based on the record before us and the issues outlined herein, we decline to advance the Chelsea Pilot to Stage 3. However, given the positive attributes of the proposal and the significant development work that has thus far been completed, Con Edison and NYCHA should consider how they could leverage this work to meet the heating and cooling needs of the planned new construction in this area as an alternative to traditional utility infrastructure. Any such consideration must address the

projected high ongoing operating costs to make this a viable, affordable, and equitable alternative in the future.

3. Con Edison - Mount Vernon Pilot

The City of Mount Vernon supports the pilot project, stating that it would provide an opportunity to decarbonize buildings at a large scale with less energy use, thereby reducing the level of investment in the electric grid. Further, the City of Mount Vernon notes that the pilot would offer numerous learning opportunities.

Pace Energy and Climate Center and Sustainable Westchester support Con Edison's Mount Vernon Pilot; however, they request greater transparency in the decision making that is guiding key cost drivers and suggest exploring alternatives. Pace Energy Climate Center and Sustainable Westchester suggest that the collaborative partnership between Con Edison and the City of Mount Vernon should be considered as a strong model for multi-stakeholder projects. They also support engaging a tax consultant to take advantage of all available tax credits, which may hinge upon how heat pumps are integrated within the UTEN for eligibility. Pace Energy Climate Center and Sustainable Westchester suggest that different rate structures would be appropriate for residential and large commercial customers and as such, recommend that comparative rate studies be incorporated into the pilot rate design to provide the Commission with actionable data to guide post-pilot rate design and ensure continuity of protections, once subsidies are phased out.

BDC & AGREE appreciate the coordination demonstrated by Con Edison and the City of Mount Vernon, its residents and building owners. They state that the Mount Vernon pilot would enable neighborhood-scale decarbonization and support the focus on equitable access to clean heating and cooling. BDC & AGREE further note the opportunity the pilot presents for empirical

learning on two-pipe hydraulics, performance, and customer integration.

IDEA comments that the construction and O&M costs for the Mount Vernon pilot appear to be very high. UpgradeNY coalition calls attention to the Mount Vernon pilot as it would enable the retirement of a 500-foot section of aging leak prone pipe and avoiding replacement costs.

The Commission finds that Con Edison's Mount Vernon Pilot is a technically feasible design. It is one of three proposals offering a two-pipe ambient loop configuration and one of six designs utilizing closed-loop boreholes as the primary thermal energy resource. Also, it is one of two designs utilizing ASHPs as a secondary thermal resource that would serve the utility distribution system to provide supplementary capacity and recharge borefields. According to Con Edison, by operating the ASHPs in milder outside air temperatures, seasonal borefield imbalance could be avoided. The ASHPs would also have a design heating capacity of 2,150 MBH, compared to the borefield heating capacity of 8,054 MBH which could be called on to help with peak loads if needed. The ASHPs could also provide an additional 2,150 MBH design cooling capacity, as needed. The borefields would provide 79 percent of total system design heating capacity and 100 percent of annual heating source energy. The ASHPs could provide 21 percent of the total system design heating capacity but may not be required to provide source heat under normal circumstances.

Con Edison partnered with the City of Mount Vernon as the authority having jurisdiction over local permitting and approvals, and also as the owner of two project participant municipal buildings, including one where the energy center would be housed and the property where both planned borefields would be installed. The City of Mount Vernon has agreed in principle

to non-binding terms regarding land use agreements needed for the placement of borefields and the siting of the energy center building. Participants in the Mount Vernon Pilot would include a mix of customer types, including residents of large affordable multifamily buildings, whose customer profile aligns with the goal of the Act in providing opportunities for equitable electrification.

A portion of the pilot area contains a section of eight-inch cast iron natural gas main that was installed in 1890 and is considered leak prone. The Mount Vernon Pilot proposes fully electrifying the customers served by this leak-prone pipe which would allow this segment of pipe to be shut down and avoid costly repairs that would otherwise be covered by ratepayers. While electrifying these buildings would enable Con Edison to retire the leak-prone pipe, it is not guaranteed that all of the customers being served by natural gas at these buildings would agree to participate. Additionally, Con Edison did not assign any monetary value to the avoided pipe replacement in its economic analysis.

The economic analysis of the Mount Vernon Pilot shows high capital and operating expenses, resulting in the second highest levelized cost of carbon abatement of any pilot at \$11,757/MTCO₂e. Compared to individual ASHP electrification, the UTEN would have 7.3 times higher capital expense, equating to an additional \$123 million and 13 times higher operating expense, costing an additional \$8.96 million per year. Con Edison also provides a comparison to individual GSHP electrification, which shows that the UTEN capital expenses would be 1.2 times higher, requiring an additional \$76.6 million expenditure, and operating expenses would be 13 times higher, necessitating an additional \$8.97 million per year.

The cost to operate the UTEN would be very high and is projected to remain high beyond the pilot period, requiring significant subsidization of customers connected to the UTEN after the pilot period, otherwise customers may choose to leave the UTEN system. Based on the information before us, it is estimated that Mount Vernon Pilot participants would require a projected annual subsidy of \$9.05 million or \$386/MMBtu of combined heating and cooling loads served.

Con Edison estimates that the Mount Vernon Pilot would have UTEN winter electric peak demand savings of 33 percent, compared to the use of ASHPs for electrification of the customers' space and domestic water heating needs. Alternatively, compared to using GSHPs, the UTEN winter peak demand would be 10 percent higher. While the UTEN demand savings relative to individual ASHP electrification would benefit the electrical grid, further grid benefits could be realized by including demand response capabilities, including provisions for active demand response, such as thermal energy storage or non-electric source heat options that would further benefit the electric grid, which the design does not include.

The Mount Vernon Pilot design includes approximately 80 percent excess capacity in the UDS and identifies that investment in two additional borefields would be required to extend the UTEN to nearby buildings to enable service to potential future loads. The Mount Vernon Pilot could allow for the transfer of results and insights for buildings located in a similar mixed-use urban environment, including existing buildings that have a variety of mechanical systems and retrofit needs.

A significant consideration for the Mount Vernon Pilot is the extensive and wide range of complex upgrades that would be required for HVAC, electrical, and plumbing systems within

the connected buildings to achieve thermal comfort. The various heating systems in the buildings use different fuels, including fuel oil, natural gas, and electricity, and convey the heat in different ways, utilizing steam boilers, hot water boilers, rooftop units, multizone units, unit ventilators, furnaces, air handling units, radiators, hydronic baseboard, and window air conditioners. As detailed in the Stage 2 Filing, the multitude of retrofit requirements would result in high retrofit costs.

As articulated in comments from the City of Mount Vernon and State Senator Jessica Ramos, the City of Mount Vernon and community members support the Mount Vernon Pilot. However, Con Edison and the City of Mount Vernon have not yet executed final land use agreements for the four borefields. Because there is no identified alternative thermal resource, the lack of final land use agreements, while not in and of itself determinative, is a consideration. Based on the record before us and the issues outlined herein, the Commission declines to advance the Mount Vernon Pilot to Stage 3.

4. Con Edison - Rockefeller Center Pilot

The Metropolitan Transit Authority (MTA) supports the Rockefeller Center Pilot, recognizing its ability to provide unique information and data regarding integration with existing transit infrastructure. The MTA posits that the pilot could demonstrate the potential for MTA assets to become a significant thermal resource for future UTEN projects and states that the public nature of the planning process has allowed the MTA to access granular technology and financial information. The Real Estate Board of New York supports the Rockefeller Center pilot stating that it would create critical learnings for electrifying buildings to achieve the CLCPA and comply with Local Law 97. New York City Councilor Keith Powers supports the Rockefeller Center

Pilot, stating that it would allow for scalable decarbonization, thus reducing the level of investment needed to support the electric grid. Councilor Powers further states that this knowledge would provide guidance for how commercial properties could decarbonize, which is vital to achieving the goals of the CLCPA. NY GEO states that the Rockefeller Center Pilot offers the opportunity for unique lessons learned due to its diverse design.

The City of New York recommends that the Commission not advance the Rockefeller Center Pilot, stating that it would not meaningfully decarbonize the existing buildings because it would only replace a limited subset of the buildings' steam systems and would still rely on fossil-fuel based district steam for the majority of the heating and backup needs. Further, the City comments that there are no low-income, residential, or public sector participants that would be served by the pilot, and as designed it would be economically inefficient and not constitute a reasonable or appropriate use of ratepayer funds. The City states that if the project were to advance, it should do so as a private project where 100 percent of the costs are recovered from the building owners and tenants served.

BDC & AGREE believe the Rockefeller Center Pilot would demonstrate how networked, low-temperature systems could operate effectively in high density, high rise urban environments. Further, BDC & AGREE note the pilot's ability to test new compensation models for resource providers and offer a replicable framework for deploying TENS across New York City.

The Commission finds that Con Edison's Rockefeller Center Pilot is a technically feasible design. It is the only design that would utilize a two-pipe ultra-low temperature (~90°F) hot water distribution system combined with building level heat pumps. It is also the only project that would use

waste heat from a large-scale cooling system as the thermal resource. The system would serve space heating end uses for three commercial office buildings and is designed to operate only during the winter months of November through April. This project would not be located in a disadvantaged community.

The economic analysis of the Rockefeller Center Pilot shows that there would be high total capital and operating expenses, in part due to the approximately 3.6 million square feet across the three buildings that would be connected, which is roughly the same area as 1,600 average single-family homes in the United States. When normalized as capital expense per floor area served and operating expense per energy unit of output, the Rockefeller Center Pilot would have the lowest costs of all the pilot projects at \$27/SF and the lowest levelized cost of carbon abatement at \$3,383/MTCO_{2e}. While the project would electrify a large portion, but not all, of the heating loads across the three participating buildings, using a floor area metric to normalize the costs for this project may underestimate the cost per square foot.

Compared to individual ASHP electrification, the UTEN would have 0.4 times higher CapEx, equating to an additional \$30.0 million. Similarly, compared to the use of individual ASHPs the UTEN would have 3.0 times higher OpEx, costing an additional \$5.44 million per year. This would mean that operating the UTEN beyond the pilot period, while keeping participant operating costs flat, not including inflation, would require a projected annual subsidy of \$4.04 million or \$69/MMBtu of heating loads served. According to Con Edison no individual GSHP comparison is provided for the Rockefeller Center Pilot because the project site and surrounding area is not capable of accepting a sufficient number of boreholes to meet the pilot loads, rendering the GSHP alternative scenario infeasible.

The Rockefeller Center Pilot design predicts that the UTEN would achieve winter electric peak demand savings of approximately 32 percent compared to electrifying these buildings using ASHPs. While the UTEN demand savings relative to individual ASHPs would benefit the electrical grid, further grid benefits would be realized by including active demand response capabilities, including thermal energy storage or non-electric source heat options. The Rockefeller Center Pilot design includes excess capacity in the UDS of approximately 63 percent and excess capacity in the thermal resource of approximately 36 percent to allow some expansion of the pilot and serve additional loads.

The Rockefeller Center Pilot would include a \$5.0 million contribution by the connected customers to cover a portion of the building conversion costs. While this is the only pilot that would include such a contribution, for the large commercial building owners it represents a small portion of the total building conversion costs, approximately 11 percent, resulting in ratepayers funding nearly 90 percent of the in-building conversion costs.

The Rockefeller Center Pilot could offer insights transferable to other buildings with limited available floor space located in similar dense urban environments with sufficient coincidental winter waste heat, and which require significant cooling during the winter when nearby buildings require heating. Additional understanding of waste heat-related rate design, including how to account for the incremental costs attributed to the waste heat resource owner and potential compensation for the owner, as well as consideration of utility network cost recovery and thermal customer pricing structures, could be gleaned from the Rockefeller Center Pilot.

As noted by Con Edison, this pilot has already produced significant knowledge related to coordination with the MTA to secure design approval to route UTEN piping through the Rockefeller Center subway concourse, in compliance with MTA's guidelines and specifications and preliminary agreement terms. The Commission finds that navigating engagement and complex agreements with large public and private entities is of significant learning value for future UTEN projects in New York City.

Relative to the other pilots, the Rockefeller Center Pilot would minimize ratepayer exposure in terms of decommissioning the UTEN and reversion costs in the event the UTEN ceases operation post-pilot. Specifically, much of the installed infrastructure, including both the UDS and customer-side piping could potentially be retained and repurposed by the building owners in the event the UTEN is decommissioned post-pilot. The most likely outcome would involve transferring ownership and operation of the UTEN assets to the property owner for two of the three buildings to potentially avoid or minimize stranded assets.¹⁰³

Given the Act's emphasis on benefiting disadvantaged communities and encouraging affordable and equitable forms of electrification, a weakness of the Rockefeller Center Pilot, which is not located in a disadvantaged community, is that the participants of the UTEN would be large, well-resourced commercial real estate corporations that can finance their own building electrification projects. Given the rate pressures and affordability concerns facing New York ratepayers, the Commission finds that advancing this project

¹⁰³ Any potential reimbursement to ratepayers has not been quantified and such a transfer would need to be determined through a PSL §70 filing with the Commission.

would conflict with the affordable and equitable electrification goal of the Act. Therefore, based on the record before us and the issues described herein, while the Commission acknowledges interest in the Rockefeller Center Pilot's exploration of utilizing shared urban waste heat, the Commission declines to advance the Rockefeller Center Project at this time.

5. NFG - Buffalo Pilot

BDC & AGREE comment that the Buffalo Pilot is a technically promising concept and they support conditional advancement to Stage 3. BDC & AGREE credit the phased transition of a legacy fossil-fueled district energy system to utilize wastewater and geothermal thermal resources and also see value in the pilot as a test of a gas utility providing thermal energy service to low-income multifamily housing. BDC & AGREE identify potential risks related to electric interconnection, construction in occupied low-income housing, and the need for enforceable tenant-level protections.

NYSERDA comments that the Buffalo Pilot would generate unique knowledge about UTENs that implement a phased transition of an existing legacy fossil-fueled district energy system to enable the utilization of wastewater heat and geothermal thermal resources. NYSERDA further states that the Buffalo Pilot's distribution temperatures would allow for direct heating and cooling without the need for in-building heat pumps and that testing more than one temperature may provide insights into the operational trade-offs between configurations. NYSERDA further comments that the Buffalo Pilot would require minimal customer-side retrofits because the connected buildings' distribution systems are already compatible with the Buffalo Pilot's

distribution temperatures.¹⁰⁴ NYSERDA identifies the Buffalo Pilot's mix of residential and institutional customers as a source of potential operational efficiencies and comments that the Buffalo Pilot has potential to expand, noting that buildings previously disconnected from the existing hot water network may be candidates for future connections.

The Commission finds that NFG's Buffalo Pilot is a technically feasible design. It is the only pilot project to utilize a fully centralized approach to generating hot and chilled water with a central energy center and heat pumps. The UDS consists of a four-pipe distribution of hot water and chilled water to a complex of twelve apartment buildings as well as a two-pipe hot water distribution that connects to the existing Buffalo District Heating System, which currently generates heat from natural gas. The UTEN would connect to the hot water distribution loop of the Buffalo District Heating System, which currently provides space heating to a 219,000 square foot municipal building. As designed, the UTEN would displace all heat provided by the existing district hot water system.

The Buffalo Pilot is one of four designs that would use wastewater influent heat recovery as a thermal resource. It is the only pilot that would use influent heat recovery as the primary thermal resource. The heating and cooling capacities available from the wastewater exceed the needs of the loads for the buildings included in the project. The project design and budget include infrastructure with the ability to access 21,000 MBH of source heating capacity from the 96-inch sewer main.

¹⁰⁴ Information provided subsequent to the Stage 2 Filing indicates that the apartment buildings are planned for HVAC system replacement that would include four-pipe fan coil units, which would potentially further reduce the required work and cost to connect the buildings to the proposed UTEN.

Within the energy center, the heat exchangers included in the design can provide 10,800 MBH of source heating. The pilot design also includes a borefield which accounts for approximately 5 percent of the source heating capacity for the pilot project. As designed, the system includes approximately 80 percent excess source heating capacity available for additional future loads, and the UDS can support approximately 24 percent additional heating load.

The Buffalo Pilot project would not include thermal energy storage. Given the centralized generation of hot and chilled water, this type of system could utilize large-scale energy storage that may be more economical and easier to control than smaller, distributed energy storage. The design configuration of the Buffalo Pilot is amenable to adding thermal storage in the future if the required space for additional construction can be secured. This type of large scale centralized thermal energy storage is dispatchable, meaning it could provide demand response to reduce electrical demand by turning off heat pumps during times of high electrical demand on the electric grid. Hot or chilled water could then be provided by the thermal storage system rather than the heat pumps during those times of high electrical demand. Benefits for the project would include operational savings from reduced energy and demand charges. The electric grid would also benefit from the demand flexibility of the system, which has the potential to reduce infrastructure upgrade needs, increase reliability, and facilitate more carbon-free electricity generation from intermittent renewables. NFG opts to exclude large scale tank thermal energy storage in order to minimize the footprint of the energy center, which would be located on parkland. NFG evaluated the potential for installing a borehole thermal energy storage system, however findings indicate that site geology and

anticipated groundwater movement may make the site poorly suited for this type of system.

The economic analysis of the Buffalo Pilot shows that there would be high capital costs and high operating costs compared to individual electrification alternatives, resulting in the second lowest levelized cost of carbon abatement at \$4,342/MTCO₂e. Compared to electrifying with individual ASHPs, the UTEN would have a 1.9 times higher capital expense, equating to an additional \$37 million, and a 0.9 times higher operating expense, costing an additional \$0.45 million per year. NFG does not provide a comparison to individual GSHP electrification for the Buffalo Pilot citing the inability to practically decentralize the wastewater interconnection.

The cost of operating the UTEN would be high and is projected to remain high beyond the pilot period, requiring significant subsidization of customers connected to the UTEN after the pilot period, otherwise customers may choose to leave the UTEN system. Based on the information before us, we estimate that UTEN customers would require a projected annual subsidy of \$0.71 million or \$61/MMBtu of combined heating and cooling loads served. While not insignificant, this amount represents the lowest projected absolute dollar subsidy across all proposed pilot projects. NFG predicts that the Buffalo Pilot UTEN would achieve winter electric peak demand savings of approximately 17 percent compared to using ASHPs for individual building electrification. The UTEN could achieve higher demand savings and additional grid benefits by including active demand response capabilities including thermal energy storage or non-electric source heat options.

The Buffalo Pilot would offer the opportunity to transfer or adapt results and insights most readily to locations that are in proximity and have access to wastewater

influent as a thermal resource. The inclusion of the borefield would support understanding the technical and economic impacts of integrating multiple thermal resources to serve mixed use neighborhoods. A unique opportunity for this pilot project would be the connection to the existing fossil fuel-based Buffalo District Heating System. While its hot water loop currently serves only one building, there is the potential to reconnect former customer buildings that are connected to the loop but are no longer using it. The ability to install UTENs to serve existing district heating systems represents an opportunity to leverage existing systems and customer relationships while displacing the use of fossil fuels. This knowledge would be highly applicable to other aging, high-temperature district energy systems that face challenges related to operational inefficiencies, reliance on fossil fuel combustion, and risks of customers disconnecting from the network and installing individual gas boilers or heat pumps.

As designed, the viability of the pilot would be dependent upon approval of the Buffalo Sewer Authority to access the sewer main as a thermal resource. Failure to obtain approval from the Buffalo Sewer Authority would jeopardize the project given that wastewater influent is the primary thermal resource. Identifying and accessing a replacement thermal resource, if even possible, has the potential to add costs to the pilot, at a minimum, and could ultimately undermine the viability of the Buffalo Pilot.

As with the other pilots, we must consider customer enrollment as a risk that could impact pilot design and feasibility. However, for the Buffalo Pilot there would be just two entities as customers, Beacon Communities and the City of Buffalo, which would simplify and reduce the risk

associated with potential pilot participant enrollment. At the same time, if either entity fails to enroll, the viability of the pilot project would be jeopardized.

The Buffalo Pilot would have the second lowest five-year pilot total construction and operation costs of all the pilot projects according to information provided by the Utilities in their LCCAs. Furthermore, the Buffalo Pilot establishes a unique municipal partnership by integrating with Buffalo's existing district energy infrastructure and utilizing city-owned assets as its primary thermal energy resource. A key advantage of the Buffalo Pilot project is the City of Buffalo's strong support for the project which could presumably streamline upcoming negotiations for essential agreements, such as securing City property for the energy center. The Buffalo Pilot would also operationalize a unique infrastructure partnership by integrating a municipal thermal energy resource into the UTEN and leveraging the UTEN to decarbonize a portion of the existing municipal district heating system.

Another consideration is the reliance on unfinalized approvals for regulatory permits and the need to develop agreements with the authorities required to construct and operate the pilot project, including the New York State Department of Health, Buffalo Sewer Authority, and the City of Buffalo. Permitting may include a NYS DEC State Pollutant Discharge Elimination System (SPDES) permit, if applicable, and agreements with the borefield landowner. Some permits would be specific to the borefield and thus not necessarily critical, given the limited role of the borefield as a backup thermal resource.

NFG states that it maintains open and frequent communication with both customers proposed to connect to the

UTEN, Beacon Communities and the City of Buffalo. According to comments received from the City of Buffalo, it is enthusiastic about the proposed pilot project and state that it would be a significant investment in downtown Buffalo with the potential to shift public opinion and lead to an increase in demand for future UTEN projects. The City of Buffalo, as discussed, would host the energy center on city-owned parkland. While the parkland alienation process is not yet finalized NFG indicates the requisite documentation for legislative approval has been developed, sponsorships arranged and legislative approval is anticipated during the next legislative session which commences in January 2027. NFG further states that the energy center was designed to fit on as small of a parcel as possible to avoid conflicting with any previously proposed City of Buffalo betterment plans, while still accommodating ease of maintenance of the equipment onsite. However, if the parkland alienation legislation is not approved, design modifications and increased associated costs may result. Similarly, the potential sunseting of the parkland alienation legislation needed for the energy center may pose risk for the pilot's long-term operation. If the lease could not be renewed or extended, the system could face premature abandonment before reaching its true end of useful life.

Participants in the Buffalo Pilot would include residents of affordable multifamily buildings, whose customer profile aligns with the goal of the Act in providing opportunities for equitable electrification.

Therefore, based on the record before us and the Commission's interest in supporting continued learning for New York State regarding UTEN development and operation, we authorize the Buffalo Pilot to advance to Stage 3. In doing

so, we instruct NFG, in consultation with Staff, to explore elements of the Buffalo Pilot project identified herein that could be further modified to improve the economics and other benefits to be expected from the pilot. This Order provides additional discussion and guidance on NFG's Buffalo Pilot in the NFG Buffalo Pilot - Advancing to Stage 3 section, below.

6. KEDNY - Brooklyn Pilot

The City of New York supports KEDNY's Brooklyn project stating that it would benefit a disadvantaged community and would provide insight into how to build out a TEN. The City notes the thoughtful incorporation of multiple technologies into the project design, including the innovative use of a sewer heat recovery system. The City also states that while it presently supports the pilot, it should not be permitted to proceed regardless of cost and that KEDNY should be required to seek additional approvals if costs further increase by a material amount.

BDC & AGREE recommend that the Commission modify the proposed Brooklyn Pilot's fee structure to utilize a flat fee, which would guarantee that customers are not penalized with higher bills due to their participation. Further, BDC & AGREE suggest that KEDNY could provide rebates with significant savings to incentivize participation. BDC & AGREE disagree with requiring customers to consent to maintain specific indoor temperatures, stating that these restrictions are impractical to monitor and enforce and do not account for customer needs or comfort. Relatedly, this requirement may undermine the resulting data and would inhibit measuring the success of the pilot and its potential to deliver insights that could apply in other contexts or at a greater scale.

IDEA questions the peak load intensities that KEDNY estimates for the Brooklyn Pilot. IDEA also states that the construction cost is extremely high and that the role the thermal energy fee plays is unclear, seeking clarification on how the fee would be used to offset capital costs while recovering these costs from pilot participants alone.

The Commission finds that KEDNY's Brooklyn Pilot is a technically feasible design. It is one of six one-pipe ambient loop configuration projects submitted and one of six designs utilizing closed-loop boreholes as a primary thermal energy resource, which would provide 52 percent of heating capacity and 34 percent of annual source heating energy.¹⁰⁵ Additionally, the Brooklyn Pilot is one of four designs that would utilize wastewater heat recovery as a supplemental thermal resource. The Brooklyn Pilot as well as the Buffalo and East Loop and West Loop Pilots would utilize wastewater influent, while the Syracuse Pilot would use wastewater effluent.¹⁰⁶ The wastewater system for the Brooklyn Pilot would include a holding tank, macerator, and heat exchanger to extract or reject heat between the wastewater and the UDS, thus providing 11 percent of pilot participants' heating capacity and 25 percent of heating energy. The design also incorporates waste heat recovery from a large grocery store's refrigeration system, which would provide the remaining 37

¹⁰⁵ Capacity refers to the maximum output of that thermal resource at the hour of maximum heating load for the system. Annual heating energy refers to the sum of all heating requirements for the year. The heating energy provided by a source depends on its capacity, as well as availability and operating hours over the year.

¹⁰⁶ Influent wastewater refers to the discharge flowing from buildings to a wastewater treatment facility and effluent wastewater is the treated wastewater leaving a treatment facility.

percent of heating capacity and 40 percent of heating energy and would reduce the pilot's reliance on other more expensive thermal resources. Additionally, the design includes three water-cooled condensers to reject up to 155 tons of heat from the refrigeration equipment to the ambient loop when the loop needs heat. During the cooling season the refrigeration equipment would reject heat through existing ambient air condensers.

The economic analysis of the Brooklyn Pilot shows high capital costs and high operating costs compared to the other pilots, resulting in a levelized cost of carbon abatement of \$7,480/MTCO₂e. In-building retrofit costs would also be very high, exceeding the total network costs by over 50 percent, in part due to the considerable upgrades required to add cooling to these specific buildings.¹⁰⁷ Compared to individual ASHP electrification, the UTEN would have double the capital expense, equating to an additional \$55.6 million, and 1.1 times higher operating expense, costing an additional \$2.25 million per year. KEDNY did not provide a comparison to individual GSHP electrification for the Brooklyn Pilot because, according to KEDNY, it would not be technically feasible to install individual GSHP for the customers. The cost to operate the Brooklyn Pilot would be very high and is projected to remain high beyond the pilot period, requiring significant subsidization of customers connected to the UTEN after the pilot period, otherwise customers may choose to leave the UTEN system. Based on the information before us, it is estimated that UTEN customers would require a projected

¹⁰⁷ The initial UTEN design for the Brooklyn Pilot proposed to provide heating and DHW only, not cooling, citing a more disruptive construction process and higher cost. KEDNY subsequently added cooling largely in response to stakeholder feedback.

annual subsidy of \$2.83 million or \$168/MMBtu of combined heating and cooling loads served.

The Brooklyn Pilot predicts that the UTEN would result in a 66 percent winter electric peak demand savings compared to individual electrification using ASHP. While the demand savings relative to individual ASHP electrification would benefit the electrical grid, the design does not include provisions for active demand response, such as thermal energy storage or non-electric source heat options that would further benefit the electric grid.

The Brooklyn Pilot project design includes excess UDS capacity of approximately 51 percent, which could serve potential customer loads that might connect in the future. The pilot design, however, does not include excess capacity in the thermal resource. In fact, the Brooklyn Pilot indicates that thermal resources supplementing the borefields would be included because of insufficient space to add the required number of boreholes needed to serve 100 percent of the load. Although the UDS could support up to an additional load of approximately 51 percent, any expansion of the UTEN would require corresponding increases in thermal resources along the expanded route to serve additional loads and maintain loop temperature requirements to all customers. Given KEDNY's statement that the project would have insufficient space for additional boreholes, it is unclear where additional boreholes could be placed or what other thermal resources within proximity to the UDS could be available to support expansion. Additionally, maintaining adequate supply temperatures between customers would be particularly important for a one-pipe ambient loop system. KEDNY's modeling of the project indicates that supply temperatures across customers would be reasonable for the

parameters used, but as with any one-pipe ambient loop, adjustments may be needed if customer loads along the loop do not meet the original design parameters due to customer enrollment or changes in load over time.

The main participants of the Brooklyn Pilot would be NYCHA residents, whose customer profile aligns with the goal of the Act in providing opportunities for affordable and equitable electrification. The Brooklyn Pilot could develop knowledge that is transferable or adaptable to similar scenarios across the State, including where difficult building modifications to accommodate a UTEN connection exist, where there are public housing and commercial building combinations, or in areas where geothermal borefields can or must be supplemented by other waste heat sources. The Brooklyn Pilot, along with some other proposed pilot projects, is favorable in that its design includes the integration of multiple thermal resources to serve different existing buildings with different load profiles and a variety of mechanical systems. However, reliance on grocery store refrigeration waste heat for a large portion of heating capacity and annual energy contribution is a concern. If the waste heat becomes unavailable due to a refrigeration system interruption, business closure, or operational changes, the system would need to identify and install replacement thermal resources that may be difficult to locate and procure. Based on the record before us and the issues described herein, the Commission declines to advance the Brooklyn Pilot to Stage 3.

7. NMPC - Syracuse Pilot

In support of the Syracuse Pilot, the Onondaga County Executive filed a letter of intent outlining a preliminary non-binding framework for an agreement between NMPC and Onondaga County that reflects a mutual interest and

intent to collaborate and share resources to evaluate and implement the Syracuse Pilot.

BDC & AGREE posit that NMPC's Syracuse Pilot would demonstrate how collaboration between utilities and municipal partners could align climate policy with community development goals. Further, they state that the Syracuse Pilot would benefit from a highly stable thermal resource, avoid reliance on fossil backup systems, and they also applaud the inclusion of thermal storage to provide a robust operational buffer that enhances system reliability. BDC & AGREE state that the filing is too vague to understand the actual impact of the pilot on customers' bills and that a flat fee structure guaranteeing that customers are not paying more, while giving rebates where there are significant savings would be a more appropriate method to incentivize pilot participation.

The Central New York Planning & Development Board supports advancing the Syracuse Pilot, citing its involvement as the primary contractor for the initial NYSERDA Community Heat Pump System Program Opportunity Notice feasibility study that determined a TEN system using the wastewater treatment plant could provide significant financial, environmental, and public health benefits. They further state that the pilot would provide affordable, low carbon heating and cooling and would attract new investment in a disadvantaged community. NYS Senator Sean Ryan comments that the Syracuse pilot would help avoid gas system expansion in new developments.

IDEA notes some discrepancies in NMPC's filing related to the customers and square footage that would be served by the Syracuse Pilot and questions the source of the assumptions for calculating the LCCAs, particularly for customer equipment costs. IDEA does note that the societal

costs of this pilot would be 30 percent lower than the baseline costs, making this an attractive project.

The Commission finds that NMPC's Syracuse Pilot is a technically feasible design. It is one of three two-pipe ambient loop configuration projects submitted and the only design that would use wastewater effluent from a wastewater treatment facility as the thermal resource. The pilot would serve 14 buildings, including an aquarium that is currently in the final stages of construction and 13 new construction buildings consisting of residential, office, and commercial uses.¹⁰⁸ The use of wastewater as the thermal resource would eliminate any concerns about the seasonal imbalance between heat extraction and heat addition to the UTEN which could arise through the use of geothermal boreholes.

The economic analysis of the Syracuse Pilot shows high capital and operating expenses, which would result in the third highest levelized cost of carbon abatement, compared to the other pilot projects, at \$11,048/MTCO₂e. The UTEN would have 2.2 times higher capital expenses, equating to an additional \$115.8 million, and 0.3 times higher operating expenses, costing an additional \$1.75 million per year, as compared to electrifying with an individual ASHP. NMPC does not provide a comparison to individual GSHP electrification for the Syracuse Pilot because NMPC does not consider it a technically or economically viable alternative.

¹⁰⁸ NMPC explains that due to the All-Electric Buildings Act, which requires all new construction of buildings under seven stories to adopt electrified heating systems, the BAU scenario for the Syracuse Pilot assumes the use of ASHPs, except for the aquarium which will be constructed prior to the installation of the UTEN and assumes the continued use of natural gas. At the time of filing, the owner of the buildings to be served by the pilot project indicated that it intends to build all-electric buildings.

The cost to operate the UTEN would be very high and is projected to remain high beyond the pilot period, requiring significant subsidization of customers connected to the UTEN after the pilot period, otherwise customers may choose to leave the UTEN system. Based on the information before us, we estimate that UTEN customers would require a projected annual subsidy of \$1.75 million or \$38/MMBtu of combined heating and cooling loads served.

The Syracuse Pilot is predicted to have UTEN winter electric peak demand savings of 41 percent compared to individual building electrification using ASHPs. These potential demand savings from the Syracuse Pilot would be beneficial to the electrical grid. However, we note that the design does not include provisions for active demand response, such as thermal energy storage or non-electric source heat options, which could further benefit the electric grid.

Distinct from the other pilot projects, the Syracuse Pilot design includes thermal energy storage on the source side of the building heat pumps that could be used to mitigate variations in the availability of wastewater heat or to provide resiliency in instances of short-term wastewater effluent interruptions, for up to approximately 24 hours. However, according to the design, the thermal storage could not be deployed to offset use of the in-building heat pumps, meaning that the stored energy would not provide demand response during electric peak because the heat pumps would be required to operate as heating and cooling loads occur.

The Syracuse Pilot design includes approximately 300 percent more capacity in both the UDS and in the thermal resource than what would be required to serve the buildings within the scope of the pilot. The rationale for this level

of additional capacity is to match the capacity that would be available from the wastewater thermal resource and allow it to serve additional buildings in the event of future UTEN expansion. However, in using a single point resource wastewater effluent outfall, sizing the wastewater interface infrastructure and UDS for a smaller capacity might preclude full utilization of this thermal resource in the future due to lack of space and unfavorable economics. For this reason, the excess capacity built into the design is sensible but would also come at some incremental cost for the pilot.

The Syracuse Pilot could offer the opportunity to transfer or adapt results and insights to buildings that are in proximity to a wastewater treatment plant. The use of wastewater effluent heat recovery in new construction applications offers additional potential learning value.

Significant considerations for the Syracuse Pilot include the extended timeline that would be required for the UTEN to become fully operational. This results from external factors such as the progression of the planned construction of new buildings intended to connect to the UTEN, which may extend for several years after the pilot begins operation. As a result, the full learning from this pilot may not even occur within the five-year pilot period. Additionally, if additional buildings are not constructed or are significantly delayed, all the calculated KPIs would be significantly overstated as the entire costs of the project would be serving a single building.

Another consideration is reliance on unfinalized agreements and approval for several key regulatory permits to operate, including a NYS DEC SPDES permit. Specifically, the Syracuse Pilot would require a thermal energy resource agreement between the Onondaga County Department of Water

Environment Protection and NMPC for use of the wastewater effluent which has not been finalized.

Although the normalized cost per square foot served would be relatively low for the Syracuse Pilot project compared to other pilots, the total installation cost of \$168.9 million¹⁰⁹ would be the highest of all the pilots, equating to five times the cost of the lowest cost pilot and double the average pilot cost. Given that NMPC proposes that the pilot project's costs would be borne by ratepayers, total project costs are an important consideration. The new construction buildings would require installing HVAC systems, regardless of whether they connect to the UTEN. The pilot's expenses would include customer incentives in the amount of approximately \$16.5 million to cover the incremental cost of installing HVAC systems that are compatible with UTEN connection, in lieu of less expensive ASHPs that would otherwise likely be installed.

Based on the record before us and the issues described herein, the Commission declines to advance the Syracuse Pilot to Stage 3, at this time. The Commission acknowledges that deploying UTENS in a new construction development generally yields lower relative costs compared to retrofitting existing buildings. Conversely, the Syracuse

¹⁰⁹ The \$168.9 million capital expense is based on the LCCA Workbooks and is higher than the Stage 3 construction cost estimate. The Syracuse Pilot includes, within the total pilot project budget, sufficient capital to fund oversized infrastructure that would allow for the connection of more buildings than would be possible within the pilot period but are anticipated to connect at a later time. To evaluate the proposed UTEN against the alternative individual building ASHP scenario, both were modeled using the assumption that all buildings planning to connect to the UTEN, including those beyond the pilot period, were served and all capital and operating expenses accounted for.

Pilot demonstrates the difficulties of coordinating various decision timelines among multiple stakeholders, which presents a significant challenge for the development of new construction pilot projects.

8. NMPC - Troy Pilot

NMPC's Troy project, comments BDC & AGREE, presents desirable future sizing and a credible business model. They state that the Commission should consider requiring peak-aware or performance adjusted rate mechanisms that reward non-coincident operation and penalize contribution to system peak and should evaluate whether centralized ASHP balancing would shift costs to non-participating electric customers via an increased electric peak demand.

The City of Troy Sustainability Task Force supports the Troy Pilot, endorsing it as a financial net benefit to Troy, a net environmental benefit to the larger area, and an important contribution to the State's energy policy goals.

The Commission finds that NMPC's Troy Pilot is a technically feasible design. It is one of six one-pipe ambient loop configuration projects submitted and one of six designs utilizing closed-loop boreholes as the primary thermal energy resource, providing 72 percent of system total design heating capacity and 27 percent of annual heating source energy. It is one of two designs that would utilize ASHPs as a complimentary thermal resource, providing 28 percent of design heating capacity and 73 percent of annual source heating energy. Three of the six existing buildings would be served, at least in part, by existing water-source heat pumps that would be repurposed to operate with ambient loop water from the UTEN, allowing for replacement of the existing natural gas boilers.

The economic analysis of the Troy Pilot shows there would be high capital costs and very high operating costs, resulting in a levelized cost of carbon abatement of \$6,283/MTCO₂e. As filed, the Troy Pilot would have 9.0 times higher capital expenses than an ASHP scenario, equating to an additional \$70.2 million and 2.8 times higher operating expenses, costing an additional \$2.42 million per year. NMPC does not provide a comparison to individual GSHP electrification for the Troy Pilot because NMPC asserts that most properties in downtown Troy lack the land area needed for a standalone borefield to cover the heating and cooling load for each building within the individual building lot footprint.

The cost to operate the Troy Pilot would be very high and is projected to remain high beyond the pilot period, requiring significant subsidization of customers connected to the UTEN after the pilot period, otherwise customers may choose to leave the UTEN system. Based on the information before us, we estimate that UTEN customers would require a projected annual subsidy of \$2.58 million or \$186/MMBtu of combined heating and cooling loads served.

The Troy Pilot predicts a UTEN winter electric peak demand savings of 35 percent compared to individual electrification using ASHPs. The demand savings of the UTEN would benefit the electrical grid, however the design does not include active demand response, such as thermal energy storage or non-electric source heat options, that could further benefit the electric grid.

The Troy Pilot design provides roughly 57 percent excess capacity in the UDS to accommodate future load growth. The borefield capacity is consistent with expected pilot load and does not include excess capacity. This would avoid

initial overspending, allowing for future expansion while minimizing upfront costs. NMPC states that additional boreholes or other thermal resources could be integrated later, provided that the physical space is available.

The Troy Pilot could present an opportunity to transfer or adapt results and insights to historical building stock in an urban area. It also could provide valuable lessons on connecting mixed-use spaces, reusing water-source heat pumps, or managing networks powered by a mix of borefields and ASHPs.

According to the Troy Pilot Stage 2 Filing, during the original development of the Troy Pilot, the City of Troy planned to own the thermal resource and partner with NMPC to own and operate the distribution system. However, the arrangement shifted such that the City of Troy is no longer willing to take on this role, requiring NMPC to take full responsibility for the borefield design, installation, operation, and ownership.¹¹⁰ The Commission notes that this shift eliminated the unique utility-municipality business model aspect of the originally proposed pilot. Additionally, utility construction and ownership of the thermal resource significantly increases the pilot's capital expenditures, operating costs, and local property taxes associated with the utility-owned infrastructure.

The Troy Pilot design utilizes a one-pipe ambient loop configuration which can present challenges maintaining adequate UDS supply temperatures to every building along the loop at all times, especially if the customer loads connected to the loop do not materialize as anticipated or evolve over time. The use of a single borefield for the project may be

¹¹⁰ Case 22-M-0429, NMPC Stage 2 Troy Filing Rescope Update (filed September 23, 2025).

necessitated due to space constraints, but it could also make supply temperature consistency more challenging than borefields distributed along the loop.

A key consideration for the Troy Pilot is its reliance on lease agreements with the City of Troy to provide NMPC land access to construct the borefield and the energy center. If not approved, design modifications and increased associated costs may result. Also, the Stage 2 Filing describes a 30-year operational cap tied to the sunseting of parkland alienation legislation needed for borefield installation, as well as strict lease restrictions, which may pose a risk for the pilot's long-term operation. If the lease could not be renewed or extended beyond 30 years, the system could face premature abandonment before reaching its true end of useful life. Based on the record before us and the issues described herein, the Commission declines to advance the Troy Pilot to Stage 3.

9. NYSEG - Ithaca Pilot

NYSEG's Ithaca Pilot, according to BDC & AGREE would provide valuable insights into how networked thermal systems could meet mixed loads in compact urban settings through utilization of the same core infrastructure. They comment on the uniqueness of the design, as it is the only pilot utilizing an open loop that would leverage direct groundwater exchange. BDC & AGREE recommend approving the Ithaca Pilot contingent on future expansion and suggest that the Commission request greater technical specificity on the feasibility and permitting pathways for the pilot.

The Commission finds that NYSEG's Ithaca Pilot is a technically feasible design. It is a one-pipe ambient loop configuration and is the only design proposing an open loop system utilizing ground water as the thermal resource. The

open loop aquifer design would provide consistent loop temperatures without concerns for seasonally imbalanced loads to the system.

The economic analysis of the Ithaca Pilot shows that there would be very high capital and operating expenses. Compared to the use of individual ASHPs, the UTEN would have a 1.8 times higher capital expense, equating to an additional \$21.6 million and a 33 times higher operating expense, costing an additional \$6.31 million per year. The projected operating expense of \$1,120/MMBtu would be the highest of all the pilots; in fact, it would be three times as high as the average pilot operating expense of \$362/MMBtu, driven primarily by utility management costs. The Ithaca Pilot further explains the utility management costs as internal labor for engineering and construction, project management during operations, and O&M contingency. In total these utility management expenses would account for 91 percent of the pilot's operating costs.

Comparing the Ithaca Pilot to individual GSHP electrification indicates that the UTEN capital expense would be 0.7 times higher, equating to an additional \$13.5 million, and operating expense 47 times higher, costing an additional \$6.36 million per year. The cost to operate the UTEN would be very high and is projected to remain high beyond the pilot period, requiring significant subsidization of customers connected to the UTEN after the pilot period, otherwise customers may choose to leave the UTEN system. Based on the information before us, we estimate that UTEN customers would require a projected annual subsidy of \$6.35 million or \$1,095/MMBtu of combined heating and cooling loads served.

NYSEG estimates that winter electric peak demand savings would be 33 percent for the Ithaca Pilot compared to

individual electrification using ASHPs, and that the UTEN would increase winter peak demand by 15 percent compared to individual electrification using GSHPs. While the UTEN demand savings relative to ASHPs would benefit the electrical grid, the pilot could further benefit the grid if it included the ability to actively reduce demand to support the electric grid at peak demand times. However, the Ithaca Pilot design does not include active demand response, such as thermal energy storage or non-electric source heat options. The Ithaca Pilot design includes no excess capacity in either the UDS or the thermal resource. NYSEG states that the boreholes would include redundancy for resiliency, which would allow the system to maintain adequate capacity in the event of failure of one of the wells.

As the only pilot using an open loop aquifer resource, the pilot would provide unique learning value. Additionally, the Ithaca Pilot could provide results and insights transferable or adaptable most readily to mixed use suburban neighborhoods and areas with access to aquifers with adequate capacity and favorable water quality. According to NYSEG, an open-loop approach can offer potential cost savings compared to a traditional vertical closed-loop system. The availability of such aquifers for implementation of a UTEN, however, may be less common and less replicable than some other thermal resources.

The use of an open-loop ground source system supplied by an aquifer may pose a potential implementation risk if NYSEG cannot obtain the required NYS DEC Water Division permit or other necessary permits, including a discharge SPDES permit that may be required by the City of Ithaca Water and Sewer Authority. Another potential risk of

an open-loop geothermal system could be inconsistent water quantity or quality from the aquifer.

The Ithaca Pilot proposes a phased implementation approach and identifies a "test period" to evaluate the UTEN system's functionality and performance, especially during the heating season, before connecting all participating customers. According to NYSEG, this test period proposal reflects deliberate risk management and customer protection considerations. The Commission appreciates NYSEG's interest in ensuring the Ithaca Pilot enters Stage 4 with proven, reliable performance following the resolution of any issue encountered during the test period, however the Commission remains concerned that this overly cautious approach either indicates uncertainty in the UTEN's ability to operate safely and reliably or would result in increased costs, protracted delays until full UTEN operation, or pilot project cancellation if NYSEG deems the test period unsuccessful. Based on the record before us and the issues described herein, the Commission declines to advance the Ithaca Pilot to Stage 3.

10. O&R - Haverstraw East Loop and West Loop Pilots

The Village of Haverstraw's Board of Trustees strongly supports O&R's Haverstraw pilot project. The Board notes that the project would help meet CLCPA climate goals by cutting emissions and reducing fossil fuel use. Additionally, the Board highlights that the project would promote climate justice and deliver long-term environmental and economic benefits to the local community.

MPact Collective and Pennrose Development support the Haverstraw pilot as it would advance equitable, sustainable energy infrastructure that would benefit the development of the Chair Factory. They state that the pilot would reduce heating

and cooling costs, develop the workforce, advance environmental justice and public health, and reduce GHG emissions.

Haverstraw Knights of Columbus supports O&R's Haverstraw pilot, as the pilot would facilitate the conversion of existing buildings by providing no-cost installation of modern energy efficient HVAC systems, and would reduce GHG, energy costs, and maintenance burdens while enhancing the comfort and use of buildings. Haverstraw King's Daughters Library similarly supports the Haverstraw pilot as it would provide clean energy and efficient heating and cooling. Haverstraw King's Daughters Library states the pilot would enable the King's Daughters Library to provide better services for the public and reduce GHG emissions, improve air quality, and enhance the visual landscape by eliminating the need for outdoor equipment.

BDC & AGREE support the Haverstraw pilot stating that it would serve as a template for similar-sized utilities testing TENS in smaller, suburban municipalities requiring tailored solutions. They recommend that the Commission advance both loops simultaneously to maximize cost effective economies of scale for construction, as well as for marketing and administration, and would present the opportunity to demonstrate effective interconnection between two loops in the future. BDC & AGREE also support the Haverstraw pilot's proposed fee structure. IDEA states that the reported peak heating and cooling loads are reasonable considering the mix of customers participating in the pilot. Similarly, based on the information provided in the filing, IDEA states that the construction costs for the West Loop and East Loop appear to be reasonable.

a. Haverstraw East Loop Pilot

The Commission finds that O&R's East Loop Pilot is a technically feasible design. It is one of six one-pipe

ambient loop configuration projects submitted and one of six designs that would use closed-loop boreholes as the primary thermal energy resource, providing approximately 61 percent of the design heating capacity and 61 percent of annual source heating energy. It is one of four designs that would use wastewater influent heat recovery as a thermal resource. The pilot would include a holding tank, macerator, and heat exchanger to extract or reject heat between the wastewater and the UDS, providing four percent of design heating capacity and five percent of annual source heating energy. This is the only project that would use surface water as a thermal resource, proposing to obtain 35 percent of design heating capacity and 34 percent of annual source heating energy from the Hudson River.

The economic analysis of the East Loop Pilot shows that there would be high capital costs and very high operating costs, resulting in a levelized cost of carbon abatement of \$8,254/MTCO₂e. Compared to electrifying with individual ASHPs, the UTEN would have a 4.6 times higher capital expense, equating to an additional \$53.8 million and a 2.0 times higher operating expense, costing an additional \$2.06 million per year. In comparison to the use of GSHPs, the UTEN CapEx would be 1.9 times higher, equating to an additional \$42.9 million, and OpEx would be 3.3 times higher, costing an additional \$2.38 million per year.

The cost to operate the UTEN would be very high and is projected to remain high beyond the pilot period, requiring significant subsidization of customers connected to the UTEN after the pilot period, otherwise customers may choose to leave the UTEN system. Based on the information before us, we estimate that UTEN customers would require a

projected annual subsidy of \$2.17 million or \$107/MMBtu of combined heating and cooling loads served.

The East Loop Pilot design predicts that the UTEN would achieve winter electric peak demand savings of approximately 41 percent compared to the ASHP scenario. However, compared to the GSHP scenario, the UTEN is predicted to increase winter peak demand by 19 percent. While the UTEN demand savings relative to individual ASHPs would benefit the electrical grid, additional grid benefits would be realized by including active demand response capabilities, including thermal energy storage or non-electric source heat options.

The East Loop Pilot project design includes excess capacity in the UDS of approximately 76 percent and excess capacity in the thermal resource of approximately 68 percent, which could allow expansion to serve additional loads. The design includes branch stubs on the UDS at the curb for each potential customer to connect without requiring further street excavation.

The East Loop Pilot would offer the opportunity to transfer or adapt results and insights in locations where surface water is accessible and identified as a potential thermal resource. Similarly, understanding the technical and economic impacts of integrating multiple thermal resources, including geothermal boreholes and a small-scale wastewater heat exchange system to serve mixed-use neighborhoods as well as new construction, would provide potential learning value. O&R states that the East Loop and West Loop projects are designed to potentially be connected in the future, thus expanding the area served by the UTEN.

A consideration for the East Loop Pilot is the necessary participation of the primary anchor customer, the Chair Factory Development. If construction of the UTEN does

not align with the Chair Factory Development's construction schedule or if the Chair Factory Development does not agree to connect to the UTEN, then the East Loop Pilot would not be viable. An additional consideration is the need for effective customer enrollment, to ensure that a sufficient number of participants agree to connect to the UTEN. Given the numerous and varied types of customers, including government facilities, executing agreements with customers may be challenging for the East Loop Pilot than for pilots serving fewer discrete customers.

As with several of the other pilot projects, the East Loop Pilot would be contingent on the approval of a multitude of State and local permits. The East Loop Pilot, however, would require the approval of several significant environmental permits from the NYS DEC to access the Hudson River as a thermal resource, including a SPDES permit. Failure to gain access to either the Hudson River or wastewater heat exchange may, at a minimum, require design modifications likely to result in additional costs. However, lack of access to those resources could also result in the pilot no longer being viable. Based on the record before us and the issues described herein, the Commission declines to advance the East Loop Pilot to Stage 3.

b. Haverstraw West Loop Pilot

The Commission finds that O&R's West Loop Pilot is a technically feasible design. It is one of six one-pipe ambient loop configuration projects submitted and one of six designs that would use closed-loop boreholes as the primary thermal energy resource, providing 50 percent of system design heating capacity and 82 percent of annual source heating energy. It is one of four designs with plans to utilize wastewater influent heat recovery as a thermal

resource. Accordingly, the system would draw a side stream of wastewater from a forced main sewer through a heat exchanger connected to the UDS, providing 50 percent of design heating capacity and 18 percent of annual source heating energy for the UTEN.

The economic analysis of the West Loop Pilot shows that there would be high capital costs and high operating costs compared to individual electrification alternatives, resulting in a levelized cost of carbon abatement of \$6,480/MTCO₂e. Compared to electrifying with individual ASHPs, the UTEN would have a 2.8 times higher capital expense, equating to an additional \$31.0 million, and a 2.9 times higher operating expense, costing an additional \$1.26 million per year.

Compared to GSHPs, the UTEN capital expense would be 1.3 times higher, equating to an additional \$23.6 million, and operating expenses would be 6.2 times higher, at an additional \$1.46 million per year. The cost to operate the UTEN would be high and is projected to remain high beyond the pilot period, requiring significant subsidization of customers connected to the UTEN after the pilot period, otherwise customers may choose to leave the UTEN system. Based on the information before us, we estimate that UTEN customers would require a projected annual subsidy of \$1.41 million or \$156/MMBtu of combined heating and cooling loads served. While not insignificant, this amount represents the second lowest projected absolute dollar subsidy across all proposed pilot projects.

The West Loop Pilot design predicts that the UTEN would achieve winter electric peak demand savings of approximately 36 percent compared to using ASHPs for individual building electrification. However, compared to

using individual GSHPs, the UTEN is predicted to increase winter peak demand by 27 percent. While the UTEN demand savings relative to individual ASHPs would benefit the electrical grid, additional grid benefits could be realized by including active demand response capabilities including thermal energy storage or non-electric source heat options.

The West Loop Pilot project design includes excess capacity in the UDS of approximately 78 percent and excess capacity in the thermal resource of approximately 70 percent beyond what would be required to serve the buildings within the scope of the pilot. The rationale for this level of additional capacity is to support potential future pilot expansion and additional flow requirements to serve additional buildings in the future. The design includes branch stubs on the UDS at the curb for each potential customer to connect without requiring further street excavation. O&R states that it has already identified additional borefields that could serve an expansion of the pilot.

The West Loop Pilot would offer the opportunity to transfer or adapt results and insights most readily to locations that are in proximity and have access to wastewater influent heat exchange as a thermal resource. Similarly, understanding the technical and economic impacts of integrating multiple thermal resources to serve mixed use neighborhoods, including wastewater and geothermal boreholes, would be a replicable project characteristic. O&R states that the East Loop and West Loop projects are designed to potentially be connected in the future, thus expanding the area served by the UTEN.

As designed, success of the pilot would be contingent on the approval from the Joint Regional Sewerage

Board to access the sewer main as a supplemental thermal resource. Failure to obtain approval from the Joint Regional Sewerage Board may introduce risk, and the potential for added costs to identify and access an additional thermal resource. As with the other pilot projects, we must consider that targeted customers may not enroll to connect to the UTEN, potentially impacting pilot design and requiring design modifications. However, given that the West Loop Pilot includes several public entities, such as government facilities and an elementary school, the risk of customer attrition may be lower, simplifying customer load management and improving load stability over time.

Additionally, the West Loop Pilot would have the lowest five-year pilot total construction and operation costs per their LCCAs. Further, an important consideration is the Village of Haverstraw's strong support of the UTEN pilot project and the fact that most of the UTEN distribution equipment, including the energy center and borefield, would be on Village property within the public right-of-way.

Therefore, based on the record before us and the Commission's interest in supporting continued learning for New York State regarding UTEN development and operation, we authorize the West Loop Pilot to advance to Stage 3. In doing so, we instruct O&R, in consultation with Staff, to explore elements of the project identified herein that could be further modified to improve the economics and other benefits to be expected from the pilot. This Order provides additional discussion and guidance on O&R's West Loop Pilot in the O&R West Loop Pilot - Advancing to Stage 3 section, below.

Cost Recovery

All the Utilities propose to recover only a portion of pilot project costs through limited UTEN fees charged to pilot participants and to recover the remainder from their entire customer base. The Stage 2 Filings vary in their proposals regarding whether to allocate pilot project costs to electric or gas customers or a combination of both electric and gas customers for those Utilities that provide both services.

Central Hudson proposes to recover costs through a surcharge mechanism from electric and gas customers based on Central Hudson's common cost allocation methodology, which is currently an allocation of 80 percent to the electric service and 20 percent to the gas service stating that both electric and gas customers would derive benefit from the pilot project. Central Hudson proposes to defer utility-side capital costs and amortize those capital costs over a ten-year period. Additionally, Central Hudson proposes to record O&M costs as a regulatory asset to be amortized over a ten-year period beginning the year the UTEN is placed in service. Central Hudson proposes that the deferral balances for the utility-side capital costs and the O&M costs be subject to carrying charges at the utility's authorized pre-tax weighted average cost of capital.

Con Edison and O&R propose to recover the utility-side capital costs associated with their respective pilot projects in accordance with standard ratemaking practice and that all other costs, including operation and maintenance costs as well as customer equipment upgrades, would be treated as a regulatory asset subject to carrying costs and be amortized over a specified period of time depending on the type of cost. Further, both Con Edison and O&R propose to

recover the costs only from their electric customers using existing surcharge mechanisms.

KEDNY and NMPC propose to recover capital costs for utility-owned assets using an assumed ten-year average service life in accordance with standard ratemaking practice. For operational expenditures, including expenditures associated with customer-owned assets, KEDNY and NMPC propose to treat the costs as regulatory assets subject to carrying costs, to be amortized over a ten-year period. Further, KEDNY and NMPC propose that they be allowed to recover all decommissioning operational expenditures incurred during the pilot period and post-pilot period. Both KEDNY and NMPC propose to recover the costs associated with their respective pilot projects using existing surcharge mechanisms. NMPC proposes to recover the costs associated with its pilot projects from both electric and gas customers. KEDNY operates as a gas-only utility and therefore would recover its costs from only gas customers.

NFG proposes to treat the return of the capital investments related to utility-owned assets and customer-side equipment as a regulatory asset, subject to carrying costs at its authorized pre-tax rate of return. For utility-owned assets NFG proposes a ten-year amortization period and for customer-side equipment NFG proposes a five-year amortization period. Additionally, NFG proposes to recover the return on its utility-owned assets and customer-sided equipment on an annual basis. Further, NFG proposes the projected revenue requirement impact of the capital expenditures be subject to a symmetrical reconciliation between the projected revenue requirement impact associated with the capital expenditures and the actual revenue requirement impact associated with the capital expenditures. Regarding O&M costs related to the

Buffalo Pilot, NFG proposes to treat the costs incurred prior to the pilot's in-service date (i.e., through Stage 3) as a regulatory asset, subject to carrying costs at its authorized pre-tax rate of return. NFG proposes to amortize this regulatory asset over a three-year period, which is consistent with the amortization of deferred gas planning costs authorized in NFG's current rate plan. NFG proposes to recover O&M expenses incurred during the operation and management of the pilot project, Stages 4 and 5, on an annual basis. For these annual O&M expenses, NFG proposes a symmetrical reconciliation between the actual pilot O&M expense and the projected O&M expenses. NFG proposes recovering the costs associated with the Buffalo Pilot through a surcharge mechanism.¹¹¹

NYSEG proposes to recover capital costs for utility-owned assets in accordance with standard ratemaking practice and to amortize customer owned upgrades over a five-year period, subject to carrying costs. Additionally, NYSEG proposes to include construction work in progress in rate base related to utility-owned assets. For all other incremental costs associated with the pilot project, NYSEG proposes to treat the costs as a regulatory asset, which it proposes to amortize over a five-year period. Further, NYSEG requests authorization to recover costs in the event of pilot termination as well as any additional costs incurred to comply with this Order. Finally, NYSEG proposes to recover the costs from electric and gas customers through a new surcharge mechanism.

¹¹¹ NFG proposes implementing a surcharge as part of the LTP Statement that was established in the Commission's most recent rate order for NFG in Case 23-G-0627.

In this Order we address cost recovery for the UTEN pilot project costs incurred for Stages 1 and 2 for all the pilot projects considered in this Order, as well as the costs for Stages 3 through 5 for the NFG Buffalo Pilot and O&R West Loop Pilot.¹¹² Table 11 includes Stage 1 through Stage 2 costs incurred by the Utilities as identified in their September 2026 Monthly Progress and Expenditure Reports.

¹¹² As discussed, the KEDLI/LIPA and NYSEG Norwich pilot projects were withdrawn, however those Utilities incurred Stage 1 through 2 costs for these pilots. As no further action will be taken on these pilot projects, cost recovery is addressed in this Order. On May 15, 2026, RG&E submitted a letter of intent to file an alternate pilot project in Rochester, NY utilizing the maximum costs authorized to be incurred through Stage 2 in the Guidance Order. Costs incurred related to the forthcoming RG&E pilot will be addressed in a future Order.

Table 11

Costs Incurred and Commission Authorized Cost Caps			
Utility	Pilot Project	Stage 1-2 Costs ¹ (\$ Million)	Total Authorized Maximum Costs to be Incurred through Stage 2 (\$ Million)
Central Hudson	Poughkeepsie	\$1.56	\$1.70
Con Edison	Chelsea	\$7.58	\$8.30
Con Edison	Mount Vernon	\$6.59	\$7.10
Con Edison	Rockefeller Center	\$7.07	\$7.70
KEDLI/LIPA	Suffolk	\$0.50	\$3.40
KEDNY	Brooklyn	\$5.37	\$6.80
NFG	Buffalo	\$2.26	\$3.00
NMPC	Syracuse	\$6.31	\$6.70
NMPC	Troy	\$1.99	\$2.10
NYSEG	Ithaca	\$3.37	\$3.48
NYSEG	Norwich	\$0.14	\$1.30
O&R	Haverstraw East Loop and West Loop	\$3.22	\$4.60
TOTAL		\$46.36	\$56.18
¹ Costs incurred through August 2026 as identified in each utility's September 2026 Monthly Progress and Expenditure Report.			

For all Utilities, with the exception of NFG and O&R, the Commission authorizes the Utilities to defer the incremental costs that were prudently incurred and necessary to bring their respective projects through Stages 1 and 2 for future cost recovery from customers in a subsequent rate proceeding.¹¹³ The deferrals shall be capped at the amounts

¹¹³ The costs incurred related to the forthcoming RG&E pilot will be addressed in a future Order.

established by the Commission in its Guidance Order and as modified in subsequent orders addressing petitions for relief of cost caps through Stage 2 for select pilot projects, as identified in Table 11 above.¹¹⁴ For NFG and O&R, the Commission authorizes recovery of their respective pilots via the LTP Statement and Energy Cost Adjustment (ECA) respectively, as discussed in detail below.

Regarding cost allocation, the Commission received stakeholder input as to the customer classes that should be responsible for these costs. NYSERDA states that it is reasonable to allocate the costs of the approved UTEN pilots to electric and gas customers across New York State and recommends that the Utilities align with standard cost recovery schedules for similar capital investments that make sense based upon the prospective life of the equipment. Further, NYSERDA recommends implementing cost caps on customer-side investments and ensuring that all external funding opportunities are explored. Pace Energy and Climate Center and Sustainable Westchester urge Con Edison to consider whether seeking cost recovery from both electric and gas customers would help achieve equitable outcomes. Finally, NY GEO opines that many of the benefits of a thermal utility, if well executed, would aid the local electric utility, and even gas utilities in constrained areas, and thus recommends that the Commission consider pooled cost recovery across utilities subject to PSC oversight to ensure

¹¹⁴ Case 22-M-0429, Order Addressing Petitions of Con Edison and National Grid for Relief of Cost Cap Through Stage 2 (issued December 20, 2024); Case 22-M-0429, Order Addressing Petition of NYSEG for Relief of Cost Cap Through Stage 2 (issued February 14, 2025); Case 22-M-0429, Order Addressing Petition of NFG for Relief of Cost Cap Through Stage 2 (issued September 22, 2025).

fairness and comparability. Given that the Utilities propose varying treatment regarding cost recovery, including whether the costs should be recovered from electric or gas customers or a combination of both, the Commission determines the most appropriate and equitable approach for the pilots before us.

One factor the Commission must consider is that some of the Utilities that proposed UTEN pilot projects include gas-only distribution companies: KEDLI, KEDNY, and NFG. The remaining Utilities are combination electric and gas distribution companies. Generally, the Commission's approach to cost allocation is to allocate costs based on whether the cost that is incurred is reasonable and allocated fairly across the appropriate utility customer bases and service classes. Such an approach equitably allocates the costs that are incurred to the customers that are receiving the service or benefit provided by the utility. Given that the KEDLI and KEDNY pilot projects are not advancing, the primary benefit associated with the reasonable costs the Utilities incurred to propose these pilot projects is the societal benefit gained through the experience of developing the projects and general knowledge gained that could advance TENs in New York State.

The Commission's Initiating Order explains that "[i]n accord with the intent of the Act, the requirements of PSL §66-t, including those related to pilot projects, are to apply to the gas side of the utility for ... combination gas and electric corporations." This approach is consistent with the intentions underlying the Act, which provides with respect to utility worker and labor provisions, that the employees eligible for UTEN positions shall first be selected from and offered to a pool of transitioning utility workers who have lost, or are at risk of losing, their employment

with a utility downsizing its gas transmission and distribution system.¹¹⁵ While recognizing the Act's focus on gas utilities, it does not prescribe cost recovery methods and allows both electric and gas utilities to pursue UTENs. As such, we considered how to establish a cost allocation approach that is appropriate and equitable, absent a tangible benefit to a specific set of customers, while not unfairly increasing bill impacts for any subset of customers.

While the benefits of the learning from the development of the pilot projects and experience to date are not isolated to either gas or electric customers, we are persuaded that, at this time, allocating the costs incurred solely to gas customers for pilot projects not advancing, prevents inequities that would result if costs were to be allocated to electric customers or a combination of electric and gas customers. Specifically, if one of these alternatives were approved, customers who receive service from gas-only utilities would bear the development costs for UTEN pilots for more than one utility, for example, an electric and gas customer in Brooklyn would pay the costs of KEDNY's pilot project through their gas bill as well as at least a portion of the costs of Con Edison's through their electric bill. Therefore, the Commission directs that the deferred costs incurred by the Utilities for Stages 1 and 2 for pilot projects not advancing to Stage 3 be recovered solely from the Utilities' gas customers. While this approach is reasonable and equitable to address the costs incurred through Stage 2 in a consistent manner for the pilot projects discussed in this Order, future orders may reach different conclusions based on the circumstances of

¹¹⁵ PSL §66-t(4).

subsequent pilot projects. Within 60 days of the issuance of this Order, each utility, with the exception of NFG and O&R, shall file a Final Pilot Project Stage 1 through Stage 2 Cost Report, with supporting workpapers, inclusive of all their pilot projects, detailing the final Stage 1 and Stage 2 costs being deferred for future recovery from customers. As the Utilities will not recover their costs until a future period, the Commission authorizes the Utilities to accrue carrying charges on the deferred balance at their Commission-authorized pre-tax rate of return until disposition of the deferral is addressed in a future rate proceeding. Further, we leave a determination of the appropriate amortization period for the deferrals to the future rate proceedings.

1. Sustainable Futures Program Funding and Tax Credits

The Commission notes the 2026-2027 New York State Enacted Budget includes, within the Sustainable Futures Program Fund:

\$150,000,000 for thermal energy network projects, including projects at public, municipal and state owned buildings, including the state university of New York and the city university of New York, and for utility thermal energy networks; emissions reductions and energy efficiency projects at public, municipal, and state owned buildings.¹¹⁶

The Commission is pleased to see the support within this year's budget to allow UTENs as an eligible category for the funds allocated to thermal energy networks. The Commission understands that the two pilot projects advanced through this Order will benefit from the allocation of \$93 million funding from the Sustainable Futures Program to offset the estimated capital costs associated with the pilot projects that otherwise would be recovered from NFG and O&R ratepayers.

¹¹⁶ See Laws of 2026, Chapter 54, Capital Projects Budget Appropriation (enacted June 9, 2026).

This dramatically decreases the bill impact associated with implementation of these projects. Staff will work with the applicable State entities, NFG, and O&R, to identify eligible costs, execute any necessary agreements to allow for the transfer of funds, and ensure any funds made available through the State budget reduce the costs being deferred or recovered through the utilities' respective surcharge mechanisms.

Additionally, NFG and O&R are directed to pursue all available tax credits or other non-ratepayer funding that is currently available, or that becomes available, to further reduce the costs that need to be recovered from customers or allocated from Sustainable Futures Program funds. If such tax credits or funding becomes available, NFG and O&R shall work with Staff to ensure proper ratemaking treatment of such funds.

2. NFG Cost Recovery

For NFG's Buffalo Pilot advancing to Stage 3, the Commission authorizes NFG to defer the incremental costs incurred for Stage 1 through Stage 5 that exceed the amounts already provided for in base rates, capped at \$61.4 million, less any funds received through the Sustainable Futures Program. The amount received through the Sustainable Futures Program is expected to mitigate the capital costs associated with the pilot project.

To avoid a significant deferred balance to be recovered from customers and to mitigate future bill impacts, the Commission authorizes NFG to recover these costs through the LTP Statement commencing on January 1, 2027. NFG shall update the LTP Statement annually on October 1st of each year and include it as a component of the Delivery Adjustment

Charge line item on customers' utility bills.¹¹⁷ Any thermal energy fee revenues produced by the pilot would reduce the revenue requirement to be recovered through the surcharge.

Specifically, NFG is authorized to recover the deferred balances associated with Stages 1 and 2 of the Buffalo Pilot and the revenue requirement impact (i.e., return on and return of utility-sided investments and the utility's share of customer equipment upgrades, cost of removal, incremental O&M expenses and property taxes) of the Buffalo Pilot during the five-year pilot period. To ensure that ratepayers do not pay for costs not yet incurred nor investments that have not been placed into service, the revenue requirement impact shall be based on the actual costs incurred and investments placed into service each year and shall not be based on projections. Thus, NFG's proposed reconciliation mechanism related to capital expenditures and O&M expenses associated with the Buffalo Pilot is denied.

NFG's current rate plan includes a property tax reconciliation by which NFG reconciles the difference between its authorized rate allowance and the actual costs incurred related to property taxes.¹¹⁸ Therefore, to avoid any potential for double recovery of costs, NFG shall exclude

¹¹⁷ The costs shall be recovered volumetrically from gas customers within service classes SC-1, SC-2, SC-3, SC-7, SC-13, and SC-18, as proposed. The costs shall be allocated to these customer classes based on the annual delivery revenues authorized by the Commission during the relevant period. The allocated costs shall then be divided by the forecasted throughput to establish a \$/Mcf rate to be included in the LTP Statement.

¹¹⁸ Case 23-G-0627, NFG - Rates, Order Adopting Terms of Joint Proposal and Establishing Gas Rate Plan with Minor Modifications (issued December 19, 2024), p. 48.

incremental property taxes associated with the Buffalo Pilot from its property tax reconciliation.

Regarding the proposed accounting treatment for utility-owned assets and customer-sided equipment, NFG proposes that these capital investments be treated as regulatory assets and amortized over a specified time period. Given the fact that we are allowing NFG to recover these investments through a surcharge mechanism for the duration of the pilot period as opposed to recovery through base rates, we find the proposed accounting treatment to be appropriate. Further, such treatment will allow for these investments to be tracked separately from the utility's typical capital investments, which will ensure that capital investments related to the Buffalo Pilot are not inadvertently double-recovered from ratepayers and will help facilitate the accounting for any funds received from the Sustainable Futures Program.

All costs recovered through the Delivery Adjustment Charge shall be subject to Staff review. Further, to protect ratepayers, the amount related to the Buffalo Pilot recovered through this charge shall be subject to an annual cap of 1.0 percent of NFG's actual annual gas operating revenues for the prior calendar year.

NFG shall include within its Monthly Progress and Expenditure Reports the actual expenditures incurred to date, a monthly cost forecast, and a copy of the LTP Statement rate for the Buffalo Pilot, including all calculations. NFG shall file revised tariffs on not less than three days' notice, to become effective on January 1, 2027, to reflect the recovery of the pilot costs in its LTP Statement. Thereafter, NFG shall update these costs annually on October 1st, on not less than 30 days' notice. The Commission waives the requirements

of newspaper publication pursuant to PSL §66(12)(b) and 16 NYCRR §720-8.1, provided NFG directly notifies affected customers at least 30 days prior to the Delivery Adjustment Charge going into effect.

NFG does not explicitly address costs associated with restoring Buffalo Pilot participant building spaces and heating and cooling systems for customers who choose to disconnect from the UTEN during the pilot period, in accordance with an updated customer agreement, or if NFG decommissions the pilot during the pilot period. If either of these scenarios come to fruition and the associated costs exceed what could be covered through the Buffalo Pilot project budget authorized herein, NFG is not precluded from filing a petition with the Commission to request recovery of the incremental costs in excess of their approved budget.

3. O&R Cost Recovery

For O&R's West Loop Pilot advancing to Stage 3, the Commission authorizes O&R to defer the incremental costs incurred for Stage 1 through Stage 5 that exceed the amounts already provided for in base rates, capped at \$50.1 million less any funds received through the Sustainable Futures Program. The amount received through the Sustainable Futures Program is expected to mitigate the capital costs associated with the pilot project.

As previously discussed, O&R proposes to recover the costs associated with the West Loop Pilot from only electric customers, stating:

UTEN systems, like the Haverstraw Pilot, have the potential to help achieve CLCPA goals with exceptional efficiency and correspondingly lower electric system expansion costs. Thus, recovery from electric customers properly aligns UTEN costs with the energy commodity associated with these benefits. Recovery from electric customers will result in lower bill impacts compared to recovery from gas customers due

to the greater number of electric customers and the larger size of the electric business.¹¹⁹

While the quantification of benefits a UTEN pilot may provide to the electric grid is not yet known, the Commission finds O&R's rationale for recovering the pilot project costs from electric customers to have merit, notably the reduction in overall bill impacts to customers. In addition to the benefits articulated by O&R, the pilot project will result in increased electric sales due to the electrification of space and water heating, which allows for costs related to O&R's electric business to be spread over a larger customer base resulting in an overall lower cost of service to its customers.

While O&R's Haverstraw Pilot, as proposed, consists of two independent UTEN systems or loops, a West Loop and an East Loop, that function as discrete UTEN pilot projects, the Stage 1 and 2 costs O&R incurred are not distinguishable between the two loops, rather the costs are attributable to the Haverstraw Pilot in its entirety. As such, the Commission determines it is appropriate to authorize O&R to recover its Stage 1 and 2 costs for the Haverstraw Pilot, inclusive of the East Loop and West Loop projects along with the Stage 3 through 5 costs for the West Loop Pilot project. These costs shall be offset by any UTEN revenue collected from participating customers, any eligible tax credits, or other sources of funds, should they become available.

The Commission authorizes O&R to recover the pilot project costs associated with Stages 1 and 2 for the East Loop and West Loop Pilots, as identified in Table 11, above, and the costs associated with Stages 3 through 5 for the West

¹¹⁹ 22-M-0429, ORU Village of Haverstraw UTEN Pilot Stage 2 Filing (filed July 9, 2025), p. 53.

Loop Pilot, as identified in O&R's Stage 2 Filing, from its electric customers. In addition, to avoid a significant deferred balance to be recovered from customers and to mitigate future bill impacts, the Commission authorizes O&R to recover these costs through a surcharge mechanism, as a component of the ECA, as proposed. Specifically, O&R is authorized to recover the deferred balances associated with Stages 1 and 2 of the East Loop and West Loop Pilots and the revenue requirement impact (i.e., return on and return of utility investments and the utility's share of customer equipment upgrades, cost of removal, incremental O&M expenses and property taxes) of the West Loop Pilot during the five-year pilot period. Similar to direction provided to NFG, the revenue requirement impact shall be based on actual costs incurred and investments placed into service each year and not projections.

O&R's current rate plan includes a property tax reconciliation by which O&R reconciles the difference between its authorized rate allowance and the actual costs incurred related to property taxes.¹²⁰ Therefore, to avoid any potential for double recovery of costs, O&R shall exclude incremental property taxes associated with the West Loop Pilot from its property tax reconciliation.

Regarding the accounting treatment, for the reasons previously discussed, both utility investments and customer equipment upgrades shall be recorded as separate regulatory assets and amortized over the proposed recovery periods.

All costs recovered through the surcharge shall be subject to Staff review. Further, to protect ratepayers, the amount recovered through this surcharge shall be subject to

¹²⁰ Cases 24-E-0060 and 24-G-0061, O&R - Rates, Order Establishing Rate Plan (issued March 20, 2025).

an annual cap of 1.0 percent of O&R's actual annual electric operating revenues for the prior calendar year.

O&R shall include within its Monthly Progress and Expenditure Reports the actual expenditures incurred to date, a monthly cost forecast, and its surcharge rate calculation. O&R shall file revised tariffs on not less than three days' notice, to become effective on January 1, 2027, to reflect the recovery of the pilot costs in its ECA. Thereafter, O&R shall update these costs annually on January 1st, on not less than 30 days' notice. The Commission waives the requirements of newspaper publication pursuant to PSL §66(12)(b) and 16 NYCRR §720-8.1, provided O&R directly notifies affected customers at least 30 days prior to the surcharge going into effect.

In addition, in its Stage 2 Filing, O&R requests recovery of the revenue requirement impact of prudently incurred costs associated with restoring West Loop Pilot participant building spaces and heating and cooling systems for participants who choose to disconnect from the UTEN during the pilot period, in accordance with the Customer Agreement or if O&R decommissions the pilot during the pilot period. If either of these scenarios come to fruition and the amount exceeds the estimates included in O&R's project budgets, O&R is not precluded from filing a petition with the Commission to request recovery of the incremental costs in excess of their budget estimates. Further, O&R requests that if the Commission at any time orders the sale of the UTEN to a third party that the proceeds from the sale be used to offset its remaining undepreciated capital assets and/or unamortized regulatory assets, with any remaining proceeds accruing to the benefit of electric customers. The

Commission does not opine on this matter in this Order as it is merely hypothetical at this time.

NFG Buffalo Pilot - Advancing to Stage 3

As discussed herein, while the Commission is authorizing NFG's Buffalo Pilot to proceed to Stage 3, it is not without some reservations, as discussed above. Therefore, NFG is directed to work in consultation with Staff to address, to the extent possible, concerns raised in the General Themes and Pilot Specific Determinations sections of this Order to maximize what can be learned, improve the economic viability of the Buffalo Pilot and minimize financial risk to NFG's ratepayers. Stage 3 consists of two sub-stages, 3a: Customer Enrollment and 3b: Pilot Project Construction.

1. Customer Protection Plan

As stated in the Guidance Order, at the core of a successful UTEN is customer adoption and satisfaction.¹²¹ The Commission reaffirms the importance of customer outreach and education that clearly articulates the benefits and impacts of the UTEN to customers and end use participants as well as the assurance that end user participants are appropriately protected. As discussed, the Buffalo Pilot includes two primary customers, Beacon Communities, the owner of the Shoreline Apartments, and the City of Buffalo, which owns the Buffalo City Court. Beyond these customers, pilot project end users or participants include the residents of the Shoreline Apartments. As such, NFG's ability to successfully enroll customers and ensure pilot project end user participants, including residents of multifamily apartments

¹²¹ Guidance Order, p. 40.

who may not be a directly billed customer of the utility, are provided with adequate heating, DHW, and cooling services throughout the pilot period largely hinges on the successful development and implementation of the Buffalo Pilot Stage 3 - Customer Protection Plan.¹²²

As discussed above, the Customer Protection Plan for the Buffalo Pilot that NFG submitted with its Stage 2 Filing meets the minimum requirements directed within the Guidance Order. Given the Commission's approval to advance the NFG Buffalo Pilot to Stage 3 and to ensure successful engagement and protections for end use pilot participants of the Buffalo Pilot, we provide additional guidance to inform the further refinement of that plan into the Buffalo Pilot Stage 3 Customer Protection Plan. As such, NFG, in consultation with Staff, is required to finalize its Buffalo Pilot Stage 3 Customer Protection Plan, which shall include, at a minimum, a further revised customer engagement strategy, customer agreement, and complaint resolution procedures, as detailed below with the Secretary to the Commission no later than 120 days following the issuance of this Order.

a. Customer Engagement Strategy

NFG's customer engagement strategy adequately outlines an outreach and engagement plan to facilitate collaboration between NFG and the two primary customers. The primary components of the plan entail: (1) the implementation of a phased approach that tailors outreach to the pilot stages; (2) key messaging points describing the benefits of geothermal energy and the pilot project; (3) an ongoing commitment to collaborate with customers; and (4) the

¹²² By end use pilot participants, the Commission includes those such as tenants within the buildings that connect to the UTEN during the pilot period.

identification of core audiences and recommended channels of communication.¹²³ NFG is directed to include a dedicated UTEN hotline, as well as the development of training materials for customer service representatives who will address UTEN customer calls through the hotline as part of its customer engagement strategy. Furthermore, to improve NFG's engagement strategy, NFG is directed to update its communication materials to reflect the Commission's approval to advance the Buffalo Pilot to Stage 3. Additionally, the Commission requires that NFG provide an updated pilot project outreach schedule, develop a community engagement calendar that describes the various outreach, engagement, and education materials it will disseminate to customers and end-use pilot participants, stakeholders, and the public both throughout Stage 3 and the entire pilot period. NFG shall provide updates associated with all communication materials within its Monthly Progress and Expenditure Report.

As discussed, with the approval to advance to Stage 3, a pivotal objective of NFG's customer engagement strategy must be the outreach and communication to the two main customers and the end use pilot participants. While NFG states that it will disseminate outreach and engagement materials in multiple languages, the Commission clarifies that NFG must ensure it provides outreach and engagement materials that are linguistically accessible for customers and other pilot participants. To ensure this is done, NFG shall identify the languages used within the Buffalo Pilot's service area as part of its Buffalo Pilot Stage 3 Customer Protection Plan.

¹²³ Case 22-M-0429, NFG UTEN Pilot Stage 2 Filing (filed February 23, 2026).

The final component of the customer engagement strategy is to gauge customer and end use participant satisfaction, which is proposed by NFG to be conducted throughout the pilot period, primarily through periodic customer surveys. NFG indicates it will align survey administration with the methods and frequency identified in the Performance Metrics Report. NFG further indicates that surveys will provide additional information on participants' experiences with the pilot process and other relevant facets of the pilot projects' process, such as pilot participation information, community awareness of UTENS, and customer engagement with NFG. NFG, however, did not describe the processes it will employ to follow up with customers or end use participants in the event survey responses indicate a poor experience, lack of satisfaction, or flag areas of concern with the Buffalo Pilot. To ensure NFG addresses such feedback, improves transparency, and identifies opportunities to improve customer and end use participant experience, NFG is directed to develop and incorporate a process to contact survey participants who indicate dissatisfaction with any aspect of the Buffalo Pilot into its customer engagement strategy included in its Buffalo Pilot Stage 3 Customer Protection Plan.

Similarly, to ensure appropriate administration and adequate follow-up with survey participants, NFG shall provide the language of the customer surveys, the methodology for how the surveys will be disseminated to customers, how customers can provide feedback, and how NFG will address concerns. Further, NFG shall develop a tracking mechanism to monitor these survey responses, feedback, and any follow-ups. NFG shall include the aforementioned survey detail and the

process and tracking mechanism of customer surveys in its Buffalo Pilot Stage 3 Customer Protection Plan.

b. Customer Agreement

The customer agreement template NFG provided as part of its Stage 2 Filing recognizes the need to define the pilot period and outlines utility and customer responsibilities. It also includes provisions for site accessibility, equipment installation and maintenance, pricing and adjustments, billing and payment terms, including a thermal energy service fee and thermal resource fee as well as participation and withdrawal options. NFG details that the rights, responsibilities, protections, and obligations provided within NFG's gas tariff and detailed within HEFPA, and other regulations and statutes will be applicable to UTEN participants.

The customer agreement template provided by NFG as part of its Stage 2 Filing meets the minimum requirements identified in the Guidance Order, however it requires additional detail and further development before NFG uses it to communicate the specifics of the pilot project and formally enroll customers.¹²⁴ NFG shall work with Staff to ensure its customer agreement accurately reflects details related to the thermal energy fee, thermal energy resource fee, the responsibilities of the customer and utility for various pilot period and post-pilot participation scenarios, and to ensure customers are transparently informed of the components that will be on their bills prior to enrolling pilot participants, some of which are discussed below. NFG shall also ensure the customer agreement accurately reflects all relevant HEFPA protections. NFG shall file an updated

¹²⁴ Case 22-M-0429, NFG UTEN Stage 2 Filing (filed February 23, 2026), Appendix E: Customer Agreement.

version of its customer agreement as part of its Buffalo Pilot Stage 3 Customer Protection Plan.

c. Customer Thermal Energy Fee

The Commission acknowledges that it is important to minimize the impact of any potential increase to a customer's utility bill. Similarly, such bill protections are important to entice customers to participate in a pilot project. NFG proposes a thermal energy fee structured to provide protection from the potential financial unpredictability of participation in the Buffalo Pilot. The thermal energy fee would be a flat monthly fee, based on each individual customer's three-year historical average gas bill, discounted for the assumed increase in the customer's electric usage once the Buffalo Pilot is in service. As a result, according to NFG, total utility bills should remain consistent with what customers would have paid with their legacy equipment to heat their homes. NFG states that it would adjust the thermal energy fee annually by an appropriate inflation rate, over the course of the five-year pilot period, however, NFG did not define the inflation rate.

Given the importance of accurate and transparent utility bills and the potential for disputes to arise, it is crucial that the calculation method NFG uses to determine the thermal energy fee be robust, reliable, and clear to the Buffalo Pilot customers as well as any potentially impacted end use pilot project participants. To ensure this, the Commission directs NFG to work with Staff to refine details regarding the methodology, including but not limited to, weather normalization and the treatment of customers without pre-existing air conditioning. Further, we direct NFG to work with Staff to document how NFG will ensure customers understand how the thermal energy fee will be calculated and

described on their bills. Following consultation with Staff, NFG shall provide a clear, concise description of these items, and identify the inflation rate to be used for the annual adjustment of the thermal energy fee, along with any additional information that may be required to clearly articulate the thermal energy fee in the Buffalo Pilot Stage 3 Customer Protection Plan.

d. Thermal Energy Resource Fee

NFG states that it is in the process of establishing a methodology for a thermal energy resource fee that it could pay to the energy producers for access to the thermal energy generated by their systems and property access. Further, according to NFG, it has discussed establishing a thermal energy resource fee with the City of Buffalo primarily to create a precedent and methodology for accessing thermal resources under the City of Buffalo's control in the future, primarily through the wastewater system that the Buffalo Sewer Authority operates and maintains. The customer agreement template states that NFG will pay a negotiated price for thermal energy to cover the thermal resource provider's production costs while meeting pilot needs, indicating NFG's intended approach to establishing the thermal energy resource fee.

While the Commission recognizes the complex, time intensive and costly process of developing a thermal energy resource fee agreement particularly in advance of approval to advance the pilot, such fees are part of a pilot's costs and have the potential to impact the viability of the pilot and associated impact on NFG ratepayers. To ensure a viable framework for the purchase and sale of thermal energy, NFG is directed to, in consultation with Staff, refine and clarify details related to establishing the thermal energy resource

fee(s), including but not limited to pricing, rate and payment terms, standards of service and responsibilities of the thermal energy resource owner(s). NFG shall include a description of the details, along with any additional information that may be required to clearly articulate the UTEN thermal energy resource fee in its Buffalo Pilot Stage 3 Customer Protection Plan.

e. Customer Opt-out During the Pilot Period

NFG states that customers may opt out of the pilot if the UTEN system fails to meet the specified standards, and such deficiencies cannot be reasonably remedied. This circumstance would require the customer to promptly notify NFG of concerns and allow NFG to investigate the root cause of the issue. In such instances, the customer would be entitled to withdraw from participation in the pilot and NFG proposes to provide the customer with reasonable alternative options. NFG states that the customer is entitled to return to the type of heating, cooling, and domestic hot water distribution systems that pre-existed participation in the pilot or to a system that provides comparable service. Further, NFG would provide for the removal of all equipment that is no longer being used and is responsible for reconnecting and confirming the functionality of the original type of heating, cooling and DHW systems. However, NFG proposes that cooling services added as part of the pilot project would end with the withdrawal from the pilot project.

While NFG explicitly states that the customer will be solely responsible for all future operation and maintenance costs of the original heating, cooling, and DHW systems consistent with pre-pilot participation, it is less clear on which entity, the customer or NFG, will be responsible for the costs to return the customer to the

heating, cooling and DHW distribution systems that pre-existed participation in the pilot or to a comparable system that provides comparable service.

Similarly, the details associated with provisions for alternative heating options in instances where a customer wants to withdraw from participation in the pilot due to any other reason is unclear. The Commission agrees that limiting customers' ability to leave the pilot during the five-year pilot period to instances where NFG is unable to supply the customer with adequate heating or cooling is a justifiable approach to protect the ratepayers' investment in the pilot project and mitigate the potential for an early end to the pilot resulting in stranded assets. However, consideration must be given to the costs of the alternatives and the customer must notify NFG and give NFG an opportunity to investigate and correct the deficiency. As discussed, if NFG cannot correct the deficiency, provisions for conversion to the previous system should be afforded within the confines of reasonableness and employ cost containment options. NFG shall ensure the Buffalo Pilot Stage 3 Customer Protection Plan details what the customer's options are to arrange for alternative heating and cooling services and who (either the customer opting out or NFG) would be responsible for the associated costs.

f. Customer Options at the End of Pilot Period

At the end of the pilot period, the experience gained will likely require a future Commission determination regarding post-pilot operation of the Buffalo UTEN. Generally, NFG anticipates that participating customers will be satisfied with the performance and benefits of the UTEN. NFG states that it expects to learn from the Buffalo Pilot to inform future thermal rate structures and proper ownership of

the UTEN, however, NFG provides limited detail on the proposed approach to review, develop recommendations, or initiate pilot close-out activities for the post-pilot period. NFG does provide a description of customer options at the conclusion of the Buffalo Pilot, including the continuation and discontinuation of the provision of thermal energy through the UTEN.

In the event the thermal energy network remains operational post-pilot, NFG proposes that it may offer the option to remain connected to the UTEN, however, this would be dependent on the outcome of the pilot project and would be subject to potential ownership arrangements, which could involve NFG or a third party. Relatedly, NFG proposes to evaluate the potential for transferring ownership of the equipment, as applicable, to the customer which would be addressed in a post-pilot customer agreement.¹²⁵

In the event that the provision of thermal energy through the UTEN is discontinued post-pilot, NFG states that it would return the customer to the type of heating, cooling, and domestic hot water distribution systems that pre-existed the Buffalo Pilot or to a comparable system, subject to technical and regulatory feasibility. NFG does not, however, provide information on the potential pilot participant conversion options for thermal heating and cooling service if customers participating in the Buffalo Pilot decline to continue receiving thermal service from the UTEN post-pilot.

Ensuring clear and transparent customer options at the end of the pilot period is a necessary component of the

¹²⁵ Any potential transfer of utility assets would need to be determined through a PSL §70 filing with the Commission and include a quantification of reimbursement to ratepayers associated with such transfer.

customer enrollment process and must be included in the customer agreement, including the entity responsible for the conversion costs and details on the eligible types of equipment. NFG shall ensure its Buffalo Pilot Stage 3 Customer Protection Plan details the customer options and responsibilities as well as the utility's responsibilities at the conclusion of the pilot period.

g. Decommissioning of the Buffalo UTEN During the Pilot Period

NFG does not discuss what steps it would take in the unlikely event that circumstances beyond its control renders the UTEN system ineffective, necessitating the decommissioning of the pilot before the full term of the pilot period has been completed. In such an instance, the Commission would expect NFG to be responsible for the costs of converting UTEN-connected customers in the same manner as outlined for customers leaving the system due to performance issues, by converting each customer's system cost-effectively on a case-by-case basis. NFG shall include these details within the customer agreement component of its Buffalo Pilot Stage 3 Customer Protection Plan.

2. Customer Enrollment

As stated in the Guidance Order, formal customer enrollment requires the execution of a customer agreement between the utility and the customers participating in the pilot. For the Buffalo Pilot, there are two primary customers, the City of Buffalo and Beacon Communities, which comprises 12 separate apartment buildings containing approximately 87 apartment units. Recognizing this unique aspect of the Buffalo Pilot project, NFG must enroll both the City of Buffalo and Beacon Communities as participants in the Buffalo Pilot before it may initiate construction of the pilot. Participation by both customers is necessary to

successfully operate the UTEN as designed, gain sufficient pilot learnings, and justify ratepayer investment. Once NFG has executed customer agreements with the City of Buffalo and Beacon Communities, NFG shall file a letter with the Secretary of the Commission documenting that it has met this milestone.

3. Buffalo Sewer Authority Approval, Permits and Agreements

As previously discussed, success of the Buffalo Pilot, as designed, requires the approval from the Buffalo Sewer Authority to access the Buffalo Sewer Authority wastewater influent as the primary thermal resource. Failure to obtain approval from the Buffalo Sewer Authority has the potential to add costs to the pilot, at a minimum, and more than likely render the Buffalo Pilot infeasible as proposed. Accordingly, prior to commencing construction of the Buffalo Pilot, NFG shall obtain all necessary approvals, access agreements, use agreements, and permits required for the utilization of the wastewater from the identified sewer main. Upon securing such approvals and executing the necessary agreements, NFG shall file a letter with the Secretary documenting that this requirement has been satisfied.

4. City of Buffalo Agreements

As discussed, the Buffalo Pilot relies on access to land for UTEN infrastructure, including the energy center. Failure to obtain land use, access, and resource use agreements with the City of Buffalo could require significant modifications to the project design, increase project costs, and potentially render the Buffalo Pilot infeasible as proposed. Accordingly, prior to commencing construction of the Buffalo Pilot, NFG shall secure the necessary agreements with the City of Buffalo governing the installation, operation, and maintenance of UTEN infrastructure on City

property. Upon executing such agreements, NFG shall file a letter with the Secretary documenting that this requirement has been satisfied.

5. Other Agreement(s)

As discussed, the Buffalo Pilot, as designed, includes a geothermal borefield located on privately owned property. Failure to secure the necessary land use, access, and resource use agreements with the property owner could require modifications to the approved pilot design and associated cost estimates. Accordingly, prior to commencing construction of the Buffalo Pilot, NFG shall either:

(1) secure the necessary agreements with the property owner governing the installation, operation, and maintenance of the borefield, including any agreed-upon compensation associated with the use of the property and subsurface rights; or

(2) finalize a revised project design that does not incorporate the borefield and identify any resulting impacts on project costs, performance, schedule, or expected benefits. Upon securing the necessary agreements or completing a revised project design that does not incorporate the borefield and addresses associated impacts, NFG shall file a letter with the Secretary documenting that this requirement has been satisfied.

6. Labor and Workforce Development

The Commission recognizes NFG's plans to comply with the Act's labor requirements during construction of the UTEN and to engage its existing union workforce in the O&M of the pilot project. According to NFG, it will rely primarily on external contractors for construction, with NFG overseeing project management and inspection, and construction contracts for HVAC conversions and utility distribution system work will require compliance with union labor and prevailing wage

requirements. For O&M, NFG envisions working with its existing union workforce under its collective bargaining agreements with IBEW Local 2154, which represents natural gas field employees, and IBEW Local 2199, which represents clerical and customer service employees. NFG states that it is evaluating the resources, skillsets, and training required to operate and maintain the Buffalo Pilot, after which it will engage its labor relations team and union representative to discuss a potential path forward for O&M.

NFG also submitted a Training and Qualification Plan describing how, and on what topics, it will train personnel, contractors, operators, customer-facing staff, dispatch personnel, and maintenance staff. In addition, NFG will continue engaging community partners, including the Buffalo Public Schools through its Utility Technician Internship Program, to develop the pipeline of talent entering the utility industry. The Commission believes that the steps outlined by NFG are consistent with the intention of the Act. Given the Act's emphasis on labor and workforce development, NFG shall include updates on these components in their Monthly Progress and Expenditure Reports so that all stakeholders can understand the status of these efforts.

O&R West Loop Pilot - Advancing to Stage 3

As discussed herein, while the Commission is authorizing the O&R West Loop Pilot to proceed to Stage 3, it is not without some reservations, as discussed above. Accordingly, O&R is directed to work in consultation with Staff to address, to the extent possible, concerns raised in the General Themes and Pilot Specific Determinations sections of this Order to maximize what can be learned, improve the economic viability of the O&R West Loop Pilot project and

minimize financial risk to O&R's ratepayers. As noted above, Stage 3 consists of two sub-stages, 3a: Customer Enrollment and 3b: Pilot Project Construction.

1. Customer Protection Plan

As stated in the Guidance Order, at the core of a successful UTEN is customer adoption and satisfaction.¹²⁶ The Commission reaffirms the importance of customer education that clearly articulates the benefits of the UTEN to customers and the assurance that pilot project participants are appropriately protected. As such, the ability of O&R to enroll customers largely hinges on the successful development and implementation of a West Loop Pilot-specific Customer Protection Plan.

As discussed, the Customer Protection Plan O&R submitted for the overall Haverstraw Pilot (both the East Loop and the West Loop) successfully meets the minimum requirements directed in the Guidance Order. Given the Commission's approval to advance the West Loop Pilot to Stage 3 and to ensure successful engagement and protections for participants of the West Loop Pilot, we provide additional guidance to inform the development of O&R's West Loop Pilot Stage 3 Customer Protection Plan, as appropriate. O&R shall consult with Staff as it refines its West Loop Pilot Stage 3 Customer Protection Plan, which shall include its outreach and education strategy and associated activities, a finalized customer and other appropriate agreements, and complaint resolution procedures. O&R shall file its West Loop Pilot Stage 3 Customer Protection Plan with the Secretary to the Commission no later than 120 days following the issuance of this Order.

¹²⁶ Guidance Order, p. 40.

a. Customer Engagement Plan

O&R provides a customer engagement plan that adequately outlines strategies to: (1) engage stakeholders, (2) recruit participants, and (3) promote customer satisfaction throughout the pilot period.¹²⁷ O&R's engagement strategy, although substantive, can be improved. Accordingly, we direct O&R to include a dedicated UTEN hotline, as well as the development of training materials for customer service representatives who will address UTEN customer calls through the hotline. Additionally, the Commission directs O&R to update engagement and education materials including pamphlets, bill inserts, and newsletters to reflect the Commission's approval to advance the West Loop Pilot to Stage 3.

O&R is directed to update its communication materials to reflect the Commission's approval to advance the West Loop Pilot to Stage 3. Similarly, O&R is directed to provide an updated pilot project outreach schedule, to develop a Community Engagement calendar that describes the various outreach, engagement, and education materials it will disseminate to customers and end-use pilot participants, stakeholders and the public throughout Stage 3, as well as throughout the duration of the pilot period. O&R shall provide updates associated with all customer engagement materials, within its Monthly Progress and Expenditure Report.

Additionally, O&R shall ensure it provides outreach and engagement materials that are linguistically accessible for customers and other pilot participants. To ensure this

¹²⁷ Case 22-M-0429, ORU Village of Haverstraw UTEN Pilot Stage 2 Filing (filed July 9, 2025), Appendix J - Customer Engagement Plan.

is done, O&R shall identify the languages spoken within the West Loop Pilot's service area in its West Loop Pilot Stage 3 Customer Protection Plan.

As discussed, with the approval to advance to Stage 3, a pivotal objective of O&R's customer engagement strategy is the recruitment and enrollment of pilot project participants. O&R includes a recruitment and implementation plan as part of its customer engagement plan that outlines the enrollment process, including initial outreach to potential customers, customer site assessments, development of the customer agreement and the UTEN installation process. O&R's Stage 3a enrollment process is further discussed below.

The final component of O&R's customer engagement plan is the gauging of customer satisfaction, which it proposes to conduct throughout the pilot period, primarily through periodic customer surveys. O&R indicates it will align survey administration with the methods and frequency identified in the Performance Metrics Report. The surveys will gather feedback on customers' pilot experiences as well as other aspects of the pilot project process (e.g., participation rates, awareness, customer engagement with the utility). O&R, however, has not described the process it would employ to follow up with customers in the event of survey responses indicating a poor experience, lack of satisfaction, or flagging areas of concern with the West Loop Pilot. To ensure O&R addresses such feedback, improves transparency, and identifies opportunities to improve customer experience, we direct O&R to incorporate a process to contact customers who indicate dissatisfaction with any aspect of the West Loop Pilot into the customer engagement plan it submits as part of its West Loop Pilot Stage 3 Customer Protection Plan.

Similarly, to ensure appropriate administration and adequate follow-up with survey participants, O&R shall provide the language of the customer surveys, the methodology for how the surveys will be disseminated to customers, how customers can provide feedback, how O&R will address customer concerns, and the frequency of conducting surveys. Further, O&R shall develop a tracking mechanism to monitor these survey responses, feedback, and any follow-ups. O&R shall include the aforementioned survey detail as well as the process and tracking mechanism of customer surveys in its West Loop Pilot Stage 3 Customer Protection Plan.

b. Customer Agreement

The customer agreement template O&R provided as part of its Stage 2 Filing includes the proposed term of the pilot period, utility and customer responsibilities, a UTEN access, or thermal, fee and customer cost guarantee, and elements of what will occur at the end of the pilot period. Of note and further described below, O&R separately describes the need to establish a distinct stakeholder agreement with the Village of Haverstraw for the installation and operation of UTEN infrastructure and boreholes on Village property.

O&R acknowledges its customer agreement must incorporate all relevant HEFPA protections, including provisions regarding service terminations and complaint resolution procedures.¹²⁸ The customer agreement template O&R provided as part of its Stage 2 Filing meets the minimum

¹²⁸ O&R's customer agreement template states that any complaint filed with the utility regarding disputed bills, charges, deposits or service problems would be promptly investigated in accordance with the procedures and form of notice required by the Commission's rules contained in 16 NYCRR Section 11.20 and Part 275. Case 22-M-0429, ORU Village of Haverstraw UTEN Pilot Stage 2 Filing (filed July 9, 2025), Appendix K - Customer Agreement Template, p. 18.

requirements identified in the Guidance Order, however it requires further development before O&R uses it to communicate the specifics of the pilot project and formally enroll pilot project participants.¹²⁹ Additionally, O&R's customer agreement template includes several provisions that are contrary to information presented in other components of their Stage 2 Filing. O&R shall work with Staff to ensure the final customer agreement accurately reflects all relevant HEFPA protections, in addition to details related to the customer cost guarantee, UTEN access fee, the responsibilities of the customer and utility for various pilot period and post-pilot participation scenarios, among other things, to ensure customers are transparently informed of the components that will be on their bills prior to enrolling pilot participants. O&R shall file an updated version of its customer agreement template for the West Loop Pilot as part of its finalized West Loop Pilot Stage 3 Customer Protection Plan.

c. Customer Cost Guarantee

The Commission recognizes that the customer cost guarantee is a critical component to entice customers to participate in the West Loop Pilot project. Given the importance of the customer cost guarantee and the potential for disputes to arise, it is crucial that the calculation method be robust, reliable, and clear to all pilot participants. To ensure this, the Commission directs O&R to work with Staff to establish specific details regarding the methodology, including but not limited to, weather normalization and the treatment of customers without pre-

¹²⁹ Case 22-M-0429, ORU Village of Haverstraw UTEN Pilot Stage 2 Filing (filed July 9, 2025), Appendix K - Customer Agreement Template.

existing air conditioning and how O&R will ensure participants understand how the customer cost guarantee will be detailed on their bills. O&R shall provide a clear, concise description of these items, along with any additional information that may be required to clearly articulate the customer cost guarantee, in its West Loop Pilot Stage 3 Customer Protection Plan.

d. UTEN Access Fee

To generate revenue to offset some of the UTEN operational costs, O&R proposes a monthly UTEN access fee based on the heating capacity of a customer's GSHP.¹³⁰ The Commission recognizes O&R's proposed UTEN access fee, in concert with the customer cost guarantee, as an attempt to transition pilot participants to an eventual cost of service-based model. The Commission directs O&R to work with Staff to establish a process for periodic review of the UTEN access fee to determine the extent to which it successfully offsets a portion of operational costs. O&R shall include a description of the process, along with any additional information that may be required to clearly articulate the UTEN access fee in its West Loop Pilot Stage 3 Customer Protection Plan.

e. Customer Opt-out During the Pilot Period

O&R proposes that customers must remain a participant of the West Loop Pilot for the duration of the pilot period and may not opt out of the pilot unless the UTEN is not providing adequate heating or cooling service. In that case, O&R would fully fund the conversion to an alternate heating and cooling system to ensure the customer receives adequate service, including the purchase of the

¹³⁰ Case 22-M-0429, ORU Village of Haverstraw UTEN Pilot Stage 2 Filing (filed July 9, 2025), p. 44.

equipment and installation. If the customer joins but then opts out of the pilot due to any other reason, however, it is unclear what the customer's options would be to arrange for alternative heating and cooling services and who (either the customer opting out or O&R) would be responsible for the associated costs. O&R shall ensure the West Loop Pilot Stage 3 Customer Protection Plan details the customer and utility responsibilities in such a scenario.

f. Decommissioning of the West Loop UTEN During the Pilot Period

O&R states that, in the unlikely event that circumstances beyond its control render the UTEN system ineffective, it may be necessary to decommission the pilot before the full term of the pilot period. In such an instance, O&R proposes that it would be responsible for the costs of converting UTEN-connected customers to alternative heating and cooling systems, using the most cost-effective method to convert each system on a case-by-case basis.

g. Customer Options at the End of Pilot Period

At the end of the pilot period, the experience gained will likely require a future Commission determination regarding post-pilot operation of the West Loop UTEN. O&R describes the development of a Pilot Review and Recommendations Report and a Pilot Close-Out Report, that among other things, will present its recommendations for the post-pilot period.

At this time, O&R provides multiple scenarios to provide transparency and clarity to potential pilot participants with respect to the post-pilot period, including the continued operation of the West Loop UTEN. However, O&R describes two distinct scenarios that would require O&R to convert the thermal heating and cooling service to an alternative: (1) pilot project participant(s) decline to

continue receiving thermal service from the UTEN, even though the UTEN would continue operating, and (2) the UTEN will not be available to continue providing thermal service to the pilot project participant(s). In both scenarios O&R would provide information to the customer on the three alternative options for conversion off of the UTEN system, including the associated costs.

The three alternative options include: (1) a return to the original type of heating, cooling, and domestic hot water systems that pre-existed the pilot;¹³¹ (2) the shift to an all-electric ASHP system which would reuse UTEN equipment to the extent possible;¹³² or (3) a shift to an individual GSHP system.¹³³

In the case of the first scenario, where the pilot project participant declines to continue receiving thermal service, the customer must choose an option and would be responsible for the equipment and installation costs required to convert to the alternative heating and cooling system. Under the second scenario, however, O&R would choose the most

¹³¹ O&R would remove all equipment and reconnect and confirm the functionality of the systems. Cooling services provided as part of the pilot would end and customers would be responsible for all future O&M costs of the original system.

¹³² O&R would replace the GSHP with a new ASHP.

¹³³ This option would only be available if O&R determines that a ground loop can be located on customer property at a comparable cost to options one or two. O&R states that it is in O&R's sole discretion to determine the optimal location of the ground loop. The customer would keep all equipment inside the building. Cooling services that were part of the pilot would continue with option three. The costs for this alternative would be site specific and different for each customer. The customer would be responsible for any future O&M costs.

cost-effective alternative options to convert the customer's equipment, at no expense to the customer.¹³⁴

Additionally, the Commission generally supports O&R's policy regarding limiting customers' ability to leave the pilot during the five-year pilot period only in instances where O&R is unable to supply the customer with adequate heating or cooling. This is a justifiable approach to protect the ratepayers' investment in the pilot project and mitigate the potential for an early end to the pilot resulting in stranded assets. However, with regard to O&R's proposal for what options it would afford customers who opt to leave the pilot during the pilot period as a result of lack of adequate heating and cooling from the UTEN, given that ratepayers would bear the costs of such options, the Commission agrees that consideration must be given to the costs of the alternatives. In the instance of the UTEN not providing adequate heating and cooling, the customer must notify O&R and give O&R an opportunity to investigate and correct the deficiency. If O&R cannot correct the deficiency, O&R would provide a reasonably satisfactory alternative heating and cooling system to the customer at no cost. To the extent a customer prefers an alternative that comes at a cost premium, the incremental cost of such alternative shall be at the expense of the customer.

2. Customer Enrollment

As stated in the Guidance Order, O&R must enroll a minimum number of customers in the pilot project before it begins construction. O&R's Stage 2 Filing proposes that construction would only proceed if a minimum of 15 percent of

¹³⁴ O&R would also consider ongoing customer utility operating expenses for each alternative (i.e., gas v. electric utility bill costs) in detailing the alternative heating options.

the total load is accounted for by participating customers. The Commission agrees that a percentage of load threshold may be more relevant than a specified number of customers to support system optimization and ensure successful operation of the UTEN and to obtain sufficient pilot learnings. However, we find the proposal for a minimum of 15 percent of the total load to be insufficient to protect ratepayers' interests and instead require O&R to enroll a minimum of 50 percent of total load before it begins construction.

While the percentage of load is an important consideration, participation by certain anchor customers, without which the project is not viable, the load diversity of the participating customers and an appropriate distribution of the thermal resource along the loop must also be considered. Determination of whether a project is viable is highly case-dependent and therefore the Commission cannot impose a rule that could address all the variables that may be encountered. Therefore, O&R shall, in consultation with Staff, determine the specific and additional participants, if any, necessary over and above the minimum threshold of 50 percent of total load to ensure project viability. Once this threshold has been met, O&R shall file a letter with the Secretary of the Commission documenting that it has met this milestone.

3. Stakeholder Agreement

As discussed, O&R separately describes the need to establish distinct stakeholder agreements, which include without limitation land-use agreements with the Village of Haverstraw for both the borefield sites and the UTEN infrastructure is a necessary step before progressing to construction of the West Loop pilot project. These stakeholder agreements will detail the terms for installing

and maintaining UTEN infrastructure and boreholes on Village property and will include mutually agreed upon compensation for the easements required to site the UTEN infrastructure. Once O&R has secured all necessary stakeholder agreements, O&R shall file a letter with the Secretary of the Commission documenting that it has met this milestone.

4. Joint Regional Sewerage Board Approval

As previously discussed, success of the West Loop Pilot, as designed, requires the approval from the Joint Regional Sewerage Board to access the sewer main as a supplemental thermal resource. Failure to obtain approval from the Joint Regional Sewerage Board has the potential to add costs to the pilot, at a minimum, and could ultimately undermine the viability of the West Loop Pilot. As such, O&R shall obtain the necessary approvals from the Joint Regional Sewerage Board and associated permits for the utilization of the wastewater from the forced sewer main prior to beginning construction of the West Loop Pilot. Once O&R has secured approval, O&R shall file a letter with the Secretary of the Commission documenting that it has met this milestone.

5. Labor and Workforce Development

The Commission recognizes the commitment O&R has made to engage the union workforce during the construction and operation of the UTEN. According to O&R, skilled trade work for initial installation will be performed under a project labor agreement, in collaboration with the New York State Building and Construction Trades Council, prior to bidding the project. O&R further states that it will rely on third-party contractors for O&M during the early years of the pilot while training its in-house workforce, with the goal of transferring O&M responsibility to IBEW Local 503 in later years. To support this transition, O&R will establish an Emerging Technology

Committee to assess workforce skills, identify skill gaps, and develop training programs, including geothermal drilling training and safety certifications. As noted by commenters, these commitments are in alignment with the provisions of the Act. Given the Act's emphasis on labor and workforce development, O&R shall include updates on these project components in their Monthly Progress and Expenditure Reports.

Performance Metrics, Data Collection & Reporting

NFG's and O&R's identification of Performance Metrics and Reporting is generally aligned with the Performance Metrics Report.¹³⁵ NFG identifies four additional performance metrics that are tailored to the unique characteristics of the Buffalo Pilot and are intended to collect data related to the energy exchanged between the utility and UTEN customers. These additional metrics provide the necessary data to enable meaningful analysis and learnings throughout the pilot period and the Performance Metrics Report recognized the potential need to have pilot-specific metrics.

O&R added a "Data Source" column to some performance metric categories that is intended to provide additional transparency to the pilot project data. However, there were some discrepancies, which largely appear to be a result of the omission of, or alteration to, some data points identified to be collected, between the Performance Metrics Report and what O&R proposed. As such, O&R shall, in consultation with Staff, reconcile any discrepancies and

¹³⁵ Case 22-M-0429, NFGDC UTEN Stage 2 Filing (filed February 23, 2026), Appendix C: Performance Metrics and Data Points. O&R Stage 2 Filing (filed July 9, 2025), Appendix H - Performance Metrics and Reporting.

finalize the performance metrics and data points to be collected, tracked and reported throughout the pilot period to ensure transparent and robust collection of pilot project data.

Given the iterative nature of these pilot projects, Staff is directed to ensure flexibility within the approach taken to refine the performance metrics and data protocols over time, if needed. As both the Buffalo Pilot and West Loop Pilot transition from design to implementation, continuous adjustments may occur based on operational realities and the lessons learned through the process.

NFG intends to collect project performance metrics data related to the flow rate through heat exchangers on the utility and customer side of the demarcation point during the pilot period. O&R proposes using BTU meters to collect West Loop Pilot project performance metric data (i.e., measure and record the BTUs delivered for heating and absorbed for cooling from each customer) during the pilot period. While neither NFG nor O&R propose to use the flow rates through the heat exchangers or the data from BTU meters for customer billing functions, it is important to note that the Commission has not approved these particular types of metering equipment for use in customer billing. Therefore, to the extent NFG or O&R plan to use metering equipment for customer billing purposes in the future, NFG and/or O&R shall work with Staff to identify the necessary steps to ensure it obtains Commission approval before using metering equipment in that manner.

As stated in the Guidance Order, data from the UTEN pilot projects is critical to advance the knowledge sharing expected from the Act. In addition to NFG and O&R's descriptions of how data will be collected by the necessary

measurement equipment and incorporated into data acquisition systems, the customer agreement templates include a provision for data sharing seemingly responsive to the Guidance Order.¹³⁶ As such, NFG and O&R shall, in consultation with Staff, include similarly appropriate language within the finalized customer agreements that they submit as part of their respective Buffalo Pilot and West Loop Pilot Stage 3 Customer Protection Plans to ensure data associated with UTEN participation and performance can be made publicly available.¹³⁷

Similarly, in the Guidance Order the Commission stated that it would make a determination of specific reporting requirements when determining whether to authorize the pilot projects to advance to Stage 3. To maintain transparency and continuity of reporting, NFG and O&R shall continue to file Monthly Progress and Expenditure Reports, on the 15th day of the month for the preceding month, detailing the costs incurred, major project milestones, status and issues encountered and all other details as discussed herein to properly track advancement of the Buffalo and West Loop Pilot projects. NFG and O&R are directed to work with Staff to ensure the format and content of the Monthly Progress and Expenditure Reports reflect any necessary modifications to satisfy the requirements of this Order and to ensure clarity and transparency.

Further, as stated in the Guidance Order, and in stakeholder comments submitted in response to the Stage 2 Filings and discussed at length in this Order, common data collection and reporting across pilots are integral to

¹³⁶ Guidance Order, p. 49.

¹³⁷ Customer specific data can be appropriately anonymized for public reporting purposes.

realizing the full learnings the Act intended through the development and operation of the Utilities' pilot projects. As such, NFG and O&R shall work with Staff to ensure consistency between the Buffalo and West Loop Pilots with respect to data collection, data management, and reporting. This includes but is not limited to interfacing with the utility's SCADA and other monitoring systems, data quality assurance, tracking of common cost categories, performance calculations, reporting protocols and associated utility responsibilities, while recognizing the unique characteristics of each pilot project.

Next Steps

As detailed earlier, each of the seven Utilities complied with the requirements of the Act with the submission of one or more pilot project proposal within the allotted timeframe. In this Order, we address eleven of the proposed pilot projects. Additionally, RG&E has indicated its intention to file a Stage 1 pilot project proposal by November 20, 2026, which represents the last pilot project of the initial round of UTEN pilot proposals following the Guidance Order.¹³⁸

The Commission will consider a process for the submission of additional pilot project proposals after it has had the opportunity to deliberate and make a determination on the final pilot from the initial round of proposals, as described above. The Commission anticipates seeking input from stakeholders before providing guidance and requirements for future UTEN pilot project proposals. We expect this will address modifications to the current stage-gating approach,

¹³⁸ Case 22-M-0429, RGE Intent to File Stage 1 UTEN Pilot Project Proposal (filed May 15, 2026).

or the implementation of an alternative approach that takes account of the experiences from the initial round of pilot project proposals and that properly protects ratepayers' financial exposure while advancing viable projects. The Commission also expects to incorporate knowledge gained through the TENs Roadmap effort, described in detail below, in establishing its guidance.

1. Thermal Energy Networks Roadmap

The 2025 New York State Energy Plan discusses the potential role thermal energy networks can play as a component of New York's energy transition.¹³⁹ According to the State Energy Plan, TENs offer several advantages over single-building electrification solutions, including the ability to: (1) more efficiently meet aggregated thermal demand and therefore either reduce future winter peaks or allow for load flexibility to help manage grid constraints; (2) integrate thermal resources that are not currently utilized; and (3) leverage the skills and expertise of today's gas system workers for low-carbon projects, enabling existing workers to transition into clean energy jobs and support the growth of a TENs industry. Despite these anticipated benefits, the State Energy Plan also recognizes a number of challenges facing TENs deployment, many of which are reflected in the UTEN pilot projects discussed herein, including high upfront capital expenditures, long planning and construction timelines and leveraging non-traditional thermal resources. As recognized in the State Energy Plan:

Further analysis is needed to help identify the best path forward for New York State, including what policies are necessary to create a supportive market

¹³⁹ New York State Energy Planning Board, 2025 New York State Energy Plan (published December 16, 2026) available at <https://energyplan.ny.gov/Plans/2025-Energy-Plan>.

and policy environment for TENSs. Key steps include but are not limited to: identifying where in the state, due to density of thermal demand and availability of potential thermal resources, may be most viable for TENSs projects; improving access to this data to help de-risk site identification and drilling and to catalyze private interest and investment; assessment of potential business models and policy approaches that support customer acquisition, including area-based heat planning and supportive local zoning and permitting policies, public-private partnerships with municipalities, priority connection policies, and heating-as-a-service contracts (which allow developers to lock in customers as a network is being planned and installed, and obligate provision of reliable heating prior to and during network connection); and further work on understanding tradeoffs of TENSs compared to standalone building solutions.¹⁴⁰

As a result, the State Energy Plan calls for the development of a "TENSs Roadmap" for New York State that explores the overall role TENSs could play in support of the State's building decarbonization goals and identifies a set of holistic solutions in the near-term and midterm to address the current barriers facing TENSs deployment. The Commission, through its approval of the NYSERDA's Innovation & Research Portfolio,¹⁴¹ has authorized funding to support the development of the TENSs Roadmap and any associated analytical and market research to be undertaken by NYSERDA, in consultation with DPS. The State Energy Plan recognizes:

the Roadmap should include and be informed by stakeholder and industry input, including but not limited to utilities, organized labor, local governments, environmental groups, community-based

¹⁴⁰ State Energy Plan Volume 2: Buildings, p. 22.

¹⁴¹ Cases 14-M-0094 et al., Proceeding on Motion of the Commission to Consider a Clean Energy Fund, Order Authorizing the 2026-2030 Innovation and Research Portfolio (issued October 17, 2025).

groups, real estate and economic development experts, and energy management experts.¹⁴²

Such an effort should focus on identifying priority strategies that can best deliver the potential benefits of TENS (as noted above) in the near and mid-term, and relevant recommendations that can enable and accelerate the unlocking of these opportunities. The experience gained through the Utilities' development of the UTEN pilot projects represents a significant undertaking, funded by the State's ratepayers, which can inform TENS development in New York and must be fully leveraged to: (1) provide support within the TENS Roadmap for the identification of siting criteria and viability factors that are most likely to result in a successful project and generate benefits relative to standalone electrification, and (2) ensure that the cost incurred by ratepayers to date provides broader value beyond solely the development of individual utility proposals. Accordingly, the Commission directs the Utilities to work with Staff and NYSERDA so that Staff and NYSERDA can ensure that the information obtained through the development of the pilot projects, including the initial scoping of the pilot projects, is appropriately considered alongside lessons that can be learned from TENS projects in other jurisdictions and from original research in the development of the TENS Roadmap. This may include but not be limited to: technical conferences held to discuss the Utilities' experiences, Staff's approach to the analyses; research to identify the siting criteria and viability factors that are most important to near-term TENS development; engagement with labor to characterize the necessary training or job transition needs over time; or holistic recommendations for regulatory and

¹⁴² State Energy Plan Volume 2: Buildings, p. 24.

non-regulatory actions that the State or other entities could undertake to allow TENs to develop in a manner that enables them to deliver their intended energy, financial, and societal benefits.¹⁴³

2. Regulatory Framework

As noted earlier, in addition to assessing whether UTEN pilot proposals are within the public interest, the Act directs the Commission to promulgate rules and regulations to:

(a) create fair market access rules for utility-owned thermal energy networks to accept thermal energy that aligns with the climate justice and GHG emissions reductions requirements of the CLCPA and that does not increase greenhouse gas emissions or co-pollutants; (b) exempt small-scale thermal energy networks not owned by utilities from commission regulation; (c) promote the training and transition of utility workers impacted by this act; and (d) encourage third party participation and competition where it will maximize benefits to customers.¹⁴⁴

The Commission's Initial Rules Order, issued in 2024, is the first step in this process and, as envisioned by the Act, indicates that lessons learned from the development, construction, and operation of UTEN pilots would help to further inform the Commission's development of a regulatory framework. Given the determinations in this Order, it is clear that operational UTEN experience from a pilot may take longer to materialize than the Act originally envisioned, therefore the Commission believes additional work should

¹⁴³ The Commission notes that the regulatory and non-regulatory actions the TENs Roadmap may explore are likely to extend beyond the Commission's jurisdiction, but taken as a whole will be informative to advance TENs.

¹⁴⁴ PSL §66-t(1).

commence to advance implementation of this element of the Act.

Specifically, the Commission is interested in leveraging the knowledge gained from the development and review of the UTEN pilot proposals thus far to proactively develop a framework that could help to attract TENS development, even beyond those to be operated by the State's investor-owned utilities. Developing such a framework, which establishes clear guidelines for development and prioritizes customers' interests, can help to ensure the longevity and durability of the industry. This is ever more important for an industry that seeks to be competitive with other forms of building heating and cooling.

To begin this process and ensure sufficient time to engage the diverse coalition of interested stakeholders, Staff is directed to hold at least one technical conference within 180 days to scope potential activities that could advance progress in TENS regulatory development. Such technical conference(s) shall engage industry and other interested stakeholders in determining components of a regulatory framework that would be most advantageous to spur further development, including the mobilization of private resources, and shall prioritize areas in which the Commission could make near-term progress.

General areas of interest for the Commission are the components of the regulatory framework that: (1) address customers' interests, including costs to participating and to non-participating customers, as well as transparent and equitable ratemaking; (2) ensure reliable service to customers; and (3) provide regulatory certainty to TEN developers to enable them to invest in sustainable, customer-

benefiting businesses that serve the intent and purpose of the Act.

One particular area of interest is enabling appropriate waste heat policy approaches and mechanisms. Advancements in technology and building systems have begun to allow property owners to capture waste heat from certain systems to utilize within the same building in a more efficient manner. However, there currently exists no incentive, nor regulatory framework, to enable one property owner to monetize and exchange waste heat with neighboring buildings, as evidenced by the Con Edison Rockefeller Center Pilot project. The lack of market rules for such activities currently contributes to the ongoing waste of thermal resources and prevents a more systems-based approach to developing solutions to our energy needs.¹⁴⁵ In other words, there is no reasonable ability to determine if it is more or less resource efficient to utilize waste heat in place of additional primary energy use, nor market mechanism to encourage the most beneficial outcome.

State Environmental Quality Review

Under the State Environmental Quality Review Act (SEQRA), Article 8 of the Environmental Conservation Law, and its implementing regulations (6 NYCRR Part 617 and 16 NYCRR Part 7), the Commission must determine whether the actions it authorizes may have a significant impact on the environment. The proposed actions over which the Commission has jurisdiction is the authorization of the NFG Buffalo Pilot

¹⁴⁵ NYSERDA, Waste Heat: The Next Frontier of the Energy Transition (published May 2025), available at <https://www.nyserda.ny.gov/-/media/Project/Nyserda/Files/Programs/Large-Scale-Thermal/25-15-Waste-Heat-The-Next-Frontier-of-the-Energy-Transition.pdf>.

project and the O&R West Loop Pilot project to proceed to Stage 3: Customer Enrollment and Pilot Project Construction.

For purposes of the SEQRA review, applicants are required to submit a complete Environmental Assessment Form (EAF) describing and disclosing the likely impacts of the action(s) they propose.¹⁴⁶ NFG and O&R submitted EAFs to the Commission, and the proposed actions do not meet the description of Type 1 or Type 2 actions as listed in 6 NYCRR §§617.4 and 617.5, or 16 NYCRR §7.2, so the actions are classified as “unlisted” actions, as defined in 6 NYCRR §617.2(an).¹⁴⁷

Because the proposed actions do not involve any agency outside of the Commission, a coordinated review is unnecessary. The Commission therefore assumes Lead Agency status under SEQRA for purposes of conducting an environmental review of the proposed actions.¹⁴⁸

The Commission performed an Uncoordinated Review, pursuant to 6 NYCRR §§617.6 and 617.7 of NFG’s Buffalo Pilot project and O&R’s West Loop Pilot project. The analyses were based on a review of NFG and O&R’s Stage 2 Filings and Part 1 of the SEQRA Short EAF (SEAF) submitted by each utility. Staff completed Part 2 and Part 3 of the SEAF for each pilot project. As discussed below, the Commission concludes, based on the criteria for determining significance listed in 6

¹⁴⁶ 6 NYCRR §617.6(a)(3).

¹⁴⁷ Case 22-M-0429, West Loop SEAF (filed April 1, 2026) and NFGDC Short Environmental Assessment Form Revised (filed October 5, 2026).

¹⁴⁸ Staff notes that, according to the EAF, other approvals may be required, such as a New York State Department of State/Haverstraw Local Waterfront Revitalization Program Coastal Consistency Determination, and a NYS DEC Stormwater Pollution Prevention Plan.

NYCRR §617.7(c), that the proposed actions will not have a significant adverse impact on the environment and adopt a negative declaration pursuant to SEQRA.

Specifically, the Commission finds that authorizing O&R's West Loop Pilot to proceed to Stage 3 is consistent with Haverstraw's Comprehensive Plan, particularly because the Comprehensive Plan recommends promoting district energy and the use of geothermal energy.¹⁴⁹ The development of the UTEN and its associated infrastructure, such as the energy center, would not create new land use or change the characteristics of the neighborhood, as Haverstraw is a developed, urban environment. The West Loop pilot project adjoins an elementary school that is eligible for the State/National Register of Historic Places, but the elementary school will not be served nor altered by the pilot project.

Part 1 of the SEAF indicates that potable water will be installed at the pumping station facility. Usage of this water will be minimal, primarily for annual equipment maintenance, and thus will not impact public or private water supplies. The West Loop Pilot project will be in the vicinity of a significant natural community (the Hudson River Estuary) where threatened and/or endangered species live. However, the West Loop Pilot does not propose any work in or on the shore of the Hudson River and, therefore, there will

¹⁴⁹ Village of Haverstraw, New York, Comprehensive Plan - Volume 1 (Adopted July 2021) Recommendation 9.e.4, p. 9-7, available at <https://secure-res.craft.do/v2/3c9Xr5v4GgpnnNMGfCS5P2aw6DFdtjhU9Bc9rfaDqNvEHilmPKJAESdCPvun7MxbqcYzBFVFuhF2RFCEuY3qh7gnZqHcZbYyt76qL2xuqWWb6iafyDUnydmypcfHGMSSUgHsBdqrAS66NQb2gQL7zQZvsSofLffUpLozU6eZmmfibrbECjxbxxGXnSSStBZMpWLv2CP2WmUzQsWyKUBtFu3E735w/Comprehensiv e%20Plan%20-%20Volume%201> (last accessed, October 6, 2026).

be no impact to the natural community or the threatened and endangered species contained therein.

Further, the Commission finds that authorizing NFG's Buffalo Pilot to proceed to Stage 3 is consistent with the City of Buffalo's Four-Year Strategic Plan.¹⁵⁰ Specifically the Buffalo Pilot will help further the goals of investing in clean energy and increasing energy efficiency in municipal buildings. The Buffalo Pilot also does not hinder the achievement of any of the goals in Buffalo's local waterfront revitalization plan.

The Buffalo Pilot will be located in a developed, urban area, with changes to existing buildings occurring internally, and therefore, there will be minimal impacts to the character and historic value of the community. The Buffalo Pilot connects to a public water supply and a wastewater facility to be used as a heat exchanger and, as such, will have no impact on the public water supply. An endangered species is present near the project area, however, the pilot project does not propose any tree clearing and will not cause any direct or indirect take of the species or its habitat. The pilot project occurs near former hazardous waste sites, however, remediation of the sites has been completed.

NFG proposes locating the Buffalo Pilot's energy center on parkland, requiring parkland to be alienated. As such, the Commission expects that NFG will pursue and receive the appropriate legislation to achieve this. Despite this, the Commission still finds that the Buffalo Pilot will have minimal impact on the environment. The development of the energy center will match the character of the developed,

¹⁵⁰ Available at <https://www.buffalony.gov/1569/Four-Year-Strategic-Plan>.

urban area in which it will be located. Due to the foregoing, the energy center will result in minimal impact to the environment.

Further, neither the Buffalo Pilot nor the West Loop Pilot are located in a Critical Environmental Area, archeologically sensitive buffer area, 100-year floodplain, or scenic byway. Moreover, both pilots will deliver new renewable energy, which will reduce GHG emissions. For both pilots, any remaining impacts, such as traffic, noise, and/or construction debris, will be temporary in nature during construction of the projects, and will not result in a moderate or large impact to the environment.

Given the foregoing, the Commission, as Lead Agency, adopts a negative declaration pursuant to SEQRA for our action authorizing NFG's Buffalo Pilot and O&R's West Loop Pilot to proceed to Stage 3. Because no adverse environmental impacts were found, no public notice requesting comments is required or will be issued. Two Notices of Determination of Significance concerning the unlisted actions are attached. The completed EAFs and determinations of significance (negative declarations) will be retained in the Commission's files.

Climate Leadership and Community Protection Act

The CLCPA requires, inter alia, that a State agency, in considering and issuing permits, licenses, and other administrative approvals and decisions, consider whether such decisions are inconsistent with or will interfere with the attainment of statewide GHG emissions limits and, if so, provide justification for why such limits/criteria may not be met, and identify alternatives or GHG mitigation measures to

be required where a project is located.¹⁵¹ Further, the CLCPA requires all State agencies to ensure that their decisions will not "disproportionately burden disadvantaged communities"¹⁵² and to "prioritize reductions of greenhouse gas emissions and co-pollutants in disadvantaged communities."¹⁵³ Additionally, PSL §66-p requires the Commission to design programs in a manner that provides substantial benefits for disadvantaged communities.

Advancing the Buffalo Pilot and the West Loop Pilot to Stage 3 is not inconsistent with and will not interfere with the attainment of the CLCPA's GHG emission reduction targets. The development of the Buffalo Pilot project is projected to result in the reduction of 20,100 MTCO₂e over a 25-year time frame, and similarly, development of the West Loop Pilot project is projected to result in the reduction of 18,875 MTCO₂e over a 25-year time frame. Both pilot projects eliminate the on-site combustion of fossil fuels for heating, cooling, and hot water in the participant buildings. Additionally, the Buffalo Pilot and West Loop Pilot projects will both be located in disadvantaged communities, providing residents and municipal buildings in those communities with an innovative renewable energy system. Thus, advancing the Buffalo Pilot and West Loop Pilot projects to Stage 3 will not disproportionately burden a disadvantaged community.

¹⁵¹ CLCPA §7(2).

¹⁵² The areas designated as disadvantaged communities by the Climate Justice Working Group can be identified in an interactive map available at <https://climate.ny.gov/Resources/Disadvantaged-Communities-Criteria>.

¹⁵³ CLCPA §7(3).

CONCLUSION

In this Order, the Commission carries out its responsibility, as required by the Act, to determine whether the eleven proposed UTEN pilot projects are in the public interest, including advancing customers' affordable and equitable access to reliable clean heating and cooling options. While all of the proposed pilot projects have important points of merit, the Commission must exercise care in assessing the financial impacts of authorizing initial investments and ongoing subsidization that may be required that will be funded by ratepayers. Thus, in recognition of the individual and relative merits of the eleven proposed pilot projects discussed in this Order, the Commission concludes that it is in the public interest to authorize the Buffalo Pilot and West Loop Pilot to advance to Stage 3: Customer Enrollment and Pilot Project Construction as New York State's first UTEN pilot projects. The combined approval of these two pilot projects, which offer distinct system designs and configurations, and test differing pilot project attributes, allows the Commission to simultaneously extract the highest possible learning value while avoiding potentially redundant approaches at the expense of ratepayers.

This determination implements the successful balance of providing greater knowledge about thermal energy networks and their operation, without imposing undue costs on ratepayers. In addition, the Commission is mindful that advancing pilot projects that are unlikely to succeed would fail to align with the Act's intention that the pilot projects serve the public interest. Moreover, such action could, in fact, have a detrimental effect on the Act's main purpose of fostering TENS, by eroding confidence in the

technology itself. The heightened scrutiny of each pilot project, through the detailed analysis described in the Order, is particularly necessary at this moment of elevated affordability concerns. This analysis also establishes the foundation for how to assess UTENs and identify areas of concern that must be addressed going forward. The Commission notes that each utility has incurred costs to develop the pilots addressed in this Order and recognizes the significant value of the insights gained already through these initial efforts to test the myriad complex aspects of developing a UTEN.

The Commission orders:

1. National Fuel Gas Distribution Corporation is authorized to advance its Buffalo Pilot utility thermal energy network project to Stage 3: Customer Enrollment and Pilot Project Construction, consistent with the discussion in the body of this Order.

2. Orange and Rockland Utilities, Inc. is authorized to advance its West Loop Pilot utility thermal energy network project to Stage 3: Customer Enrollment and Pilot Project Construction, consistent with the discussion in the body of this Order.

3. Central Hudson Gas & Electric Corporation; Consolidated Edison Company of New York, Inc.; The Brooklyn Union Gas Company d/b/a National Grid NY; Niagara Mohawk Power Corporation d/b/a National Grid; KeySpan Gas East Corporation d/b/a National Grid; and New York State Electric & Gas Corporation are authorized to defer the incremental costs incurred associated with their respective pilot projects related to Stages 1 and 2 for future cost recovery from customers in a subsequent rate proceeding.

4. Central Hudson Gas & Electric Corporation; Consolidated Edison Company of New York, Inc.; The Brooklyn Union Gas Company d/b/a National Grid NY; Niagara Mohawk Power Corporation d/b/a National Grid; KeySpan Gas East Corporation d/b/a National Grid; and New York State Electric & Gas Corporation are directed to file with the Secretary to the Commission, a Final Pilot Project Stage 1 through Stage 2 Cost Report, with supporting workpapers, inclusive of all their pilot projects, detailing the final Stage 1 and Stage 2 costs being deferred for future recovery from customers, within 60 days of the issuance of this Order.

5. National Fuel Gas Distribution Corporation is authorized to recover the deferred balances associated with Stages 1 and 2 of the Buffalo Pilot and the revenue requirement impact (i.e., return on and return of utility-sided investments and the utility's share of customer equipment upgrades, cost of removal, incremental operation & maintenance expenses, and property taxes) of the Buffalo Pilot during the five-year pilot period as a component of the Delivery Adjustment Charge, subject to the annual cap of 1.0 percent of annual gas operating revenues.

6. Orange and Rockland Utilities, Inc. is authorized to recover the deferred balances associated with Stages 1 and 2 of the East Loop and West Loop Pilots and the revenue requirement impact (i.e., return on and return of utility investments and the utility's share of customer equipment upgrades, cost of removal, incremental operation & maintenance expenses, and property taxes) of the West Loop Pilot during the five-year pilot period as a component of its Energy Cost Adjustment, subject to the annual cap of 1.0 percent of annual electric operating revenues.

7. National Fuel Gas Distribution Corporation and Orange and Rockland Utilities, Inc. shall each file with the Secretary to the Commission a Monthly Progress and Expenditure Report by the 15th day of each month regarding the preceding month. Each such report shall include, consistent with the discussion in the body of this Order, the actual expenditures incurred to date, a monthly cost forecast, its surcharge rate calculation, major project milestones, and status updates, including, but not limited to, regarding issues encountered during the advancement of their respective pilot projects (i.e., Buffalo Pilot and West Loop Pilot).

8. National Fuel Gas Distribution Corporation is directed to file, on not less than three days' notice and to become effective on January 1, 2027, tariff amendments reflecting the recovery of the Buffalo Pilot project costs in its Long Term Plan Statement, as described in the body of this Order and Ordering Clause 4. Thereafter, National Fuel Gas Distribution Corporation shall update its Long Term Plan Statement to reflect the recovery of the Buffalo Pilot project costs on not less than 30 days' notice to become effective on October 1st each year, during the five-year pilot period.

9. Orange and Rockland Utilities, Inc. is directed to file, on not less than three days' notice and to become effective on January 1, 2027, tariff amendments reflecting the recovery of the West Loop Pilot project costs in its Energy Cost Adjustment Mechanism, as described in the body of this Order and Ordering Clause 5. Thereafter, Orange and Rockland Utilities, Inc. shall update its Energy Cost Adjustment Mechanism to reflect recovery of the West Loop Pilot project costs on not less than 30 days' notice to become effective on January 1st each year, during the five-year pilot period.

10. National Fuel Gas Distribution Corporation and Orange and Rockland Utilities, Inc. are directed to notify their affected customers at least 30 days prior to the surcharge updates identified in Ordering Clauses 8 and 9, respectively, going into effect. National Fuel Gas Distribution Corporation and Orange and Rockland Utilities, Inc. shall file with the Secretary to the Commission proof that they provided this notification no later than six weeks following the effective date of the surcharge.

11. The newspaper publication requirements pursuant to Public Service Law §66(12)(b) and Title 16 of the New York Codes, Rules and Regulations, §720-8.1 related to the tariff filings required by Ordering Clauses 8 and 9 are waived.

12. National Fuel Gas Distribution Corporation is directed to file a Buffalo Pilot Stage 3 Customer Protection Plan, consistent with the discussion in the body of this Order, with the Secretary to the Commission within 120 days of the issuance of this Order.

13. National Fuel Gas Distribution Corporation is directed to enroll both the City of Buffalo and Beacon Communities as participants in the Buffalo Pilot prior to commencing construction. National Fuel Gas Distribution Corporation shall file a letter with the Secretary of the Commission documenting that it has met this milestone prior to commencing construction of the Buffalo Pilot.

14. National Fuel Gas Distribution Corporation shall obtain the necessary approvals from the Buffalo Sewer Authority necessary for the installation and operation of the Buffalo Pilot utility thermal energy network infrastructure and file a letter with the Secretary to the Commission confirming it has done so prior to commencing construction of the Buffalo Pilot.

15. National Fuel Gas Distribution Corporation shall execute all agreements necessary for the installation and operation of the Buffalo Pilot utility thermal energy network infrastructure and borefield sites and file a letter with the Secretary to the Commission confirming it has done so prior to commencing construction of the Buffalo Pilot.

16. Orange and Rockland Utilities, Inc. is directed to file a West Loop Pilot Stage 3 Customer Protection Plan, consistent with the discussion in the body of this Order, with the Secretary to the Commission within 120 days of the issuance of this Order.

17. Orange and Rockland Utilities, Inc. is directed to enroll customers accounting for at least 50 percent of the total forecasted load for the West Loop Pilot prior to commencing construction. Additionally, in consultation with Department of Public Service Staff, determine the specific and additional participants, if any, necessary over and above the minimum threshold of 50 percent of total load to ensure project viability. Orange and Rockland Utilities, Inc. shall file a letter with the Secretary of the Commission documenting that it has met this milestone prior to commencing construction of the West Loop Pilot.

18. Orange and Rockland Utilities, Inc. shall obtain the necessary approvals from the Joint Regional Sewerage Board necessary for the installation and operation of the West Loop Pilot utility thermal energy network infrastructure and file a letter with the Secretary to the Commission confirming it has done so prior to commencing construction of the West Loop Pilot.

19. Orange and Rockland Utilities, Inc. shall execute all stakeholder agreements necessary for the installation and operation of the West Loop Pilot utility thermal energy network infrastructure and borefield sites and file a letter with the

Secretary to the Commission confirming it has done so prior to commencing construction of the West Loop Pilot.

20. Central Hudson Gas & Electric Corporation; Consolidated Edison Company of New York, Inc.; National Fuel Gas Distribution Corporation; The Brooklyn Union Gas Company d/b/a National Grid NY; Niagara Mohawk Power Corporation d/b/a National Grid; KeySpan Gas East Corporation d/b/a National Grid; New York State Electric & Gas Corporation; Orange and Rockland Utilities, Inc.; and Rochester Gas and Electric Corporation, are directed to work with Department of Public Service Staff and the New York State Energy Research and Development Authority so that Department of Public Service Staff and the New York State Energy Research and Development Authority can ensure that the information obtained through the development of the pilot projects, including the initial scoping of the pilot projects, is appropriately considered alongside lessons that can be learned from TENS projects in other jurisdictions, and from original research in the development of the Thermal Energy Network Roadmap.

21. Department of Public Service staff is directed to hold at least one technical conference within 180 days of the issuance of this Order regarding thermal energy network regulatory development.

22. In the Secretary's sole discretion, the deadlines set forth in this Order may be extended. Any request for an extension must be in writing, must include a justification for the extension, and must be filed at least three days prior to the affected deadline.

23. This proceeding is continued.

By the Commission,

A handwritten signature in black ink, appearing to read "Michelle L. Phillips". The signature is written in a cursive, flowing style.

(SIGNED)

MICHELLE L. PHILLIPS
Secretary

PILOT PROJECT BUDGETS AND COSTS

The Table below presents the budgets and costs for the eleven pilot projects discussed in this Order.

Pilot Project Budgets and Costs				
Utility Pilot Project	Initial Forecasted Project Budget (\$ Million) ¹	Final Total Forecasted Project Budget (\$ Million) ²	Total Authorized Maximum Costs to be Incurred through Stage 2 (\$ Million) ³	Costs Incurred to Date (\$ Million) ⁴
Central Hudson Poughkeepsie	17.40	130.99	1.70	1.56
Con Edison Chelsea	62.40	95.53	8.30	7.58
Con Edison Mount Vernon	51.40	191.73	7.10	6.59
Con Edison Rockefeller Center	58.40	128.22	7.70	7.07
NFG Buffalo	16.00	61.40	3.00	2.26
KEDNY Brooklyn	67.70	125.49	6.80	5.37
NMPC Syracuse	66.75	143.65	6.70	6.31
NMPC Troy	12.27	90.93	2.10	1.99
NYSEG Ithaca	15.60	52.48	3.48	3.37
O&R Haverstraw East Loop	45.50	68.00	4.60	3.22
O&R Haverstraw West Loop		50.10		
Total	413.42	1,138.76	51.48	45.32

¹ Indicates the forecasted project budget identified in the Initial Pilot Proposals filed between January and July 2023.

² Generally, as indicated by the utility in its Stage 2 Filing with the exception of NFG which has been updated to reflect the most current information provided by NFG.

³ Includes incremental costs authorized in cost cap petitions to be incurred through Stage 2, where applicable.

⁴ Costs incurred through August 2026 as identified in each utility's September 2026 Monthly Progress and Expenditure Report.

SUMMARY OF COMMENTSBuilding Decarbonization Coalition (BDC) & Alliance for a Green Economy (AGREE)

BDC & AGREE note that the approval of the pilot projects is almost three years overdue and strongly support the development of utility thermal energy networks as a critical pathway for long term affordability, equitable building decarbonization, local workforce development, and gas-system transition planning. The subsequent project stages present opportunity for transparency and cost reductions. BDC & AGREE support NYSEDA and the Commission hiring a third-party to review the Stage 2 filings.

A successful O&R pilot would serve as a template for similarly sized utilities testing TENS in smaller, suburban municipalities requiring tailored solutions. The Commission's advancement of both loops simultaneously could maximize cost-effective economies of scale for construction as well as marketing and administration and would present the opportunity to demonstrate effective interconnection between two loops in the future. The proposed \$5/ton/month network access fee, coupled with a total customer cost guarantee covering both electric and thermal energy, is an important measure to ensure affordability and ratepayer protection for all users and stakeholders.

Con Edison demonstrates an earnest and substantive commitment to advancing the Act's goals of non-discriminatory access and scalability. By engaging with municipal and interagency partners, Con Edison is helping develop replicable models for public-private partnerships (PPPs) and is setting the foundation for an open, low-carbon thermal marketplace consistent with the CLCPA.

BDC & AGREE appreciate that Con Edison is working in coordination with the City of Mount Vernon, residents, and

building owners in the pilot area to build understanding of and support for pilot participation. The Mount Vernon pilot would enable neighborhood-scale decarbonization and supports equitable access to clean heating and cooling. The system would reduce GHG emissions and reduce peak demand, reducing electric system impact by 45% compared to decarbonization with ASHPs alone. The Mount Vernon pilot presents an opportunity for empirical learning on two-pipe system hydraulics, performance, and customer integration. This approach follows best engineering practices to minimize geothermal field size. A diverse customer base could provide valuable insight into the technical and financial performance of networked geothermal systems across multiple building types. The Mount Vernon pilot proposes a good CPP and a flat fee that increases the likelihood of customer participation.

The Rockefeller Center pilot would demonstrate how networked, low temperature systems could operate effectively in high density high rise urban environments. The Rockefeller Center pilot would test new compensation models for resource providers and demonstrate how PPPs can deliver climate adaptation benefits. The pilot offers a replicable framework for deploying TENs across New York City. The pilot design also maximizes heat recovery potential, decreases parasitic losses, and allows the system to meet 100% of heating and domestic hot water needs without reliance on fossil fuel backup. The Rockefeller Center pilot would demonstrate the potential for coordinated cross agency solutions to meet climate goals. The pilot would further provide lessons in navigating complex underground utility coordination and permitting.

The Chelsea pilot would inform future TENs across New York City and other constrained urban areas where similar redevelopment pressures and thermal opportunities coexist. The

pilot could act as a strategic down payment on long-term energy and infrastructure modernization. This pilot could eliminate the need for a standalone central plant building, which significantly reduces overall capital costs. Although several participating buildings may be demolished, the enduring value of this pilot lies in installing the permanent trunk infrastructure. By establishing this backbone now, Con Edison would create foundational thermal infrastructure for the neighborhood's future redevelopment. As specific building connections evolve, the pilot would generate data on interconnection standards, network hydraulics, load balancing, and operational control.

National Grid's broad service territory would allow it to demonstrate the versatility of TENS as a statewide decarbonization strategy. The Syracuse pilot could demonstrate how collaboration between utilities and municipal partners can align climate policy with community development goals. This pilot could become a flagship model for building climate-friendly infrastructure to advance economic renewal, as well as a model for leveraging existing municipal assets to support decarbonized development. The inclusion of thermal storage could provide a robust operational buffer and enhance system resilience. The Commission should modify the CPP to ensure that participating customers see energy bill savings in the pilot. A flat fee structure which guarantees customers are not paying more and gives rebates where possible would more effectively incentivize pilot participation.

The Troy pilot demonstrates a technically feasible design with desirable future sizing and a credible business model. The filing seriously considers customer protections and best practices such as the explicit right to withdraw for performance-related reasons, utility responsibility for

reversion costs, and transparency, which should be replicated across the pilots' CPPs. The Commission should consider requiring peak-aware or performance-adjusted rate mechanisms that would reward non-coincident operation and penalize contribution to system peak. To maximize learning, the Commission should require explicit reporting on coincident electric peak demand impacts and should consider whether centralized ASHP balancing shifts costs to non-participating electric customers via increased electric peak demand.

BDC & AGREE urge the Commission to modify the proposed fee structure for the KEDNY pilot. Accordingly, they recommend a flat fee structure which would guarantee that UTEN customers are not penalized with higher bills due to pilot participation and could provide rebates to incentivize participation. BDC & AGREE also recommend that the Commission modify the requirement for customers to agree to specific fixed indoor temperatures. These restrictions are impractical to monitor and enforce and would not account for customer needs and comfort, while possibly undermining the creation of data to measure the success of the pilot and its ability to be scaled.

BDC & AGREE want the Commission to approve the Ithaca pilot because it would provide valuable insights into how networked thermal systems could meet mixed loads in compact urban settings through utilizing the same core infrastructure. However, this insight is contingent on expansion. If the system could not expand beyond the pilot, the shared infrastructure costs would be spread over a small group of customers, who could face physical barriers that may limit expansion of the pilot. The Ithaca project design is unique; it is the only pilot that is an open loop that leverages direct groundwater exchange. The Commission should require NYSEG to submit a detailed readiness and stakeholder engagement plan which outlines how NYSEG would

collaborate with municipal, institutional, and private partners. The Commission should also request greater technical specificity on the feasibility and permitting pathways for the pilot as well as ensure that customer protection measures extend beyond financial assurances to include meaningful participation and benefits for the community. CPP best practices that should be replicated include prohibitions on early termination penalties, inclusion of emergency response protocols, and explicit acknowledgment that customers should not bear pilot-specific risks. The pilot would test full utility ownership of the customer-sided equipment, which could improve affordability. The Commission should require clearer commitments regarding post-construction education. The Commission should consider avoided gas system costs, avoided electric distribution upgrades, and reduced exposure to fuel price volatility when assessing equity impacts.

BDC & AGREE view the Poughkeepsie Pilot as one of the most instructive projects in the portfolio but also as one of the hardest to justify on cost-effectiveness and replicability. The pilot's one-pipe ambient temperature loop is well-supported, and the stand-alone ASHPs comparison offers a valuable control case. The pilot could also inform landlord-tenant energy burden transitions and utility ownership structures. However, BDC & AGREE state that the filing does not demonstrate a pathway from a highly subsidized pilot serving a limited customer base to a replicable model with lower per-customer costs. The CPP places significant risk on participants during the pilot period. The rate structure is acceptable as a provisional pilot but lacks detail on how rates would evolve at scale. The data collection framework is sufficient to support a pilot evaluation, but should be prioritized around core policy questions, such as customer comfort and winter peak interaction. Central Hudson's

LCCA is not yet reliable or transparent to support a conclusion on equitable electrification, and the Commission should require any revised LCCA to place all scenarios on a more levelized basis. The Commission should also examine what drove the substantial cost escalation between stages.

BDC & AGREE state the Buffalo pilot would test a gas utility's transition into thermal energy service in a disadvantaged community. Its centralized four-pipe system adds design diversity and could define a transition pathway for urban districts with existing thermal assets. However, much of the LCCA remains redacted, which BDC & AGREE consider unacceptable for a ratepayer-funded project. The Commission should not reject the pilot solely because the LCCA shows higher lifecycle costs, since broader benefits may not be captured, but it should also not approve the pilot based on an LCCA stakeholders cannot audit. Customer protections should add enforceable tenant-facing provisions before enrollment, and NFG should further develop its Thermal Energy Resource Fee. Any Stage 3 approval should be conditioned on a public LCCA summary and non-confidential design summary, Staff confirmation of design maturity, category-level cost reporting, an overall cost cap, and quarterly public reporting.

BDC & AGREE state that transparency is needed for Stage 3, particularly in reporting cost and system design decisions that influence cost. Due to significant redactions, ratepayers would rely on Staff to ensure project costs are reasonable. BDC urges The Commission to limit redactions as much as practicable. As pilots move to the construction phase, the Utilities should be required to report, and clearly separate, network infrastructure costs for heat production, distribution, and customers. The Commission should also require separation of costs into functional, uniform categories.

BDC & AGREE support the inclusion of building retrofits in project scopes because these are crucial learning opportunities. As part of Stage 3, the Utilities should be required to implement cost-control measures and limit customer charges to actual incurred costs. Ratepayer-backed UTEN cost recovery should not serve as the sole or primary mechanism for financing upgrades as the Utilities should actively coordinate across all available funding sources. Additionally, PPPs could play a crucial role in aligning private investment with public objectives. BDC & AGREE also suggest that the Commission examine whether use of retained gas boilers as backup and emergency resources is consistent with equitable electrification.

BDC & AGREE recommend that all UTEN pilots adopt, at minimum, a plain-language customer agreement with a tenant-facing summary distributed before enrollment, an independent dispute-resolution channel with tracked response times and reporting to Staff, and objective standards for heating, cooling, domestic hot water, reliability, noise, and response times. Pilots should also provide a no-fault exit right after a stabilization period, clear disclosure of ownership or operation be disclosed to and accepted by customers. Monitoring requirements should be disciplined and decision-useful and should not be so elaborate that they undermine affordability or replicability in future, lower-cost pilots.

The Commission should assess each pilots' alignment with the Integrated Resource Planning principles. In the upcoming pilot stages, the Utilities should be required to demonstrate how each proposed pilot project would impact thermal loads, electric dispatch, system flexibility, and regional capacity dynamics. The Utilities should also model and report thermal storage and buffer effects. This level of integration

would allow the Commission to capture the full value stack of UTENs. Strategic deployment of TENs should also be aligned with neighborhood scale decarbonization, retirement of leak prone pipes and land use planning objectives, and coordinate with existing municipal, utility, and state infrastructure projects. At this stage, BDC does not advocate for one design over another, but encourages the Commission and Utilities to measure, compare, and report transparently on the performance of all design types. Further, the Commission should consider avoided gas system costs, avoided electric distribution upgrades, and reduced exposure to fuel price volatility when assessing equity impacts. These system-level benefits are not fully captured in traditional customer bill comparisons.

BDC & AGREE urge the Commission to require a uniform system of accounts for all UTEN pilots before additional major costs are incurred, with standardized cost categories that distinguish utility distribution assets, customer-side retrofit costs, development costs, contingency, decommissioning reserves, and ongoing operations and maintenance. Cost recovery from non-participating ratepayers should be conditioned on robust transparency. Proposed recovery periods are misaligned with asset useful life. NFG proposes ten-year recovery of utility-side capital and five-year recovery of customer-side capital despite its own LCCAs showing component useful lives of 20 to 50 years, and Central Hudson's ten-year useful life for pilot assets is similarly too short.

The Commission should assess amortization and depreciation schedules and modify them to align with the useful life of the system and the equipment. Amortization timelines should align with other types of utility infrastructure and the Commission's cost recovery discretion must be exercised with an eye toward genuine commitment to the CLCPA and long-term

decarbonization efforts. Transparent project reporting, measurable decarbonization outcomes, and verifiable cost data must serve as the foundation for any recovery determination.

Climate Jobs New York (CJNY)

CJNY supports the approval of all six pilots. The pilots in New York City would demonstrate new strategies to advance Local Law 97 and deliver efficient, zero-emission heating and cooling upgrades to disadvantaged communities. New York City offers a prime opportunity to demonstrate the effectiveness of TENS while lowering costs for New Yorkers.

Home Energy Efficiency Team (HEET)

HEET submitted comments in response to the Stage 2 Filings submitted in July 2025, including the three Con Edison Pilots, the Brooklyn Pilot, the Syracuse Pilot and the Haverstraw Pilot. Due to redactions, HEET does not have adequate data or the capacity to justify or assess the validity of costs for ratepayers and the State. HEET can only state that the pursuit of learning and development of this technology is a worthy pursuit to deliver safe, non-emitting, highly efficient affordable heating and cooling.

HEET states the Con Edison pilots, O&R pilots, Syracuse pilot, and KEDNY pilot all include key social outcomes and technical learning opportunities. HEET is confident that every pilot will “work” in the sense of delivering reliable, local, decarbonized heating and cooling. HEET believes each pilot must be iteratively learning and improving from one another, accordingly, an investment of time and money in a pilot must strive to not repeat lessons already learned.

The inconsistency of metrics and the scope of redactions make both evaluating the filings’ cost rationale and identifying opportunities for cost reductions difficult. The magnitude of the proposed cost of the pilots raises significant

concerns for the growth of UTEN, particularly at a time of acute attention to energy costs and burden.

HEET recommends that the pilots be eligible to move forward conditionally, upon submission of the additional data components of the standardized and normalized essential data set and strongly supports a subsequent opportunity for technical review. The actual designs of UTENS can influence or determine potential benefits, thus, to make UTENS scalable, the efficient and flexible scalability of the design is essential.

The extent of redactions makes learning difficult, with over 50 percent of filings redacted. HEET notes that only Department of Public Service Staff have the full, unredacted filings, causing an undue burden for Staff who cannot be expected to apply appropriate standards to novel technology. The scope of redactions undermines a key component of the value of the pilots, which is learnings.

HEET suggests that the Commission supplement the proposed system performance metrics with clear reporting requirements on system characteristics. HEET is encouraged that NYSERDA is hiring a technical consultant to review the Stage 2 filings.

Two-pipe systems are less easy to interconnect and have additional design constraints, increasing the probability that some pilots will remain standalone experiments. Two-pipe designs do not reduce space requirements. HEET notes there may be potential cost savings through adjusting the design temperature window. Designing the system to take advantage of a wider temperature window directly changes total cost of infrastructure needed, which avoids the costs of unnecessary thermal resources.

International District Energy Association (IDEA)

IDEA finds the design and technical parameters of the pilots to appear sound, although they note that there is not a lot of diversity in the systems proposed because they are all ambient loops. Construction costs could be reduced if some natural gas was allowed for peaking. IDEA states that substantial savings could be achieved if conventional technologies are used to provide peaking and backup capacity. Hybrid systems including fossil fuel for peaking have an advantage in ultimately developing to be financially viable TENS. IDEA suggests that the Commission should consider whether it is prudent for ratepayer money to fund highly expensive projects, and that the extent of UTEN cost burden for UTEN participants compared with the balance of the rate base should be clarified. IDEA recommends that the Utilities include the costs for electric grid infrastructure required to implement UTENS versus other electrification strategies for future UTEN project procurement. Ultimately, IDEA comments, integrated resource planning should be undertaken on a sector-coupled basis, considering electricity, natural gas and thermal infrastructure together so that societal costs for decarbonization can be optimized.

The Syracuse pilot should clarify whether the building area served is 1,695,136 square feet (sqft) or 1.25 million sqft and whether 1,133 customers or 1,300 would be served. IDEA questions the source of the assumptions used for calculating the Syracuse pilot's LCCAs, particularly for customer equipment. IDEA finds the peak load intensities, construction cost, and 5-year O&M cost to be reasonable, making this an attractive pilot.

IDEA notes that the role the thermal energy fee plays in the KEDNY pilot is unclear. Specifically, whether the intent of the thermal energy fee is to offset capital costs or to

recover all capital costs from KEDNY UTEN participants alone. IDEA questions the peak load intensities of the KEDNY pilot, highlighting that the high loads could reflect very poor building efficiency. The basis for the estimated load should be described and reviewed. IDEA finds the construction costs to be extremely high and also notes that the 5-year O&M cost is high.

IDEA finds the peak load intensity for the Rockefeller Center pilot to be very low and seeks explanation from Con Edison. The proposed construction costs are reasonable, and the 5-year O&M cost is very low for the Rockefeller Center pilot. IDEA wants clarity from Con Edison about which figure is correct for the Chelsea pilot's O&M costs, \$18.37 million or \$12.27 million.

For the Mount Vernon pilot, IDEA finds the peak load intensities reasonable given the customer mix. However, the construction costs are very high, equivalent to the total cost of building a Class B commercial office building. IDEA notes that customer conversion costs for this pilot are very expensive, and that 5-year O&M cost is also very high.

IDEA finds the peak load intensities of the Haverstraw pilot to be reasonable given the customer mix. The construction cost is also reasonable, but IDEA did not comment on the five-year O&M costs because they were not provided for this pilot.

New York Geothermal Energy Organization (NY GEO)

NY GEO notes that their comments are general because their review of the pilots was impacted by over 50% of the documents being redacted. Useful information would have been available if redactions were limited to personal protected information and critical infrastructure. The filings generally demonstrate technically feasible designs, and NY GEO is encouraged by the diversity of designs and thermal resources.

The Haverstraw West Loop pilot is a more realistic system to construct in the pilot timeframe, NY GEO states. Some filings lack clarity on integration with existing infrastructure and long-term operability and some thermal sources may present permitting and execution concerns; contingencies should be sought where possible to make pilots viable without relying on unique resources. Design drawings are not publicly filed making it hard to comment on, and NY GEO is unable to comment on whether designs meet best engineering practices. The Chelsea pilot raises equity concerns due to delayed redevelopment and subpar building conditions.

The business models in the filings are underdeveloped and omit key financial metrics, making it difficult to assess viability. The pilots should clarify cost assumptions, revenue models, and scalability. The CPPs in the filings include various levels of detail, thus a standardized framework should be used to improve consistency and transparency. The Stage-gating approach creates uncertainty for the Utilities' engagement strategies because the Utilities are unsure or hesitant to make commitments to pilot participants. NY GEO believes the stage-gate process unwittingly undermines trust and delays community buy-in. Additionally, post pilot pricing remains unclear. NY GEO recommends usage based and time of use structures to incentivize conservation and reflect system dynamics. Utilities must provide detailed post pilot pricing projections.

Proposed cost recovery mechanisms are inconsistent and often exceed initial budgets, NY GEO comments, and finds a lack of standardized methodology which complicates evaluation for cost effectiveness and maximization of available federal incentives. The Utilities should consider changes to pilot designs to qualify for federal incentives to limit rate payer

impacts. A performance-based recovery model tied to emissions reductions and customer satisfaction would be NY GEO's preferred approach. NY GEO also recommends considering a pooled cost recovery across the Utilities with Commission oversight to ensure fairness and comparability.

Incremental data release is critical for adaptive learning, so NY GEO suggests quarterly reporting and using a tool similar to NYSERDA's where one can see the real time performance of systems reported daily. Some pilots risk overburdening administrators with excessive metrics, NY GEO states, however a tiered approach, including core metrics plus optional deep dives, could optimize value.

The redacted LCCAs limit the evaluation of approaches to equitable electrification. The limited results suggest UTENs may offer cost-effective alternatives to individual electrification. The Commission should assess affordability for disadvantaged communities, tenant protections, and long-term rate stability, in order to, according to NY GEO, demonstrate how the projects advance equitable access to clean energy.

The filings vary regarding labor commitments. Strong proposals include union partnerships and training, while others lack specificity and should be revised to include workforce development plans. NY GEO believes organized labor may be sensible for scaling this new thermal utility for trades and in areas of New York that have ready-made labor force to build and operate pilots. Two areas of concern are geothermal drilling and behind the meter conversions. NY GEO recommends that assets not expected to be classified as "utility assets" in a more developed model not be subject to the same regulations within the UTEN pilots as traditional utility distribution assets.

The Rockefeller Center pilot offers the opportunity for unique learnings and a diverse design, according to NY GEO.

All pilots aim to reduce GHG emissions, but quantification varies and should be standardized. The pilots face several risks including permitting delays, cost overruns, and customer resistance. Pilots with vague risk management strategies should be revised to include clear mitigation frameworks. The pilots must be evaluated collectively to identify best practices and avoid duplication. NY GEO urges the Commission to require transparent data sharing and standardized reporting formats, and stakeholders need clearer guidance on post-pilot transition plans and long-term governance.

New York League of Conservation Voters (NYLCV)

The NYLCV supports approval of the three Con Edison Pilots, the Brooklyn Pilot, the Syracuse Pilot and the Haverstraw Pilot and urges the Commission to move swiftly. The pilots would demonstrate how neighborhood-scale TENs can deliver affordable, reliable, emission-free heating and cooling to diverse communities. The pilots would reduce peak electric demand, cut energy costs, and meet CLCPA goals. The pilots exemplify the principles of the Act.

NY Renews

The NY Renews coalition emphasizes that the Customer Protection Plan, Customer Engagement Strategy, and Customer Agreement are among the most important components of the pilot projects. They state that engagement efforts should be accessible, inclusive, and provide authentic opportunities for participants to shape project outcomes. Further, they urge the Commission to ensure that the Customer Protection Plan clearly defines the rights and responsibilities of both participants and the utility throughout the pilot period and beyond.

Beyond evaluating for thorough customer engagement and sufficient customer protection, NY Renews finds that the cost recovery approach should be scrutinized carefully from an

environmental justice perspective to ensure fair cost allocation. Further, the Commission should evaluate if the filings demonstrate that benefits and burdens from the project are equitably distributed. NY Renews states that equitable electrification should be measured by the extent to which the project expands access to clean energy solutions for those who have traditionally been underserved by energy and infrastructure investments. This would include evaluating long-term affordability, and whether the benefits reach renters as well as property owners.

Further, they explain that the evaluation of pilot project impacts should consider whether the project delivers tangible environmental, economic, and public health benefits to disadvantaged communities, whether those benefits are equitably distributed, and whether the lessons learned can support equitable electrification goals across New York State. The Commission should accordingly review the filings to ensure that the risks associated with each pilot project do not fall disproportionately on low-income households, disadvantaged communities, or other vulnerable populations. Finally, the Commission should evaluate if there are adequate oversight mechanisms in place to ensure that emerging concerns are identified and addressed throughout the life of the project.

Pace Energy and Climate Center & Sustainable Westchester

Pace Energy and Climate Center & Sustainable Westchester are supportive of Con Edison's Mount Vernon pilot project. They request greater transparency in the decision making that is guiding key cost drivers. Con Edison and the City of Mount Vernon's collaborative partnership should be considered a strong model for multi-stakeholder projects as the pilot demonstrates good customer outreach and CPP. In general, greater clarity is needed regarding cost recovery allocations

between electric and gas customers and the treatment of costs as regulatory assets. The Pace Energy and Climate Center & Sustainable Westchester suggest that the Commission should ensure cost recovery mechanisms remain transparent, equitable, and proportionate to system-wide benefits, and also should direct the Utilities to prioritize post-pilot pathways that maintain or transition UTEN operations rather than reverting customers to fossil-fuel systems. Additionally, each utility should prioritize continued operation of thermal infrastructure after its pilot period(s) ends. Accordingly, Pace Energy and Climate Center & Sustainable Westchester states that the Commission should direct the Utilities to evaluate multiple scenarios under which continued operation of the UTEN would be feasible and require the Utilities to include within the CPPs a draft high-level End of Pilot Transition Framework that details scenarios for continued operation, community engagement plans for maintaining participant confidence, and comparative rate analyses.

The Mount Vernon filing includes a lot of detail and due diligence incorporating a broad range of building types, while planning for future scalability, according to Pace Energy and Climate Center & Sustainable Westchester. They find that alignment with concurrent infrastructure projects further strengthens the case for the pilot's technical feasibility. Accordingly, Pace Energy and Climate Center & Sustainable Westchester urge the Commission to direct Con Edison to clarify these distinctions and provide cost sensitivity testing. Alternative scenarios should also be included in the decision-making process. The Commission should carefully evaluate the necessity and scalability of a backup system of this size and configuration. The energy center and ASHP system would be major cost drivers and additional clarity is needed on how the design

balances reliability, demand reduction, value, and affordability. The Commission may encourage Con Edison and the City of Mount Vernon to explore options for optimizing or phasing such systems as operational data becomes available, states Pace Energy and Climate Center & Sustainable Westchester.

Pace Energy and Climate Center & Sustainable Westchester support engaging a tax consultant to take advantage of all available tax credits. As long as Con Edison, as the taxpayer, maintains ownership and operational control of the full unit of energy property, it may lease individual heat pumps to UTEN customers while preserving eligibility for tax credits and depreciation benefits. The Commission should encourage Con Edison, in consultation with the City of Mount Vernon, to integrate these updated federal ownership and leasing provisions into the Stage 2 filing.

Two different CPPs, one for residential customers and one for large customers, would establish a well-defined framework that clearly articulates the rights and responsibilities of participants and Con Edison throughout the pilot period, states Pace Energy and Climate Center & Sustainable Westchester. The "Protected Bill" mechanism would provide a predictable annual cap on total energy costs which helps ensure that residential customers would not pay more for UTEN service than they would have under conventional systems. Large customers would be provided parallel protection via a "Shadow Cost" billing methodology. Either of these outcome-based approaches would ensure fairness and preserve incentives for energy efficiency and peak load management, but this proposal does not go beyond the pilot period. Pace Energy and Climate Center & Sustainable Westchester comments that the Commission should direct Con Edison to integrate comparative rate studies into the pilots reporting requirements which would

provide actionable data to guide post-pilot rate design and ensure continuity of protections once subsidies are phased out. Negotiations between Con Edison and the City of Mount Vernon in developing the CPPs establish a replicable governance model to link municipal oversight with utility implementation. Best practices from this pilot include affordability and equity guardrails, public education and outreach, and protections for renters. The Commission should encourage Con Edison to supplement the existing framework with a graduated operational support plan focused on helping customers learn to operate and optimize their new systems, explain Pace Energy and Climate Center & Sustainable Westchester.

Differentiated rate structures for residential and large customers are appropriate, however, several non-profits are potential large customers which may be vulnerable to increases in their utility costs. Targeted measures, such as demand response, could help offset rate pressures and the Commission should ensure any comparative rate study differentiates between thermal rate structures for renters versus owners. The Pace Energy and Climate Center & Sustainable Westchester opine that these proposed rate structures would provide affordability and predictability, fairness to large customers, tenant and equity protections, program integrity and oversight, and data transparency, however, the Mount Vernon filings lacks comparative rate studies, post-pilot uncertainties, limited transparency for large customers, and untapped demand-side potential.

Additional clarity is needed on how costs would be shared among the proposed cost recovery approaches. Con Edison should consider whether seeking cost recovery from both electric and gas customers would help achieve equitable outcomes. Con Edison should design the pilot to maximize eligibility for

available state and federal tax incentives to reduce total system costs, states Pace Energy and Climate Center & Sustainable Westchester, concluding that Con Edison also should clarify how design modifications could affect expected peak-demand outcomes and ratepayer benefits before finalizing recovery mechanisms.

Generally, the plan for data collection and performance metrics appears to comprehensively address several measurables that would be important for assessing pilot success, according to Pace Energy and Climate Center & Sustainable Westchester. It would be beneficial to see the questions for customer experience surveys, and the surveys should be tailored based on customer type. The questions should capture arears indicators as a measure for affordability, while participation metrics should be disaggregated by income, tenure, and disadvantaged community status. The Commission should direct Con Edison to integrate pilot data on customer bills and usage patterns into a metrics framework, allowing performance reporting to inform future thermal and electric rate design, suggests Pace Energy and Climate Center & Sustainable Westchester. The Commission should direct Con Edison to report local hiring and workforce development outcomes including partnerships with environmental justice organizations, minority and women owned businesses, and small business contractors. Also, the Commission should ensure that the pilot's reporting framework supports regular customer check-ins and guided adoption, offers Pace Energy and Climate Center & Sustainable Westchester.

UpgradeNY

The UpgradeNY coalition submitted comments in support of all the Stage 2 Filings submitted in July 2025, including the three Con Edison Pilots, as well as the Brooklyn, Syracuse,

Troy, Ithaca, and Haverstraw Pilots and notes the labor unions are asking the Commission to quickly approve the pilot projects. The timely advancement of Project Labor Agreements (PLAs) when projects are moved to Stage 3 would help ensure that the Utilities advance construction on a timely schedule with high safety and training standards. The innovative, unique pilot designs provide the Commission and others with the opportunity to learn from the pilots and help create a strong regulatory framework to govern the future deployment of UTENS, states UpgradeNY.

UpgradeNY comments on each pilot project, stating that the Mount Vernon pilot would enable retirement of a 500-foot section of aging leak prone pipe, avoiding replacement costs. The Rockefeller Center pilot would enhance overall system efficiency, reduce electric demand, and test a new model of compensation for thermal energy providers that demonstrates how PPPs can support UTENS. The Ithaca pilot has a unique, open-loop design which would deliver stable source temperatures and high coefficient of performance, while requiring fewer drilled assets. The Troy pilot would offer high system-learning value and address the challenge of decarbonizing a historic downtown neighborhood. The Haverstraw pilot would use a variety of technologies and demonstrate how decarbonization can be compatible with affordable housing and urban revitalization. International Association of Heat & Frost Insulators & Allied Workers (IAHFI)

IAHFI supports advancing the three Con Edison Pilots, the Brooklyn Pilot, the Syracuse Pilot and the Haverstraw Pilot to Stage 3 because it is in the public interest. The pilot projects ensure that trained union workers would continue to play a role in building and maintaining energy infrastructure. UTENS would facilitate neighborhood-scale decarbonization while ensuring affordability and reliability, states IAHFI. The

pilots present an opportunity to expand well-paying, middle-class union careers within the energy transition, according to IAHFI, while the implementation of PLAs, adherence to apprenticeship standards, and protection for the Utilities' workforce are crucial for the efficiency and performance of the pilots.

International Brotherhood of Electrical Workers Utility Labor Council (IBEW)

The IBEW underscores the importance of ensuring that statutory labor protections are met. The labor requirements must guide every stage of UTEN implementation and should not be deferred to a later stage of rulemaking but incorporated into pilot design. IBEW urges the Commission to ensure that compliance with labor requirements are material conditions for approval of a pilot.

New York State AFL-CIO (NYS AFL-CIO) & New York State Building and Construction Trades Council (BCTC)

NYS AFL-CIO and BCTC support the approval of the three Con Edison Pilots, the Brooklyn Pilot, the Syracuse Pilot and the Haverstraw Pilot for Stage 3. The pilots will allow New York to scale affordable, accessible electrification that will create union jobs in the sector and facilitate the transition for gas system workers into the clean energy workforce. PLAs, apprenticeship standards, and protections for the Utilities' workforce are of vital importance. TENS work best in dense communities, making New York City and Con Edison's pilots prime opportunities for demonstrating the effectiveness of TENS, concludes NYS AFL-CIO and BCTC, while the pilots would deliver unique learning opportunities, reduce GHG emissions, and provide clean heating and cooling.

New York State Laborer's Organizing Fund (NYSLOF)

NYSLOF submitted comments in strong support of advancing the three Con Edison Pilots, as well as the Brooklyn,

Syracuse, and Haverstraw Pilots to Stage 3. The pilots would create hundreds of union jobs and help achieve the CLCPA goals with significant environmental and economic benefits.

New York State Pipe Trades Labor-Management Partnership (NYS Pipe Trades)

The NYS Pipe Trades support Con Edison and O&R's pilots for Stage 3 approval because they have both committed to using PLAs, which effectively ensure compliance with the Act's labor standards. The NYS Pipe Trades request that the other Utilities commit to similar agreements. Without PLAs, the pilots lack built-in compliance assurances and access to a stable workforce, states NYS Pipe Trades, elaborating that pilots without PLAs also risk undermining the Act's labor standards, eroding public trust, and detracting from environmental benefits.

Steamfitters Local 638 (Steamfitters)

The Steamfitters urge the Commission to approve the three Con Edison pilots, the Brooklyn Pilot, the Syracuse Pilot, and Haverstraw Pilot to construction quickly, stating that the vision of the Act was to move pilots forward quickly. The pilots provide an opportunity for "pipe-to-pipe" transitions for gas system workers, and thus it is essential to the Act that high-road wage and apprenticeship standards are included to ensure the continued growth of the union workforce. TENs are an essential neighborhood-scale decarbonization strategy that should be used across the State.

The Steamfitters find that the Rockefeller Center pilot would connect buildings via subway station and that network would be a model for decarbonization in an ultra-high density urban environment, demonstrating innovative collaboration opportunities with the MTA. The TEN would enhance system efficiency and reduce demand on the grid while the Chelsea pilot would use excess data center heat in a NYCHA

community. The Chelsea network would provide lessons on how TENs can operate in a dense, changing, urban environment, with the pilot potentially serving as a foundation for a larger future network in the neighborhood.

At scale, the Steamfitters opine, UTENs are the only opportunity to meet CLCPA goals and Local Law 97 requirements due to deficiencies in our transmission infrastructure and pauses on offshore wind. The Steamfitters are frequently nursing along old boilers and HVAC systems in NYCHA buildings to keep the building passably functional, and they believe that UTENs would be transformative in NYCHA buildings.

85 Tenth Avenue Associates, LLC

85 Tenth Avenue Associates, LLC notes that there is no formal agreement between Con Edison and itself, as the parties have not been able to reach agreement on a term sheet or non-binding statement of principles for the Chelsea Pilot, accordingly 85 Tenth Avenue Associates, LLC has not agreed to participate in the Chelsea pilot and has not been provided with adequate information from Con Edison.

85 Tenth Avenue Associates, LCC continues, stating that Con Edison is continuously incurring costs for a pilot that may not proceed yet expects 85 Tenth Avenue Associates, LLC to incur costs for technical and financial analyses, regulatory assessments, overheads, review of information, and legal and engineering expenses, while not providing any funding. It would be unfair for Con Edison to have a net gain while 85 Tenth Avenue Associates, LLC suffers a financial loss. Until funding is provided and an agreement is reached between 85 Tenth Avenue Associates, LLC and Con Edison, the Chelsea pilot will not move forward.

Central New York Regional Planning & Development Board (Planning Board)

The Planning Board supports advancing the Syracuse pilot to Stage 3. The Planning Board was the primary contractor for the initial NYSERDA Community Heat Pump Systems Program Opportunity Notice feasibility study. That study determined that a TEN system using the Wastewater Treatment Plant would provide significant financial, environmental, and public health benefits through the elimination of cooling towers and avoided carbon emissions, equipment replacement costs, and utility system upgrades. TENs have been identified as a key strategy to achieving the region's energy goals. The pilot would provide affordable, low-carbon heating and cooling and would attract new investment in a disadvantaged community. The pilot is an important step towards advancing the system considered under the NYSERDA study and could serve as an example for Central New York.

Haverstraw King's Daughters Library

The King's Daughters Library supports the Haverstraw pilot. The pilot would provide clean energy and efficient heating and cooling and would enable the conversion of existing buildings that would improve comfort and reduce operational costs. The pilot would allow the King's Daughters Library to provide better services for the public. The Haverstraw pilot would reduce GHG emissions, improve air quality, and enhance the visual landscape by eliminating the need for outdoor equipment.

Haverstraw Knights of Columbus

The Haverstraw Knights of Columbus support approving the Haverstraw pilot for Stage 3. The pilot would facilitate the conversion of existing buildings by providing no-cost installation of modern energy efficient HVAC systems. The pilot would also reduce GHG emissions, energy costs, and maintenance burdens while enhancing the comfort and use of buildings.

MPact Collective & Pennrose Development (MPact & Pennrose)

MPact & Pennrose support the approval of O&R's Haverstraw pilot, stating that the pilot would advance equitable, sustainable energy infrastructure of benefit to the development of the Chair Factory and the community, through a reduction in heating and cooling energy costs, development of the workforce, advancement of environmental justice and public health, and a reduction of GHG emissions.

Real Estate Board of New York (REBNY)

REBNY supports the approval of the Rockefeller Center pilot for Stage 3. This pilot would create critical learnings for electrifying buildings to achieve the CLCPA and comply with Local Law 97, providing an opportunity to decarbonize buildings and reduce GHG emissions.

New York State Energy Research and Development Authority (NYSERDA)

NYSERDA generally found the level of redactions to be a hindrance to reviewing the filings. NYSERDA believes, given the high costs of the pilots in aggregate, that the filings do not provide enough unique learnings, and recommends that the Commission prioritize pilots that would offer unique learnings. NYSERDA recommends that Staff develop key types of learnings, including project replicability.

NYSERDA notes that all pilots represent large ratepayer investments that may not adequately capture the economic benefits of TENs, given the high upfront fixed costs. Even still, the pilots generally have unfavorable economics. TENs would be more cost effective at scale, but the full benefits may not be realized with smaller pilot projects. Additionally, NYSERDA identifies several risks related to customer acquisition, permitting, the availability of thermal resource and system performance, and the long-term resilience of the infrastructure.

NYSERDA indicates that the filings vary in the level of detail provided about how loads were estimated, obtained, and modeled; the thoroughness of site evaluation; and the level of rigor applied to assessing the thermal potential of the resource selected. It is challenging to determine to what extent this inconsistent level of detail impacts overall feasibility. All pilots except the Buffalo Pilot feature ambient or close-to-ambient networks that require in-building heat pumps to meet heating and cooling requirements. Two-pipe configurations can more feasibly support load balancing. One-pipe systems are potentially easier to expand but may increase the risk of fluctuations in fluid temperature, which could be mitigated by including additional sources and load balancing throughout the network but will add project costs. Relying on geothermal borefields as a major source of energy for both heating and cooling can lead to additional requirements to balance the load. Thermal energy storage can provide large electric system cost savings and reliability benefits at relatively low capital and operating costs.

NYSERDA notes that all pilots except the Buffalo Pilot require significant retrofitting with water source heat pumps and/or water source variable refrigerant flow VRF systems which have limited market experience in New York State. Further, the risk of a refrigerant leak in a VRF system raises environmental and health concerns. Additionally, the reliance on expensive retrofits is an impediment to development of replicable learnings outside of the pilot.

NYSERDA believes the Commission should prioritize pilots with a low chance of decommissioning or pilots that could be decommissioned for a lower cost. NYSERDA notes that while certain pilots may be technically feasible, they would incur significant costs to build and there is often overlap in project

learnings. As such, NYSERDA believes the Commission should request greater diversity amongst pilots. Further, given the high costs of these pilots relative to the customers and loads served, it is unclear if the pilots demonstrate a clear and credible business model in their current form, especially if there is an expectation that costs can reasonably be recovered from the customers and loads served. The LCCAs indicate that standalone electrification solutions may be more cost effective. Costs are high due to TENs being large capital investments that include trenching, drilling, and O&M, amongst other things, and because of the short pilot timeline, decommissioning and depreciation occurs at a faster rate. UTENs are still a nascent technology in the United States, so they may be subject to higher risk and contingency costs. Additionally, the pilots aren't big enough to benefit from economies of scale.

NYSERDA believes that providing customers with the option to exit a pilot could effectively address real or perceived risk in participation. Additionally, while Utilities have proposed capping customer costs, this may pose equity concerns in the post pilot period. NYSERDA suggests that the Utilities consider using different customer protections for different customer classes.

Given that TENs are broadly characterized by high fixed costs and low variable costs, NYSERDA believes it makes sense to test rate structures that incorporate a contract charge or peak demand based monthly charge or fixed charge. For pilots using third party waste heat resources, it makes sense to incorporate a volumetric component. It may be helpful to consider whether any rate structure changes could take place mid-pilot to gauge how customers respond. Learnings should prioritize what makes the most sense for different network configurations, how best to educate customers about UTEN rates,

and how best to transition customer to update rate structures after the pilot ends.

NYSERDA comments that it is reasonable to allocate recovery across electric and gas customers because the learnings generated provide statewide benefits. Further, both electric and gas customers would likely benefit from the pilots. NYSERDA recommends that the Utilities be required to clarify which costs are accounted for in depreciation and which costs are included in the decommissioning budget. NYSERDA also recommends that traditional O&M and other expense-based outlays continue to be expensed, rather than earn a rate of return. Customer-side equipment investments should also be expensed rather than earn a rate of return, especially if maintenance obligations rest with the customer.

To streamline data collection and reporting, NYSERDA recommends that Staff release Microsoft Excel workbooks which the Utilities can use to complete their quarterly and annual filings. To determine if pilots facilitate a more equitable and affordable form of electrification, NYSERDA suggests that additional data be required from all utilities to support the Commission's assessment; including the cost of specific services provided, the cost of different peaking technologies, operational cost tradeoffs, and energy system impacts. NYSERDA believes it would be helpful to test business models and network configurations that can help reduce customer-side equipment needs and related obligations. It is necessary to ensure disadvantaged communities receive a robust share and access to clean energy investment; however, there is risk that the nascent market for TENS will result in projects facing technical challenges and delays that could further harm disadvantaged communities.

Using energy from wastewater is a key learning, especially given that it is a self-renewing resource. Surface water has significant potential for thermal extraction and provides replicable learnings. To ensure diverse learnings, it may be practical to select one pilot that includes geothermal because it is replicable; projects that integrate other resources with geothermal could provide additional learnings. Advancing a pilot that uses waste heat is valuable to understand technical design, contractual relationships, and terms associated with waste heat, and could also be scaled. While the learnings may be valuable, projects that use waste heat from commercial chilling as the only or primary resource may be subject to additional risks. It could be helpful to select pilots that test tradeoffs and how a network could be designed to reuse existing, hydronic in-building distribution systems.

For the Chelsea pilot, a future network developed in conjunction with the demolition and rebuilding of the NYCHA Fulton House buildings makes more sense. O&R's East Loop pilot and the Syracuse pilot could generate learnings about how best to phase TEN development with large-scale redevelopment. For all projects, one key learning would be to better understand how projects can minimize customer-side costs and investments. Non-utility owned thermal resource structures may generate learnings on the diversity of ownership models and development of future compensation frameworks.

Potential grid benefits include peak load reduction and flexibility; however, peaks may be further reduced with alternate projects that serve greater and more diverse loads than the proposed pilots. Across all pilots, except the Chelsea pilot, UTENs performed better than standalone ASHP in achieving a lower electric peak. All pilots except the Buffalo Pilot rely on a decentralized approach of distributing ambient temperature

water, but configurations that use a centralized approach could offer strong grid benefits. The Syracuse pilot could demonstrate scalability because it would have ample additional firm thermal resource capacity, oversized key network infrastructure at low incremental cost, and would serve a neighborhood poised for redevelopment. Having additional thermal resource capacity capability readily available with minimal additional investment is one likely reason the Syracuse pilot's cost of additional connections would be low, in contrast to the KEDNY pilot. O&R's East and West Loop pilots would have a unique scalability feature in that both networks could be joined together in a subsequent phase. The Rockefeller Center pilot has potential to connect to nearby loads, has invested in upsized piping and modular equipment, and has pre-installed valves to allow new buildings to connect at relatively low cost.

NYSERDA identifies several risks associated with the pilots including: the demolition of the buildings the Chelsea pilot would serve, the O&R East Loop pilot's reliance on the Chair Factory and limited progress with NYS DEC on leveraging surface water as a thermal resource, and the Syracuse pilot's dependence on multiple external factors and new construction timelines. There are also risks related to acquisition of non-anchor customers to provide load diversity and networked performance learnings, as well as the impacts of climate change on the TEN systems.

NYSERDA finds it difficult to review the pilots in their totality, and in comparison, to each other, because they were filed at different times. Given the high costs of these pilots, it may be helpful to choose an initial set of pilots to advance into Stage 3A that tests different potential learnings and would provide the most value for ratepayer investments in thermal energy networks. NYSERDA suggests that any external

funding secured, whether through customer contributions, tax credits, or other sources, should be returned to ratepayers. Stage 4 should commence when a minimum customer base is connected to the UTEN, rather than starting with the first connected customer. Defining minimum customer bases can vary by project, including depending on whether there is a significant anchor load that is essential to pilot viability. Additionally, the Commission should consider approaches to cap the costs associated with customer-side investments or develop a framework by which to evaluate and assess the appropriateness of customer-side investments needed to connect to a network. For any sale or transfer of TEN infrastructure and system components in a post-pilot period, the Utilities should be required to complete the sale for no less than fair market value and ensure that all proceeds are returned to ratepayers. The Commission may elect to prioritize projects with long-term commitments, to avoid decommissioning costs and allow for amortization schedules more aligned with traditional utility investments. The Commission could also consider cost containment strategies as appropriate.

NYSERDA notes a timing issue stemming from submission of the Utilities' initial pilot project proposal filings that came in before the Commission issued its Guidance Order and then Stage 1 proposals were due mere months after the Guidance Order was issued. Pilots proposed before regulations make it challenging to determine what a well-considered pilot is. Future pilot rounds may provide the added benefit of allowing utilities to continue accruing institutional knowledge about UTENs, irrespective of specific pilot advancement. For prospective future pilot rounds, NYSERDA believes there would be value in developing pilots to test a greater diversity of network configurations and business models. In testing specific approaches/models, it could be helpful to request projects

structured around desired objectives that network designs could achieve. NYSERDA recommends allowing non-investor-owned utilities to propose projects. Pilots should also explore testing energy-as-a-service approaches that advance equitable electrification and learn from design options that do not rely on ambient temperature thermal transfer fluid. It may be helpful to explicitly request pilot submissions that test and learn from the application of thermal storage, as well as evaluate the inclusion and exclusion of thermal services. It may be helpful to test and learn from design options that rely on natural gas for limited peaking services when connected to an energy center and controlled by the utility, where doing so would significantly reduce costs to ratepayers compared to all-electric alternatives.

NYSERDA is interested in reducing customer retrofit costs to enable equitable electrification. The lower individual customer capital costs of UTENs could reduce the financial burden borne by low-income customers, as compared with standalone electrification. Understanding the potential for TENs to generate cost savings for electric and gas systems would provide valuable information for planning future projects that could scale cost-effectively.

NYSERDA states that NYSEG's Ithaca Pilot project filing is heavily redacted, which makes reviewing it difficult, and it only includes a limited description of how the pilot was designed. The open loop aquifer thermal source is unique and could generate learnings for areas with similar hydrology. However, the Ithaca pilot design could be more cost effective, comes with permitting risks, and may see limited replicability. While the total costs of the pilot are the lowest of any proposed pilot, the Ithaca pilot serves the smallest square footage. Relative to other pilots, NYSEG's project is among the

highest LCOE. NYSERDA expects that customer-managed O&M may be difficult, and believes utility provided maintenance could be an important customer protection. NYSEG is the only utility including a surcharge as a separate line item, however NYSERDA believes decisions about cost recovery should be made consistently across utilities. The high operational costs associated with the Ithaca pilot may erode potential benefits of reduced customer-side capital costs as compared to standalone electrification. NYSEG's filing provides limited information about whether the system could be scaled to serve additional buildings and suggests a relative lack of confidence that the technology will provide reliable heating.

The single, closed-loop, design of the Troy pilot could create a risk for certain customers over time due to thermal resource drift. In the Troy pilot, customers would cover part of the retrofit cost, likely reducing the pilot cost recovery amount. Parkland alienation policies will require the pilot to be decommissioned in 30 years, with no option to extend, in lieu of new state legislation. Despite serving existing buildings, Troy costs nearly as much as new construction pilots, possibly because customers are purchasing their own customer-side equipment. The LCCA indicates the 25-year life cycle costs are lower than total 5-year budgetary costs, suggesting a calculation error. Additionally, the 10-year amortization period is short and NMPC's request to include pilot fees in rate cases is premature. The Troy pilot seeks to align with the redevelopment of a historic downtown, which may provide a replicable strategy. The Troy pilot would use geothermal, which is not unique. NYSERDA recommends choosing only one geothermal pilot. The historic buildings to be served can benefit from a TEN because there is limited space for in-building equipment. The City of Troy is no longer an owner of

the system, which presents an opportunity for consolidated ownership under the utility. An advantage to consolidated ownership is the ability to include larger portions of the system in the basis of calculating federal income tax credits. It may be appropriate to test strategies to address problems of consolidated ownership in a pilot setting to find replicable solutions. The Troy pilot design oversized the distribution piping to enable expansion in the future, which is estimated to account for a 1% increase in construction costs, but may enable meaningful decreases in connection costs later. However, the potential limited availability of thermal resources may constrain future expansion. Customer acquisition appears to be advanced, though customers have dropped as a result of uncertain timelines.

Neither the Ithaca nor Troy pilot projects include information on decommissioning. Both LCCAs indicate that standalone electrification may be more cost effective, consistent with the other pilots. Both Troy and Ithaca LCOEs exceed those of standalone solutions which can pose challenges to ensuring networks are advantageous for customers. However, scalability may reduce per-customer costs, making scalability an essential feature of a successful pilot. Both the Ithaca and Troy pilots show a roughly 35% decrease in peak heating load compared to standalone ASHPs. Both pilots present permitting risks and challenges but could generate learnings.

NYSERDA notes that Central Hudson's Poughkeepsie pilot shares several characteristics with earlier proposals, including a one-pipe ambient networked geothermal design and higher capital and operating costs than standalone electrification, which raises questions about whether the site and technology configurations are optimal. Supporting customer retrofits may build confidence and reduce perceived risk for building owners

in a pilot context, but allocating all customer-side costs to the project may affect project economics and limit replicability and scalability. The pilot is estimated to meaningfully reduce electric peaks compared to stand-alone ASHPs but not compared to ground-source heat pumps.

Central Hudson appears to face greater difficulty with customer acquisition than other pilots. Site visits identified asbestos, lead, and polychlorinated biphenyl remediation may be needed in multiple buildings. The pilot is the only one to propose retrofitting buildings with stand-alone air- and ground-source heat pumps to provide a real-world comparison between the UTEN and stand-alone configurations.

NYSERDA believes that NFG's Buffalo pilot is the only pilot with high and low enough distribution temperatures for direct use in space heating, hot water, and cooling via heat exchangers. As a result, it requires minimal customer-side retrofits because the connected buildings can reuse their existing hydronic distribution rather than install in-building heat pumps. The pilot would also begin a phased transition of an existing fossil-fueled district energy network to clean thermal resources, and its centralized design could demonstrate the grid benefits NYSERDA associates with centralized configurations.

NYSERDA also highlights several features that are unique to the Buffalo pilot and strengthen its proposal. The mix of residential and institutional loads may allow operational efficiencies, and tenants would not face cost shifts because the landlord pays gas and electric bills. Buildings that previously disconnected from the existing hot water network may be candidates for future connections. NFG's contracts for the HVAC conversion and utility distribution work would require compliance with all union, labor, and prevailing wage

requirements. NFG also submitted a detailed training and qualification plan covering personnel, contractors, operators, customer-facing staff, dispatch, and maintenance staff. NFG's modeling demonstrates that the UTEN would reduce electric peaks, but the lack of clarity in the LCCA makes it difficult to assess the project's benefits and allow for direct comparisons to the other Stage 2 Filings. NYSERDA suggests that NFG apply discount rates consistently across the LCCA workbook and categorize costs consistently with the other pilots, and between the workbook and the Stage 2 narrative. Like the Troy pilot, the Buffalo pilot project would require parkland alienation legislation to site infrastructure.

Metropolitan Transit Authority (MTA)

The MTA supports the Rockefeller Center pilot and believes it is in the public interest to advance the pilot to Stage 3. The MTA supports the integration of existing transit infrastructure and clean energy networks manifested by this pilot. This pilot demonstrates the potential for MTA assets to become a significant thermal resource for future UTEN projects. The public nature of the planning process has allowed the MTA to access granular technology and financial information. The Rockefeller Center pilot would develop useful information for the Commission's promulgation of regulations because it would provide unique information and data regarding integration with existing transit infrastructure, which is unique to this pilot.

Onondaga County Executive

The Onondaga County Executive filed a letter of intent outlining a preliminary non-binding framework for an agreement between NMPC and Onondaga County. The letter reflects a mutual interest and intent to collaborate and share resources to evaluate and implement the Syracuse pilot. Onondaga County and NMPC will be collaborating on connection outfall, the

utilization of county property, and the aquarium integration and informational exhibit, among other things.

The letter of intent is non-binding and contingent on the Commission's approval of the Syracuse pilot and the pilot obtaining the necessary NYS DEC approvals. Onondaga County anticipates future agreements between NMPC and the County for the lease of the aquarium, access and use agreements, the lease and easement on the Wastewater Treatment Plant property, thermal energy procurement warranties, ownership transition, and termination.

The City of Buffalo

The City of Buffalo supports NFG's Buffalo pilot. The pilot represents an estimated \$57 million investment into downtown Buffalo and has the potential to shift public opinion and lead to an increase in demand for future UTEN projects. The pilot provides an opportunity for the City and residents to save money on utility costs should the UTEN prove to be more energy efficient and cost effective than current utility systems. Additionally, a thermal energy network may prove to be the most efficient and cost-effective means of transitioning legacy district systems, for which individual building electrification would be infeasible.

The City of Mount Vernon & Mayor Shawyn Patterson-Howard

The City of Mount Vernon supports Con Edison's Mount Vernon pilot. The pilot provides an opportunity to decarbonize buildings at a large scale with less energy use, which would reduce the level of investment needed in the electric grid. The pilot would provide learning opportunities on how to decarbonize priority communities, work with homeowners, and create a network that can serve a variety of building types. Con Edison has spent significant time working on the ground in the community to educate residents. The pilot would reduce emissions and peak

electric use while providing residents with new heating and cooling equipment.

The City of New York (City)

The City recommends the Commission approve the Chelsea and KEDNY pilots and reject the Rockefeller Center pilot, at this time. The pilots must, in accordance with the CLCPA, be focused on benefiting disadvantaged communities and be pursued in a manner that is technologically viable and economically feasible.

The City supports the KEDNY pilot because it would benefit a disadvantaged community and provide insight into how to build out a UTEN system. It is a technologically feasible, integrated design that demonstrates a fully electric, UTEN that provides heating and cooling while eliminating emissions. The design is thoughtful in incorporating multiple technologies, including the innovative use of the sewer heat recover system. The design is in accordance with the Act as it advances financial and technical approaches to equitable and affordable electrification and creates benefits to customers and society at large. However, the City suggests that the Commission require KEDNY to seek additional approvals to proceed if the costs further increase by a material amount. While the City presently supports the KEDNY project, it should not be permitted to proceed regardless of cost. The rate framework effectively ensures that no participant would face higher bills, which supports the public interest in ensuring increased affordability of renewable thermal energy options. However, the KEDNY pilot would need to develop a clear, long-term rate design that balances cost recovery and customer affordability.

The Chelsea pilot would improve indoor air quality, comfort, and enhance reliability. NYCHA and its customers would not incur any upfront costs, and the pilot provides public

health and affordability benefits in a disadvantaged community. The technical design is sound and minimizes tenant disruptions. The City asserts that this is the type of pilot the Legislature intended in the Act. The City believes the benefits and value of learnings outweigh the cost of the pilot. Cost recovery from only electric customers is not sustainable at scale, however, the City supports this cost recovery model for the pilot. There is significant risk associated with this project because of the plan to tear down and rebuild the NYCHA houses. The projected cost of replacing the buildings is \$1.5 billion, the pilot is \$95.5 million, which is less than 6.5% of the total rebuild cost. It is doubtful that the UTEN equipment could be cost-effectively removed and reused in the new buildings. It is not yet decided whether a TEN will be included in the new NYCHA development, therefore, the City supports deferral of pilot approval until the buildings have been reconstructed. However, Con Edison should continue developing the project in the meantime.

The City does not support the Rockefeller Center pilot and believes the Commission should reject it. The Rockefeller Center pilot would not meaningfully decarbonize the existing buildings because it only replaces a limited subset of the buildings' steam system and still relies on fossil-fuel district steam for the majority of the heating and backup needs. There would be no low-income, residential, or public sector participants being served by the Rockefeller Center pilot. The design of this pilot suggests that it could not be transferable to mixed-use or residential areas or low-income areas, and as such, does not align with the intent of the Act. Even accounting for the potential learning value, the cost per ton of CO₂ avoided would be higher than for the alternative of heat-pump retrofits. The proposed rate structure would allow three

commercial building owners to reap benefits while the cost falls on electric ratepayers. The pilot offers no benefits to disadvantaged communities and would redirect limited ratepayer resources away from communities that the CLCPA mandates be prioritized. If this project moves forward, it should do so as a private project where 100% of costs are recovered from the building owners and tenants served. The pilot as contemplated is economically inefficient and it does not constitute a reasonable or appropriate use of ratepayer funds.

The Commission should balance the scope of this pilot initiative with its costs and the likelihood that some of the proposed pilots could not feasibly be expanded or replicated. It is unlikely that a large-scale deployment of TENS of these types would be economically viable. The City finds that the Commission should set budgets for each pilot and require the Utilities adhere to them and also require the Utilities to implement strict cost containment measures, including possibly requiring shareholders to bear all or a portion of exceedances. Such cost containment measures have become standard for transmission projects driven by public policy-based needs. The Commission should not accept Con Edison's proposal that it only be required to submit an "informal filing" for Staff's consideration for cost increases in Stage 3 that are "less than 20 percent" of total estimates. If unforeseen circumstances arise that would drive project costs higher, the Utilities should be required to explain to the Commission and public, why a pilot should continue at a higher cost. Setting rates and approving cost recovery is the core function of the Commission under the PSL, and the Commission should not delegate this critical responsibility to Staff, especially with no associated public process or opportunity for input.

The City of Troy Sustainability Task Force

The City of Troy Sustainability Task Force supports the Troy pilot project, endorsing it as a net financial benefit to the City of Troy and local customers, a net environmental benefit to the larger area and an important contribution to the State's energy policy goals. They emphasize how the project would be significant in demonstrating a publicly shared UTEN in a re-developing, historic downtown while simultaneously delivering public and consumer benefits in an urban brownfield area. The City of Troy Sustainability Task Force urges the Public Service Commission to approve this proposal.

The Village of Haverstraw

The Village of Haverstraw's Board of Trustees expresses its strong support for O&R's pilot and recommends the Commission approve the pilot for Stage 3. The pilot would help achieve CLCPA goals, reduce GHG emissions, and reduce reliance on fossil fuels. The pilot would also benefit the community, advance climate justice, and provide long-term environmental and economic benefits.

New York State Senator Jessica Ramos

Senator Ramos supports Con Edison's three pilot projects, the Brooklyn pilot, the Syracuse pilot and the Haverstraw pilot for approval and NYSEG's CPP. The Mount Vernon pilot would provide a model for both leak prone pipe retirement and for upgrading mixed residential neighborhoods in a disadvantaged community. The Chelsea pilot would recover waste heat from a data center's chilled water system, which would have otherwise been released into the environment via rooftop cooling towers and thus would provide a model for redeveloping New York City Housing Authority homes.

New York State Senator Sean Ryan

Senator Ryan supports approval of Con Edison's three pilot projects, the Brooklyn pilot, the Syracuse pilot and the Haverstraw pilot for Stage 3 approval. The Legislature passed the Act with the aspiration that the pilots would advance to construction and operation across the State. Advancing the pilots is in the public interest. The Syracuse pilot would help avoid gas system expansion in new developments. The Troy pilot demonstrates how modern energy solutions can be integrated into legacy urban environments. Supporting the pilots will signal to the utility workforce that they will play a key role in implementing the CLCPA.

New York State Senators Mattera, Rhoads, Ashby, Chan, Stec, Palumbo, Martins, Borello, Weik & Oberacker

The Senators state that there is a critical bottleneck in energy infrastructure and economic development in the State and indicate the Act was supposed to modernize the grid, lower costs, and develop the workforce. The Senators are urging for \$200 million the 2027 State Budget to propel statewide expansion of UTENS. Despite clear mandates, no pilots have gone to construction. The pilots have undergone stakeholder reviews, public comment periods and DPS Staff evaluations but are effectively frozen. The longer the proposals wait in limbo, the more we risk losing momentum and partnerships necessary to make the pilots successful. Municipalities, contractors, and the public cannot wait indefinitely, they will be forced to move onto less efficient, more expensive alternatives. The delays undermine the legislation passed. The Senators urge for immediate action to approve the pending pilots and to establish a permanent, predictable regulatory framework.

New York State Senators Ramos, Comrie, Scarcella-Spanton, Salazar, Krueger, Fernandez, Addabbo, Hinchey, Mayer, Liu, Jackson, Bynoe, Bottcher, Ryan, Stavisky, Gonzales, Cleare, Harckham, Serrano, Fahy, May, Martinez, Parker, Rivera

The Senators express their concern that no pilot projects have been approved for construction to date, despite clear directives in the Act to get projects built in the first year. They urge the Commission to approve construction of the projects before them and to rapidly advance a long-term regulatory framework for utility thermal energy network projects.

New York State Assemblymember Didi Barrett

Assemblymember Barrett supports the approval of Con Edison's three pilot projects, the Brooklyn pilot, the Syracuse pilot and the Haverstraw pilot for Stage 3. Assemblymember Barrett's trip to Vancouver allowed her to witness firsthand how TENS affordably and effectively decarbonize buildings at a neighborhood scale while also transitioning gas system workers into new clean energy union jobs.

New York State Assemblymember Harry Bronson

Assemblymember Bronson supports the approval of the Haverstraw, Syracuse, Troy, Mount Vernon, Chelsea, Rockefeller Center, and Brooklyn pilots. Together, these pilots deliver unique opportunities to learn about how to scale this approach in NY, reducing greenhouse gas emissions and delivering clean heating and cooling to a variety of neighborhoods.

New York State Assemblymember Patrick Carroll

Assemblymember Carroll supports advancing the Haverstraw pilot to Stage 3 because it is in the public interest. The pilot would allow New York to scale affordable, accessible electrification that would create good jobs while supporting unions and facilitating the transition for gas system workers into the clean energy future. TENS can provide an

opportunity to decarbonize buildings at a neighborhood-scale, in a highly efficient way, while reducing demand on the grid, facilitating the gas transition, and supporting CLCPA goals. UTENs are an opportunity for the State to lead the nation and invest in itself.

New York State Assemblymember Manny De Los Santos

Assemblymember Santos supports the approval of the Mount Vernon, Chelsea, Rockefeller Center, and KEDNY pilots. The pilots would advance the mission of the Act by strengthening our infrastructure and ensuring all communities benefit from the clean energy transition. The KEDNY pilot would cut more than 40,000 metric tons of carbon dioxide over 25 years. The pilots would advance the goals of the CLCPA and Local Law 97 while promoting environmental justice and workforce development.

New York State Assemblymember William Magnarelli

Assemblymember Magnarelli supports the approval of the Syracuse pilot project. He states that this project is a significant opportunity to promote clean energy and economic development in the City of Syracuse and would exemplify how neighborhood-scale thermal energy networks can provide clean, affordable, and reliable heating and cooling.

New York State Assemblymembers Bronson, Barrett, Glick, Schiavoni, Kassay, Stern, Burroughs, Griffin, Solages, Anderson, Gonzáles-Rojas, Cruz, Mitaynes, Simon, Forrest, Lee, Rosenthal, Lasher, Simone, Septimo, Paulin, Otis, Shimsky, Burdick, Levenberg, Carroll, Kay, Shrestha, McDonald, Woerner, Kelles, Stirpe, Hunter, Magnarelli, Lunsford, Clark, Meeks, Conrad, McMahon, Rivera

The Assemblymembers express their concern that no pilot projects have been approved for construction to date, despite clear directives in the Acta to get projects built in the first year. They urge the Commission to approve construction of the projects before them and to rapidly advance

a long-term regulatory framework for utility thermal energy network projects.

New York State Assemblymembers Slater, Palmesano, Walsh, Sempolinski, Morinello, Angelino, Lemondes, Durso, Blankenbush, Molitor, Jensen, McDonough, Gallahan, Tague, Norber, Manktelow, Bendetto, Maher, Simpson, Bailey, Miller, Friend, DiPietro, Giglio, Smullen, Hawley, Fitzpatrick, Chang, Novakhov, Bologna, Gray, Beephan Jr., DeStefano

The Assemblymembers emphasize the potential that UTENS have in reducing stress on the electric grid, leveraging existing expertise on underground infrastructure, and supporting the transition toward a more efficient energy system that does not sacrifice reliability. They express concern over regulatory inaction, stating that the delays in approving these pilot projects undermines confidence in the state's ability to execute major energy initiatives. The Assemblymembers urge the administration and the Public Service Commission to take immediate action to advance pending UTEN construction approvals and establish a clear, predictable regulatory framework moving forward.

New York City Councilor Keith Powers

Councilor Powers supports the approval of the Rockefeller Center pilot for Stage 3. The pilot would allow for scalable decarbonization which reduces the level of investment needed in the grid to support building electrification. The learnings from the pilot would provide guidance on how to decarbonize commercial properties which is vital for achieving CLCPA goals. The pilot would provide a significant reduction in emissions and peak electric usage compared to decarbonizing using ASHPs.

Members of the Public

The Commission received numerous comments from several different letter writing campaigns from various organizations and individual citizens which are summarized below.

Members of the Laborers' International Union of North America and others wrote to express their support for advancing the O&R Haverstraw pilot, the NMPC Syracuse pilot, and the NMPC Troy pilot to Stage 3. The pilots would each deliver unique learnings on scalability, reducing GHG emissions, and providing clean heating and cooling. They also wrote to express their support for the Con Edison Mount Vernon pilot, Rockefeller Center pilot, Chelsea pilot, and KEDNY's Brooklyn pilot, stating that the pilots advance Local Law 97 goals and bring efficient, zero-emission heating and cooling.

The NYLCV's letter campaign urged the Commission to approve the Mount Vernon, Chelsea, Rockefeller Center, KEDNY, Syracuse, and Haverstraw pilots. Each pilot is unique and would provide valuable learnings, while reducing air pollution and GHG emissions. The pilots would also advance the CLCPA goals and comply with Local Law 97. The pilots would also address the affordability crisis because they would provide heating and cooling without volatile fossil fuel prices.

Another letter campaign urged the Commission to approve all of the pilots, with particular emphasis on the Troy and Ithaca pilots which the commenters believe are particularly innovative. UTENs can avoid costly grid reinforcements and enhance reliability. UTENs can also develop local economies and strengthen communities through the use of union labor. The Troy pilot would offer learnings about electrifying a historic downtown neighborhood. The Ithaca pilot is a unique open loop design which can offer learnings for diverse building types in a disadvantaged community.

CATEGORIZATION OF CAPITAL AND OPERATIONAL COSTS

Table 1: Categorization of Utility Side and Customer Side LCCA CapEx			
Staff- Assigned Categories	LCCA Reported CapEx Line Items¹	Utility Side	Customer Side
Administration	Admin	CE	
	Soft Costs	NFG, CHGE	CHGE
	Outreach & Education		CE
Contingency	Contingency and Other (Contingency, AFUDC)	CE, NYSEG, O&R, CHGE	CE, O&R, CHGE
Customer Building Construction	Aquarium Retrofit & Miniplant	NMPC	
	Building Envelope Upgrades		CE, NYSEG
	Customer Connection Incentive	NMPC	NMPC
	Customer Equipment		NMPC
	Demolition		CE, O&R
	Electrical Upgrades		CE, NYSEG, O&R
	HVAC Retrofit/Replacement*		CE, NYSEG, O&R, NFG, CHGE
	Implementation Partner		O&R
	Other*		NYSEG
Customer Equipment	Buildings Retrofits		NMPC
	Customer Equipment		NMPC
Design	Additional Project Req, General Cond, Insurance*	O&R	
	Design	CE	
	Design & Project Development, P80 Contingency, Escalation	NMPC	
	Extra Engineering Costs	O&R	
	Project Development Costs	NYSEG	
DHW System	DHW System		CE, NYSEG, O&R, NFG
Energy Center	Energy Center; Energy Center + Thermal Energy Storage System	All Utilities	
Energy Transfer Station	Energy Transfer Stations	CE	NYSEG, NFG
Heat Pumps	DHW HPS		CE
	Energy Center Heat Pumps	CE, NYSEG, NFG	
	Other (Chair Factory GSHP Costs)		O&R
	Space Conditioning Equipment/Heat Pumps		CE, NYSEG, O&R
Other	Other*	O&R, NFG	
	Other Utility-Side Construction/Internal CAPEX	NYSEG	
	Potential 30% ITC Tax Credit	NYSEG	NYSEG
	Real Estate	O&R	
	Sales Tax	NYSEG	NYSEG
SCADA	Additional SCADA System Components	O&R	
	Controls/Performance Monitoring and Reporting	NYSEG, CE	NYSEG
	Customer Equipment		O&R
Thermal Energy Resource	Borefields; Geothermal Borefields; All Borefields	NMPC, O&R	
	Discharge/Supply Wells; Supply Discharge Lines; Backup System	NYSEG	
	SHARC; Thermal Energy Resource (WEP Pumphouse)	NMPC	
	Thermal Source	CE, NFG	
	Thermal Source River Source	O&R	
UDS	UDS (Utility Distribution System)	All Utilities	

¹ Line items indicated by an asterisk (*) have been truncated.

Table 2: Categorization of Utility Side and Customer Side LCCA OpEx

Staff- Assigned Categories	LCCA Reported OpEx Line Items ¹	Utility Side	Customer Side
Administration	Additional Legal Costs	O&R	
	Admin Cost	CE	
	Full-Time Employees & Upskilling + engineering retainer	NMPC, CHGE	
	Legal	NYSEG	
	Marketing	NYSEG	
	Training & Development	NYSEG, CHGE	
Contingency	Utility Management Cost	NYSEG, O&R, NFG	
	Contingency	CE, NFG	CE
	Other (Contingency and Escalation)	O&R	
	Other (Contingency)	O&R	O&R
Design	Stage 1 and Stage 2 Additional Pilot Costs	O&R	
Electricity	Electric	NMPC	
	Electricity - By Utility Service Type*	All Utilities	All Utilities
Operation & Maintenance (O&M)	Maintenance Cost	CE, NYSEG, O&R, CHGE	All Utilities
	Maintenance Cost (Thermal Resource & Customer)		CE
	Additional customer-side O&M costs*		NYSEG
Other	Bill Protection Subsidies from Utility (enter as negative number)		CE, NMPC, NYSEG
	Bill Protection Subsidies to Customers	CE, NMPC, NYSEG	
	Fees Paid to Third Party - Real Estate Costs	NMPC	
	Natural Gas (Non-residential Utility Rates)		NMPC
	Other	CE, NMPC	
Property Tax	Property Tax*	CE, NMPC, NYSEG, CHGE	
	Real Estate Taxes	O&R	
Reporting	PM, CM, Marketing and Filing Costs	O&R	
	UTEN Filing at the End of the Pilot Period	NYSEG	
Sales Tax	Sales and Gross Receipts Tax on revenue collected	CE	
	Thermal GRT*	CE	
SCADA	Communications & Systems Development	NYSEG	
	Performance Monitoring and Reporting OPEX	CE	
	SCADA System Software and Maint Costs	O&R, CHGE	O&R
Thermal Fees	Revenue from Thermal Fees Paid by the Utility (Prosumers, enter as negative number)		CE, NFG
	Thermal Fee Revenue from Customers (enter as negative number)	CE, NMPC, O&R, CHGE	
	Thermal Fee Revenue paid to Thermal Energy Resource	CE	
	Thermal Fees Paid to Third Party Suppliers or Prosumers	CE	
	Thermal Fees Paid to Utility		CE, NMPC, O&R, NFG

¹ Line items indicated by an asterisk (*) have been truncated.

STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

CASE 22-M-0429 -Proceeding on Motion of the Commission to
Implement the Requirements of the Utility
Thermal Energy Network and Jobs Act.

NOTICE OF DETERMINATION OF SIGNIFICANCE
(NEGATIVE DECLARATION)

NOTICE is hereby given that an Environmental Impact Statement will not be prepared in connection with the approval by the Public Service Commission (the Commission) of National Fuel Gas Distribution Corporation's Buffalo Pilot Project to Stage 3. The exercise of this approval constitutes an Unlisted action, as is defined in Title 6 of the New York Codes, Rules and Regulations (NYCRR) §617.2(an).

Based on a review of the record, the Commission finds that the approval of National Fuel Gas Distribution Corporation's Buffalo Pilot Project will not have a significant adverse environmental impact, under the criteria set forth in 6 NYCRR §617.7. The record demonstrates that the approval of the Buffalo Pilot Project will result in the reduction of greenhouse gas emissions, benefit a disadvantaged community, and help further the goals of the City of Buffalo's local development plan. Further, approval of the Buffalo Pilot Project will not result in impacts to environmental resources, water resources, or historic districts and will not directly result in any significant adverse effects to the environment.

The address of the Public Service Commission, the Lead Agency for the purposes of the environmental quality review of this transfer, is Three Empire State Plaza, Albany, New York 12223-1350. Questions may be directed to Makayla Loeb

CASE 22-M-0429

(makayla.loeb@dps.ny.gov) at (518)-486-2890 or by writing to the address above.

MICHELLE L. PHILLIPS
Secretary

STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

CASE 22-M-0429 -Proceeding on Motion of the Commission to
Implement the Requirements of the Utility
Thermal Energy Network and Jobs Act.

NOTICE OF DETERMINATION OF SIGNIFICANCE
(NEGATIVE DECLARATION)

NOTICE is hereby given that an Environmental Impact Statement will not be prepared in connection with the approval by the Public Service Commission (the Commission) of Orange & Rockland Utilities, Inc.'s Haverstraw West Loop Pilot Project to Stage 3. The exercise of this approval constitutes an Unlisted action, as is defined in Title 6 of the New York Codes, Rules and Regulations (NYCRR) §617.2(an).

Based on a review of the record, the Commission finds that the approval of Orange & Rockland Utilities, Inc.'s Haverstraw West Loop Pilot Project will not have a significant adverse environmental impact, under the criteria set forth in 6 NYCRR §617.7. The record demonstrates that the approval of the West Loop Pilot Project will result in the reduction of greenhouse gas emissions, benefit a disadvantaged community, and help further the goals of Haverstraw's local development plans. Further, approval of the West Loop Pilot Project will not result in a new land use, impacts to water resources or historic districts, and will not directly result in any significant adverse effects to the environment.

The address of the Public Service Commission, the Lead Agency for the purposes of the environmental quality review of this transfer, is Three Empire State Plaza, Albany, New York 12223-1350. Questions may be directed to Makayla Loeb

CASE 22-M-0429

(makayla.loeb@dps.ny.gov) at (518)-486-2890 or by writing to the address above.

MICHELLE L. PHILLIPS
Secretary