

STATE OF NEW YORK  
PUBLIC SERVICE COMMISSION

CASE 23-G-0147 - In the Matter of a Review of the Long-Term Gas  
System Plans of Consolidated Edison Company of  
New York, Inc. and Orange and Rockland  
Utilities, Inc.

ORDER REGARDING LONG-TERM NATURAL GAS PLAN AND REQUIRING FURTHER  
ACTIONS

Issued and Effective: September 20, 2024

Table of Contents

INTRODUCTION..... 1

BACKGROUND..... 2

    Gas Planning Process ..... 2

    Description of Long-Term Plan ..... 4

        1. Reference Pathway ..... 15

        2. Hybrid Pathway ..... 16

        3. Deep Electrification Pathway ..... 18

    Consultant Reports ..... 19

NOTICE OF PROPOSED RULE MAKING..... 28

LEGAL AUTHORITY..... 29

DISCUSSION..... 29

    Demand Forecast ..... 33

    Supply Forecast/Components ..... 35

    Low Carbon Fuels ..... 38

        1. Renewable Natural Gas ..... 39

        2. Hydrogen ..... 40

        3. Synthetic Natural Gas ..... 41

        4. Certified Natural Gas ..... 42

    Peaking Services ..... 45

    Demand Response Programs ..... 45

    Energy Efficiency ..... 47

    Reliability Standards and Hydraulic Modeling ..... 50

    No Infrastructure Option and Non-Pipe Alternatives ..... 53

    Leak-Prone Pipe ..... 57

    Impacts on Low- and Moderate-Income Customers and  
    Disadvantaged Communities ..... 60

    Comparison of Alternatives ..... 64

        1. Benefit Cost Analysis ..... 64

        2. Estimated Bill Impacts and Net Present Value of  
        Costs of Each Alternative ..... 68

        3. Emissions Impacts ..... 72

    Heat Pump Adoption/Pace of Electrification ..... 74

    Depreciation ..... 77

    Climate Leadership and Community Protection Act ..... 78

CONCLUSION..... 79

SCHEDULE OF PROCEEDING..... Appendix A

SUMMARY OF COMMENTS..... Appendix B

STATE OF NEW YORK  
PUBLIC SERVICE COMMISSION

At a session of the Public Service  
Commission held in the City of  
Albany on September 19, 2024

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

In our Order Adopting the Gas System Planning Process, we required each gas local distribution company (LDC or utility) to file a long-term plan for its gas system for consideration through a stakeholder process.<sup>1</sup> This Order addresses the proposed long-term plan made in response to that order by Consolidated Edison Company of New York, Inc. (Con Edison or CECONY) and Orange and Rockland Utilities, Inc. (ORU)

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<sup>1</sup> Case 20-G-0131, Proceeding on Motion of the Commission in  
Regard to Gas Planning Procedures, Order Adopting Gas System  
Planning Process (issued May 12, 2022) (Planning Order) (Gas  
Planning Proceeding).

(collectively, the Companies). The Companies have engaged with Department of Public Service staff (Staff), a consultant, and stakeholders regarding their proposed long-term plan through technical conferences and comments on the Companies' initial long-term plan (Initial LTP), revised long-term plan (Revised LTP) and final long-term plan (Final LTP). The consultant, PA Consulting (PA), assisted Staff in reviewing the Companies' three iterations of their long-term plan and provided three reports regarding the Companies' proposals and stakeholders' feedback.

As discussed in this Order, the Commission finds that, although the Companies' Final LTP has many positive elements, several others need to be refined and/or revised. Accordingly, by this Order, the Commission directs the Companies to take a number of further actions, including making proposals for pilot programs, and providing additional information in the coming months related to gas use by customers and electrification of current gas uses, gas commodity supply and pipeline safety, electric and gas bill impacts, as well as impacts on the electric systems due to electrification.

These actions reflect the analysis performed by PA and Staff, as well as the significant stakeholder feedback. The actions directed in this Order constitute important steps in the process of decarbonizing the Companies' systems and toward achieving the greenhouse gas (GHG) emission reduction targets established in the Climate Leadership and Community Protection Act (CLCPA).

#### BACKGROUND

##### Gas Planning Process

In the Planning Order, the Commission adopted a long-term natural gas planning process to ensure that the State,

customers, stakeholders, and other interested entities have the opportunity to understand and engage in the discussion regarding the future of natural gas service and infrastructure in the State. We stated that the intent of the gas system planning process is to “ensure that the Commission has the necessary information to consider the [LDCs] long-term plans and alternative solutions to ensure that New York’s residents can continue to have safe, adequate, and reliable gas service as we transition to alternative energy sources to reduce GHG [greenhouse gas] emissions” and the process would be transparent with significant stakeholder participation.<sup>2</sup>

To effectuate this intent, the Planning Order required each of the State’s major LDCs to file long-term gas system plans over a 20-year horizon, including annual and peak day load and any peak hour considerations, and to examine the impact of their plans on disadvantaged communities. The Commission also directed the LDCs to include adjustments to demand forecast scenarios that incorporate energy efficiency, electrification, demand response, non-pipes alternatives (NPAs), and other external impacts.<sup>3</sup> The Commission directed Staff to engage a consultant to work at the direction of Staff and to participate in stakeholder meetings, make requests of the LDCs and stakeholders participating in the long-term planning process, help evaluate the economic and environmental tradeoffs associated with different pathways, and work with the LDC to run

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<sup>2</sup> Planning Order, pp. 17-18. National Fuel Gas Distribution Corporation (NFG) was the first LDC to file its long-term plan, and we considered that plan in December 2023, directing NFG to take certain actions to improve upon its filing. Case 22-G-0610, In the Matter of a Review of the Long-Term Gas System Plan of National Fuel Gas Distribution Corporation, Order Implementing Long-Term Natural Gas Plan with Modifications (issued December 14, 2023).

<sup>3</sup> Planning Order, p. 29.

a reasonable number of versions of the hydraulic modeling.<sup>4</sup> For this proceeding, Staff engaged PA.

The Commission has since opened separate dockets related to each of the major utilities' LTPs. This proceeding began with the Companies conducting an informational session on April 26, 2023, and continued with several rounds of comments and multiple technical conferences to ensure ample opportunity for stakeholder participation. Con Edison and ORU filed their Initial LTP on May 31, 2023. PA filed its Initial Report on July 14, 2023, which was followed by stakeholder comments on the Initial LTP. The Companies filed their Revised LTP on September 25, 2023, followed by PA's Preliminary Findings Report on October 16, 2023. Written comments on the Revised LTP were received on October 25, 2023. Staff convened several technical conferences, as required by the Planning Order, at which attendees discussed and attempted to reconcile differences among the Companies and the stakeholders regarding the Revised LTP and addressed other issues related to the Companies' long-term plan. Con Edison and ORU filed their Final LTP on November 29, 2023, and PA submitted its Final Report on December 12, 2023. Two rounds of comments addressing the Final LTP followed the filing of the two reports, which included stakeholders filing comments and reply comments and the Companies filing reply comments. See Appendix A for a summary and timing of the key events in this proceeding.

#### Description of Long-Term Plan

According to the Companies, the Final LTP sets forth processes, actions, and investments to achieve their "comprehensive strategic objectives in four key areas:" clean energy; climate resilience; core service; and customer

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<sup>4</sup> Planning Order, pp. 26-27.

engagement.<sup>5</sup> The Companies further state that their “Clean Energy strategic objective is supported by five pillars:” (1) build the grid of the future; (2) empower their customers to meet their climate goals; (3) reimagine the gas system; (4) lead by reducing the Companies’ carbon footprint; and (5) partner with their stakeholders.<sup>6</sup>

The Companies evaluated three representative pathways that represent potential end states, denoting them as the Reference, Hybrid, and Deep Electrification pathways. The Companies state that the Reference Pathway reflects the current legal and policy framework and does not achieve the net zero GHG emissions goals of either the State or New York City (NYC). The Companies state that the Hybrid Pathway is further refined from their existing Gas Long Range Plans and incorporates both clean electricity and low-carbon gas fuels in a manner that meets the State’s economy-wide GHG emissions targets.<sup>7</sup> The Companies state that the Deep Electrification Pathway incorporates the assumptions of the integration analysis prepared by the Climate Action Council and New York State Energy Research and Development Authority (NYSERDA), and meets the State’s economy-wide GHG emissions goals.

In their Final LTP, the Companies indicate that the Reference Pathway represents the current trajectory, factoring in existing and planned demand reduction programs and the existing regulatory and statutory framework. The Companies state that the peak demand forecast they developed in 2015

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<sup>5</sup> Final LTP, pp. 2-3.

<sup>6</sup> Final LTP, p. 3.

<sup>7</sup> Con Edison published a Gas Long Range Plan in January 2022 and ORU published a Gas Long Range Plan in January 2021. These plans were developed separately from the long-term planning process that is the subject of this Order.

anticipated a 25 percent growth in peak demand over a 20-year planning period, whereas the current Reference Pathway projects a 13 percent reduction in peak demand over the next 20 years. The Companies expect sales volumes for firm and interruptible delivery service to fall by between 21 and 82 percent by the end of the 20-year planning horizon and GHG emissions to fall by between 23 and 87 percent. The Companies state that "absent implementation of asset depreciation practices that recognize a more limited economic life of gas delivery investments, the smaller number of customers served in the future would be required to pay for remaining gas system costs."

Con Edison states that approximately 45 percent of all census tracts in its service territory have been determined to be disadvantaged communities. The Companies state that they have formed an Environmental Justice Working Group and Executive Steering Committee and finalized an Environmental Justice Policy Statement. Furthermore, as part of the Commission's recently adopted rate plan, Con Edison is required to file an annual Disadvantaged Communities Report including data regarding its investments, engagement, and workforce development efforts in disadvantaged communities.<sup>8</sup>

Con Edison outlines how its reliance on delivered services has increased in recent years due to customer growth and totaled about 18 percent of peak demand in the winter of 2019-2020. Con Edison contracted for increased pipeline capacity on the Tennessee Pipeline East 300 project, which commenced service in November 2023, and on the Iroquois ExC project, which is not yet in service. Con Edison had

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<sup>8</sup> Cases 22-E-0064 and 22-G-0065, Con Edison - Electric and Gas Rates, Order Adopting Terms of Joint Proposal and Establishing Electric and Gas Rate Plans with Additional Requirements (issued July 20, 2023) (2023 Rate Order), Joint Proposal, p. 119.

implemented a moratorium on new natural gas customer load on March 15, 2019, but that moratorium was lifted with the availability of the East 300 project capacity. Con Edison also pursued a main replacement project in Queens that increased its receipt capacity at the Texas Eastern Lower Manhattan citygate.

ORU states that disadvantaged communities are interspersed throughout its service territory. ORU states that it began to implement demand reduction programs in the rate plan the Commission adopted in its Rate Order in Case 21-G-0073, and these programs include the development of a gas demand response pilot and significantly increasing the size of its gas energy efficiency programs.<sup>9</sup>

The Companies state that, while they have separate and distinct service territories, they conduct a joint gas supply plan and maintain a combined portfolio of interstate pipeline, storage, and supply contracts. They note that, while only firm customer gas requirements are included in peak day supply planning, the demand from interruptible customers is included in the emissions, reliability, and cost analyses in the Final LTP. The Companies have a total of 77 individual pipeline and storage contracts in service, which provide 1,794 MDT/day of capacity to the gate stations in their service territories.

The Companies also explain their methodologies for calculating demand on design day, which differ slightly. Con Edison uses a weather reference of zero degrees Fahrenheit Temperature Variable for design conditions and utilizes data from the Central Park National Weather Station. The design day temperature used by Con Edison is the 24-hour arithmetic average

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<sup>9</sup> Cases 21-G-0073 and 21-E-0074, ORU - Electric and Gas Rates, Order Adopting Terms of Joint Proposal and Establishing Electric and Gas Rate Plans with Additional Requirements (issued April 14, 2022) (2022 ORU Rate Order), pp. 68-69.

for the gas day, starting at 10 AM. The Temperature Variable considers extreme weather conditions (i.e., sustained low temperatures over two gas day periods, weighting the current day at 70 percent and the previous day at 30 percent). Additionally, Con Edison uses average wind speed over the gas day as a variable, with 10 miles per hour assumed for design criteria.

ORU also uses a weather reference of zero degrees Fahrenheit Temperature Variable for design conditions but relies on weather data from the National Weather Station at White Plains or Spring Valley. Another difference between Con Edison and ORU is that ORU weighs the current day at 80 percent and the previous day at 20 percent but, like Con Edison, it assumes wind speed of 10 miles per hour.

The Companies have electric businesses and implement Clean Heat programs through the Energy Efficiency and Building Electrification Proceeding.<sup>10</sup> Both Companies also have gas energy efficiency programs. ORU currently offers rebates for efficient gas appliances, as well as a residential behavioral program and commercial and industrial heating efficiency program. Con Edison says it has tailored incentives in specific programs to serve low- and moderate-income customers, one- to four-family homes, multifamily buildings, and commercial and industrial customers.

Con Edison states that it has begun to implement NPAs as substitutions for traditional gas infrastructure. In June 2021, the Commission approved a set of specific NPA projects in

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<sup>10</sup> Case 18-M-0084, In the Matter of a Comprehensive Energy Efficiency Initiative (Energy Efficiency and Building Electrification Proceeding).

Case 19-G-0066.<sup>11</sup> Con Edison recently convened a stakeholder engagement meeting to discuss progress related to its efforts to develop NPAs focused on gas service line replacements. Under the 2023 Rate Order, Con Edison is required to notify customers of alternative non-fossil options to natural gas service prior to issuing a service determination and consider electrification as an alternative to gas main replacement. The 2023 Rate Order also encourages Con Edison to conduct outreach and education to customers regarding electrification where customers are slated to receive a gas service replacement, endeavor to develop NPA projects under the existing framework adopted in Case 19-G-0066 and engage with stakeholders to discuss progress related to the use of NPAs instead of repairing or replacing gas plant.<sup>12</sup>

Con Edison also offers the Electric Advantage NPA program, which is designed to eliminate the need for specific gas main replacements featuring leak prone sections of gas main. In addition, Con Edison's Area Load Relief program identifies areas where future gas infrastructure may be needed to meet increased load and attempts to design NPAs to avoid the construction of additional infrastructure. Under this program Con Edison is implementing energy efficiency and electrification projects in Soundview (Bronx), Port Chester (Westchester) and Bayside (Queens). ORU states it has begun the process of implementing NPA projects and has identified two near-term gas system expansion projects that might be good candidates for NPA treatment.

The Final LTP references gas demand response offerings, but Con Edison has ended its demand response programs

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<sup>11</sup> Case 19-G-0066, Con Edison - Gas Rates, Order Approving with Modifications the Request for Funding Approval to Pursue Additional Solutions for Load Relief (issued June 23, 2021).

<sup>12</sup> 2023 Rate Order, pp. 45-46.

and states it will “continue benchmarking with other utilities and stakeholders to determine if there are other strategies” it could test for a future demand response program.<sup>13</sup>

The Companies expect firm design day demand to reach its peak in approximately 2027 and then begin to decrease. The Companies do not project the need for any new service moratoria but state they will continually evaluate the need for new service moratoria through this on-going planning process. They further state that as firm peak demand begins to decrease, they will begin reducing the supply portfolio to match the changing needs of customers. The Companies state that they will first reduce and then eliminate delivered services, then target the least flexible pipeline capacity contracts with limited storage access. They indicate they have begun the process of ranking contracts to clearly identify which will be targeted for de-contracting first.

Regarding low carbon fuels, the Companies state that the estimated maximum amount of renewable natural gas (RNG) they will be able to secure is 48 TBtu per year, equal to approximately 20 percent of current annual volumetric usage. They note that NYC is interested in selling RNG from wastewater treatment plants. The Companies also assume that the maximum potential amount of hydrogen that can be blended into their distribution system is 20 percent by volume, i.e., seven percent by energy, without making significant infrastructure upgrades. The Companies assert that there are net-zero emissions associated with synthetic natural gas (SNG), which combines hydrogen with captured carbon dioxide to create methane through a process known as methanation and is produced using captured carbon dioxide, leading to their assumption that there are net-

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<sup>13</sup> Final LTP, p. 45.

zero emissions associated with the production, delivery, and combustion of SNG. They also see a role for certified natural gas, for which Con Edison received approval in the 2023 Rate Order for a pilot program. The Companies contracted for 40,000 Dt of certified natural gas during the winter of 2023-24. Con Edison states it is required to provide a GHG emissions scorecard as part of the earnings adjustment mechanism reporting requirements of the 2023 Rate Order. The Companies also state they have begun work on projects related to the Utility Thermal Energy Network requirements.<sup>14</sup>

The following tables, developed by PA, present some comparisons of the three pathways. The first compares outcomes among the three pathways in each of the versions of the LTP, the second represents bill increases on an annual basis across representative service classifications, and the third summarizes the assumptions regarding policy and regulations that vary across the three pathways.

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<sup>14</sup> Case 22-M-0429, Proceeding to Implement the Utility Thermal Energy Network and Jobs Act, Order on Developing Thermal Energy Networks Pursuant to the Utility Thermal Energy Network and Jobs Act (issued September 15, 2022).

## Companies' Key Projected Outcomes

(Note - CNG is Certified Natural Gas in this Table)

	Reference	Hybrid	Deep Electrification
<b>FLT Plan</b>			
2043 Gas Volume, percent reduction from 2023	171 TBTU, 21 percent reduction	125 TBTU, 42 percent reduction	39 TBTU, 82 percent reduction
Gas Sector Emissions Reductions from 2023 (scopes 1 and 3)	23 percent	62 percent	87 percent
Gas Supply Mix (2043)	5 percent CNG	36 percent RNG, 6 percent clean hydrogen, 58 percent CNG	21 percent RNG, 79 percent CNG
Electric Peak, percent increase from 2023 to 2042	Con Edison: 34 percent ORU: 42 percent	Con Edison: 13 - 32 percent ORU: 29 - 67 percent	Con Edison: 49-91 percent ORU: 45- 93 percent
<b>RLT Plan</b>			
2043 Gas Volume, percent reduction from 2023	171 TBTU, 23 percent reduction	125 TBTU, 43 percent reduction	39 TBTU, 82 percent reduction
Gas Sector Emissions Reductions from 2023 (scopes 1 and 3)	25 percent	62 percent	87 percent
Gas Supply Mix (2043)	5 percent CNG	36 percent RNG, 6 percent clean hydrogen, 58 percent CNG	21 percent RNG, 79 percent CNG
Electric Peak, percent increase from 2023 to 2042	Con Edison: 30 percent ORU: 13 percent	Con Edison: 15-34 percent ORU: 31 - 70 percent	Con Edison: 51-92 percent ORU: 45-93 percent
<b>ILT Plan</b>			
Gas Volume, percent reduction	173 TBTU, 18 percent reduction	129 TBTU, 39 percent reduction	49 TBTU, 76 percent reduction
Gas Sector Emissions Reductions from 2022 (scopes 1 and 3)	25 percent	62 percent	87 percent
Gas Supply Mix (2042)	5 percent CNG	37 percent RNG, 6 percent clean hydrogen, 57 percent CNG	13 percent RNG, 87 percent CNG
Electric Peak, percent increase from 2022	Con Edison: 32 percent ORU: 38 percent	Con Edison: 25-40 percent ORU: 20 - 45 percent	Con Edison: 70-105 percent ORU: 35 - 70 percent

Representative Service Costs: FLT Plan

Con Edison		
Scenario	Rate Impact (2023-43)	Rate Impact (2023-50)
SC-1 Residential/Religious Firm Sales Service		
Reference	5.4 percent	4.3 percent
Hybrid	7.4 percent	6.7 percent
Deep Electrification	25.1 percent	37.5 percent
SC-2 Rate I General Firm Sales Service		
Reference	4.2 percent	3.6 percent
Hybrid	7.5 percent	9.1 percent
Deep Electrification	17.5 percent	58.8 percent
SC-2 Rate II General Firm Sales Service		
Reference	4.4 percent	3.8 percent
Hybrid	7.6 percent	8.8 percent
Deep Electrification	19.1 percent	64.4 percent
SC-3 Residential/Religious Heating		
Reference	4.7 percent	4.0 percent
Hybrid	7.3 percent	8.1 percent
Deep Electrification	18.5 percent	61.7 percent
ORU		
SC-1 Residential and Space Heating		
Reference	3.2 percent	3.5 percent
Hybrid	8.8 percent	14.9 percent
Deep Electrification	5.5 percent	14.9 percent
SC-2 General Service (small)		
Reference	2.8 percent	3.1 percent
Hybrid	5.4 percent	8.6 percent
Deep Electrification	11.7 percent	56.9 percent
SC-2 General Service (large)		
Reference	2.9 percent	3.3 percent
Hybrid	5.7 percent	9.2 percent
Deep Electrification	12.7 percent	62.3 percent

Reference	Hybrid	Deep Electrification
<ul style="list-style-type: none"> <li>Existing law and policy</li> <li>Continuation of existing investment in energy efficiency, electrification</li> <li>Preservation of current policies with respect to new gas service</li> </ul>	<ul style="list-style-type: none"> <li>Elimination of 100' Rule, obligation to provide natural gas service</li> <li>Incremental (i.e., to Reference Pathway) energy efficiency program investments</li> <li>Reduction in system footprint</li> <li>Diversification of fuel resources (i.e., LCFs)</li> <li>Electrification programs</li> </ul>	<ul style="list-style-type: none"> <li>Elimination of 100' Rule, obligation to provide natural gas service</li> <li>Incremental (i.e., to Hybrid Pathway) energy efficiency program investments</li> <li>Significant reduction in gas system footprint</li> <li>Nearly eliminates emissions from buildings</li> <li>No exceptions to legislation mandating electrification</li> </ul>

The Companies performed an assessment of the costs of each Pathway but note that electric system costs and customer-side conversion costs are “not contemplated in the analyses the Companies have undertaken to date.”<sup>15</sup> The Companies calculate projected bill impacts for select service classifications, some of which are represented here<sup>16</sup>:

Representative Average Annual Gas Bills at Pathway Rates (in 2023 Dollars)

<b>Con Edison</b>				
<b>SC-1 - Residential/Religious Firm Sales Service</b>	<b>2023</b>	<b>2043</b>	<b>2050</b>	Avg Use/Mo.
Reference	\$562	\$1,170	\$1,219	5 Therms
Hybrid	\$562	\$1,396	\$1,578	
Deep Electrification	\$562	\$3,384	\$6,254	
<b>SC-2 Rate I - General Firm Sales Service</b>	<b>2023</b>	<b>2043</b>	<b>2050</b>	300 Therms
Reference	\$4,867	\$8,902	\$9,563	
Hybrid	\$4,867	\$12,197	\$16,881	
Deep Electrification	\$4,867	\$21,873	\$82,165	
<b>SC-2 Rate II - General Firm Sales Service</b>	<b>2023</b>	<b>2043</b>	<b>2050</b>	400 Therms
Reference	\$7,789	\$14,683	\$15,715	
Hybrid	\$7,789	\$19,572	\$26,227	
Deep Electrification	\$7,789	\$37,577	\$143,269	
<b>SC-3 - Residential/Religious – Heating</b>	<b>2023</b>	<b>2043</b>	<b>2050</b>	100 Therms
Reference	\$2,568	\$4,972	\$5,328	
Hybrid	\$2,568	\$6,338	\$8,175	
Deep Electrification	\$2,568	\$12,525	\$47,102	
<b>ORU</b>				
<b>SC-1 - Residential and Space Heating</b>	<b>2023</b>	<b>2043</b>	<b>2050</b>	Avg Use/Mo.
Reference	\$1,843	\$3,008	\$3,606	100 ccf
Hybrid	\$1,843	\$5,090	\$9,241	
Deep Electrification	\$1,843	\$3,877	\$9,239	
<b>SC-2 - General Service (Small)</b>	<b>2023</b>	<b>2043</b>	<b>2050</b>	300 ccf
Reference	\$4,197	\$6,533	\$7,751	
Hybrid	\$4,218	\$8,736	\$13,986	
Deep Electrification	\$4,218	\$14,066	\$69,008	
<b>SC-2 - General Service (Large)</b>	<b>2023</b>	<b>2043</b>	<b>2050</b>	3,000 ccf
Reference	\$38,561	\$60,982	\$72,859	
Hybrid	\$38,770	\$83,050	\$135,328	
Deep Electrification	\$38,770	\$136,891	\$690,593	

The Companies also provided the benefit cost analysis (BCA) results for each of the Pathways, shown below, and state that

<sup>15</sup> Final LTP, p. 57.

<sup>16</sup> Final LTP, p. 62.

the results further support their argument for not selecting a preferred pathway.<sup>17</sup>

Summary of BCA Results for the Reference, Hybrid, and Deep Electrification Pathways

<b>NPV (\$B, 2024 - 2043)</b>	<b>Reference</b>		<b>Hybrid</b>		<b>Deep Electrification</b>	
<b>Company</b>	<b>Con Edison</b>	<b>ORU</b>	<b>Con Edison</b>	<b>ORU</b>	<b>Con Edison</b>	<b>ORU</b>
<b>Benefits (Low - High)</b>	<b>\$14 - \$14</b>	<b>\$2 - \$2</b>	<b>\$23 - \$23</b>	<b>\$3 - \$4</b>	<b>\$33 - \$39</b>	<b>\$5 - \$5</b>
<b>Costs (Low - High)</b>	<b>\$55 - \$28</b>	<b>\$3 - \$2</b>	<b>\$77 - \$42</b>	<b>\$9 - \$6</b>	<b>\$142 - \$87</b>	<b>\$12 - \$8</b>
<b>Net Benefit (Low - High)</b>	<b>\$(41) - \$(15)</b>	<b>\$(2) - \$(0.2)</b>	<b>\$(54) - \$(19)</b>	<b>\$(5) - \$(2)</b>	<b>\$(109) - \$(48)</b>	<b>\$(7) - \$(2)</b>
<b>BCA Score (Low - High)</b>	<b>0.25 - 0.48</b>	<b>0.47 - 0.91</b>	<b>0.30 - 0.54</b>	<b>0.40 - 0.68</b>	<b>0.23 - 0.45</b>	<b>0.39 - 0.68</b>
<b>CEI Total BCA Score (Low - High)</b>	<b>0.26 - 0.51</b>		<b>0.31 - 0.56</b>		<b>0.25 - 0.47</b>	

The Companies state that all of the Pathways represent “no infrastructure” options because none require growth-related infrastructure investment to balance supply and demand.

1. Reference Pathway

In summarizing the Reference Pathway, the Companies state that it reflects today’s legal and policy framework, which they state implement only those clean energy investments currently required and approved by their regulators. They add that a “confidential life cycle cost assessment of gas appliances versus electric appliances is currently being updated to reflect current costs and rebates” and will be considered in their next gas peak demand forecasts.<sup>18</sup> The Companies state that, although partial electrification of non-heating appliances “would be an out of model, manual adjustment” and that the current economics favor gas-fired water heaters and stovetops, electrifying these appliances would save between two to nine percent of annual gas usage depending on the pathway.

According to the Companies, sales of natural gas are expected to be stable through 2026 and then steadily decline

<sup>17</sup> Final LTP, p. 63.

<sup>18</sup> Final LTP, p. 68.

through 2043, while peak demand increases slightly over the next several years and then declines. The Reference Pathway assumes that the Gas Infrastructure Reduction or Replacement Program will be in place through 2040 and then be reduced. It also assumes continued investment in service line replacements through 2040 and transmission pipe replacement to comply with federal regulations. Total Con Edison capital expenditures in the Reference Pathway decrease by about 70 percent over the 20-year planning period.

ORU assumes that its Main Replacement Program and service replacement program will continue and be completed by 2030. Total ORU capital expenditures in the Reference Case decrease by about 74 percent over the 20-year planning period.

GHG emissions for both Companies decrease in the Reference Pathway and, with system and supply costs expected to increase and gas sales volumes expected to decrease, the gas system rate is projected to increase from roughly \$15 per MMBtu in 2023 to about \$29 per MMBtu in 2043. The Reference Pathway assumes that by 2043 total retail gas customers would be reduced by 240,000.

## 2. Hybrid Pathway

In the Hybrid Pathway, gas volumes significantly decline relative to the Reference Pathway and many hard-to-electrify buildings remain on the gas system. This Pathway relies on the ability to transition customers off the gas system, as well as improved economics of building electrification. The Hybrid Pathway projects a decline of about 44 percent in delivered gas volumes by 2043, with 42 percent of the floorspace associated with buildings currently served by Con Edison adopting heat pumps and the remaining floor space served by low carbon fuels and district steam. For ORU, 65 percent of all building floor space is projected to be electrified by 2050.

Both Companies assume that, when customers electrify their space heating, they will electrify all other end-uses. In this Pathway, partial electrification is modelled by assuming that half of the customers that electrify their water heating will also electrify all other end-uses, and for ORU the amount of electric water heating is assumed to be 80 percent to be consistent with Con Edison.

Under the Hybrid Pathway, both Companies expect annual sales volumes to decline gradually by about one percent annually through 2027, and then decline about 3.4 percent per year over the 2028-43 period, with similar reductions in peak day demand. According to the Companies, energy consumed per square foot in buildings must be reduced by nine percent by 2030 compared to today to enable the more aggressive GHG reductions in the Hybrid Pathway, and by 23 percent compared to today by 2043. Capital expenditures would decrease for both Companies by \$3.9 billion through 2043 compared to the Reference Pathway. Resulting GHG emissions from the Hybrid Pathway would be less than half of current GHG emissions. With system and supply costs increasing and sales volumes decreasing, the gas system rate under the Hybrid Pathway would increase from roughly \$15 per MMBtu in 2023 to about \$37 per MMBtu in 2043. The Hybrid Pathway also contemplates a reduction in the existing gas system footprint of approximately 50 percent by 2050. It also assumes the use of the full amount of RNG the Companies can source, and seven TBtu per year of hydrogen in 2050, along with the Companies' exploration of the possible sourcing of synthetic natural gas to meet remaining GHG emissions targets. The Companies reiterate that the Hybrid Pathway requires collaboration with regulators and state energy policy leaders to ensure success, as well as future investments on the electric system, and to address the impacts on disadvantaged communities, because as the system

footprint is reduced and assets are abandoned, the rate impact on remaining customers becomes more pronounced.

### 3. Deep Electrification Pathway

The Deep Electrification Pathway incorporates the assumptions of the integration analysis underlying the final Scoping Plan prepared by the Climate Action Council to meet the State's economywide GHG emissions reduction goals. Under this Pathway, energy needs are almost fully met through electrification and delivered steam produced by Con Edison's decarbonized district heating system. The Companies add that near-term policy developments are critical to compounding early successes in later years. The Companies expect that a limited set of customers that are extremely difficult to electrify will be permitted to retain natural gas service and there will be a limited role for low carbon fuels, including certified natural gas. Con Edison states that, under this Pathway, it would need to interconnect anaerobic digestion facilities in its service territory and procure RNG for its customers' needs, as well as seek RNG from local thermal gasification facilities.

Under the Deep Electrification Pathway, about 74 percent of residential and commercial floorspace associated with buildings served by the Companies would transition to electric space heating by 2043, resulting in an 82 percent reduction in annual gas throughput. Economy-wide GHG emissions reductions from 1990 levels are projected to be 86 percent for Con Edison and 82 percent for ORU. Peak demand is projected to decrease from almost 1,900 Mdt/day for the Companies to about 400 Mdt/day. Con Edison capital expenditures in this Pathway decrease by 92 percent over the 20-year forecast and ORU capital expenditures decrease by 95 percent. New business capital expenditures are phased out completely for ORU in 2025 and in 2032 for Con Edison. The gas system rate rises from about \$15

per MMBtu in 2023 to roughly \$70 per MMBtu in 2043. The Companies state that accelerating depreciation would reduce the net (undepreciated) plant balance that remains in 2043 by over \$8.5 billion. Finally, the Companies state that they have determined that many of the required actions are common to both the Hybrid and Deep Electrification Pathways prior to 2030 but diverge more meaningfully after 2030.

#### Consultant Reports

After the Companies filed their Initial LTP on May 31, 2023, PA filed an initial report on July 14, 2023. The Companies' Revised LTP, filed on September 25, 2023, was followed by PA's Preliminary Findings Report on October 16, 2023, and PA's Final Report on December 12, 2023, followed the filing of the Companies' Final LTP on November 29, 2023. In the Initial Report, PA stated that, while the Initial LTP "describes the 'what' for each scenario, it paints only a very high-level picture of 'how' those outcomes will be achieved." According to PA, the Companies largely met the minimum requirements established in the Planning Order but may have stopped short of defining and planning for substantial paradigm shifts that PA understands the Commission and stakeholders anticipated. PA also noted multiple opportunities to improve the planning process over time and included recommendations for consideration to strengthen the Companies' LTP.

In its Preliminary Findings Report, PA identified customer behavior as playing an important role in impacting the pace of electrification, as well as potential methods for the Companies to acquire further insight on the customers' willingness to switch gas to electric appliances. PA noted the importance of identifying and minimizing investments in gas plant that are likely to become underutilized or stranded as the need for the distribution system shrinks, as well as beginning

to consider the markedly higher rates and bills for customers who are going to be unable to leave the gas system, choose not to leave the gas system or are among the last to do so. PA states a "coordinated decarbonization" across New York is key to ensuring safe, reliable, and affordable provision of energy services during the transition.

PA's Final Report contains several findings and recommendations, and includes additional observations focused on its final analyses, conversations with the Companies and stakeholders, assessment of filed comments and review of the Companies' Final LTP, and updates some of its recommendations to reflect the LTP.

PA points out that the Companies do not identify a preferred pathway, and that some stakeholders expressed concern that this could result in stranded assets. Through an information request, PA asked the Companies to identify and provide the preferred portfolio of investments, summaries of the cost and bill impacts and emission impacts from these preferred options, as described within the Gas Planning Order. The Companies declined to provide a preferred portfolio. PA also asked the Companies to develop a "Share of Wallet" analysis to consider the scope and magnitude of investments that the Companies would need to deploy to the gas and electric networks to meet the State's decarbonization goals. The Companies produced an assessment, which omitted electric bill impacts, but which nonetheless reinforces the sensitivity that customers are likely to experience growing hardship due to natural gas delivery service becoming increasingly unaffordable.

Regarding the Companies' economic assessment and selection of specific pathways for examination, PA points out that there are tradeoffs between the objectives of emissions reduction and affordability. PA states that, for these reasons,

there is an unlimited number of pathways that could be developed by changing assumptions such as policy drivers, technology trends, and costs. As an alternative to the Companies' pathways analysis, PA recommends that the Companies conduct a multivariable optimization process to develop the long-term plan with the highest emissions reduction potential and lowest impact on affordability. PA states that it is unlikely the Companies have conducted such an optimization process.

PA examined numerous foundational issues associated with each of the pathways identified by the Companies. PA started by performing a comprehensive analysis of the Companies' supply portfolio and recommends directing the Companies to provide a more robust discussion of the flexibility limitations of each component of the portfolio, detailing what limitations the Companies expect in adding flexibility to, or altering the terms of, firm pipeline capacity, storage contracts, delivered services and other contracts used to secure peaking assets. PA also recommends that the Companies provide a more granular description of how capacity in the joint supply portfolio is allocated between the Companies based on their individual design day requirements.

PA adds that, as part of a framework for de-contracting, the Commission should require the Companies to develop criteria for evaluating which pipeline capacity contracts would no longer be needed, including a discussion of the counterparties that capacity can be released to. PA suggests improving NPA program design, implementation, and cost analysis, and that the Companies can proactively communicate, educate, and recruit customers to adopt NPA program measures at scales needed to shrink the gas system footprint. PA suggests that the Companies can leverage stakeholders' reputation and tools to improve recruiting processes, including community

groups and local elected officials. PA adds that the Companies can leverage regional surveys and engagements with community groups to gauge customer interest and support of adoption of electric appliances and NPA solutions and should continuously refine offerings and program scope as customer adoption preferences evolve.

PA recommends that the Companies provide detailed assumptions and expectations for NPA programs going forward, including the number and types of customers participating; associated design day and annual demand reduction; avoided replacement investments; avoided pipe replacement miles and/or service lines; system reinforcement investments that can be delayed and perhaps avoided; and other information demonstrating the benefit of the NPA.

PA recommends that the Commission require the Companies to maintain line-of-sight of the electric grid impacts of electrification, while considering trade-offs of near-term gas system investments as compared to future electric system investments. PA also points out that the Companies did not provide a comprehensive "No Infrastructure" option. While stating that it understands the Companies' statement that none of their pathways require growth related infrastructure investment to balance supply and demand, PA observes proper planning would necessitate the Companies provide more specificity regarding alternatives to limit infrastructure investment to inform the Commission and Stakeholders. PA states that a "No Infrastructure" option would not prevent the Companies from making certain investments to support safe, reliable, and adequate service, PA maintains it would provide a lower end boundary on the level of total infrastructure investment with NPAs.

PA also recommends that the Companies consider improvements to NPA program design and deployment to scale up NPA programs and eliminate barriers to adoption. PA points out that stakeholders expressed concern about barriers to adoption for NPA solutions, especially among low- and moderate-income customers, and states that it is reasonable to assume that many customers would choose not to participate in NPA programs if they are required to make material upfront out of pocket payments to contractors and then wait for payment to be processed and reimbursed by the Companies.

PA points out that accurately determining the demand forecast, especially on a design day basis, is critical to ensuring that the Companies can always provide safe, reliable, and adequate natural gas service for all customers. After reviewing the Companies' demand forecasts, PA recommends that they frame a detailed and disaggregated perspective on customer counts and annual use per customer across the different customer segments. These include single family residential, commercial, and industrial, and multi-family residential. PA also suggests that the Companies incorporate the economics of gas versus electric appliances, stating that the current modelling does not account for the evolving competition between gas and electric appliances over the next decades. PA points out that reduction in gas volumes will also cause gas rates to increase over time, all else being equal, and alternative electric solutions will be more cost competitive over time.

PA recommends that the Companies specify the impact of energy efficiency and demand response programs on annual use per customer. This impact should reflect all the Companies' programs as well as organic efficiency gains from improved technology and changing codes and standards. PA states that the impact of electric operations demand side management measures on

customer behaviors should be considered. PA states that the Companies should consider restructuring their approach to demand response offerings, including the following: refined trigger temperatures; pro-active communication of the environmental and economic value; and regulatory changes that incentivize shareholders to pursue demand-side measures instead of substantially more expensive delivered services and/or future capital investments.

PA recommends that the Companies provide information such as annual participation rates and savings by program (energy efficiency, organic, etc.). Also, PA suggests that the Companies consider adjusting the Temperature Variable approach in the future, provided analysis projects headroom between observed and weather-adjusted peak load, pointing out that the cost of delivered services and compressed natural gas can be multiples of the baseload gas the Companies acquire and even a small decline in forecasted peak can provide relief to ratepayers.

PA states that the Companies should clearly communicate the assumptions used in their modeling process to allow stakeholders to compare the assumptions to their own view on technology, policy, and customer preference and be able to participate in the long-term planning process more proactively. PA recommends that the Companies clarify the inherent tradeoff between emission reductions, affordability, and strategies to mitigate affordability impact, while reducing GHG emissions. PA points out that the Reference Pathway would offer the least year-over-year increase in bills but does not offer a robust and dependable path to decarbonization. And although the Deep Electrification Pathway would meet CLCPA emissions targets, it is projected to have a severe negative impact on affordability.

PA also recommends that the Companies conduct a sensitivity analysis associated with the optimization process to demonstrate modeling robustness and share sensitive assumptions and variables with stakeholders and the Commission to assess the reasonableness of these assumptions. PA recommends that the Companies provide calculated bill impacts for each service classification that account for changes to the average volumes of gas consumed by each customer class over time.

Although the Companies indicate that gas usage will decrease over time, they use a constant value for assumed gas consumption between 2023 and 2050. PA recommends that the Companies identify ways to further manage bill impacts and affordability challenges. Under the Reference Pathway, a typical single family residential customer's total bill is forecasted to increase 5.4 percent per year before inflation. The other Pathways feature even higher bill increases. Most stakeholders indicated that these projected total bill increases are unacceptable.

PA states that the key to maintaining affordability while reducing emissions is to identify investments that can potentially be avoided by deploying NPA and electrification solutions. Relatedly, PA recommends that the Companies specify how the LTP would benefit disadvantaged communities, stating it does not provide insight or sufficient details on how the plan ensures that at least 35 percent of benefits are directed to disadvantaged communities, and that this information needs to be included in a final version of the LTP.

PA also recommends that the Companies increase planning coordination among the gas, steam, and electric systems. PA points out that the Planning Order has no direct language requiring utilities to conduct coordinated long-term planning across all of these operations. PA states that such

coordination will ensure that safety, reliability, resiliency, and affordability objectives are properly considered.

PA states that the environmental assessment is an important consideration of the LTP, as it essentially determines whether the Companies will be able to reduce emissions and meet environmental goals of the State and NYC. PA states that it is unclear which Pathway is going to inform the Companies' long-term planning and investment decisions. Given that there are clear tradeoffs among the Pathways, it is inefficient and impossible to pursue all three Pathways at the same time. PA points out that successful deployment of NPA and electrification solutions requires significant lead time, and the Companies would need to redirect some of the capital that is earmarked for pipe replacement toward electrification efforts. A process of pursuing multiple Pathways, according to PA, could lead to suboptimal allocation of capital to each strategy and inefficient utilization of scarce resources.

PA recommends that the Companies confirm the true cost estimates and the estimated emission reductions associated with the use of low carbon fuels and examine whether advancement of low carbon fuels would provide sufficient supply. PA also recommends that the Companies evaluate potential solutions for hydrogen leakage and weigh possible alternatives to low carbon fuels.

PA recommends that the Companies develop and share a robust definition of hard-to-electrify customers and check that definition on a regular basis as developments in technology occur, noting that new electric appliances could allow easier retrofits of existing buildings. PA states that the Companies should develop a list and geographic distribution of hard-to-electrify customers, coordinated with the NYC Department of Buildings, and then develop a long-term view of which pipes are

critical in supplying fuel to these buildings. This would help stakeholders understand which regions or neighborhoods are expected to remain on the gas network and which could be more effectively electrified.

Regarding dual-fueled customers, PA suggests allowing such customers to maintain gas appliances to help customers get more comfortable with electrifying some appliances, noting that there is inconsistency among NPA programs regarding whether customers must replace all gas-fired appliances. PA also notes this could assist with electric grid reliability and resiliency concerns. PA recommends that the Companies update their analysis comparing the economics of different space and water heating technologies in New York, which is based on evaluation filed by Con Edison with the Commission in 2017. PA also recommends that stakeholders provide input on this topic to improve and create alignment among the Companies and stakeholders on economic assumptions underlying heating technology.

PA provided four appendices to its Final Report. The first contains a summary of State and local laws related to continued natural gas usage. The second discusses the reliance on delivered services in the Hybrid Pathway. The third appendix discusses the BCA modeling assumptions used by the Companies in their BCA analysis. The final appendix shows the Compound Annual Growth Rate analysis PA performed to offer an alternative method for demonstrating the rate impact of proposed decarbonization pathways over the forecast period. This analysis results in annual rate increases from 2023 through 2050 that range from 2.2 percent to 11.9 percent per year, depending on which Pathway is chosen and which service classification is being considered.

NOTICE OF PROPOSED RULE MAKING

Pursuant to the State Administrative Procedure Act (SAPA) §202(1), a Notice of Proposed Rulemaking was published in the State Register on June 21, 2023 [SAPA No. 23-G-0147SP1]. The time for submission of comments pursuant to the Notice expired on August 21, 2023. Moreover, the Commission issued Notices Establishing Comment Deadlines on June 6, 2023, September 28, 2023, and December 12, 2023. Comments on the Initial LTP were received on August 21, 2023, and reply comments were received on September 5, 2023.

A Secretary's Notice establishing a comment deadline on the Revised LTP filing set a date for Comments on the Revised LTP of October 13, 2023, which was later extended to October 25, 2023, by Secretary's Notice issued on October 11, 2023. A Secretary's Notice issued on December 19, 2023, extended the comment deadlines on the Final LTP to January 31, 2024, for initial comments and February 21, 2024, for reply comments. Comments are summarized in Appendix B, and particular comments are discussed as applicable in the Discussion section of this Order. Comments were filed in this proceeding by: Alliance for a Green Economy (AGREE); City of New York (NYC); Consumer Power Advocates (CPA); Environmental Defense Fund (EDF); Natural Resources Defense Council (NRDC); New York Energy Consumers Council, Inc. (NYECC); New Yorkers for Clean Power (NYCP); Parkchester South Condominium, Inc. and The Parkchester North Condominium (Parkchester); Sierra Club/Earth Justice (SC/EJ); Strategen Consulting, LLC (Strategen); and New York Department of State, Utility Intervention Unit, Division of Consumer Protection (UIU). In addition, there were public comments filed by over 500 individuals, generally opposed to the Companies' filings.

LEGAL AUTHORITY

Public Service Law (PSL) §5(1)(b) provides the Commission with broad authority over "the manufacture, conveying, transportation, sale or distribution of gas ... for light, heat or power, to gas plants ... and to the persons or corporations owning, leasing or operating the same." Of particular importance to the Commission's action in this Order, PSL §5(2) also provides that "[t]he commission shall encourage all persons and corporations subject to its jurisdiction to formulate and carry out long-range programs, individually or cooperatively, for the performance of their public service responsibilities with economy, efficiency, and care for the public safety, the preservation of environmental values and the conservation of natural resources." PSL §65 requires that LDCs provide "service, instrumentalities and facilities as shall be safe and adequate and in all respects just and reasonable." Furthermore, PSL §66(1) states that the Commission has general supervision of all gas corporations. Additionally, PSL §66(1-a) provides that the Commission may order "such improvement in the manufacture, conveying, transportation, distribution or supply of gas... or in the methods employed by such corporation as in the commission's judgment is adequate, just and reasonable."

DISCUSSION

We start by recognizing that the Companies chose not to select a preferred Pathway in their Final LTP on the grounds that it is premature to do so at this time.<sup>19</sup> The Commission disagrees with this approach. As stated in the NFG LTP Order, presenting a number of scenarios without differentiation of the steps needed to achieve them does not enable an LDC,

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<sup>19</sup> Final LTP, p. 4.

stakeholders, Staff, or the Commission to appropriately focus resource allocation or avoid unnecessary infrastructure investment.<sup>20</sup> Several stakeholders, including AGREE, NYC, NRDC, NYSERDA, and SC/EJ echo this concern.

A major purpose of the Gas Planning Proceeding and this proceeding is to compel the State's major gas utilities to begin taking steps toward decarbonizing their gas systems. In this respect, the Companies state in their Final LTP that "[t]he Reference Pathway will continue to inform our short-term rate case funding requests."<sup>21</sup> Given the implications of this statement, combined with the significantly higher costs associated with implementing the other Pathways, it appears that the Companies have made the Reference Pathway the only real choice. Accordingly, for purposes of clarification, the Commission understands that the Companies have selected the Reference Pathway as their Final LTP.

To ensure the Companies explicitly select a preferred pathway in their next long-term plan filing in 2027, we direct the Companies to make that designation in their next filing. We also agree with PA that the Companies should use a multivariable optimization process to identify the preferred pathway because that process examines the highest emissions reductions potential and lowest impact on affordability. We thus also direct the Companies to follow the multivariable optimization process detailed in PA's Final Report in selecting a preferred pathway in their next long-term plan filing.

In recognizing the Companies' Reference Pathway as their preferred Pathway in the context of their Final LTP, the Commission acknowledges the comments from several stakeholders

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<sup>20</sup> NFG LTP Order, p. 22.

<sup>21</sup> Final LTP, p. 5.

that the Companies should be moving more aggressively to decarbonize. For example, several parties state that the Hybrid Pathway is not viable, including AGREE, NRDC, NYCP and SC/EJ, and a subset of these stakeholders state that the Deep Electrification Pathway is preferred with modifications.

In response to these comments, the Commission notes that its core responsibility at this time remains to ensure the utilities are providing safe and adequate gas service at just and reasonable rates.<sup>22</sup> Certainly, this obligation does not exist against an otherwise blank policy and statutory landscape. In this respect, although the New York State Legislature recently enacted a law to prohibit gas connections in new buildings, starting January 1, 2026,<sup>23</sup> there are no state laws in effect that require existing buildings to decarbonize. Similarly, while Local Law 97 applies to existing buildings in New York City, the New York City Department of Buildings is not slated to fully implement that law until 2030.<sup>24</sup> Of course, the Companies take these laws into account through their demand forecasts, which indicate peak gas usage for Con Edison will continue to grow for a few more years while for ORU gas usage will decline after the winter of 2024-25.

While some commenters assert that the Companies are not properly accounting for the pace of electrification in their demand forecasts, at this point, it is unclear how rapidly existing customers are going to electrify their space and water heating. The Commission's authority here is limited to ensuring the gas utilities comply with existing laws and policies,

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<sup>22</sup> PSL §65(1).

<sup>23</sup> The All-Electric Buildings Act is Part RR of Chapter 56 of the Laws of 2023. Energy Law §11-104 and Executive Law §378(19).

<sup>24</sup> NYC Local Law 97 sets increasing stringent limits on carbon emissions per square foot in 2024 and 2030.

including the filing of long-term gas plans every three years as the market for electric appliances develops. The frequency by which long-term gas plans must be filed also allows the utilities and the Commission to address any new legislation regarding the use of natural gas in the future, particularly limitations on its use.

While the Gas Planning Order indicated that the Commission "could adopt, reject, or modify the revised plan, in whole or in part," experience with NFG's and the Companies' long-term plans demonstrate that it is not necessary or appropriate to approve this level of detail of planning with a 20-year horizon this far in advance. Further, we recognize that gas planning will be an iterative process, with the Companies filing annual updates and a new long-term plan in three years' time. Additionally, we note that elements of the Companies' plan and the further actions we direct in this Order will come before the Commission in the future in the filings required by this Order, or as proposals in rate or other Commission proceedings. We will have the opportunity to address specific proposals, including proposed demand response programs, at that time, after stakeholder input through the SAPA comment process. We will address recovery of costs for specific proposals and actions associated with this LTP in Con Edison's and ORU's rate filings, or when addressing specific filings as required as part of this proceeding. We note that if a rate case proposal relates to an element of the Companies' LTP, such proposal will be subject to review through the traditional rate case process, without any presumption as to the outcome.

In making this Order, the Commission has considered all comments received. We discuss specific issues below, including the further actions we direct the Companies to take regarding their Final LTP.

Demand Forecast

The Planning Order requires LDCs to include adjustments to demand forecast scenarios that include energy efficiency, electrification, demand response, NPAs and other external impacts, and directed the LDCs to provide estimates of the expected sources of growth and/or reduction in peak demand resulting from demand-side investments, clarifying that qualitative discussion is not sufficient. We note that both Companies serve some customers through interruptible service classifications, and peak day forecasts do not include these customers' demand.

After reviewing the Companies' demand forecasts, PA concluded that it is reasonable to expect a sustained long-term plateauing of the number of gas customers across all segments in NYC, adding that it notes that the recent population decline in NYC was not matched by a reduction in meter counts in SC2 (Commercial and Industrial (C&I)) and SC3 (Multifamily Residential) service classes, suggesting that service connections were preserved but closures and vacancies led to lower use per customer (UPC). In contrast, PA points out that basic macroeconomic trends forecast that population and households will keep growing but the C&I sector shows indications of plateauing and possible decline. For ORU, PA states that the effects of electrification and declining commercial customers is offset by growth in the residential sector. PA projects that peak gas usage for Con Edison will continue to grow for a few more years while for ORU PA projects gas usage to decline after the winter of 2024-25.

PA recommends that the Companies conduct an appropriate assessment of load structure, given the distinct dynamics of each segment (Single-family Residential (SC1), C&I (SC2) and Multifamily Residential (SC3)) to develop a detailed

and disaggregated perspective on customer counts and annual use per customer. PA also states that the Companies' current modeling does not account for the evolving competition between gas and electric appliances, noting that with reduction in gas volumes, all else equal, gas rates will increase over time and alternative electric solutions will be more cost competitive.

Regarding forecasting of design day load, PA recommends that the Companies consider adjusting the Temperature Variable approach in the future, provided analysis projects adequate headroom between observed and weather-adjusted Peak Load. PA continues, explaining that because the cost of reserving and contracting delivered services and peaking compressed natural gas resources can be multiples of the cost of the baseload gas the Companies acquire, even a small decline in forecasted peak can provide relief to customers - especially those in the lower-income brackets.

Stakeholders were largely silent on the Companies' forecasts of natural gas demand in the planning period. NYCP states that under the statutory authority granted to the Commission in §8 of the CLCPA to promulgate regulations and the requirement imposed in §7(2) of the CLCPA the gas planning process should include reasonable LDC-specific annually declining GHG emission limits to serve as constraints for the LDCs to ensure that the demand forecasts used in their LTPs are generally aligned with the statutory GHG emissions limits of Environmental Conservation Law (ECL) §75-0107 and that the total ratepayer liability is minimized through a strategic but deep downsizing of the gas system, as envisaged in the Climate Action Council's Scoping Plan.

The Commission finds that the Companies' demand forecasting appears adequate to ensure continued reliability but lacks some recognition of expected development in

electrification of heating load in the future. The Commission agrees with PA's recommendation and directs the Companies to develop a detailed and disaggregated perspective on customer counts and annual use per customer which recognizes the evolving competition between gas and electric appliances as gas rates increase and heat pumps become more widespread. The Companies shall include this analysis in their Annual Updates to their Final LTP and their next long-term plan to be filed in 2027.

Supply Forecast/Components

Supply forecasts include the various assets used to meet design day load, including pipeline and storage capacity and peaking assets. In the Planning Order, the Commission emphasized that the LDCs' supply forecasts must align with the demand forecast, that they must be explicit regarding the level of demand-side programs included and must contain demand response programs. Furthermore, the Commission encouraged LDCs to explore novel approaches to meeting demand, such as using innovative rate design to reduce or shift demand through seasonal or peak day rates rather than simply acquiring more gas to meet the initial forecast of demand.

PA points out that the Companies manage a single portfolio of contracts operated and paid for by Con Edison and ORU, with costs recovered from the Companies' respective ratepayers. However, operationally the distribution systems are not connected. The supply assets include firm pipeline and storage capacity contracts, liquefied natural gas, compressed natural gas, and delivered services including reverse asset management agreements (AMAs), which are agreements with third parties who hold firm capacity rights on pipelines and release that capacity to the Companies. Delivered services are typically bundled capacity and commodity whereas reverse AMAs allow the Companies to make use of their own commodity sources.

When the Companies filed their Initial LTP, Con Edison had a moratorium on new natural gas customer attachments in most of Westchester County. In November 2023, gas began flowing on the Tennessee East 300 project, which provided an additional 115 Mdt/day of supply into White Plains. As a result, Con Edison was able to lift the moratorium, and will decommission the compressed natural gas station in Yonkers during 2024.

PA offers several recommendations regarding the Companies' supply portfolio. PA recommends that the Companies be required to provide a more robust discussion on the flexibility limitations unique to each component of the Companies' supply portfolio, detailing specifically what limitations the Companies expect to see in adding additional flexibility to, or altering the terms of, firm pipeline transport and storage contracts, reverse AMAs, or delivered services contracts. PA also recommends that the Companies be required to provide a more granular description of how capacity in the joint supply portfolio is allocated between the Companies based on their individual design-day requirements. PA further recommends that the Companies develop a framework for de-contracting of supply assets, including a framework for capacity releases, as demand diminishes. This framework would include criteria for evaluating which pipeline capacity contracts are no longer needed and a discussion of the types of counterparties (in- or out-of-state) that the Companies could release the capacity to. PA also notes that both Companies have had multiple energy efficiency and demand-side management (DSM) programs for decades that help customers save money while supporting the reliability of the gas and electric systems. PA states that, at least in some segments of the customer-base, the cumulative momentum of these initiatives along with the organic efficiency gains (attributable to behavioral factors, improved

technology, codes, and standards etc.) would be expected to be manifest in the trends of annual UPC.

NRDC points out that reliance on low carbon fuels in the future, discussed in detail below, will contribute to bill increases because of the need to maintain gas infrastructure and the resulting potential for stranded costs as demand decreases. AGREE states that the Companies may face insufficient supplies of low carbon fuels in the future if technologies do not evolve as projected in the Companies' LTP. CPA comments that a reliable natural gas supply is important for most hospitals and is part of a "hybrid strategy, utilizing multiple supply sources to continuously ensure life-saving healthcare in the event of interruption of one or another."<sup>25</sup>

In their final reply comments, the Companies state they have responded with all information currently available related to their approach to de-contracting in consideration of the supply-demand outlook in their Reference Pathway and potential requirements under the alternative pathways. They add that the future demand picture remains dynamic, necessitating flexibility and they continuously evaluate opportunities to optimize portfolio components and assess whether supply assets or agreements are still required in light of forecasted requirements.

The Commission finds that the Companies have sufficient supply assets to meet forecasted demand. The Commission agrees with PA that the Companies need to develop a framework for de-contracting long term supply assets such as pipeline and storage capacity. The Commission also agrees that there are potential counterparties to which the Companies could release assets, helping to offset the costs of carrying

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<sup>25</sup> CPA comments on Final LTP, p. 3.

contracts until they can be shed. The Companies are directed to file a de-contracting framework containing criteria used to determine the order in which assets can be shed and expected potential capacity release revenues. This framework shall be included in the Companies' first annual update in May 2025. The Companies are also directed to update their use per customer estimates to recognize increased competition from electrification of heating load, which shall be included in their next LTP filing in 2027. Some specific supply assets are discussed below.

#### Low Carbon Fuels

SC/EJ note in their comments a recent decision by the Massachusetts Department of Public Utilities (DPU) in its future of gas docket.<sup>26</sup> According to SC/EJ, of particular relevance to the long-term planning proceedings in New York, the DPU addressed proposals by Massachusetts gas utilities regarding the blending of low-carbon fuels (RNG and hydrogen) and the need for hybrid (dual fuel) systems, as well as the long-term future of the gas distribution systems. SC/EJ note that the DPU rejected proposals from the state's gas utilities to use any customer funds to support the blending of RNG or hydrogen into their systems as part of a decarbonization strategy due to concerns regarding the feasibility, availability, and climate benefits of these alternative fuels. SC/EJ also point to the DPU's rejection of "the gas utilities' gambit to justify continued investment in their pipeline systems by directing their customers to implement hybrid gas and electric (dual fuel)

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<sup>26</sup> Order on Regulatory Principles and Framework, Mass. DPU 20-80-B (December 6, 2023).

heating systems.”<sup>2728</sup> Regarding alternative technologies to traditional natural gas systems, the Commission will continue to study their role in transforming markets, as they do encourage electrification of heating systems.

#### 4. Renewable Natural Gas

As the Planning Order notes, RNG remains a developing issue, and it should remain in consideration for planning purposes. The Commission also stated that each LDC should identify the potential for use of RNG in its long-term plan and the larger questions of studies or trading programs for RNG would be deferred to a future phase of the Gas Planning Proceeding.<sup>29</sup> The Companies included RNG in their Pathways, indicating a maximum amount they would be able to source of 48 TBtu per year, which amounts to about 20 percent of current annual volumetric usage. They also mention that NYC has expressed interest in selling RNG from wastewater treatment plants.

The stakeholders made several comments about RNG. SC/EJ state that the future availability and cost of RNG are unknown. NRDC states the Companies continue to use several questionable assumptions about RNG. NYCP states that keeping options open for unrealistic volumes of RNG precludes planning for prudent and cost-effective decommissioning of portions of the gas distribution system. NYCP adds that the supply chain, production, and distribution of RNG is energy-intensive and is disposed to significant methane releases; that intentionally produced methane makes RNG a net positive emissions source; and

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<sup>27</sup> SC/EJ comments, p. 7.

<sup>28</sup> New York State Climate Action Council 2022 “New York State Climate Action Council Scoping Plan,” p. 351. [climate.ny.gov/ScopingPlan](https://climate.ny.gov/ScopingPlan).

<sup>29</sup> Planning Order, p. 57.

that one specific standard for emissions cannot be applied to all sources of RNG. NYCP points out that out-of-state RNG is “even more unreliable than the supply of in-state feedstocks.”<sup>30</sup> AGREE adds that roughly 75 percent of the RNG in the Companies’ Hybrid Pathway is projected to come from out-of-state. SC/EJ state that the Companies’ approach to RNG is fraught with unrealistic assumptions that overstate the feasibility and understate the cost of RNG and that there is no low-cost RNG-based path to decarbonizing buildings in New York. In their reply comments, the Companies note that there are uncertainties related to the future availability of RNG, but that their Final LTP is flexible enough to incorporate the associated changes, and they maintain that low carbon fuels should continue to be included “until we know for certain they should not be.”<sup>31</sup>

#### 5. Hydrogen

The Companies state that “hydrogen has the potential to significantly reduce GHG emissions from gas consumption because hydrogen fuel does not include methane.”<sup>32</sup> They assume that the maximum potential amount of hydrogen that can be blended into natural gas infrastructure is about 20 percent by volume, or seven percent by energy, without significant infrastructure upgrades.

The stakeholders made several comments about hydrogen. NYC notes that the Hybrid Pathway assumes that Con Edison will receive approval to construct a dedicated hydrogen pipeline with cost recovery by 2035 and submits there is currently no indication that such a project will be approved and in service as described by the Company. NYCP states that hydrogen itself

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<sup>30</sup> NYCP final comments, p. 6.

<sup>31</sup> Companies’ final reply comments, p. 32.

<sup>32</sup> Final LTP, p. 55.

acts as a greenhouse-effect enhancing agent and producing hydrogen from methane directly, albeit emissions intensive, is still a more energy-efficient pathway than using methane to generate electricity to replace the renewable generation diverted for electrolysis. NYCP adds that zero-emission hydrogen must be reserved for hard-to-electrify industrial uses, for displacing current supply of gray hydrogen in industrial and manufacturing applications, and for long duration energy storage. NYCP continues that, "as a source of heat, hydrogen would cost at least four times as much as "natural" gas and as a way of transporting energy, hydrogen pipelines cost three times as much as power lines, and ships and trucks are even worse."<sup>33</sup> AGREE states that studies have found that, when burned, pure hydrogen produces as much as six times the nitrous oxide as burning methane. SC/EJ state that "hydrogen's low energy density relative to natural gas coupled with its leakage rate and embrittlement of existing pipes - limits blending potential to at most 1.7-6.7 percent by energy - and its incompatibility in high concentrations with existing appliances ensure it will provide at most a marginal role in efforts to decarbonize buildings."<sup>34</sup> In their reply comments, the Companies again assert that their LTP is flexible enough to incorporate changes associated with low carbon fuels.

#### 6. Synthetic Natural Gas

The Companies describe synthetic natural gas as a combination of hydrogen and captured carbon dioxide to create methane through methanation. They add that because it is produced using captured carbon dioxide their analysis assumes that it has net-zero emissions. Stakeholders made several

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<sup>33</sup> NYCP final comments, p. 9.

<sup>34</sup> SC/EJ final comments, p. 11.

comments addressing this topic. SC/EJ state the future availability and cost of synthetic natural gas is unknown. NYCP states that "net-zero-emissions synthetic natural gas is an oxymoron in more than just name only" and adds that it has no chance of "overcoming the overwhelming physical and economic odds against it and materializing with net zero emissions within the timeframe."<sup>35</sup>

#### 7. Certified Natural Gas

The Companies state that they also see a role for certified natural gas to lower emissions in the near-term and refer to a pilot project that Con Edison received funding for in the 2022 Rate Order. In their comments in response to the Initial LTP filing, NRDC states that the Companies should not include "certified fossil gas" in the next iteration of their LTP, pointing to its contribution to high costs when combined with continued gas system investments.<sup>36</sup> NYCP states that given that the upstream and midstream methane emissions are already underestimated and that the "certification processes for certified natural gas are dubious due to large uncertainties associated with sourcing, measuring, and verifying methane emissions from a myriad of operational processes and associated equipment, it is unlikely that the use of [certified natural gas] would have a material impact on methane emissions associated with utility fossil "natural" gas."<sup>37</sup> AGREE states that certified natural gas is untested and unproven at scale "as the Companies readily admit."<sup>38</sup> AGREE adds that there is no agreed-upon, independently verified certification processes or

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<sup>35</sup> NYCP final comments, p. 9.

<sup>36</sup> NRDC final comments, p. 4.

<sup>37</sup> NYCP final comments, p. 11.

<sup>38</sup> AGREE final comments, p. 2.

guidelines existing for certified gas and that a comment from the Environmental Defense Fund on New York State's GHG inventory noted that "it is premature and inappropriate to incorporate [Certified Natural Gas Industry] estimates into utility GHG emissions reporting to the Commission."<sup>39</sup> SC/EJ state that the Companies may overstate the availability and understate the costs of certified natural gas. The Companies note in their final reply comments that the role of low carbon fuels is to allow customers in difficult-to-electrify buildings the option to use low- to zero-carbon gaseous fuels to help meet the 2050 GHG reduction goals.

For all these low-carbon fuels, PA recommends that the Companies confirm the true cost estimates, emission reductions, and whether advancement of low-carbon fuels will provide sufficient supply as per expectations. In addition, PA recommends that the Companies evaluate potential solutions for hydrogen leakage and weigh possible alternatives for low-carbon fuels and given the importance of this subject, stakeholders should review and discuss the assumptions made in the analysis in the LTP.

Because the Companies have identified that some customers will be hard to electrify, PA recommends that the Companies develop and share with stakeholders a robust definition of hard to electrify customers and check that definition on a regular basis as technological developments may change these assumptions. For example, the Companies assume dense high-rise buildings will be hard to electrify given the space requirements for electrification and disruptions to residents' day-to-day activities. PA adds that if new electric appliances are developed that can be retrofitted in existing

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<sup>39</sup> AGREE final comments, p. 8.

buildings with minimal disruptions to day-to-day activities, the Companies may need to revisit this definition and account for the possibility of electrifying these buildings. PA also recommends that the Companies develop a list and geographical distribution of hard to electrify customers, coordinated with the NYC Department of Buildings, to ensure that the Companies and stakeholders have a long-term geographical view of where these hard to electrify buildings are located. PA adds this would be essential in developing a long-term view of which pipes are critical in supplying fuel to these buildings and would help stakeholders and regulators better understand which regions or neighborhoods are forecasted to remain on the gas network and which regions and neighborhoods are forecasted to be potentially electrified.

As mentioned above, in its final scoping plan the Climate Action Council noted a potential role for low carbon fuels for hard to electrify customer sectors. The Commission agrees with PA that the Companies need to develop a specific definition of hard to electrify customer sectors for each service territory. Con Edison is directed to work with the NYC Department of Buildings in developing the definition for its service territory; the definition of hard to electrify customer sectors will necessarily differ between the two service territories. The Companies are directed to file the proposed definition with their first Annual Update to this Final LTP. The Companies shall also update the definition in their next long-term plan filing to reflect any technology advancements for electrifying heating load for hard to electrify customers. In addition, the Companies are directed to include pilot projects for directing low-carbon fuels to these customers in their next rate case filings and in their next long-term plan filing.

### Peaking Services

The Companies provide a chart on page 48 of their Final LTP that shows that during the winter of 2024-25, they will rely on 61 MDt per day of peaking (or delivered) services in their joint portfolio, which represents about three percent of expected peak demand. Reliance on peaking services is expected to crest at 78 MDt per day in the winter of 2026-27, or about 4 percent of peak demand in that winter, and the need for peaking services continues through the winter of 2032-33. However, the Companies point out that if the Iroquois ExC project is completed, they forecast that reliance on peaking services would end by the winter of 2029-30.

Stakeholders did not address the Companies' reliance on peaking services in either the Revised or Final LTP. In their final reply comments, the Companies agree with PA's comments that the cost of reserving and contracting delivered services and peaking [compressed natural gas] resources can be multiples of the baseload gas the Companies acquire, even a small decline in forecasted peak can provide relief to customers, especially those in the lower-income brackets.<sup>40</sup>

The Commission notes that peaking services will likely be among the first assets to be released as sales of natural gas decrease in the future. The Companies shall address criteria for de-contracting peaking services in the de-contracting framework that the Companies must develop, as discussed above.

### Demand Response Programs

The Planning Order stated that LDCs should continue to consider the use of interruptible gas service to minimize the need to build new infrastructure, but that LDCs should prioritize developing innovative clean demand response programs.

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<sup>40</sup> Companies' final reply comments, p. 30.

Con Edison and ORU both rely on interruptible customers to switch to alternate fuels when trigger temperatures are reached, which is a form of demand response program. Con Edison currently has 538 interruptible customers and ORU has 55. The Companies do not include these customers in peak day planning as they are assumed to be using other fuels at those times.

Con Edison operated a demand response pilot program for firm customers between November 2018 and March 2022. The program was designed to test "the feasibility of incentivizing customers to reduce net natural gas demand during the entirety of peak gas demand days ... on very cold winter days."<sup>41</sup> The pilot program consisted of a performance-based offering for commercial and industrial customers and a smart thermostat direct load control offering for residential customers. In both cases, Con Edison found demand reductions were not sufficient to be cost-effective. Con Edison states in the Final LTP that it will continue benchmarking to determine if there are other strategies it could test in the future.

SC/EJ state that demand response programs can be used as part of a NPA to reduce customer costs and the risk of stranded assets. PA recommends that the Companies consider a restructured approach to demand response offerings, including but not limited to refined trigger temperatures, pro-active communication of the environmental and economic value of such programs (beyond the response incentives offered) to encourage customer adoption and consider regulatory changes such that company shareholders are incentivized to fund such measures over substantially more expensive delivered services and/or future capital investments.

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<sup>41</sup> Final LTP, p. 44.

The Commission agrees with PA that the Companies need to restructure their approach to demand response offerings. The Companies are directed to review PA's recommendations and research demand response programs offered by other LDCs and file at least one demand response program for each Company for implementation in the winter of 2025-2026 within 120 days of the issuance of this Order. The proposed programs will be issued for comment from the public and stakeholders before being considered by the Commission. As discussed below, the Companies are also encouraged to develop demand response programs as part of NPAs.

#### Energy Efficiency

In the Planning Order, the Commission directed that LDCs must include adjustments to demand forecast scenarios that include energy efficiency. In the Final LTP, the Companies address the New York State Clean Heat Program, stating that it provides incentives from electric utilities to support customer adoption of eligible heat-pump technologies. Con Edison states that in 2022 it exceeded its annual savings target for this program and exceeded the cumulative program savings target. ORU states it increased program participation in 2021 and 2022 and exceeded its annual and cumulative targets. Con Edison also states that its gas energy efficiency programs achieved more than 26 million MMBtu of energy savings since 2020, and in that same period ORU has achieved more than 1.1 million MMBtu of energy savings. The Companies add that going forward they will focus on building envelope measures.

NYC notes that the Commission has yet to determine how and to what extent gas customers will bear the burden of the costs of energy efficiency and building electrification programs, and this raises concerns regarding increases in both electric and gas bills. NYCP states that simply reducing gas

demand through energy efficiency or through heat pumps with gas backup for supplemental heat, without a proportional reduction in the size of the overall system, will result in an increased percentage of fugitive methane emissions and therefore the real carbon intensity of the gas remaining on the system. NYECC notes that the approach here “runs contrary to the Commission’s acknowledged policy in its recent expression of the need for “budget bounding” in the scale of the Energy Efficiency/Building Electrification efforts required to comply with the CLCPA’s objectives which cannot be funded through ratepayer collections alone” and mentions that the State’s proposed Cap and Invest program will provide funds necessary to achieve the State’s clean energy goals.<sup>42</sup> SC/EJ states that the Companies ignore industrial decarbonization opportunities by focusing only on industrial energy efficiency and refuse to evaluate the potential of industrial heat pumps. SC/EJ states that the Companies can replace traditional infrastructure with NPAs that include energy efficiency measures. NYSERDA states in its comments on the Revised LTP that it is not clear how the level of investments required to achieve the Hybrid and Deep Electrification Pathways would compare to one another and as joint electric and gas utilities with decades of experience in electric system planning and administering energy efficiency, demand-side management, and (more recently) clean heat programs, the Companies are well-equipped to provide this information. NYSERDA adds that the Hybrid Pathway would need to achieve a 22 percent reduction in energy consumed per square foot in buildings, and the Deep Electrification Pathway would need to achieve a 41 percent reduction by 2043 compared to today, and while the Companies note that achieving this aggressive

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<sup>42</sup> NYECC final comments, pp. 3-4.

reduction in building energy consumption would require incremental investment in energy efficiency, they do not address the scale of that incremental investment or how feasible it may be. The Companies state in their final reply comments that as some customers electrify their energy usage and others reduce their usage through efficiency, there will be fewer total gas customers and lower delivery revenues from the remaining customers to support the gas system and the Commission must make changes to depreciation methods to reduce the associated rate shock.

Regarding energy efficiency, PA recommends that the Companies specify the impact of energy efficiency and demand-side management programs on the annual UPC. PA suggests that the Companies consider the impact of electric operations demand-side management measures on customer behaviors and resulting electrification, energy efficiency and demand side measures on the natural gas businesses. PA also recommends that the Companies provide more information such as annual participation rates and savings by program (energy efficiency, building electrification, Organic, etc.) and Pathway.

The Commission recognizes that stakeholders are concerned about the costs of efficiency programs and resulting rate and bill impacts. However, customers who participate in efficiency programs will also see savings in overall energy bills. Con Edison and ORU have successfully conducted natural gas energy efficiency programs, but their gas long-term plan lacks a thorough incorporation of the impacts of electric efficiency and clean heat programs on the projected use of gas per customer. This is significant because use per customer combined with design day weather produces a design day demand forecast, which should decline over time as electrification measures gain speed. The targets and budgets of energy

efficiency programs will be considered in the Energy Efficiency and Building Electrification Proceeding. However, the Companies are directed to provide more comprehensive information on the impact of electric efficiency and Clean Heat programs on use per customer in their next long-term plan filing in 2027, as discussed above. In addition, the Companies are directed to include annual participation rates and savings by program and their impacts on use per customer in each Annual Update to this LTP, beginning in May 2025.

#### Reliability Standards and Hydraulic Modeling

In the Planning Order, the Commission adopted Staff's recommendations that long-term plans identify the methodology by which LDCs will forecast and measure reliability, and that design day standards be considered in each long-term plan and revalidated in a frequency proposed by the LDC.<sup>43</sup> The Companies point out in the Final LTP that their reliability planning standards do not include the capability to continue serving load after loss of the most significant supply element in the system and also do not include a reserve margin to accommodate loss of supply on peak day. Design day planning criteria are described above in the Demand Forecast section.

Stakeholders base some of their comments on the Key Findings and Recommendations published by the Federal Energy Regulatory Commission (FERC) and the North American Electric Reliability Corporation (NAERC) after December 2022's Winter Storm Elliott.<sup>44</sup> This report highlights the need to improve natural gas infrastructure reliability in cold weather. CPA worries that the transition to electric power will reduce needed

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<sup>43</sup> Planning Order, p. 34.

<sup>44</sup> Docket No. AD23-8-000, Inquiry into Bulk-Power System Operations During December 2022 Winter Storm Elliott, FERC, NERC and Regional Entity Staff Report, October 2023.

spending on natural gas infrastructure and thereby further threaten its reliability. CPA observes additional threats to system reliability emerging from Con Edison's failure to address methods for ensuring that the grid can handle the mass migration of customers transitioning to electricity from gas. SC/EJ claim that "[c]ustomers with retained gas appliances are unlikely to be aware of real-time conditions of the gas system, let alone limit their use of gas appliances to times when such use will benefit the reliability of the electric grid".<sup>45</sup>

PA recommends that, if possible, the Companies should allow customers who may be interested in maintaining dual fuel options (e.g., maintain gas appliances) to do so. PA continues that, given the increased concerns regarding electric power grid reliability and resiliency, this can help customers become more comfortable with electrifying some of their use cases. PA continues that in some cases customers are required to remove their gas appliances as part of NPAs and in some cases, customers are allowed to keep their gas appliances. PA states that dual fuel options will help customers to get more comfortable with the decision to electrify some use cases by providing a back-up option during extreme weather conditions and when power outages may take place. PA adds that if customers are on sections of the gas network that are earmarked to remain, they may be interested in retaining some of their gas appliances (e.g., gas furnaces or gas stoves) for days that the electric grid may be under stress or for cases of resiliency and reliability. PA states that such an approach may, to a minor extent, negate the benefits of electrification, but in the long-term it will make customers more comfortable and provide resiliency value for extreme weather conditions.

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<sup>45</sup> SC/EJ comments, p. 29.

We recognize that customers may pursue partial electrification. Customers tend to replace appliances at the end of their life; replacing a space or water heater is a large expenditure and many customers do not have the financial ability to replace all gas-burning equipment in their homes at the same time. Additionally, space heating equipment is not generally used during warmer weather and so is more likely to be replaced when weather is colder and the need to replace it is more urgent. For these reasons, many customers who electrify space and water heating equipment may continue to use natural gas for applications like cooking or clothes drying. Customers are also installing air source heat pumps to supplement existing fossil fuel space heating equipment, instead of removing the fossil fuel equipment. It is likely that, for the foreseeable future, customers will retain gas fired equipment until such time as it reaches the end of its useful life. To the extent stoves and clothes dryers use natural gas and not electricity, this reduces the burden on an electric system experiencing growing summer demand. Conversely, customers that install air source heat pumps to supplement their existing fossil fuel heating systems can reduce load during high winter demand periods. These staged approaches to electrification can provide time for the electric system to pursue necessary reinforcements to be ready for increased electrification of use cases. The Commission continues to monitor both systems to ensure their safety and reliability, and customers still can access both systems for the time being. Therefore, the Companies are directed to include information in their next long-term plan filing in 2027 addressing increases in electric load due to electrification of space and water heating and any associated reliability impacts to their electric and gas systems.

No Infrastructure Option and Non-Pipe Alternatives

In the Planning Order, the Commission required that LDCs include a no infrastructure scenario, but allowed an LDC to assert that a no infrastructure scenario may not be feasible for a particular project or portion of its long-term plan. The Companies state that none of their Pathways "require growth-related infrastructure investment in order to balance supply and demand, therefore, they are all 'no infrastructure' options."<sup>46</sup>

Con Edison states that it has begun to implement NPA projects as a substitute for traditional gas infrastructure, as approved by the Commission.<sup>47</sup> Also, the 2023 Rate Order establishes an interim framework for advancing NPA projects. Con Edison recently convened a stakeholder engagement program for areas with forecasted capacity constraints. Currently, Con Edison is implementing energy efficiency and electrification solutions to help avoid traditional projects identified in the Soundview area. ORU has identified an initial set of potential NPA projects and states it will continue to identify opportunities to pursue NPAs in lieu of leak-prone pipe (LPP) replacement and gas system expansion projects.

NYECC states that the Companies should provide a more comprehensive no-infrastructure option. SC/EJ "commend[s] the Companies' intention to transition customers away from fossil use by (1) advocating for the elimination of subsidies for new mains or services with new gas connections and (2) pursuing NPAs that mitigate the need for gas infrastructure investments."<sup>48</sup>

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<sup>46</sup> Final LTP, p. 66.

<sup>47</sup> Case 19-G-0066, et al., Con Edison - Rates, Order Approving Non-Pipes Alternatives Projects Amortization Period and Shareholder Incentive Mechanism for Specified Projects (issued June 17, 2022).

<sup>48</sup> SC/EJ Comments on Initial LTP, p. 37.

However, SC/EJ also recognize that, despite this planning, neither pathway's capital forecasts reflect significant NPA use. SC/EJ make several specific recommendations to improve the NPA programs for the Companies and add that for those projects which the Companies cannot replace with NPAs, they recommend cost-conscious repairs. SC/EJ recommend that the Companies update their Deep Electrification pathway by scaling up the NPA program and deferring LPP replacement in favor of more leak detection, methane capture and selective repair of the most consequential leaks to minimize costs to ratepayers. SC/EJ continues that the lack of success in the Companies' NPA efforts is due to the current gas utility obligation to serve allowing individual customers to block some NPAs and gas utilities have limited financial incentive to pursue NPAs instead of traditional infrastructure investments. NYECC proposes that the Companies facilitate reduced investment in traditional infrastructure by improving the design, implementation, and cost analysis for their NPA program while eliminating barriers to NPA adoption. SC/EJ propose that the Companies earnestly identify NPA candidates in the gas system and develop aggressive and creative methods to recruit customers to adopt NPA measures and recommends the Companies improve identification and recruitment processes by developing a more comprehensive and equitable BCA to relatively compare NPAs with business-as-usual investments. In their reply comments, the Companies state that they remain focused on the successful deployment of NPAs to eliminate traditional gas infrastructure needs.

Regarding the no infrastructure option, PA recommends that the Companies provide a more comprehensive no infrastructure option. PA states it understands the Companies' definition of the no infrastructure solution, however, PA observes that proper planning would necessitate that the

Companies provide more specificity regarding alternatives to limit infrastructure investment to inform the Commission and stakeholders. PA adds that a no infrastructure option does not mean the Companies are prevented from making certain investments that support safe, reliable, and adequate service, including those driven by State and Federal requirements and the obligation to serve, however, a more specific no infrastructure option would provide a lower end boundary on the level of total infrastructure investment with NPAs.

PA recommends that the Companies improve NPA program design, implementation, and cost analysis by proactively communicating, educating, and recruiting customers to adopt NPA program measures at scales needed to meaningfully shrink the gas system footprint. PA also recommends that the Companies further leverage regional surveys and engagements with community groups to gauge customer interest and participation in supporting adoption of electric appliances and NPA solutions and continuously refine offerings and program scope regularly as customer adoption preferences evolve. Furthermore, PA recommends that the Companies maintain line-of-sight of the electric grid impacts of electrification (i.e., current and future grid concerns - real or perceived), while considering trade-offs of near-term gas system investments as compared to future electric system spend, and to the extent already underway, discuss how the Companies are doing this within the LTP. PA also recommends that the Companies leverage other stakeholders' reputations and tools, including community groups and local elected officials, to improve the recruiting process. PA states that the Companies should be required to provide detailed assumptions and expectations for NPA programs going forward, including, at a minimum for each NPA expected to be completed in 2024, applicable details such as the number and

type(s) of customers participating in the NPA, associated design day and annual demand reduction, avoided replacement investments resulting from the NPA, avoided pipe replacement miles and/or service lines, system reinforcement investments that can be delayed (and perhaps avoided), and other applicable information demonstrating the benefit of the NPA such as the traditional infrastructure alternative and its cost along with the cost of the NPA.

PA suggests that the Companies consider including improvements to the NPA program design and deployment with the goal of scaling up NPA programs and to eliminate barriers to adoption. PA adds that the Companies need to ensure the NPA program design structures minimize barriers to adoption, for example directing payments to contractors, to avoid large capital outlays from customers. PA points out that stakeholders expressed concerns that this issue is a major barrier for adoption of NPA solutions, especially among low- and moderate-income customers. PA states it is reasonable to expect that many customers would choose not to participate in the NPA programs if they are required to make material upfront out of pocket payments to the contractors and wait for the payment to be processed and reimbursed by Companies.

PA recommends that the Companies redouble their efforts to identify early on investments (especially pipe replacement investments) that could be potentially avoided by deploying NPA and electrification solutions. According to PA, given the likelihood that lead times to implement NPAs will be several years, it recommends the Companies focus in earnest on those investments that are beyond the three-to-five-year horizon. PA states this is the key to maintaining affordability while reducing emissions by keeping costs in a reasonable range, and if the Companies and stakeholders fail to identify

investments that could be avoided in a timely manner, the Companies will have no option other than continuing to deploy capital to replace these pipes or continue to incur repair costs, while operating riskier assets, to maintain reliability and meet safety standards. PA adds that these investments may likely be stranded or not fully utilized by mid-century, however, they would be paid for by either fewer customers remaining on the gas system or backed by government interventions - both of which present challenges. Instead, PA states it would be preferable to identify meaningful opportunities to avoid deploying those investments in the first place.

Since the Companies did not provide a no-infrastructure option as required by the Planning Order, they are directed to provide a no-infrastructure option in their next LTP filing in 2027 that meets all load growth with non-pipe alternatives rather than additional infrastructure. The Commission recognizes that there are barriers to successful deployment of NPAs, but more community outreach, as outlined by PA, should lead to better NPA creation and development. The Companies are directed to develop an NPA deployment plan that reflects the input from PA stated above as well as the comments from SC/EJ. This plan shall be filed within 120 days of the issuance of this Order for subsequent stakeholder comment.

Leak-Prone Pipe

The Planning Order directs LDCs to identify the locations of specific segments of LPP that could be abandoned in favor of NPAs in the annual reports required by that Order and to identify where infrastructure projects may be required to maintain reliability. The Companies state in their Final LTP that the largest capital cost component for both Companies is the ongoing Main Replacement Program, which will end about 2030

for ORU and about 2040 for Con Edison. Also, as discussed above, both Companies are pursuing NPAs in lieu of certain main replacements.

SC/EJ state that Con Edison's Deep Electrification Pathway alone forecasts \$2.28 billion in LPP replacements through 2030, while ORU's Deep Electrification Pathway forecasts over a quarter of a billion dollars in main replacements and reliability investments through 2030 and the Deep Electrification pathway plans for oil-to-gas conversions for the next five years.<sup>49</sup> SC/EJ believe that this level of gas system investment will lead to stranded assets and significant increases in costs. The Companies respond that the specific level of investment in LPP programs has been a topic of discussion in their recent rate cases, and that they have been in dialog with Staff and other stakeholders regarding LPP investment in order to balance the rate impact of those investments with customer and public safety, as well as with other beneficial impacts such as reduced emissions. The Companies also address comments regarding a lag that exists between construction project completion and their reflection in the Companies' mapping systems, stating that map functionality is adequate, and that the software has numerous built-in tools aligned with worker activities.

PA notes that during its review of the Companies' various long-term plans it was made aware that a lag exists between the time that construction projects are completed and

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<sup>49</sup> The 2022 Rate Order directed ORU to discontinue its oil-to-gas conversion program and removed all references to this program and removed all "convert to natural gas" information from its website as well as any marketing materials, thus SC/EJ are referring to customers that convert from oil to gas without any action or incentive by the company. 2022 Rate Order, Joint Proposal, Appendix 20, p. 4.

the time those projects are reflected in the Companies' mapping systems. PA states that while this delay may lead to a reporting mismatch, it could also cause potential employee and public safety concerns. PA recommends that the Companies ensure that the Commission and appropriate Staff are aware of the procedures and systems in place that provide emergency response and other field personnel with accurate information about the gas system components they should expect to encounter in performing their work. The Commission shares PA's concerns and notes that the Companies need to ensure their maps are updated expeditiously. So long as the Companies can accurately locate facilities as part of damage prevention, then the safety of the system should be ensured.

In the Final LTP, the Companies also discuss Federal Pipeline and Hazardous Materials Safety Administration (PHMSA) regulations regarding maximum allowable operating pressure confirmation requirements. The Companies mention that PHMSA provides six methods for confirmation of maximum allowable operating pressure, adding there is only one that is viable for the Companies, and that is replacement of transmission mains for which there are not traceable, verifiable, and complete records regarding material composition and testing. An alternative to pipe replacement could be reducing the operating pressure of certain pipe segments. SC/EJ urge the Companies to comply with PHMSA maximum allowable operation pressure reconfirmation regulations through pipeline derating and targeted pipe retirement.

In the 2023 Rate Order, budgets and mileage targets were established for LPP replacement, and for ORU, LPP is an important issue in the ongoing gas rate case. Those targets will not be addressed here. Con Edison will also target specific LPP replacement projects for NPA treatment.

Above, we directed the Companies to develop a new NPA formulation plan. That plan must also include a method of evaluating LPP segments for NPA treatment. Regarding confirmation of the PHMSA maximum allowable operation pressure reconfirmation regulations, the Commission is concerned that derating and retirement of higher-pressure pipe may impact the ability of the Companies to meet gas demand during very cold winter weather. The Companies are directed to file a report within 120 days of issuance of this Order that identifies all the segments of pipe that are subject to these regulations. That is, all segments for which the Companies do not have traceable, verifiable, and complete records to substantiate current maximum allowable operating pressure and need testing and/or replacement to maintain current maximum allowable operating pressures. Additionally, the report shall include details for verifying the maximum allowable operating pressure of each of these segments, including the pros and cons of each alternative and its cost.

Impacts on Low- and Moderate-Income Customers and Disadvantaged Communities

The Planning Order directed LDCs to identify the disadvantaged communities in their service territories, explain the impacts of any proposed projects on disadvantaged communities, and explain how the LDC will ensure that an appropriate portion of the benefits of any proposed NPAs accrue to disadvantaged communities. Con Edison states that approximately 45 percent of all census tracts in its service territory are disadvantaged communities, and ORU states that it has disadvantaged communities interspersed throughout its service territory. In 2022, Con Edison provided low-income program discounts to over 3,600 gas-only customers and over 140,000 gas and electric combination customers, while ORU

provided low-income program discounts to 36 gas-only customers and over 11,000 combination customers.

Con Edison states that it will file an annual Disadvantaged Communities Report as required by the 2023 Rate Order, including extensive data regarding investments, engagement, and workforce development efforts in disadvantaged communities. Relevant to the gas system, Con Edison states that the report will provide information on how it tracks and reports key metrics related to disadvantaged community data, Clean Energy spending, clean energy facilities installed and number of participants in clean energy programs in disadvantaged communities, footage of leak-prone pipe retired and associated avoided emissions, as well as leak repairs in disadvantaged communities. Con Edison adds that it will also convene stakeholder meetings following the annual filings to discuss and provide feedback on the Report. In addition to reporting on disadvantaged communities required by the 2023 Rate Order, the Companies add that the Commission directed energy efficiency and building electrification program administrators to file reports on clean energy investments benefitting disadvantaged communities in the Energy Efficiency and Building Electrification Proceeding.<sup>50</sup> The Companies do not provide specific information on how each Pathway will benefit disadvantaged communities.

SC/EJ state that Con Edison has yet to share any data from its Disadvantaged Communities Report and that Con Edison cannot simply provide data in the future as a substitute for the Company's present duty. SC/EJ also propose that the Companies endeavor to increase the enrollment of disadvantaged community

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<sup>50</sup> Case 18-M-0084, In the Matter of a Comprehensive Energy Efficiency Initiative, Order Directing Energy Efficiency and Building Electrification Proposals (issued July 20, 2023).

members in clean energy and energy efficiency programs by assessing publicly funded opportunities for these community members to do so. SC/EJ acknowledge the Companies' Energy Affordability Programs but state that these programs cannot incentivize cleaner or more efficient energy usage in disadvantaged communities. SC/EJ also reference co-pollutants from combustion that threaten public health, especially in disadvantaged communities. NYC states that bills are especially unaffordable for members of disadvantaged communities and Con Edison has inadequately addressed this issue. AGREE states that although it aligns with the Deep Electrification Pathway, that Pathway still needs modifications to provide benefits to disadvantaged communities. The Companies reply to these comments on the insufficiencies related to discussion of disadvantaged communities, stating they have agreed to perform extensive reporting on disadvantaged communities which will include data on "investments, engagement, and workforce development efforts."<sup>51</sup> The Companies further note their other efforts and programs that they have instituted or will institute to better support disadvantaged communities.

PA states that the Companies should specify how the LTP would benefit disadvantaged communities. PA adds that the LTP does not provide insight or sufficient details on how the plan ensures appropriate levels of benefits are directed to disadvantaged communities, as required by the Planning Order. Instead, PA states the plan provides that the Companies will continue working on this topic and will provide further details in the next round of their report.

The Commission agrees with stakeholders that the Companies have done an insufficient job in their LTP of proving

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<sup>51</sup> Companies' reply comments, p. 23.

the appropriate benefits to disadvantaged communities. Given the cyclical nature of the planning process, the Commission acknowledges that it is difficult to identify all the potential benefits and impacts that can be expected to be delivered to disadvantaged communities through the LTP. However, the Companies can reasonably project the expected benefits and impacts associated with the programmatic and non-programmatic activities that they will undertake over this three-year cycle to advance their LTP.

The Commission directs the Companies to file a supplemental report that identifies the benefits and impacts to disadvantaged communities that can be expected for actions related to reducing GHG emissions unique to the Final LTP that will be undertaken in the next three years. The Companies shall develop this report in consultation with Staff and file it within 120 days of the issuance of this Order. The report shall reflect those directives in this Order that are in addition to or differ from what the Companies included in their Final LTP. Further, the Companies shall consult with Staff to develop a process for reporting on the achievement of benefits and other impacts on disadvantaged communities as a result of the activities undertaken under the LTP. Due to the multi-year nature of the LTP and the potential for the development of new programs or non-programmatic activities to meet the goals of the LTP, the Companies shall also conduct robust stakeholder engagement with disadvantaged communities when considering a new programmatic activity to identify the potential benefits and impacts associated with these activities. The Companies shall consult with Staff on the nature of these stakeholder engagements within 45 days of each engagement, including consulting with Staff before the engagements to detail the groups that will be engaged and providing meeting agendas and

providing notes from the engagement meetings within five business days of each engagement. Further, in each of their Annual Updates to this LTP, the Companies shall update the information regarding clean energy programs specific to their Final LTP including the number of participants in disadvantaged communities, program costs and estimates of achieved GHG emission reductions.

#### Comparison of Alternatives

##### 8. Benefit Cost Analysis

The Planning Order did not modify previous Commission orders regarding the need for BCAs. The Planning Order also provides that the consultant is expected to help evaluate the economic and environmental tradeoffs associated with different pathways. The Companies did not provide any BCA analysis of their Pathways in their Initial LTP filing, nor their Revised LTP but did include calculations in their Final LTP. The Companies state that none of the pathways have benefits that exceed costs through 2043, and the assumptions used in the BCA analysis do not include nonquantifiable benefits from reducing GHG emissions, such as improved public health, improved air quality, job creation over and above displaced jobs and improved economic opportunities, as discussed in the Climate Action Council's Final Scoping Plan. The Companies add that the ability to quantify those benefits may show benefits exceeding costs, which "further supports the Companies' arguments for not selecting a particular, preferred pathway."<sup>52</sup>

SC/EJ propose that the Companies assess potential NPA projects by conducting a BCA that transparently evaluates and compares the following factors: 1) the price to repair or replace per foot or mile of pipe; 2) how many customers are

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<sup>52</sup> Final LTP, p. 63.

served per foot or mile of pipe; 3) upfront costs to electrify; 4) decrease in gas demand; and 5) the avoided long-term costs to maintain the distribution line. NRDC notes that it does not excuse the Companies from failing to choose a pathway although NRDC acknowledges the range of BCA ratios provided by the Companies in the Final LTP explains these shortcomings. The Companies respond that the BCA provided in their Final LTP illustrates the tradeoffs between emissions reductions and other benefits with their associated costs, and that their BCA analysis supports their decision to not choose a pathway at this time.

PA recommends that the Companies be required to clearly communicate the direct and inherent assumptions used in the Companies' modeling process. PA states this approach would allow stakeholders to compare these assumptions against their view on technology, policy, customer preference, etc. and be able to participate in the long-term planning process more proactively.

PA also recommends that the Companies be required to identify the pathway that is preferred to guide the Companies' actual investment plans. PA states that the Companies present their Hybrid and Deep Electrification Pathways as two potential pathways to meet CLCPA goals but do not identify a preferred plan. PA adds that it appreciates the challenges of a single point forecast when many variables are at play and finds a discussion on the range of possibilities is reasonable and useful; however, it is unclear which pathway is going to inform the Companies' long-term planning and investment decisions that need to be made in the near-term since there are clear tradeoffs between each pathway and it is inefficient and impossible to pursue all three pathways at the same time. PA notes that in the Revised LTP, the Companies "determined that many of the

required actions are common to both the Hybrid and Deep Electrification Pathways, particularly prior to 2030". PA further states that while that outcome may be the case to some extent, successful deployment of NPA and electrification solutions requires significant lead time, and the Companies would need to redirect some of the capital that is earmarked for pipe replacement toward electrification efforts and thus it is hard to imagine that the Companies can successfully pursue both Pathways at the same time. PA adds that such process could lead to suboptimal allocation of capital to each strategy and inefficient utilization of scarce resources.

Some stakeholders addressed in their comments how the BCA analysis used by the Companies could be modified to include additional considerations such as non-quantifiable outcomes like indoor air pollution, public health, and job creation.

The Commission has established the methods for calculating BCA ratios in the BCA Framework Order, and we will not revisit that topic here.<sup>53</sup> The Commission agrees with PA and the stakeholders that failure to identify a preferred pathway will likely result in inefficient resource allocation, meaning that spending will potentially not be directed to programs that will be part of the long-term solution. As noted above, the Companies' statements indicate that the Reference Pathway is their preferred pathway. The Commission notes that the Companies are directed to pursue an optimization process in their next long-term plan filing as described above, and this combined with the recognition of impacts from electrification and the potential displacement of capital projects that could increase plant-in-service should improve BCA ratios. By

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<sup>53</sup> Case 14-M-0101, Proceeding on Motion of the Commission in Regard to Reforming the Energy Vision, Order Establishing the Benefit Cost Analysis Framework (issued January 21, 2016).

incorporating a more bottom-up modeling approach, the Companies should be able to better explain the assumptions regarding technology adoption, technology availability, and other unknowns inherent in a difficult modeling exercise such as gas long-term plans. The Companies' approach to modeling has met the basic requirements of the Gas Planning Order, however this process and stakeholder input has identified areas where the Companies can improve and where further guidance is warranted. For example, there are several efforts in progress related to improved cost and benefit valuations, the proper role and level of incentives, and NPA suitability and screening criteria that will ultimately improve modeling efforts and BCA outcomes. Importantly, application of the BCA Framework Order has its limitations in a planning process such as gas long-term plans.

The BCA ratios presented in this Order cannot be interpreted in the same way as those for individual NPAs since they seek to inform different, though related, issues. BCAs conducted for discrete and immediate infrastructure needs to evaluate the potential for an NPA to defer or eliminate that need includes revenue requirement level cost information. BCAs conducted in the Companies' and other utilities' long-term plans look much further out than near-term individual projects and therefore must rely on many informed assumptions for both costs and benefits. Still, the BCA ratios provided in the Companies' gas long-term plans can inform and help prioritize which pathway delivers more benefits relative to the costs needed to realize those benefits. What the initial round of the long-term plan process has made clear is that New York and this Commission continue to lead the nation in guiding utility system planning to meet the needs of customers in the 21<sup>st</sup> Century.

9. Estimated Bill Impacts and Net Present Value of Costs of Each Alternative

The Planning Order directed the LDCs to present an annual bill impact and net present value for both a traditional solution and any alternatives, and that the analysis address various customer groups. Additionally, the Commission directed that LDCs include an alternative bill impact analysis that assumes the full value of any new gas assets is depreciated by 2050. Addressing the gas asset deprecation issue, the Companies state their objective in the short- to medium-term is to pursue policy changes to align depreciation lives with the CLCPA and/or investment recovery methods, resulting in balancing of inter-generational customer bill impacts and a reasonable and faster return of capital invested. As explained below in this Order as well as in the Planning Order, the proceeding in which gas plant depreciation issues will be addressed is the Gas Planning Proceeding.

As discussed above, for each of the pathways in the Final LTP the Companies include projected bill impacts for select service classifications using the representative costs and customer usage profiles, and these indicate the likelihood of large bill increases over time. The Companies state that "the trajectory of potential bill impacts over time conveys the urgent need to avoid disproportionately burdening customers that will remain in later periods by taking action now and seeking creative solutions that recover system costs during the period of high utilization and over a large customer base (e.g., through the use of accelerated depreciation and other changes to capital recovery policies, innovative cost reduction programs, tapping alternative sources of funding, etc.)."<sup>54</sup>

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<sup>54</sup> Final LTP, p. 62.

NYECC recommends that the Companies evaluate bill impacts for each pathway according to a "share of wallet" analysis, which can present each pathway's bill impacts in terms of affordability for a variety of customer populations. NYECC advises the Companies to earnestly prioritize the investments of each pathway with the goal of reduction and elimination of investments that can correspondingly help the Companies reduce customer bill impacts. The comments from NYECC on the Final LTP urge the Companies to improve the precision of customer bill impact projections. NYECC proposes that the Companies be directed to correlate gas forecast trends to investment requirements so that they can minimize new investments as demand is forecasted to decrease over time. In addition, according to NYECC, analyses need to incorporate the potentially beneficial effects on bill impacts such as the effects of Cap and Invest programs, as well as the competition between electric and gas appliances on total volumes delivered to customers.

NYC states that each pathway described by the Companies raises major concerns regarding bill impacts and labels all three pathways as unaffordable, even the Reference Pathway. CPA requests bill impact information for not only SC1, SC2, and SC3 rate classes, but also SC12, Rate 2 (interruptible) customers. AGREE states that the Companies' claim that the Hybrid Pathway will significantly reduce GHG emissions and generate less of a bill impact than the Deep Electrification Pathway is speculative due to its reliance on unproven technologies and AGREE deems the Hybrid pathway as "unproven, costly, and harmful to New Yorkers' health". Parkchester asserts that Con Edison will be engaged in electrification efforts that will increase electric bills regardless of which pathway is chosen and adds that the Final LTP acknowledges that

its bill impacts do not account for inflation, which exacerbates cost concerns.

SC/EJ recommend that the Companies adopt a more holistic household utility bill impact analysis that explores the impact that state policy and individual household weatherization and electrification decisions would have on their total utility costs. SC/EJ also refer to the proposed Cap and Invest program, stating the price set by that program on the GHG content of fuels can enhance energy bill affordability by raising revenues to return to households and to fund programs that can help households weatherize or electrify. In their reply comments, the Companies state that they wholeheartedly agree with the recommendation of stakeholders to uphold affordability as a key priority for gas planning objectives. The Companies add that they did not perform class-specific demand analyses for refining bill impacts because of the limited information currently available and pledge to make necessary refinements in the future once the necessary information becomes available.

PA recommends that the Companies provide bill impacts calculated for each service classification that account for changes to the average volumes of gas consumed by each customer class over time. Although the Companies indicate in their Final LTP that gas usage will become more efficient over time, they use a constant value for assumed gas consumption between 2023 and 2050 in each customer class, which is not an accurate assumption. PA adds that to make the bill impact analysis more robust, the Companies should use projected average gas volumes for each customer class and forecasted reductions in gas volumes for a representative customer in each class, rather than using a constant value. PA observes that the Companies agreed in their

written comments to provide this in the Final LTP, but this was not provided.

Additionally, PA recommends that the Companies identify ways to further manage bill impacts and affordability challenges. PA states that the results of the Companies' bill impact analysis are relatively high and could pose affordability challenges for customers, especially for lower income customers who do not qualify for billing assistance programs. PA notes that under the Reference Case Pathway, a "SC-1 Residential/Religious Firm Sales Service" customer's total bill is forecasted to increase on average by 5.4 percent per year (excluding inflation). Under the Hybrid and Deep Electrification Pathways, the average year-over-year total bill increases are projected to be 7.4 percent and 25.1 percent, respectively (excluding inflation). These forecasted rate increases are much higher than actual historical total gas bill increases over the past five years and stakeholders deemed them "unacceptable."

Affordability and bill impacts are the issues most commented on by stakeholders in this proceeding, and with good reason. A more refined bill impact analysis, as described by PA and stakeholders is called for and would reflect anticipated reduced natural gas usage over time. Therefore, the Commission directs the Companies to provide a refined bill impact analysis in its first Annual Update due in May 2025. This bill impact analysis shall reflect reduced natural gas usage by a representative gas customer over the 20-year period for every service classification, including interruptible customer classes. This analysis shall also include two sets of bill impacts, one that only reflects changes to volumetric block rate structures that have already been approved by the Commission and the other shall additionally reflect further changes that the

Companies are considering over the 20-year period such as, but not limited to, the flattening of volumetric block rates.

10. Emissions Impacts

The Planning Order requires that LDCs report the GHG emissions from all solutions, both supply-side and demand-side, and a calculation of the GHG emissions from each scenario they submit in addition to including carbon emissions in the BCA analysis as prescribed in the BCA Framework Order. The Companies state that Scope 1 and 3 emissions reductions from the Reference Pathway in 2043 compared to 2023 levels is 23 percent, emissions reductions from the Hybrid Pathway is 62 percent, and emissions reductions from the Deep Electrification Pathway is 87 percent.<sup>55</sup>

NYC states that all three pathways presented in the LTP are insufficient and recommends that Con Edison conduct an optimization process to identify and develop an additional, fourth, pathway with the highest emissions reduction potential and the lowest impact on affordability, while also prioritizing safety and reliability. NRDC states that neither the Hybrid nor Deep Electrification Pathway will satisfy the CLCPA's 2050 emissions goals with the current projected percentages of emissions reductions associated with both, but states that the Deep Electrification Pathway is more compliant with CLCPA emissions reduction targets.

NYCP expresses concern about the potential for additional fugitive emissions in the future from a decrease in demand and pressure within the gas distribution network and urges the Commission to modify the LTP process to require reasonable GHG emissions reduction trajectories and deep strategic downsizing of the gas distribution system. The

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<sup>55</sup> Final LTP, Figure 2, p. 4.

Companies respond that the BCA provided in the Final LTP illustrates the tradeoffs between emissions reductions and other benefits with their associated costs.

PA recommends that the Companies clarify the inherent tradeoff between emissions reduction, affordability, and strategies to mitigate affordability impact, while reducing GHG emissions. PA states that the Reference Pathway would offer the least year-over-year increase in total customer gas bills; however, it does not offer a robust and dependable path to decarbonization and meeting CLCPA targets. PA adds that although the Deep Electrification Pathway meets the emissions reduction and CLCPA's emissions target, it is projected to have the most severe negative impact on affordability.

PA recommends that the Companies conduct an optimization process to identify and develop a long-term plan Pathway with the highest emissions reduction potential and lowest impact on affordability while maintaining system reliability and safety. PA states that it is unclear that the Companies have conducted such optimizations to identify a Pathway with the highest societal value and least potential risk over time. PA adds that the Companies should be directed to conduct a sensitivity analysis to demonstrate the modeling robustness and share a view on the most sensitive assumptions and variables with the stakeholders and the Commission to assess the prudence of these assumptions.

PA recommends that the Companies increase planning coordination between the gas, steam, and electric systems. Although there is no direct language in the Planning Order requiring utilities to conduct coordinated long-term planning for the gas, steam, and electric systems, PA recommends some coordination to ensure that safety, reliability, resiliency, and

affordability objectives are properly considered as part of the long-term planning process.

Stakeholders make compelling points regarding the need to reduce GHG emissions especially by targeting parts of the distribution system that can be decommissioned. The Commission directs the Companies to perform the optimization process as described above by PA and use that optimization to produce the preferred pathway provided in their next long-term plan filing.

Heat Pump Adoption/Pace of Electrification

The Companies state that each Pathway varies in assumptions about the level of adoption of different energy technologies and explores the effects of varying levels of policy evolution and investment needed in the broad strategic objectives. The Companies add that the New York State Clean Heat Program includes initiatives to advance the adoption of efficient electric heat pump systems for space and water heating applications throughout the State. Although Con Edison developed an analysis that compared the customer economics of air and ground source heat pumps versus a gas boiler using average electricity and gas rates under the Hybrid and Deep Electrification Pathways, the Companies did not use the analysis to refine assumptions in the Pathway analysis "because it is assumed that policy will drive market adoption in both Pathways."<sup>56</sup> In response to feedback from PA and stakeholders, the Companies commit to providing further detail on their technology adoption assumptions in the Revised LTP. For the Hybrid Pathway, adoption of heat pumps for space heating is forecast to increase from 10 percent of buildings in 2030 to 36 percent in 2043. For the Deep Electrification Pathway, it ranges from 22 percent in 2030 to 74 percent in 2043.

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<sup>56</sup> Final LTP, p. 65.

NYC emphasizes that a more comprehensive coordination effort with the City and its agencies will be necessary to efficiently identify electrification and other NPAs in priority areas and establish future plans to decrease reliance on the gas system. NRDC views the Companies' responses to requests for additional information on adoption rates as very high-level and that information in the Final LTP provide rough comparisons between their assumptions without indicating the factors used by the Companies for this modeling. NRDC states it prefers strategic electrification over hydrogen as a much more cost-effective means to decarbonize buildings and supports electrification over main replacement for emissions reductions. SC/EJ cites the fundamental incompatibility between a plan that prioritizes widespread electrification and another that prioritizes low carbon fuels. SC/EJ recommend the reduction or deferral of pipeline replacement costs according to strategic targeting of certain neighborhoods for electrification. SC/EJ adds that an unmanaged transition in which electrification occurs on a household-by-household basis is the costliest scenario, whereas strategic pipeline replacement would reduce ratepayer costs. NYC recommends that Con Edison develop a schedule and reporting requirements to meet and develop an electrification conversion program with stakeholders in advance of the next Con Edison electric and gas rate cases. CPA asks Con Edison to provide a detailed discussion regarding specific improvements and associated investments needed in the system, the feasibility of new transmission, and the time required to complete necessary expansion or upgrades prior to Con Edison's commencement of electrification. SC/EJ advises that the Companies can avoid oil-to-gas conversions if they reevaluate their outreach and education programs, identify existing oil customers to target for outreach and education on the financial,

environmental and health benefits of electrification, and provide customers with cost comparisons for oil-to-gas conversion compared to oil-to-electric conversions that incorporate state and federal incentives. The Companies state they remain focused on efforts to identify investments with sufficient lead times for successful deployment of NPA and/or electrification solutions to eliminate traditional natural gas infrastructure needs. Con Edison also notes that it already has two existing electrification programs, the Statewide Clean Heat program and Electric Advantage NPAs, and is developing a third program which focuses on avoiding replacements to existing gas service lines.

PA recommends that the Companies update their analysis comparing the economics of different technologies used for space and water heating in various customer segments. In the Initial LTP and Revised LTP, the Companies relied on an economic comparison of various space heating technologies such as gas boilers, air-source heat pumps, etc., that Con Edison developed and filed in 2017.<sup>57</sup> Given the importance of this subject, PA encouraged the Companies to update this assessment for the Final LTP, which they did. PA also encouraged stakeholders to review and further discuss the assumptions made in the Final LTP to further improve this assessment and potentially align the Companies' and stakeholders' views on this crucial assessment.

The Commission observes that the Companies' assumptions regarding the economics of space heating technologies is essential to the planning necessary to reduce GHG emissions. Con Edison must work together with NYC to coordinate heating electrification programs to ensure

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<sup>57</sup> Case 16-G-0061, et al., Con Edison - Rates, Consolidated Edison Gas Peak Demand Reduction Collaborative Report (filed December 22, 2017).

maximization of the benefit to their constituencies. The Companies have electrification programs funded through the Energy Efficiency and Building Electrification (EE/BE) Proceeding, although they have not sufficiently reflected the goals of those programs in this LTP process. The Companies have included weatherization and heating electrification proposals as part of their supplemental filing to their energy efficiency portfolio proposals through the process established by the Order Directing EE/BE proposals in Case 18-M-0084. Ultimately, we will make any determinations related to the Companies' EE/BE portfolios in Case 18-M-0084, not this proceeding.

Depreciation

Several stakeholders and the Companies mentioned the need for changes to depreciation methods to recognize the potential for stranded costs in the future related to potential decommissioning of the Con Edison and ORU natural gas distribution systems. The Planning Order designated depreciation as a topic for future consideration on a generic basis in that proceeding, which would then be implemented in a future rate case for the individual utility.<sup>58</sup> This issue will be addressed in the Gas Planning Proceeding in the future. In addition, the Commission currently does not have sufficient information to direct significant changes to depreciation methods. Furthermore, absent legislative action customers will continue to use natural gas in current quantities for some time. In addition, accelerating depreciation will contribute to bill increases in the short term, and other methods of limiting stranded costs may be developed.

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<sup>58</sup> Planning Order, pp. 60-62.

Climate Leadership and Community Protection Act

As previously discussed, the CLCPA is ambitious climate legislation with a commitment to reduce GHG emissions and achieve net-zero emissions, increase renewable energy usage, and ensure climate justice. To those ends, CLCPA §7(2) requires all State agencies, including the Commission, to take into consideration whether certain specified final agency actions are inconsistent with or will interfere with the attainment of the statewide GHG emission limits established by the DEC under ECL Article 75. Thus, final Commission decisions, including the decisions the Commission makes in this proceeding, are subject to the evaluation required under CLCPA §7(2). Section 7(2) further states that if a decision is deemed to be inconsistent with or interferes with the attainment of the statewide GHG emissions limits, the deciding agency, office, authority, or division must provide a detailed statement of justification as to why such limits may not be met and identify alternatives or GHG mitigation measures to be required.

The Commission's action in this proceeding, requiring that the Companies take additional actions with respect to their long-term plan, is not inconsistent with nor would it interfere with the CLCPA. The intention of the gas planning proceeding we initiated in Case 20-G-0131 is to continue providing safe, adequate, and reliable gas service while charting a path forward to attaining the State's climate goals. The actions and directives in the body of this Order provide a framework for the Companies to take steps toward these goals while balancing the need for the provision of safe and adequate service. Accordingly, we determine that our actions in this Order are not inconsistent with CLCPA §7(2).

CLCPA §7(3) requires that in considering and issuing permits, licenses, and other administrative approvals and

decisions, the Commission shall not disproportionately burden disadvantaged communities. CLCPA §7(3) also requires that all state agencies prioritize reductions in GHG and co-pollutants in disadvantaged communities. The Climate Justice Working Group adopted final criteria to identify disadvantaged communities, along with an interactive map of disadvantaged communities in the state.<sup>59</sup>

While the Companies' service territories contain disadvantaged communities, the types of projects and research to be initiated pursuant to the long-term plan and our directives in this Order do not disproportionately burden any specific disadvantaged communities. Energy efficiency and LPP replacement programs, for example, will primarily benefit the communities where the Companies implement those programs by improving safety, efficiency, and reducing GHG emissions in those areas, while providing broader safety, reliability, and climate benefits for ratepayers and the State as a whole. Accordingly, the Commission finds that the action taken in this Order will not disproportionately burden a disadvantaged community.

#### CONCLUSION

In this Order, the Commission directs the Companies to make additional filings related to demand response pilot programs, a definition of hard-to-electrify customers, a NPA deployment plan and a report on the substantiation of maximum allowable operating pressures in certain pipe segments, as described in the body of this Order. We also direct in this Order that the Companies include certain information in their Annual Updates to this long-term plan, due May 15, 2025, and

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<sup>59</sup> See <https://climate.ny.gov/Resources/Disadvantaged-Communities-Criteria>.

May 15, 2026, and in their next long-term plan filing, due on August 15, 2027.

The Commission orders:

1. Consolidated Edison Company of New York, Inc. and Orange and Rockland Utilities, Inc. shall develop a detailed and disaggregated perspective regarding customer counts and annual use per customer, as described in the body of this Order, and shall include this information in their first Annual Update to their long-term plan due May 15, 2025, and in their next long-term plan to be filed on August 15, 2027.

2. In the first Annual Update to their Long-Term Plan, Consolidated Edison Company of New York, Inc. and Orange and Rockland Utilities, Inc. shall provide a de-contracting framework for supply assets, including peaking contracts, as described in the body of this Order.

3. In their first Annual Update to their Long-Term Plan, Consolidated Edison Company of New York, Inc. and Orange and Rockland Utilities, Inc. shall file a specific definition of hard to electrify customers for each service territory, as described in the body of this Order.

4. Consolidated Edison Company of New York, Inc. and Orange and Rockland Utilities, Inc. shall each file, within 120 days of the issuance of this Order, a proposal for at least one demand response program.

5. In each Annual Update to their Long-Term Plan, beginning May 15, 2025, and subsequently on May 15, 2026, Consolidated Edison Company of New York, Inc. and Orange and Rockland Utilities, Inc. shall include the annual participation rates in energy efficiency programs and total energy savings in dekatherms and MMBtus by program and their impacts on use per customer in each Annual Update to their Long-Term Plan.

6. As discussed in the body of this Order, Consolidated Edison Company of New York, Inc. and Orange and Rockland Utilities, Inc. shall include information in their next long-term plan filing in 2027 regarding increases in electric load due to electrification of space and water heating and any associated reliability impacts.

7. Consolidated Edison Company of New York, Inc. and Orange and Rockland Utilities, Inc. shall provide a no-infrastructure scenario in their next long-term plan filing to be filed on August 15, 2027.

8. Consolidated Edison Company of New York, Inc. and Orange and Rockland Utilities, Inc. shall develop and file within 120 days of the issuance of this Order a NPA deployment plan for stakeholder comment, as discussed in the body of this Order.

9. As discussed in the body of this Order, Consolidated Edison Company of New York, Inc. and Orange and Rockland Utilities, Inc. shall file a report within 120 days of the issuance of this Order that identifies all the segments of pipe that are subject to Pipeline and Hazardous Materials Safety Administration regulations regarding traceable, verifiable, and complete records to substantiate current maximum allowable operating pressure and need testing and/or replacement to maintain current maximum allowable operating pressures.

10. Consolidated Edison Company of New York, Inc. and Orange and Rockland Utilities, Inc. are directed to file within 120 days of the issuance of this Order a report, as described in the body of this Order, regarding the benefits to and impacts on disadvantaged communities of their long-term plan.

11. As discussed in the body of this Order, Consolidated Edison Company of New York, Inc. and Orange and Rockland Utilities, Inc. shall file within 120 days of the

issuance of this Order a bill impact analysis that reflects reduced natural gas usage by a representative gas customer over a 20-year period for every service classification, including interruptible customer classes.

12. Consolidated Edison Company of New York, Inc. and Orange and Rockland Utilities, Inc. shall perform an optimization process to identify a preferred pathway as described in the body of this Order and use that optimization process to provide scenarios for the next long-term plan to be filed on August 15, 2027, including the one scenario designated as the chosen long-term plan.

13. 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 seven days prior to the affected deadline.

14. This proceeding is continued.

By the Commission,

(SIGNED)

MICHELLE L. PHILLIPS  
Secretary

SCHEDULE OF PROCEEDING

<b>Event</b>	<b>Date</b>
Pre-Filing Educational Technical Conference	April 26, 2023
Companies' Filing of Initial Long-Term Plan	May 31, 2023
Technical Conference	June 21, 2023 - Companies' Presentation of Initial LTP
PA Consulting Initial Report	July 14, 2023
Technical Conference	July 19, 2023 - Updated Peak Forecasts and PA's Initial Report
Technical Conference	August 10, 2023 - Description of Con Ed Rate Plan
Initial Comments Due	August 21, 2023
Reply Comments Due	September 5, 2023
Technical Conference	September 12, 2023 - Stakeholder Comments, Capital Investments and Non-Pipes Alternatives
Technical Conference	September 14, 2023 - Rate Impacts and Affordability
Companies' Filing of Revised Long-Term Plan	September 25, 2023
Technical Conference	September 27, 2023 - Rate Impacts and Affordability (continued)
Technical Conference	October 3, 2023 - Companies' Revised Long-Term Plan
Technical Conference	October 4, 2023 - Emissions Accounting

PA Consulting Preliminary Findings Report	October 16, 2023
Technical Conference	October 18, 2023 - Disadvantaged Communities and Hydraulic Modeling
Technical Conference	October 19, 2023 - Companies' Revised Long-Term Plan Hybrid and Deep Electrification Pathway Assumptions
Comments Due on Revised Long-Term Plan	October 25, 2023
Companies File Reply to Stakeholders' Comments on Revised Long-Term Plan	November 21, 2023
Companies' Filing of Final Long-Term Plan	November 29, 2023
Technical Conference	November 30, 2023 - Tennessee East 300/Moratorium Update
PA Consulting Final Report	December 12, 2023
Initial Comments Due	January 31, 2024
Reply Comments Due	February 21, 2024

SUMMARY OF COMMENTSComments on Initial Long-Term Plan:1. City of New York (NYC or City)

The comments from NYC on the Initial Long-Term Plan of Con Edison and ORU begin by recommending a more comprehensive and coordinated effort among Con Edison, the City, and customers. NYC recommends that Con Edison eliminate the plan's budget for new customer gas connections. Capital spending on these connections conflicts with the requirements of the CLCPA and NYC Local Laws 154 and 97. According to NYC, "these two local laws will work together to transition existing customers away from the use of natural gas, while also working to prevent new customers from connecting to the gas system."

NYC identifies hard-to-electrify buildings as a critical issue and utility thermal energy networks (UTENS). NYC requests that Con Edison include more investment in UTENS in future iterations of the LTP to help serve these buildings in particular.

NYC also dedicates a substantial portion of its comments to the issue of affordability, specifically for disadvantaged communities. According to the City, the CLCPA emphasizes utility treatment of disadvantaged communities as a significant issue, one it characterizes as inadequately addressed by Con Edison in the LTP.

The "Hybrid Pathway" is NYC's preferred pathway. NYC states this approach is the most cost-effective, balanced, and plausible way to achieve the CLCPA's goals. Nonetheless, despite identifying this pathway as the "best choice" among the three in the Final LTP, NYC repeatedly identifies significant planning inadequacies in this pathway. According to NYC, "the next draft of the Plan should have a more expansive and

iterative review of the Hybrid Pathway to promote cost-effective decarbonization.”

NYC additionally delineates issues concerning hydrogen, renewable natural gas (RNG), and certified natural gas. The City’s discussion of these issues includes extensive statistics surrounding the use of heat pumps and the associated benefits involved. NYC recommends the implementation of incentive programs to minimize the cost of these technologies to customers.

## 2. Natural Resources Defense Council (NRDC)

NRDC states it developed its comments on the Initial LTP with aid from Synapse Energy Economics. According to NRDC, after review of the three proposed pathways in the LTP, it rejects the Reference pathway, due to this pathway’s noncompliance with CLCPA objectives and elaborates on aspects of the Hybrid and Deep Electrification pathways. These aspects include varying assumptions on levels of adoption for different technologies, as well as policy investments to implement CLCPA objectives.

Comparison tables provided in the comments cite the “System Volumes” and “Composition” for each pathway. According to these tables, the Hybrid pathway projects a moderate reduction in gas volumes (39 percent) and emissions (61 percent) by 2042, while the Deep Electrification pathway projects a steeper reduction in gas volumes (76 percent) and emissions (82 percent) by 2042. NRDC notes that the Hybrid and Deep Electrification pathways both consider non-pipe alternatives (NPAs) for replacement of aged pipe or leak-prone pipe (LPP) where feasible.

NRDC notes that the Companies both filed proposed NPA screening and suitability criteria in August 2022. In this filing, NRDC notes that the Companies were exempt from including certain projects with insufficient lead time for developing

pricing estimates. The filing criteria also excluded projects involving immediate system needs relating to safety, reliability, service obligations, and non-distribution projects. The Companies have not provided cost certainty for the set of 46 mains identified as candidates for NPA projects. NRDC notes that the Companies provide annual updates to the implementation plan while also monitoring needs for main replacement work in the Companies' evaluation of NPA eligibility. NRDC also notes that the Companies pledge to pursue a "robust decarbonization plan that meets State decarbonization goals", despite the LTP's lack of pathway preference.

NRDC's concerns regarding certified natural gas reflect their overall concerns with natural gas. Notably, NRDC addresses problems with conjectures about the release of greenhouse gases (GHGs) during the combustion and transport of certified natural gas. It states that certified natural gas promotes and encourages the use of natural gas and works against the CLCPA decarbonization goals.

NRDC asserts that RNG is not an inherently environmental solution, much less a "zero-carbon" alternative to natural gas. It states that the carbon intensity of RNG varies according to factors such as feedstock and production methods; correspondingly, they contend that the Companies do not make sufficient considerations of the life cycle GHG emissions surrounding RNG. NRDC presents research statistics that highlight RNG's significant leakage of methane, nitrogen oxides, and other particulates associated with human health issues. NRDC's concerns regarding the LTP's forecasts for RNG usage also are emphasized by the fact that the LTP does not propose to retain the attributes for RNG. It claims that this fact could in the future lead to inclusion of RNG facility interconnections in

rate base as in the past, the Companies have sought recovery from ratepayers for interconnections to RNG facilities.

With regard to hydrogen, NRDC opposes wasting such an expensive resource on the gas distribution network. It only supports hydrogen as part of an economy-wide decarbonization portfolio. NRDC prefers strategic electrification over hydrogen as a much more cost-effective means to decarbonize buildings and also expresses concern regarding the processes used to generate "green hydrogen". NRDC claims that only hydrogen produced with renewable electricity delivered to the hydrogen production facility qualifies as "green." NRDC also advises hourly matching of both supply and demand to identify any "green" hydrogen product. NRDC references current research that shows hydrogen has greater global warming potential than projected by previous analysis. According to NRDC, the known process and methods for hydrogen production leads to large losses of energy and significant air pollution. Health concerns remain a known deterrent to hydrogen usage in NRDC's considerations, along with questions regarding the safety, cost, and feasibility of adding hydrogen to the Companies' gas systems. NRDC cites research from the California Energy Commission that restricts the safe implementation of hydrogen blending to five percent by volume, or 1.75 percent by energy content. NRDC notes that the Companies do not plan to use synthetic natural gas (SNG) in the 20-year period of the LTP. NRDC states that SNG raises concerns similar to those related to hydrogen and should therefore not be included in the LTP.

NRDC then evaluates the LTP's emissions reduction in terms of its investment in main replacement programs, the largest proposed capital expense for both Companies. NRDC identifies the Deep Electrification as the LTP pathway that sets the fastest pace for achieving CLCPA emission reduction goals, given

that this pathway incorporates the least investment in main replacement. NRDC includes its testimony filed in the most recent Con Edison electric rate case, Case 22-E-0064, to support electrification over main replacement in terms of emissions reductions. That testimony is summarized as follows: "[T]he emissions reduction from investment in pipeline replacement is 4.5 times more than emissions reductions from a combination of efficient electrification and pipeline retirement." NRDC further critiques the LTP for not providing analysis on the cost of emissions reductions using low-carbon fuels compared to electrification.

NRDC then compares the emissions percent of reduction for the Hybrid and Deep Electrification pathways by 2030. The Hybrid pathway reflects a 35 percent reduction in contrast to the Deep Electrification pathway, which shows a 42 percent reduction. NRDC notes that the Companies do not provide information regarding bill impacts for the pathways.

NRDC also states that the LTP obfuscates compliance with CLCPA by recognizing the plan's allowances for conversions of oil-fired equipment to gas equipment, rather than electric heat pumps, without clear explanation. According to NRDC, Con Edison simultaneously, and contradictorily, assumes that customers will convert to electric heating and/or the steam system in order to comply with NYC's Climate Mobilization Act. NRDC further questions the evolution of the long-term steam decarbonization plan due to the uniqueness of the building interconnection.

The recommendation provided by NRDC requests that the Companies submit a preferred plan that complies with the CLCPA and incorporates their views on low-carbon fuels. NRDC additionally requests data analysis on emissions impacts, cost tradeoffs, and other assumptions regarding decarbonized steam production and new customer growth.

### 3. New York Energy Consumers Council, Inc. (NYECC)

NYECC focuses its comments on the Initial LTP's failure to propose a pathway with "realistically sustainable" bill impacts. According to NYECC, each of the proposed pathways will "result in unjust and unreasonable" rate increases. In the Reference Pathway of the LTP, the Companies forecast that the average annual bill rate will increase 5.3 percent; 8.0 percent under the Hybrid pathway and 15.2 percent under the Deep Electrification pathway (with each forecast in nominal dollars, excluding inflation). NYECC believes the persistence of unsustainable bill rate increases across these pathways to exhibit a planning approach that contradicts the Commission's Order Directing Energy Efficiency and Building Electrification Proposals. First, NYECC states the Order mandates "budget bounding" in the scale of Energy Efficiency/Building Electrification efforts requisite for compliance with CLCPA objectives. Second, the order prohibits the exclusive use of ratepayer collections to fund these efforts.

NYECC recommends that the Companies project realistic bill impacts which stakeholders can reasonably evaluate by implementing a more sophisticated, granular, and benefit-oriented approach. To describe this approach, NYECC reiterate the strategies proffered by PA for the improvement of the Companies' bill impact projections. As such, NYECC recommends the Companies to calculate bill impacts by service classification. It urges the Companies to project volumetric gas usage for, at a minimum, SC1, SC2, and SC3, if not, ideally, for every service class, rather than extrapolate gas system demand from a constant gas volume delivered to a representative customer. NYECC makes this recommendation so that the Companies can understand bill impacts for each pathway according to a "share of wallet" analysis, which can present each pathway's

bill impacts in terms of affordability for a variety of customer populations. NYECC also advises the Companies to earnestly prioritize the investments of each pathway. According to NYECC, this prioritization can help the Companies identify investments for reduction and elimination, which can correspondingly help the Companies to reduce customer bill impacts. NYECC further recommends that the Companies correlate gas forecast trends to investment requirements so that they can minimize new investments, and corresponding bill rate increases, in accordance with forecasted gas demand decreases. Finally, NYECC advises the Companies to project more reasonable bill impacts by projecting potential beneficial effects, such as the effects of Cap-and-Invest programs, as well as the competition between electric and gas appliances on total volumes delivered to customers.

#### 4. Sierra Club and Earthjustice (SC/EJ)

SC/EJ begin their comments on the Initial LTP by faulting its failure to indicate a preference for one of its two proposed pathways, either Hybrid or Deep Electrification. SC/EJ consider this planning deficiency to exhibit a "disturbingly agnostic" and ultimately "unworkable" approach. SC/EJ dismiss the possibility of legitimately pursuing both pathways by citing the fundamental incompatibility between a plan that prioritizes widespread electrification and another that prioritizes low-carbon fuels. SC/EJ equally dismiss this possibility by citing the primary commonality between these plans: "capital investments in an increasingly obsolescent gas system". SC/EJ assert that the inclusion of these expensive and risky investments in each pathway undermines the ability of the Companies to cost-effectively finance either pathway at the same time as any other, much less another with comparably significant gas system investments.

Overall, SC/EJ recommend the Commission reject the Companies Hybrid pathway and modify their Deep Electrification pathway to minimize the LTP's risk to customers and maximize its financial and environmental benefits. SC/EJ reject the Hybrid pathway because of its continued reliance on the gas distribution systems. Therefore, SC/EJ totally rejects this pathway because the Hybrid pathway depends on "maintaining more traditional fossil fuel infrastructure" than Deep Electrification and poses a correspondingly greater risk to both customer finances and New Yorkers' health. These commenters equally reject the Hybrid pathway because of its reliance on unrealistic assumptions. SC/EJ believe that the significant gas system investments in both pathways reflect inaccurate assumptions regarding heat pumps and the competition between the gas and electric industries. SC/EJ also denounce the Hybrid's similarly inaccurate assumptions on low-carbon fuels. These commenters recommend the Companies to not only correct inaccurate assumptions but also enhance the plan's transparency regarding the Companies' assumptions. By correcting the plan's assumptions and making them more transparent, the Companies will, according to SC/EJ, recognize the unviability of the Hybrid and the preferability of a Deep Electrification pathway that prioritizes investments in NPAs over gas system infrastructure.

Certainly, SC/EJ recognize that the Hybrid and Deep Electrification pathways each "incorporate a shift in the use of the Companies' existing natural gas systems in favor of utilizing NPAs". These commenters even "commend the Companies' intention to transition customers away from fossil use by (1) advocating for the elimination of subsidies for new mains or services with new gas connections and (2) pursuing NPAs that mitigate the need for gas infrastructure investments". However,

SC/EJ equally recognize that, despite this planning, neither pathway's capital forecasts reflect significant NPA use. Each proposed pathway still forecasts "several billion dollars in distribution pipeline replacement and upgrades and nearly a billion dollars in transmission projects through 2030". Con Edison's Deep Electrification pathway alone forecasts "\$2.28 billion in leak-prone pipe replacements and nearly a quarter of a billion dollars in system reinforcement spending through 2030", while ORU's Deep Electrification forecasts "over a quarter of a billion dollars in main replacements and reliability investments through 2030 [...], or 75 percent of its capital budget over that span". The Deep Electrification pathway additionally authorizes oil-to-gas conversions for the next five years. The Commenters consider this level of gas system investment to dispose even the Companies' Deep Electrification pathway to stranded assets and, in turn, significant increases to costs for services, including decarbonization efforts. SC/EJ further underline the financial risk of stranded assets in gas system infrastructure by challenging the feasibility of cost-recovery for stranded assets of this sort. These commenters challenge the feasibility of cost recovery by acknowledging CLCPA-fueled trends of decreasing gas usage and revenue, which significantly higher gas costs would further exacerbate. Conversely, by prioritizing investments in NPAs over gas system infrastructure, the Companies can, according to SC/EJ, mitigate cost increases for remaining gas customers, especially since this prioritization promotes the decommissioning of specific gas lines.

SC/EJ make several specific recommendations to improve the Companies' NPA programs. These commenters advise the Companies to assess potential NPA projects by conducting a benefit-cost analysis (BCA) that transparently evaluates and compares the

following factors: "1) the price to repair or replace per foot or mile of pipe; 2) how many customers are served per foot or mile of pipe; 3) upfront costs to electrify; 4) decrease in gas demand; 5) the avoided long-term costs to maintain distribution line". SC/EJ even offer advice on how the Companies can better evaluate Main Replacement Projects to replace with NPAs. According to SC/EJ, the Companies should "consider population density along with the number of remaining customers on the gas system, since gas distribution maintenance and capital costs can vary based on the density of housing and other buildings". SC/EJ provide additional impetus for Companies to incorporate data on population density into NPA considerations by recognizing the range of communities served by the Companies, which spans urban, suburban, and rural settings. The commenters also recommend the reduction or deferral of pipeline replacement costs according to strategic targeting of certain neighborhoods for electrification. For those projects which the Companies cannot replace with NPAs, these commenters recommend cost-conscious repairs. Additionally, SC/EJ urge the Companies to comply with Pipeline and Hazardous Materials Safety Administration Maximum Allowable Operation Pressure Reconfirmation regulations through pipeline derating and targeted pipe retirement. Ultimately, SC/EJ recommend that the Companies "explain and model how the Deep Electrification pathway will achieve a rapid transition to electrification using NPAs while meeting the energy needs of its customers and preventing ballooning bills for ratepayers."

The commenters confirm that neither pathway addresses how the Companies intend to manage rapidly increasing costs for remaining gas customers as more transition from the gas system and electrify. SC/EJ reiterate the observations of PA on the Initial LTP, noting the inadequate narrative of the continually

evolving competition between gas and electric appliances. PA views this competition as "a potentially very important dynamic feedback loop"; an intimate understanding of this competition can "lin[k] electrification to reduced gas volumes and to increased gas retail rates," as well as elucidate "the impact of evolving gas and electric rates on economics of various appliances (e.g., heat pumps)" and "on customers' switching decision." The Commenters support Strategen's strategy for mitigating increasing costs which would modify depreciation methods (e.g., using a units of production method rather than a straight-line depreciation method). These commenters still recognize that this strategy does not avoid risks of asset stranding.

SC/EJ reaffirms Strategen's view of the Initial LTP filing that the Deep Electrification Pathway poses the lowest risk to decarbonization. Commenters advance Strategen's assertion that the Companies' Deep Electrification pathway relies on "existing and mature" electrification technologies, like heat pumps. The commenters then contrast the decarbonization technologies for the Deep Electrification pathway with those for the Hybrid in terms of reliability. SC/EJ states that the decarbonization technologies in the Hybrid pathway involve the production and distribution of "speculative fuels". In the Initial LTP, the Companies assume a range of 2-2.9 for average heat pump coefficients of performance (COP); however, "cold climate heat pump COP exceeds 3 over a wide range of temperatures", according to SC/EJ's summation of the Strategen research. SC/EJ traces this difference to an unfounded indifference toward heat pump capabilities because, as Commenters state, "average temperatures across the winter season are above 30 degrees Fahrenheit in New York City, temperatures at which cold climate heat pump COPs exceed the range identified by the Companies". Commenters also

regard this indifference observed by Strategen in the Companies' projections, or lack thereof, regarding the future trajectory of the technological development of heat pump technology.

According to Strategen, the Companies assume no increase in heat pump performance over the period of the LTP, which is "an unreasonable assumption that is incongruous with the historical development of heat pump technology", given that heat pump performance "has steadily improved over the last fifty years" and will likely continue to do so, due to increases in sources of public and private funding for technological innovation. SC/EJ also advise the Companies to provide greater transparency on the following electric sector assumptions that Strategen identifies for clarification:

- Electrification measures cost curve
- Electrification measures energy use and performance in accordance with NEEP specifications
- Heat pump performance increase over the planning horizon
- Electrification incentive costs
- Electrification measure ramp rates
- Energy efficiency measure costs
- Energy efficiency measures energy savings
- Energy efficiency measures ramp rates
- Electricity price forecast
- Annual electricity demand forecasts
- Peak demand forecasts for every summer and winter season

Once the Companies correct these assumptions about heat pumps and other electric sector considerations, the Deep Electrification pathway will, these commenters assure, emerge as not only "preferable" but the only pathway "reasonably

calibrated to achieve the deep emission reductions necessitated by the CLCPA".

SC/EJ bases the success of the Deep Electrification pathway on modifications to its approach for pipe replacement, as previously detailed in this summary. SC/EJ support Strategen's recommendation for the Companies to significantly downsize the "extensive delivery system infrastructure in the Deep Electrification pathway", which Strategen views as "incongruous with forecasted demand". Although the Companies project a 78 percent reduction in gas throughput, along with a 62 percent reduction in customers, between 2023 and 2042, the \$7 billion forecasted for new capital investments under the Deep Electrification pathway, which the Reference pathway forecast of \$9 billion narrowly eclipses, assumes only a 22 percent reduction in gas throughput through 2042. To avoid excessive investments in a system with declining usage, SC/EJ recommends that the Companies update their Deep Electrification pathway by "aggressively scaling up their NPA program and deferring the Main Replacement Program [...] and other capital-intensive investments in the gas system in favor of more active leak detection, methane capture, and selective repair of the most consequential leaks in order to minimize the costs to the remaining gas customers".

The commenters observe additional opportunities for the Companies to improve and expand their decarbonization efforts in the industrial sector. SC/EJ base the recognition of these opportunities in, once again, a more thorough understanding of heat pump technology and reference a recent report by the American Council for an Energy Efficient Economy (ACEEE) to affirm that industrial heat pumps can save up to 32 percent of the source energy for process heat. The ACEEE report also observes extensive opportunities to implement industrial heat

pumps by noting that several commercially available heat pumps can reach 160 degrees Celsius (320 degrees Fahrenheit), a range that ACEEE states can meet 44 percent of existing industrial heat needs. SC/EJ also observes extensive opportunities among ORU's industrial customers, whose gas usage represents 19 percent of the Company's total. The commenters urge ORU to separate industrial customers into subsectors, which can help the Company account for heterogeneity in the manufacturing sector and, in turn, "identify the optimal industrial decarbonization pathways for its customers". The commenters suggest the following subsectors for ORU's industrial customers: "1) food manufacturing including dairy and meat processing; 2) automotive; 3) chemical; 4) power generation; 5) textile; 6) pulp and paper; 7) cement; 8) asphalt; 9) stone; 10) wood processing; 11) steel: primary or secondary". According to SC/EJ, the Revised LTP "should identify which subsector of [ORU's] industrial customers would be best suited for industrial heat pumps, identify specific barriers associated with side-scale applications of industrial heat pumps and then provide a plan for how [the Company] will address these challenges and identify the targeted actions needed, including further research, development, demonstration and deployment".

SC/EJ deny the viability of the Hybrid pathway's decarbonization efforts because of its reliance on significant amounts of alternative combustion fuels, such as RNG, hydrogen, SNG, and certified natural gas. The commenters observe a variety of financial and technical barriers that undermine the feasibility and economics of using these fuels, not the least of which is the barrier that their usage poses to the necessary downsizing of the gas system. SC/EJ also assert that "using the distribution system in order to transport alternative combustion fuels will not achieve GHG emission reductions required by CLCPA

and will not address co-pollutants from combustion that threaten public health, especially in disadvantaged communities”.

Commenters consider RNG “far too scarce and expensive to meet gas demand”. SC/EJ references the March 2023 Building Decarbonization Coalition Report (BDC Report) to forecast costs for RNG produced in New York State from \$10 to over \$50 per million Btu (MMBtu), as compared with \$3.50 to \$5 per MMBtu for fossil gas. SC/EJ even view the annual average price for RNG projected by the LTP of \$19.26 per MMBtu as rather generous, since this projection “rests on the assumption that the majority of RNG used will come from landfill gas, the least expensive feedstock, without justifying that assumption”. SC/EJ also challenge what they believe is the Hybrid pathway’s unrealistic assumption that the Companies can purchase all of the RNG produced by anaerobic digestion in their service territories, along with their share of RNG produced by anaerobic digestion from the Mid-Atlantic and the rest of the Eastern U.S. Even if the Companies could purchase the entirety of the RNG supply in their service territories, this would not provide a sufficient amount of RNG for their needs. The Hybrid pathway forecasts RNG usage for 37 percent of the Companies’ 2042 fuel supply; however, according to these commenters, Strategen claims that the total amount of RNG in the Companies’ service territories would not even provide 10 percent of the Hybrid pathway’s projected fuel needs in 2042. To meet the gas demand of their customers with RNG, according to Commenters, the Companies would need to intentionally cultivate enormous amounts of RNG. SC/EJ also disparages projections of sufficient supplemental RNG supply outside of New York, given that other natural gas utilities and different industries will equally vie for RNG from this same limited pool. These commenters find further fault in the Hybrid’s reliance on the acquisition of RNG feedstocks;

these feedstocks require thermal gasification, a resource not yet commercially available, and produce tar, which damages methanation equipment and can, in turn, hinder commercialization.

SC/EJ also disagree with the claimed environmental benefits of RNG. Commenters assert that RNG emits the same levels of GHGs as fossil gas per unit of combustion and leakage. They challenge arguments that RNG produces net-zero emissions by undermining the assumption that RNG production captures methane which would otherwise be emitted. According to SC/EJ "the vast majority of RNG is intentionally cultivated through energy-intensive processes that emit GHGs and produce fugitive emission risk". SC/EJ also assert that RNG from anaerobic digestion can ultimately increase methane emissions by incentivizing unsustainable practices such as concentrated animal feeding operations. As for emissions reductions attributed to out-of-state RNG, according to SC/EJ, these cannot count toward Companies' GHG reduction goals because the emissions accounting system approved by the State for measuring and enforcing the CLCPA's GHG limits attributes avoided emissions to RNG producers and net emissions to the sectors combusting RNG. The commenters raise yet more climate concerns regarding the general practice of landfill methane capture. According to SC/EJ, the monetization of landfill gas can create "the perverse incentive to increase the amount of organic waste in landfills (and therefore demand for additional landfill space), embedding subsequent pollution rather than addressing the root cause".

SC/EJ similarly criticize the Hybrid's significant use of green hydrogen because of this fuel's expense and scarcity. To supply the quantities of hydrogen forecasted in the Hybrid pathway, the renewable electric generation industry would require "significant expansion", given that considerable energy

is lost in the chemical reaction producing hydrogen. According to SC/EJ, to blend hydrogen at 15 percent by volume by 2042, as proposed in the LTP, the Companies would also need extensive system upgrades. These commenters assert that blending at only 5 percent by volume can deteriorate the performance of synthetic pipes and cause the embrittlement and blistering of cathodically sealed pipes. SC/EJ also claim in their comments that hydrogen would minimally reduce the Companies' overall GHG emissions, if at all. Commenters claim that the vast majority of U.S. hydrogen is gray hydrogen, which is intentionally cultivated through "the energy-intensive process of steam methane reformation, which emits significant GHGs". According to SC/EJ, only 0.02 percent of U.S. hydrogen qualifies as green, or hydrogen produced from electrolysis solely powered by renewable electricity, while green hydrogen production currently remains limited to demonstration projects. Furthermore, they observe economic issues related to green hydrogen. In particular, they view green hydrogen as inherently less cost-effective than electricity since green hydrogen requires electricity as an input. SC/EJ assert that "using electricity directly to power end use appliances is far more efficient than using electricity to create green hydrogen."

For SC/EJ, SNG production represents a comparably inefficient use of energy. These commenters base this view on the fact that the methanation required for SNG production necessitates green hydrogen, as well as CO<sub>2</sub>. SC/EJ even assert that commercially viable SNG production "could incentivize GHG-intensive practices by creating or expanding a market for CO<sub>2</sub>". Moreover, they reiterate Strategen's research which shows that none of the processes required for SNG production exist at scale today, while only a very few small-scale methanation pilots currently exist. Given the infancy of technological development

in SNG production, SC/EJ dismiss the possibility of cost-competitive SNG in the near-future.

SC/EJ reject the claimed economic and environmental benefits of certified natural gas. According to SC/EJ, Con Edison's current certified natural gas pilot shows that certified gas is not cost-effective. As for environmental concerns, these commenters state that end-use combustion of certified gas results in the same amount of emissions as non-certified gas. Moreover, SC/EJ points out that Strategen is correct that there is no national standard for fossil gas certification, and that the reliability of emissions reductions claims for certified natural gas remain uncertain.

SC/EJ equally disparage the alternative fuel combustion proposed by the LTP in general, and the Hybrid in particular, by implicating this fuel's usage in a disproportionate burden on disadvantaged communities. The commenters state that disadvantaged communities are "by definition already overburdened by pollution and negative health outcomes"; therefore, "reliance on alternative combustion fuels will disproportionately burden disadvantaged communities" by "exacerbat[ing] health harms" and "worsen[ing] environmental disparities". According to SC/EJ, the combustion of RNG, hydrogen, SNG, and certified natural gas pose "the same or worse health threats as fossil gas combustion", especially by "prolonging a system" harmful to health and the environment. Thus, they recommend that the Companies prioritize disadvantaged communities in weatherization, energy efficiency, and electrification efforts. Commenters recognize that the Initial LTP identifies disadvantaged communities in each service territory; however, they also recognize that the LTP neither addresses the impacts of the Companies' proposed projects for clean energy and energy efficiency on these communities, nor how

benefits from these projects will flow to these communities. SC/EJ claim that Companies cannot point to their existing energy affordability programs to fulfill this mandate. Certainly, these programs enable the Companies to provide customers in disadvantaged communities with discounted energy bills; however, the commenters argue that these programs do not incentivize cleaner or more efficient energy usage in these communities. SC/EJ recognize that the LTP mentions an internal Environmental Justice Working Group and Executive Steering Committee while listing policy commitments to disadvantaged communities. Still, they point out that the LTP does not explain how the Companies will deliver on these commitments. SC/EJ note that Con Edison will file a "Disadvantaged Communities Report" to provide data on the Company's work to fulfill these commitments, as required under the 2023 Rate Order. However, SC/EJ note that Con Edison has yet to share any data from this report and that Con Edison cannot simply provide data in the future as a "substitute" for its "present duty to explain the burdens and benefits of its proposed projects on disadvantaged communities". SC/EJ recommend that the Revised LTP "include a complete discussion of the Companies' plan to ensure appropriate benefits from clean energy or energy efficiency programs will flow" to disadvantaged communities. These commenters also advise the Companies to increase the enrollment of disadvantaged community members in clean energy and energy efficiency programs by assessing publicly funded opportunities for these community members to do so. SC/EJ note that "Governor Hochul awarded \$52 million to create Regional Clean Energy Hubs throughout the state to help New Yorkers in underserved and disadvantaged communities enroll in energy efficiency programs". SC/EJ also reports that the "Association for Energy Affordability, Inc. received \$8.9 mil[sic], Neighborhood Housing Services of Queens received \$6.6

mil [sic], and WE ACT for Environmental Justice received \$3.8 mil [sic] to establish Regional Clean Energy Hubs in the Companies' service territories."

Ultimately, SC/EJ urge "a managed transition [...] away from pipeline gas" that progresses in "phases" through "targeted pruning" and "frontloads investments in low-to-moderate income households" and disadvantaged communities, so as to "avoid ballooning costs and minimize burdens to ratepayers". They note that ACEEE found that "an unmanaged transition in which electrification occurs on a household-by-household basis is the costliest scenario, whereas strategic pipeline replacement would reduce costs to ratepayers."

#### Comments on Revised Long-Term Plan

##### 1. Alliance for a Green Economy (AGREE)

AGREE's comments on the Revised Gas System Long-Term Plan of the Con Edison and Orange & Rockland are almost completely reiterated in the summary of their comments for the Final LTP. AGREE condemns both the "Hybrid" and "Reference" pathways, especially the cost and the "unproven and speculative" low-carbon fuels.

##### 2. City of New York

In its introduction to its comments on the Revised LTP, NYC states that the plan provides supplemental insight into the factors driving each pathway proposed in the Initial LTP. Nonetheless, NYC states that the Revised LTP prompts new questions and concerns. NYC asserts that the Company's "Hybrid Pathway" incorporates several new assumptions which remain uncertain and largely unfounded. NYC debunks the LTP's assumptions regarding hydrogen blending and this technology's required infrastructure advancement. It also challenges Con Edison's assumption that a dedicated hydrogen pipeline with cost recovery will be approved by 2035 stating that "no indication

that such a project will be approved and in service as described by the Company." NYC essentially deems Con Edison's timelines for this project as speculative, at best. NYC then addresses safety issues with hydrogen blending technology, as well as the substantial regulatory and compliance considerations.

NYC also questions the LTP's assumptions regarding the development of RNG. According to NYC, Con Edison assumes that the full commercialization of RNG will occur in 2035, along with the proliferation of government incentives to support the development of RNG projects, and that 2040 will herald a "fully scaled up" RNG industry. However, according to NYC, "Con Edison has not provided any analysis or modeling that demonstrates RNG will be able to meet the goals of this [Hybrid] Pathway, or that markets will produce RNG that is truly green at commercial volumes." Overall, the City observes significant concerns with the LTP's Hybrid pathway and cannot substantiate the LTP's claim that this pathway proves the most cost-effective and plausible approach to achieve New York State's policy mandates without further development and analysis of this pathway from the Companies.

NYC also describes historic measures initiated by NYC regarding emissions reduction, including the NYC Clean Heat program, which is further detailed in the City's comments on the Final LTP. NYC also discusses the development and achievements of Local Law 97, as well as the NYC Accelerator program. NYC recommends that Con Edison develop one or more similar programs and "include a schedule and reporting requirements to meet and develop an electrification conversion program with stakeholders in advance of the next Con Edison rate case."

In its comments, NYC also reviews the economics of the revised LTP based on the research presented by PA Consulting. For NYC, each pathway raises major concerns regarding bill

impacts, especially given each pathway's lack of BCA. NYC emphasizes that affordability is a major concern, especially within disadvantaged communities. NYC states that continued cost increases for gas service "must be seriously examined before long-term plans are approved."

### 3. Consumer Power Advocates (CPA)

CPA states that the Revised Con Edison LTP focuses almost exclusively on the reduction or elimination of gas system reliance. CPA views this focus as a detriment to adequate consideration of cost, reliability, and resilience.

CPA agrees with the NYECC that all pathway options suggested in the LTP will result in unjust and unreasonable rate increases, especially for hard-to-electrify customers. For example, one hospital would experience an increase of 368 percent in annual energy costs under the Deep Electrification pathway and an increase of 53 percent under the Hybrid pathway. CPA views these projected rate increases as unfair because hospitals forced to remain on the gas system due to electrification costs and patient safety concerns will bear a disproportionate share of the cost of transition. CPA continues to express concern that the accelerated depreciation case modeled by Con Edison still increases gas rates through 2043.

CPA also expresses major concerns about the lack of information provided by Con Edison on service costs for gas customers in 2050. It perceives this unknown as an existential threat to hospitals and other entities that cannot safely or economically electrify their buildings since this unknown hinders the ability of these facilities to prepare for the future. CPA requests bill impact information for not only SC1, SC2, and SC3, but also SC 12 Rate 2 (interruptible) customers. Moreover, CPA asserts that even health care facilities which can afford to retrofit or convert from gas face an existential

threat since any conversion holds the potential for disruption to patient care.

CPA even expresses concerns about the current operational state of Con Edison's natural gas system based on the Key Findings and Recommendations published by the Federal Energy Regulatory Commission and the North American Electric Reliability Corporation after December 2022's Winter Storm Elliott (FERC/NERC Report). According to CPA, this report highlights the need to improve the reliability of Con Edison's natural gas infrastructure in cold weather. CPA worries that the transition to electric power will reduce needed spending on natural gas infrastructure and thereby further threaten its reliability.

CPA observes additional threats to system reliability emerging from Con Edison's failure in the LTP to address methods for ensuring that its electric system can handle the mass migration of customers transitioning to electricity from gas. The LTP's failure to address this issue concerns CPA because patients are put at risk if outages occur and so migration to electric service is a serious issue because it believes the suggested pathways will drastically increase the electrical load on an electric transmission and distribution system which already struggles to meet load on peak days. CPA asks Con Edison to provide a detailed discussion regarding specific improvements and associated investments needed for the electric system, the feasibility of new transmission, and "the time required to complete necessary expansion or upgrades" prior to Con Edison's commencement of electrification.

#### 4. Natural Resources Defense Council

In its comments, NRDC recognizes that the Revised LTP provides some updates to key projected outcomes within each scenario. These updates result in greater emissions reductions

and greater declines in gas volumes for each proposed pathway. NRDC specifically discusses a decrease in the share of certified natural gas for the supply mix of the Deep Electrification pathway. Commenters present this decrease in Table 2 of their comments, which compares the certified natural gas amounts included in all three scenarios. Nevertheless, NRDC's comparison of the Initial LTP and Revised LTP reports no substantial difference between these two filings.

NRDC proceeds to list the topics from the Initial LTP filing that they and other stakeholders criticized, and which remain unchanged in the Revised LTP. These topics include: reliance on certified natural gas; insufficient consideration of cost and affordability issues; uncertainties regarding risks and their mitigation strategies; absence of a strategy for shrinking the Companies' systems; lack of bottom-up modeling; no updates to the MRP program that respond to stakeholder recommendations and; lack of pathway preference. NRDC accordingly asserts that the Revised LTP lacks the sufficient information needed to receive meaningful input.

NRDC views the Companies' responses to requests for additional information as very high-level. Commenters observe this high-level data in Figures 62, 64, and 66 of the Revised LTP, which include assumptions and dependencies that "indirectly support adoption rates for different technologies in each pathway for space heating, energy efficiency, and low-carbon fuels". According to NRDC, these figures provide rough comparisons between their assumptions without indicating the factors used by the Companies for this modeling. NRDC expresses concern that the Companies propose to provide additional data after the closing of the Revised LTP comment period.

NRDC addresses what it describes as the Companies' lack of consideration for the costs associated with the low-carbon fuels

included in the LTP. The NRDC comments for the Initial LTP raise concerns regarding the percent of proposed hydrogen-blending along with the relatively high energy demand and costs to produce hydrogen for this use. NRDC acknowledges the uncertainties noted by the Companies pertaining to the long-term costs and benefits of low-carbon fuels; however, they are still concerned that the Revised LTP includes no additional revised assumptions or modeling to address these risks. NRDC notes the lack of industry standards for certified natural gas production, along with the lack of information on the third parties who will create and monitor standards to minimize methane leaks/emissions in production. NRDC still views the inclusion of certified natural gas production in the current proceeding as premature, given this industry's lack of established standards. NRDC advises the Companies to provide greater clarity on the uncertainties with low-carbon fuel costs and benefits.

NRDC states that its concerns regarding the Initial LTP filing apply to the Revised LTP as well. NRDC states that there is too much variance in research on RNG's carbon intensity, emissions, and production methods. NRDC notes the methodology laid out by NYSEDA regarding emissions accounting within a BCA and suggests use of NRDC's gross emissions accounting framework methodology. NRDC reiterates its concerns regarding RNG production's emission of air pollutants and potential to harm human health.

NRDC also criticizes the Revised LTP for not considering how the cost of each pathway would impact ratepayers and, instead, leaves this issue to future rate cases. Additionally, NRDC notes that the Companies fail to include bottom-up modeling to clarify the costs and rate impacts of their scenarios. As noted by PA, NRDC states that a BCA of the Hybrid and Deep Electrification pathway would provide stakeholders with the

information needed to make these necessary financial comparisons of each pathway.

Commenters then address the Revised LTP's indifference to NRDC's initial comments regarding LPP and the associated cost imposed on ratepayers. The Companies respond that their MRP program already incorporates efforts to drastically scale-back pipe replacement. NRDC advises the Companies to not invest in interconnection infrastructure for low-carbon fuels because of the many concerns surrounding the production impacts and costs of these fuels.

NRDC additionally discusses research by Synapse to compare the costs of the Hybrid and Deep Electrification pathways. Synapse provides modeling to better determine rate impacts due to the incorporation of low-carbon fuels into the system, reduced gas demand, and customers exiting from the gas systems. The costs projected for both pathways by this research indicate that customers remaining on the gas system would experience higher bill impacts than customers under the Deep Electrification pathway.

Accordingly, the affordability of the proposed pathways remains a significant concern for NRDC. They note that customers with little to no control over building systems, such as renters or those in low-income housing, could potentially bear the burden of rate increases for the Companies to recover fixed costs. NRDC also raises concerns regarding the potential for future stranded costs in both the Hybrid and Reference pathways. NRDC views the estimates in the Reference scenario as misleading when provided without stranded cost considerations.

NRDC also notes the Revised LTP's inclusion of assumptions pertaining to the UTEN projects. The Companies indicate that they submitted UTEN project proposals, which remain under Commission evaluation. The Revised LTP correspondingly includes

ground-source heat pumps for the Hybrid and Deep Electrification pathways.

To conclude, NRDC reiterates its preference for the Deep Electrification pathway. NRDC still recommends that the Companies address problematic assumptions about RNG and certified natural gas. Furthermore, the Companies should modify the modeling for this pathway to provide better understanding of the projected migration of customers off the gas system and the risks of rate pressure on the remaining customers. Additionally, NRDC advises the Companies to focus on downsizing the gas system and provide information on their strategy to do so. NRDC points out the consistency of the Deep Electrification pathway with the CLCPA's emissions reductions requirements, along with this pathway's attention to the risk of stranded assets. According to NRDC, "emissions from the Deep Electrification scenario will reflect emissions trends on the grid, which will track the progress of the Renewable Portfolio Standard."

5. New York Energy Consumers Council, Inc.

The comments provided by the NYECC on the Companies' Revised LTP focus on the sections of this LTP specific to Con Edison, since NYECC does not represent energy consumers in ORU's service territory. The principal observation from NYECC is that the Revised LTP does not incorporate the recommendations offered by NYECC to Con Edison for improving the precision and minimizing the impact of customer bill estimates in the Initial LTP. NYECC notes that the Revised LTP still estimates volumetric gas usage by "utilizing volume of gas for a representative customer" rather than "using projected volumes for each Service Class", as NYECC recommended in its comments on the Initial LTP. NYECC also takes issue with the fact that the Revised LTP does not incorporate its recommendation to discuss

potential effects on customer bills from budget bounding, Cap and Invest, or the competition between electric and gas appliances. NYECC also repeats its recommendation from the initial round of LTP comments that Con Edison should prioritize investments under each potential pathway-- the Commenters consider this prioritization crucial to "reducing or eliminating potential investments" and, in turn, "reduc[ing] revenue requirements and bill impacts". NYECC continues to assert that Con Edison cannot defer questions regarding investment reduction and elimination to "a rate case context", since "the nature of a long-term plan is to view these potential investments over the scope of numerous rate plans and to plan accordingly."

NYECC states that it appreciates Con Edison's agreement in its recent Gas Rate Joint Proposal, adopted in the 2023 Rate Order, to lower its miles of GIRPP replacement targets as "a nominal step in the right direction." Nevertheless, NYECC states that "nominal movements are no longer sufficient to meet the expectations of any party at this point in time and business as usual is no longer an option." NYECC urges the Department of Public Service to "continue to proactively foster" investment reductions "consistent with safety and reliability concerns." NYECC proceeds to repeat verbatim the bill impact section from its comments to the Initial LTP, as Con Edison did not incorporate NYECC's comments from the initial round in its Revised LTP.

#### 6. New Yorkers for Clean Power (NYCP)

NYCP views all filings from the Companies as detailed analyses of three proposed pathways and not an actual plan that satisfies the Commission's requirements in its Order establishing this proceeding. Of the three pathways, NYCP believes that only the Deep Electrification pathway can meet the CLCPA's mandated GHG emission reduction. According to NYCP, the

Companies' characterization of the Hybrid pathway does not elucidate a realistic path to reach GHG emissions reductions. NYCP concludes that leaving a wide-open plan would inevitably result in higher customer costs from wasteful investments and urges the Companies to choose the Deep Electrification pathway.

Regarding RNG, NYCP states that a growing body of research indicates that leakage at RNG production facilities is an underestimated issue. Moreover, NYCP dismisses the climate benefits of RNG produced using thermal gasification over fossil natural gas. According to NYCP, manure management practices would produce roughly 6.5 times more methane, which would drastically increase methane emissions that would otherwise not be produced in the absence of RNG. NYCP further notes the resistance of RNG to a single specific standard for emissions calculation due to the energy intensive process and significant methane releases associated with RNG feedstocks.

NYCP equally contests the viability of hydrogen as an alternative fuel in terms of both emissions reductions and safety. In its comments, it provides a list of qualifications for a truly zero-emissions source of hydrogen as: "Additionality", "Regionality/Deliverability", and "Hourly-Matching." Monitorization and minimization of leakage/release rates remains integral in these qualifications, given that "hydrogen itself acts as a greenhouse-effect enhancing agent." NYCP asserts that hydrogen provides only a third of the energy of fossil natural gas on a volumetric basis; consequently, a 10 percent blending would displace less than four percent of methane. NYCP also warns of the dangers of incorporating hydrogen in home heating applications. NYCP claims that 32 independent studies found that hydrogen is worse than electricity for heating homes in every aspect: "it's less economical, less efficient, more resource intensive, and has a

larger environmental impact.” NYCP recommends that the LTP not incorporate any hydrogen blending.

NYCP also rejects SNG produced by methanation as a feasible option, as this process presents several logistical concerns to perform while being costly.

NYCP also addresses concerns regarding discrepancies in reporting emissions related to LPP replacement. They recognize that estimates of downstream emissions typically exclude fugitive emissions of methane from heating and cooking appliances. Studies referenced by NYCP calculate an average downstream fugitive emissions rate of 2.2 percent, whereas the “2022 NYS Statewide GHG Emissions Report” calculates this rate at 0.4 percent. NYCP surmises that the age of building stock in New York is a significant factor in the fugitive emissions. Additionally, this commenter notes that reporting on upstream and midstream methane loss from peer-reviewed studies and the New York State Department of Environmental Conservation do not match. NYCP states that a significant portion of emissions are not from leaks but rather from production, transportation, and storage. Concern over uncertainties with sourcing, measuring, and verifying methane emissions associated with the certified natural gas process lead NYCP to claim that certified natural gas would likely not make an impact on emissions.

Lastly, NYCP offers recommendations to modify the Deep Electrification pathway. It claims that a hybrid depreciation approach utilizing both the Straight-Line and the Units of Production would best serve ratepayers. NYCP states that this approach can potentially minimize cost impacts to rate payers during the full transition away from fossil fuel consumption.

#### 7. Sierra Club and Earthjustice

The comments from SC/EJ on the Revised LTP mostly reiterate their comments on the Companies’ Initial LTP. According to

these commenters, "the Companies fai[l] to meaningfully address or respond to many of the concerns raised in commenters' submission on the initial plan" and, consequently, "undercu[t] the ongoing value of the current stakeholder process." SC/EJ state that the Revised LTP, even after revisions, still fails to: identify a preferred pathway; earnestly evaluate alternatives to extensive capital upgrade investments; correct assumptions regarding alternative combustion fuels; address the treatment of disadvantaged communities; and eliminate oil-to-gas conversions.

SC/EJ still urge the Companies to select a pathway not only to support stakeholder evaluation and because they disagree with the Companies' rationale for not selecting to pursue one of the LTP's proposed pathways. The Companies briefly respond to stakeholders' initial comments about this lack of pathway preference, explaining that the trajectory of the energy transition depends on regulatory, legislative and technological changes which remain uncertain. Although SC/EJ recognize these uncertainties, they reject them as legitimate reasons for the Companies' failure to select a pathway. SC/EJ assert that these uncertainties do not absolve the Companies of their "critical role in shaping the transition", much less their "obligation to engage in planning process."

SC/EJ additionally offer several "certainties" to assist the Companies in selecting a pathway. SC/EJ remain certain that "a passive approach to gas system transition, paired with retaining billions of dollars in capital assets that may cease to be used and useful well before the end of their lifespans, is the least prudent and most costly approach for the Companies." They also support the findings of PA that the Hybrid and Deep Electrification pathways exhibit "clear tradeoffs" and, in turn,

do not display enough differences to defer a decision between the two.

SC/EJ continue to urge the Companies to evaluate alternatives to extensive capital investments so that the LTP can "avoid creating stranded assets or putting [...] climate mandates at risk." They observe a high likelihood for stranded assets in each pathway's capital investments because LPP replacements dominate these investments in each pathway. SC/EJ refer to the observations of PA that both the Reference and Hybrid scenarios dedicate approximately half of the Companies' proposed capital spending between 2023 and 2042 toward LPP replacement. Furthermore, PA recognizes that the Deep Electrification scenario devotes 36 percent of Con Edison's capital spending and 53 percent of ORU's toward LPP replacement. According to PA, the percentage of capital spending that ORU devotes to LPP replacement in the Deep Electrification pathway even exceeds the percentage of capital spending that ORU devotes to this in both the Reference and Hybrid scenarios. SC/EJ consider LPP replacements as prone to result in stranded assets because these replacements represent 80-year investments in a system that may only be needed for 25-30 years as the Deep Electrification scenario projects an 82 percent decline in gas throughput over the next 20 years.

SC/EJ disagrees with the Companies' claim that the current obligation to serve mandates wholesale gas system replacement. Commenters assert that the mere presence of a Deep Electrification pathway in the LTP contradicts this claim, since this pathway's plans to reduce main replacements, however "modestly", demonstrates that the Companies can lawfully avoid capital investments in their gas systems. SC/EJ also resist "wholesale pipe replacement" because they disagree with the analysis provided by PA to promote LPP replacement over

"targeted repairs" in terms of both cost-effectiveness and safety.

According to SC/EJ, PA's comparative analysis of pipe replacement and pipe repairs, which "tip[s] the balance in favor of full pipe replacement", is "confusing and uneven." SC/EJ challenge the significance of PA's claim that Con Edison effectively reduced the number of leaks repaired in 2022 by 30 percent according to the Company's decision to replace rather than repair leaking leak-prone pipes between 2018 and 2022. They claim that PA's analysis "fails to illuminate the most prudent course of action", since identifying this course depends on determining "whether it costs less to repair the incremental leaks than it would cost to replace 240 miles per year of leak-prone pipe at a cost of millions of dollars per mile, which PA nowhere addresses." SC/EJ then challenge PA's suggestion that "the risk of incident to life and property is minimized with replacement." SC/EJ acknowledge that this suggestion "could be true to some degree" but state it is difficult to determine "how much weight to give PA's speculation" since PA does not provide "any data or analysis showing that the incremental risk to life or property is material." SC/EJ also refute the basis of PA's assertion that the Companies' efforts with NPAs "to date have yielded limited positive results." According to SC/EJ, the dearth of success in the Companies' NPA efforts "is unsurprising because the current gas utility obligation to serve enables individual holdouts to block otherwise promising NPAs, and gas utilities and their shareholders have limited financial incentive to zealously pursue NPAs over capital investments in their gas system." SC/EJ points to the Companies' dearth of NPA success as further impetus to "fully and fairly evaluate the potential for repairs to balance the competing safety and cost considerations that PA has identified."

SC/EJ still urge the Companies to correct the inaccurate assumptions in their LTP regarding alternative combustion fuels to prompt the Companies' selection of a pathway. Commenters assert that the correction of these assumptions will elucidate the unviability of the Hybrid pathway and the preferability of the Deep Electrification pathway. SC/EJ challenge the reasonableness of the sourcing projections for RNG in the Hybrid pathway, which "anticipate[s] sourcing 4 trillion British thermal units ('TBtu') from anaerobic digestion in their service territories, 7 TBtu from thermal gasification in their territories, and 33 TBtu from anaerobic digestion in other parts of New York State and the Eastern United States." According to SC/EJ, the RNG sourcing projections in the Hybrid pathway incorrectly assume both "a monopoly on RNG in their service territory" and the ability to source "significant quantities of RNG from elsewhere while other gas utilities and hard-to-electrify sectors are similarly pursuing aggressive RNG adoption." SC/EJ even resist the Companies' assumption that a monopoly on their service territory's RNG could adequately serve the Hybrid pathway's projected need for RNG and the assumption that landfill gas feedstocks will expand at a sufficient rate to supply the demand for RNG in the Hybrid pathway, since New York State plans to reduce landfilling by 85 percent by 2050. SC/EJ also questions the viability of out-of-state RNG according to NYSERDA research, which denies there are emissions benefits of extra-territorial RNG. These commenters also assert that the Companies cannot "realistically rely [...] on thermal gasification" to supplement the aforementioned sources of RNG since this process "is not commercially available and does not have demonstrated environmental benefits." Accordingly, SC/EJ anticipate that the Hybrid pathway's need for RNG would require

the Companies "to increasingly source RNG from more expensive feedstocks that are intentionally cultivated like energy crops."

SC/EJ equally challenge the reasonableness of the Companies' assumptions regarding hydrogen as the Hybrid pathway plans to use hydrogen requires a Hydrogen Hub for New York and that approval of such a hub does not appear imminent. The U.S. Department of Energy on October 13, 2023, issued a list of the states to host Hydrogen Hubs, which did not include New York. Based on PA's research, SC/EJ also challenge the viability. As PA explains, "consensus is growing among energy industry experts that [hydrogen] is not an ideal fuel for end use applications that could instead be electrified such as water heating and space heating", given hydrogen's "significant price premium" and the "low round-trip efficiency in producing low carbon hydrogen from electricity." Thus, SC/EJ recommend that the Companies "develop a robust definition of hard-to-electrify end uses for which hydrogen should be preserved". Ultimately, SC/EJ support the assertion of PA that the Hybrid pathway "may face insufficient supply . . . if the [low-carbon fuel] technologies do not evolve as forecasted" and recommend the Deep Electrification pathway, which does not raise supply concerns "to the same degree."

SC/EJ continue to urge the Companies to discuss disadvantaged community impacts and benefits, reflecting the Companies' obligation under the CLCPA and the Gas Planning Order to direct 35 percent of the benefits from energy efficiency and clean energy funding to such communities. Commenters state that the Revised LTP simply includes an update regarding the Annual Report on disadvantaged communities required by the 2023 Rate Order. SC/EJ reject the Companies' claim that they need "years" to develop their own mapping for disadvantaged communities, which would locate the gas distribution system along with

planned leak-prone pipe repairs and replacements in these communities. According to SC/EJ, “[t]he final DAC criteria and maps have been available for months” and do not significantly differ from either the draft criteria issued in December 2021, nor the interim criteria provided by the State for CLCPA compliance. Furthermore, these commenters challenge the significance of this mapping since the Companies “cannot comply simply by mapping their existing plans onto DACs.”

Regarding oil-to-gas conversions, SC/EJ recommend that the Companies remove them from their LTP because they are unrealistic to anticipate, contribute to peak demand, and “leav[e] significant emissions cuts on the table.” SC/EJ view the Companies’ anticipation of oil-to-gas conversions as unrealistic because “many existing oil customers will convert their heating systems from fuel oil to electric in the years leading up to the 2030 deadline under [Local Law 97].” SC/EJ also state that avoiding oil-to-gas conversions can “achieve meaningful emissions reductions by assisting oil customers in bypassing gas and converting to electric appliances.” SC/EJ state that the Companies can avoid these conversions if they “reevaluate their outreach and education programs”, “identify existing oil customers to target [...] for outreach and education on the financial, environmental and health benefits of electrification”, and “provide customers with cost comparisons for oil-to-gas conversion compared to oil-to-electrification conversions that incorporate state and federal incentives.”

8. Utility Intervention Unit, Division of Consumer Protection, Department of State (UIU)

UIU begins its comments on the Revised LTP by reiterating its concerns regarding the LTP’s continued lack of BCAs for the pathways. According to UIU, it expressed these concerns “during the relevant technical conferences held after the issuance of

both the Initial LTP and the Updated LTP.” UIU acknowledges that the Revised LTP includes more granular data, but that each pathway still lacks a BCA.

UIU elaborates on the importance of the need for such BCAs and view both utility-scale (micro-level) and statewide (macro-level) BCAs as valuable tools to inform decisions. According to UIU, the LTP provided by the Local Distribution Company offers “a perfect example of how a micro-level assessment can provide insight not only to the utilities investments, but also to the Commission and policy makers to aid in any refinements to proposed investments.” UIU further notes that PA recognizes the importance of BCAs in its Initial Report and advises the Companies to provide BCA analysis for the Hybrid and Deep Electrification pathways. The Initial Report also acknowledges that the Companies did apply BCA analysis to their NPA projects. Thus, UIU reiterates its initial request for the Companies to perform BCA analysis for each pathway and as required by the Gas Planning Order.

#### Comments on Final Long-Term Plan

##### 1. Alliance for a Green Economy

AGREE asserts that the Final LTP fails to meet the basic definition of a plan. Companies have yet to select one of the LTP’s three proposed pathways to follow when making upcoming investment decisions, despite significant differences between the “Reference,” “Hybrid,” and “Deep Electrification” pathways. The Deep Electrification approach is, understandably, AGREE’s preferred pathway as this approach predominantly follows the requirements of the CLCPA, even though it would still require modifications to improve the non-pipe alternative program and ensure the affordability of gas service for those in disadvantaged communities. AGREE views the Reference pathway as business-as-usual, which it states does not come close to

compliance with the CLCPA. AGREE views the Hybrid approach as troubling because it involves the use of unproven and relatively expensive low-carbon fuels that will utilize existing gas infrastructure.

AGREE proceeds to detail its primary issues with each pathway and, in turn, augment the Companies' ability to choose one to guide both near and long-term investment decisions. The Hybrid pathway is the primary focus of AGREE's comments, while the Reference pathway is immediately discarded as unworkable. The Deep Electrification pathway is more acceptable to it but AGREE also recommends significant changes.

AGREE disagrees with the Companies' presentation of GHG emissions reductions under the Hybrid pathway. The Companies claim that this pathway will significantly reduce GHG emissions while causing less of a bill impact than the Deep Electrification pathway. AGREE, however, classifies the Hybrid pathway as "unproven, costly, and harmful to New Yorkers' health" and notes that this pathway bases its projections for GHG emissions and associated cost reductions on unproven assumptions concerning low-carbon fuels. AGREE states that projections of GHG emissions and associated costs remain "highly speculative" for RNG, hydrogen, and certified natural gas. Accordingly, AGREE challenges the possibility of the Hybrid pathway's proposal to use low-carbon fuels, under the Hybrid's proposed "mix of 36 percent [RNG], 6 percent Clean Hydrogen, and 58 percent [certified natural gas] by 2043."

AGREE extensively details the respective shortcomings of the low-carbon fuels proposed for use in the Final LTP's Hybrid pathway. AGREE notes that hydrogen, when combusted, releases as much as six times the nitrogen oxides (a precursor of smog and a secondary GHG) as burning methane. AGREE claims that the electricity that would be used to produce green hydrogen could

be more efficiently used in heating, cooking, or other applications for electrification. According to AGREE, the Hybrid pathway's proposed six percent energy mix of hydrogen would also require costly modifications to the gas distribution system which this pathway does not consider. AGREE rebukes this pathway's use of RNG because this it requires RNG sourced from the east coast of the United States and, will result increase the prevalence of methane leakage during transportation to the Companies' systems. AGREE also has concerns regarding methane emissions levels from RNG production. According to AGREE, the production of RNG not only undermines improvements to waste regulation but paradoxically incentivizes wasteful practices and industries. As for certified natural gas, AGREE states that this fuel currently lacks an independently verified standard for certification, as well as conclusive evidence of GHG emissions reductions. AGREE states that the GHG reduction estimates and prices "are based on industry assumptions that are so thin as to be essentially useless." AGREE contends that the 58 percent allocation for [certified natural gas] in Hybrid pathway's 2043 gas supply may severely "overestimate[e] the GHG reductions and severely underestimate[e] the costs" of this pathway.

Overall, AGREE aligns with the "Deep Electrification" pathway, but it does so with caveats to reduce costs. AGREE asserts that this pathway will require modifications that expedite non-pipe alternatives, strategically downsize gas distribution infrastructure, avoid leak-prone pipe replacements, and create cost savings that will benefit low-income and disadvantaged communities.

## 2. City of New York

NYC focuses its comments solely on the aspects of the Final LTP that apply to Con Edison's service territory. NYC initially recognizes that the Final LTP still fails to choose a plan, but

they also view the Final LTP as an improvement from the Revised LTP, as it is responsive to recommendations from stakeholders. Nevertheless, NYC continues to observe shortcomings, especially concerning issues of affordability.

NYC states it appreciates the Final LTP's inclusion of a section addressing affordability as the most significant change to the plan. Still, NYC laments the positioning of this section in the Final LTP, noting that "the full analysis is not presented until almost 70 pages into the document". NYC feels that this placement in the Final LTP runs contrary to the Commission's directive to emphasize the importance of affordability "front and center." NYC then proceeds to analyze bill impacts for the three pathways, deeming all of them unaffordable, even the "Reference" approach. According to NYC, each pathway effectively fails to consider inevitable electric service rate increases, despite the Company's provision of both electric and gas to approximately 868,000 customers in NYC. The Companies provides BCA ratios, but NYC notes they are buried in the middle of the Final LTP. NYC also notes that cost estimates presented in the Final LTP use 2023 dollars, do not account for inflation, and do not include other increases to Con Edison's gas revenue requirement resulting from future rate cases. NYC asserts that "Con Edison should be required to provide a more comprehensive bill impact analysis that accounts for costs beyond those that affect the instant long-term plan."

NYC states it has increased efforts for building electrification as a focus of the City's decarbonization goals. NYC recommends that Con Edison establish a new and similar program to the NYC Clean Heat program, which commenced about a decade ago. This initiative's primary goal would quickly transition as many customers as possible from natural gas to electric.

NYC concludes that all three pathways presented in Con Edison's LTP are insufficient and recommends that Con Edison "conduct an optimization process to identify and develop a *different* pathway with the highest emissions reduction potential and the lowest impact on affordability, while also prioritizing safety and reliability."

### 3. Consumer Power Advocates

CPA claims that the Companies' Final LTP will place a disproportionate and unjust burden on "hard to electrify customers", such as hospitals, absent creative solutions. According to CPA, each pathway in the Final LTP projects cost increases with unsustainable long-term impacts for New York's non-profit hospitals. CPA appreciates the Companies' suggestions for offsetting cost increases of each pathway but view the actual impact and even the eventual adoption of these suggestions as completely speculative. CPA contends that the Final LTP must include specific and realistic approaches to offsetting cost increases.

CPA also identifies significant reliability issues with the Final LTP and state that it fails to ensure the electric grid's capacity to serve a mass migration of customers from the gas system, along with its failure to incorporate detailed analysis on corresponding reductions in spending on gas infrastructure. CPA stresses the critical importance of the reliability of the gas and electric systems which is critical to life-saving healthcare and the protection provided by gas-fired emergency generators.

Ultimately, CPA argues that the benefits of these pathways do not address non-quantifiable costs and impacts, such as forced closure of health care facilities, loss of affordable healthcare to New Yorkers, and risk of losing reliable power to neonatal intensive care units (NICUs) and heart monitors. CPA

recognizes that even the Final LTP states that the inevitable cost increases resulting from the plan as “unsustainable.”

#### 4. Natural Resources Defense Council

NRDC notes that, compared to the Revised LTP, the Companies made modest changes to the proposed pathways in the Final LTP and that the Companies’ Revised LTP did not include all the necessary information to allow stakeholders to understand the full scope of each pathway and subsequently provide input for the Final LTP. NRDC reiterates its recommendation that the Companies provide further rate analysis for the Hybrid Pathway. NRDC states that it simulated this analysis with Synapse’s Modified Hybrid scenario modeling, which reflects significantly higher fuel supply costs for low-carbon fuels, along with stranded costs during and after customer transition from the gas system. According to NRDC, this Modified Hybrid scenario ultimately forecasts an increasingly expensive system paid for by a correspondingly increasing proportion of vulnerable customers. NRDC still advises the rejection of the Companies’ Final LTP while identifying a preference for the Deep Electrification pathway. While NRDC takes issue with the Companies for failing to choose a pathway or delaying affordability analysis, NRDC acknowledges the range of BCA ratios provided by the Companies in the Final LTP to explain these shortcomings. NRDC urges the Companies to focus on strategies to responsibly transition its customers off the gas system.

NRDC spurns the near-term strategy of using the Reference pathway, along with the Companies’ presentation of both the Hybrid and Deep Electrification pathways. The Companies claim that the Hybrid and Deep Electrification pathways can meet emissions limits and share significant initial actions leading up to the year 2030. NRDC views this presentation of these two

pathways as misleading as the Hybrid and Deep Electrification pathways "should not be viewed as paths to the same outcome" since "they actually lead to dramatically different futures for the gas system over the 20-year planning horizon." Moreover, NRDC asserts that neither pathway will satisfy the CLCPA's 2050 emissions targets, given the current projected percentages of emissions reductions for both.

NRDC supports the Final Report provided by PA, which recommends that the Companies develop a plan that includes the highest emissions reduction potential with the lowest impact on affordability while maintaining reliability standards. NRDC also supports the PA Final Report's recognition that the Companies should not attempt to simultaneously pursue the Hybrid and Deep Electrification pathways. NRDC agrees with PA's claim that the simultaneous pursuit of these pathways would not allow sufficient lead time for electrification projects and would require the Hybrid pathway to redirect a financially compromising amount of capital from its pipe replacement program. NRDC concludes that the Deep Electrification scenario proves more compliant with CLCPA emissions reductions requirements.

In addition, NRDC include an update to the Gas Rate Model analysis provided by Synapse for the Hybrid and Deep Electrification Pathways, which NRDC provided in its Revised LTP comments. This updated analysis of the Hybrid pathway includes two sensitivity scenarios entitled "Customer Defection" and "Downsized Systems." NRDC supplies the analysis in table format in the comments. NRDC continues to refer to the analysis of the revenue and rates impact provided by Synapse in figures 1 through 6. The analysis calculates emissions "by multiplying each scenario's fuel volume by the Company's provided emissions factors."

Ultimately, NRDC recommends the rejection of the Companies' Final LTP and encourages the Companies to develop a pathway that aligns with the Deep Electrification Pathway. NRDC urges the Companies to focus on emissions reductions and climate justice objectives while avoiding additional investment in the gas systems. NRDC urges the Companies to complete these modifications immediately, instead of in three years, so that they can inform the capital investments proposed in the Companies' next rate filings.

5. New York Energy Consumers Council, Inc.

The comments from NYECC on the Final LTP urge the Companies to improve the precision of customer bill impact projections. The LTP currently projects volumetric usage across the Companies' service territories by using a constant value for volume of gas delivered to a representative customer. NYECC contends that the volumes projected according to this methodology lead to what it calls absurd percentage rate increases in both the short and long term. To address this, NYECC recommends that the Companies project volumes for each service class, or at least SC1, SC2, and SC3. NYECC also recommends that the LTP should incorporate progressively reduced investment in gas infrastructure over time and advise the Companies to facilitate this reduced investment by improving the design, implementation, and cost analysis for their NPA programs while eliminating barriers to the adoption of these programs. Moreover, NYECC recommends that the LTP be revised to provide a more comprehensive "No Infrastructure" option.

6. New Yorkers for Clean Power

The comments from NYCP on the Final LTP cover a multitude of topics addressed in NYCP's comments on the Revised LTP. These topics include the Companies' lack of commitment to any specific pathway, NYCP's stance on various low-carbon fuels, and

NYCP's opinion of the Deep Electrification pathway as the only viable option.

NYCP provides information regarding the American Gas Association blueprint released in 2021. NYCP elaborates on the actions of the gas utilities in response to the AGA blueprint and this association's advocacy against robust climate plans.

NYCP notes overall inefficiency of using clean energy to generate clean hydrogen. Commenters support this conclusion by citing Evolve Energy Research's Annual Decarbonization Perspective from 2022. NYCP also comments on the potential for additional fugitive emissions from a decrease in demand and pressure within the gas distribution network and contends that this decrease could exacerbate this potential if the decrease occurs before the Companies physically remove or decommission a significant amount of their gas systems.

NYCP also provides additional detail regarding its comments on the Revised LTP's modeling of the application of the Units of Production and Straight-Line depreciation hybrid methodology to rate base.

NYCP reiterates its disappointment that in its view the Companies' have not provided an actual plan and urge the Commission to modify the LTP process in order to require reasonable GHG emissions reduction trajectories and deep strategic downsizing of the gas distribution system as it believes is required under the CLCPA and the Scoping Plan of the Climate Action Council.

7. Parkchester South Condominium, Inc., The Parkchester North Condominium (Parkchester Condominiums)

According to Parkchester Condominiums, their buildings were constructed in 1942, most of the Parkchester Condominium complex is within a disadvantaged community located in the Bronx. Parkchester Condominiums focuses its comments regarding the

Final LTP on the negative bill impacts projected under this plan. According to Parkchester Condominiums, many tenants cannot afford significant increases in the cost of heat and hot water. According to Parkchester Condominiums, the Final LTP will exacerbate the pressure on electricity bills from "system-wide electric rate increases of 5.0 percent, 4.2 percent and 3.3 percent for residential customers over the next three years". Parkchester Condominiums assert that Con Edison will be engaged in electrification efforts that will add to electricity bills regardless of which pathway is chosen.

Parkchester Condominiums views the Companies' stated statistics in the LTP as lacking and misleading. The Final LTP acknowledges that its bill impacts do not account for inflation, which only exacerbates cost concerns. Parkchester Condominiums also claims that the Final LTP does not attempt to project future rate changes pertaining to surcharges, base revenue requirements that are not GSLTP-related, or other factors such as accelerating depreciation. Parkchester Condominiums additionally recognizes that the LTP bases its bill impacts on an assumed constant for average volume of gas usage by each class over the forecast period. It argues that this methodology for projecting volumetric usage ignores the impact of forecasted gas usage reductions, citing PA's research. PA confirms that Section 5.4 of the Final LTP projects reduced volumes of gas over time because of energy-efficiency and electrification programs. When PA applied these projections to a bill impact analysis, PA determined that "the total bill increases will be higher than the values discussed in this report." Parkchester Condominiums also claims that the engineering expense to investigate electrification of the Parkchester Condominiums render this process "virtually impossible" and project prohibitively high electrification costs because its steam

system remains "intricately intertwined throughout the sprawling campus." Ultimately, Parkchester Condominiums urges the Companies to enhance the Final LTP's investment in the existing reliable and well-maintained gas infrastructure for the foreseeable future while adhering to the economic plans of the CLCPA, especially concerning disadvantaged communities.

#### 8. Sierra Club and Earth Justice

According to SC/EJ, the Final LTP should not be approved by the Commission because it does not identify a preferred pathway but reflects the Companies' persistent failure to choose a preferred pathway. SC/EJ's comments refute the Companies' justification for this lack of preferred pathway. The Companies base their position on uncertain trajectories of technology, legislation, and customer behavior, but SC/EJ question these basis's.

First, they remain certain that alternative fuels do not represent a viable technology for long-term decarbonization. SC/EJ claim that the distribution of RNG or hydrogen necessitates system upgrades to ensure system compatibility with the densities of these fuels. Moreover, they state that hydrogen is incompatible with existing appliances in high concentrations. Additionally, SC/EJ challenge the Companies' ability to augment any limited RNG supply with hydrogen, citing the research of the Building Decarbonization Coalition that the Companies must limit hydrogen blending to 1.7 percent to 6.7 percent, according to hydrogen's leakage rate, hydrogen's low energy density relative to natural gas, the embrittlement of existing pipes, and other blending challenges such as flame temperature and flame tipping. Second, in response to the Companies' legislative and consumer uncertainties, SC/EJ refer the Companies to federal and state incentives available to promote electrification and discourage reinvestment in gas

appliances, which the Companies can leverage to influence customer behavior. Third, they remain certain that any pathway retaining billions of investment dollars in capital assets which may cease to be used or prove useful before the end of their lifespan must inherently prove unsustainable. Fourth, SC/EJ remain certain that the pursuit of all pathways must prove patently inefficient, citing the research of PA that their simultaneous pursuit "could lead to suboptimal allocation of capital to each strategy and inefficient utilization of scarce resources." Thus, SC/EJ assert that the Hybrid pathway certainly represents an unrealistic option.

SC/EJ observe in the Hybrid pathway not only an overreliance on, but also unrealistic assumptions regarding alternative fuels. SC/EJ see undue optimism in this pathway's assumption that the Companies can monopolize all of the RNG in their service territories and/or gain additional out-of-state RNG. According to research provided by Kevin Hopkins of Sargent & Lundy, the demand for RNG from efforts to decarbonize heat and power in the transportation sector will limit the portion of New York's RNG available for power generation to 50 percent; furthermore, this study does not identify the allocation of RNG for decarbonizing gas delivered to buildings. SC/EJ further rebuke the Companies' expectations for sourcing RNG in the Hybrid pathway due to this pathway's reliance on sourcing RNG from thermal gasification, a process neither commercially available nor with demonstrated environmental benefits. They also view the Hybrid pathway's alternative fuel usage as "financially unsustainable" and disposed to "ballooning rates for low-income customers." SC/EJ agree with PA that the Companies fail to clearly explain "how the cost of these expensive fuels will be recovered and if customers have an ability and willingness to pay for these premium products."

SC/EJ proceed to identify significant insufficiencies with each pathway. They state that each pathway still "fails to adequately consider opportunities to avoid additional investments in its pipeline network" with NPAs and substitutions of pipe repairs for pipe replacements. SC/EJ urge the Companies to dramatically improve their NPA programs in order to avoid unnecessary and costly infrastructure, as well as associated stranded costs. They are concerned about significant gas infrastructure spending and stranded cost because they project fewer customers and less government intervention to subsidize this spending. SC/EJ advise the Companies to earnestly identify NPA candidates in the gas system and develop aggressive and creative methods to recruit customers to adopt NPA measures. According to SC/EJ, the Companies should improve the identification and recruitment processes by developing a more "comprehensive and equitable" BCA to compare NPAs with business-as-usual investments. SC/EJ states a BCA should include a clearly defined "execution risk" to help the Companies avoid decisions on NPAs based on "unfounded fear" and a BCA should employ clear units of measurement for levels of risk and determine a net present value measuring societal benefits and costs, including non-quantifiable outcomes such as indoor air pollution, public health, and job creation. They additionally urge the Companies should pursue pipe repairs as an alternative to pipe replacement in situations where NPAs prove infeasible. According to research provided by SC/EJ, the Companies can implement pipe repairs at a very small fraction (0.1 to 0.01) of the cost for full-pipe replacement.

SC/EJ also endeavor to curtail, if not eliminate, gas infrastructure spending by preempting the Companies' endorsement of dual fuel hybrid systems, in which customers retain both gas and electric appliances. The Companies do not endorse a hybrid

approach in the LTP; yet SC/EJ remain wary of the Companies' future participation in "the gas utilities gambit to justify continued investment in their pipeline systems by directing their customers to implement hybrid gas and electric (dual fuel) heating systems." SC/EJ rejects PA's support of these systems and recommends that the Commission follow the Massachusetts Department of Public Utilities (DPU) in rejecting the implementation of these systems. According to SC/EJ, "PA suggests that such systems could be beneficial if customers are on sections of the gas network earmarked to remain in the system and operate on days that the electric grid may be under stress or for causes of resiliency and reliability." SC/EJ refute the possibility of restricting the locations of these systems to sections of the network earmarked to remain by affirming that stakeholders lack the resources to ensure this, given that utilities have yet to engage in "meaningful efforts [...] to develop plans to shrink their distribution systems"; correspondingly, stakeholders could not prevent the retention of gas backup at sections of the network with opportunities for system "pruning." SC/EJ also refute the possibility of restricting the use of these systems to days when the electric grid is under stress. SC/EJ claim that "[c]ustomers with retained gas appliances are unlikely to be aware of real-time conditions of the gas system, let alone limit their use of gas appliances to times when such use will benefit the reliability of the electric grid." In addition, SC/EJ urge the rejection of dual system implementation, pointing to the climate-based rationale framing the DPU's rejection of these systems. Further, SC/EJ note that the climate of the Companies' service territories also eliminates the need for gas backup for cold-climate air-source heat pumps, given that NYC and the Lower

Hudson Valley "have a similar or milder climate than Massachusetts."

SC/EJ additionally lament the LTP's continued silence on industrial decarbonization opportunities, observing significant potential in the industrial sector for decarbonization efforts according to research from the Renewable Thermal Collaborative, which found decarbonization opportunities in 75 percent of industrial heating. This research traces 75 percent of industrial heating emissions to low and medium temperatures (less than 500 Celsius) and confirms that heat intensive processes (such as washing, drying, sterilizing, and distilling) at low and medium temperatures can replace fossil fuel-powered technologies with industrial heat pumps, electric boilers, and thermal battery systems. SC/EJ note that according to NYSERDA research, "induction (electric) process heating technologies for Primary Metals and Paper subsectors and induction (electric) and resistance melting in the glass industry (part of the Non-Metallic Minerals subsector) represent 52 percent of the electrification decarbonization potential by 2042." SC/EJ continue to urge ORU to foster better recognition of these opportunities by categorizing industrial customers into subsectors. According to SC/EJ, this categorization will elucidate "the heterogeneity of the manufacturing sector and the variety of different production methods on a process level."

Finally, SC/EJ continue to take issue with the pathways in the Final LTP as they state they fail to assess their impact on disadvantaged communities, as well as their failure to direct 35 percent of benefits from energy efficiency and clean energy funding to DACs, as required by the Gas Planning Order and the CLCPA.

SC/EJ recognize that "[t]he final LTP expands on the revised LTP by describing two subcommittees of the Environmental

Justice Working Group” the CLEAN (Continue Learn Employ Aspire Next) subcommittee, which “focuse[s] on partnering with DACs to develop responsive and appropriate programs and projects, educating employees about environmental justice, recruiting and training members of DACs, advancing meaningful engagement between environment justice stakeholders and senior Company leadership, and tracking regulatory development”, and the FAIR (Factors Adequacy Improvement Report) subcommittee, which “focuse[s] on developing methodology to direct benefits to DACs and developing the DAC report.” Nevertheless, SC/EJ request details on the plans that these subcommittees intend to develop. SC/EJ also reject the Companies’ explanation for these failures, in which they assert that they need “years” to develop their own disadvantaged community mapping. According to SC/EJ, “the Companies have had two years to prepare for the finalization of the DAC maps, identify the locations of their infrastructure accordingly, and develop a plan to address burdens and direct benefits accordingly as required by the CLCPA.”

Reply Comments Regarding the Con Edison/ORU Final Long-Term Plan  
Comments of Con Edison and ORU

The Companies submitted final reply comments to address many issues raised by stakeholders and PA in their respective comments concerning the Companies’ LTP. The Companies begin their reply comments by stating that they are fully committed to a clean energy future, one that will require substantially reduced amounts of fossil fuels, and one that will continue to depend on prioritizing safety and reliability.

The Companies organize their reply comments into three sections: “Areas of Agreement”, “Recommendations for Further Consideration”, and “Areas of Disagreement.”

1) Areas of Agreement

The Companies reply first to the affordability aspects addressed by stakeholders in their comments. Forecasted rate increases and bill impacts are deemed "unacceptable" by stakeholders such as NYC and CPA. The Companies' suggestions for offsetting cost increases could be helpful, claims CPA, but "their size and scope are undefined." The Companies state that they wholeheartedly agree with the recommendation of stakeholders that affordability is a key priority for gas planning objectives. The Companies reaffirm their commitment to overseeing significant reductions in the amount of natural gas consumed by customers, encouraging the transition to electrified heating in buildings, making meaningful increases in building efficiency, and minimizing the scope of gas delivery infrastructure. The Companies note that initiatives to support the overall transition to clean energy systems will require significant investment, and that "at least some of that investment will be reflected in higher utility costs." The Companies pledge to support as much as possible low and middle-income customers, who it describes as the most vulnerable demographic. The Companies describe different approaches for supporting these customers, including the Companies' continued participation in the Energy Affordability Policy Proceeding, a statewide process that examines ways to enhance the Energy Affordability Program.

Concerning NPAs, the Companies note that PA and the other stakeholders continue to stress their importance and agree with several of their respective recommendations. The Companies state they "remain focused on efforts to identify investments with sufficient lead times such that the successful deployment of NPA and/or electrification solutions will result in the elimination of traditional natural gas infrastructure needs."

The Companies also state that they have provided detailed information about NPA plans whenever possible, and that they will provide any available updates in future LTPs.

In their reply comments, the Companies also evaluate stakeholder comments on the Final LTP's discussion of energy efficiency (EE) and Demand Side Management (DSM). PA recommends that "the Companies also consider the impact of electric DSM measures on the customer behaviors and resulting electrification, energy efficiency, and other DSM program adoption assumptions." The Companies state that the Reference pathway incorporates known effects of EE and DSM programs, but they also acknowledge that these effects are not program specific. For the Hybrid and Deep Electrification Pathways, the Companies modeled energy use per square foot for each building type and end use over time; however, these assumptions are also not program specific. The Companies state they previously acknowledged the need to enhance their ability to determine the impacts of specific EE and DSM measures in long-range volume forecasts and plan to include these forecasting refinements in future LTPs.

The Companies continue to evaluate recommendations from New Yorkers for Clean Power (NYCP) regarding depreciation. The Companies indicate that they are open to continued exploration of alternative depreciation methods for the full recovery of Commission-authorized investments made to "provide safe and reliable service throughout the transition." The Companies urge the Commission to align depreciation practices with the clean energy transition. The Companies acknowledge that wholesale depreciation methodologies take time to evaluate; still, they request that the Commission pair this evaluation with interim steps in rate cases. The Companies claim that Commission changes to depreciation recovery can significantly lower the

potential for rate shock and support a diminished cost to customers in the long-term.

The Companies then reply to PA's recommendations that more coordinated efforts take place regarding long-term planning for the gas, steam, and electric systems. The Companies state that they previously committed to the continuing development of these plans. The Companies point to the internal coordination in progress within various Electric Long Range Plan scenarios. CPA is concerned that the Companies' Final LTP does not adequately address how the electric grid will handle increased loads during an "unprecedented mass migration of customers from natural gas to electric power." The Companies again point to their work in the Electric Long Range Plan scenarios as an effort to address this issue.

The Companies also respond to questions raised by PA regarding the definition of "hard to electrify." PA states that developments in technology may alter the current definition. The Companies state it is an appropriate working definition for the current stage of the transitional period. The Companies pledge continued consultation with Staff and stakeholders to consider further refinements of the definition in future LTP filings.

The Companies additionally address the contention of PA, among other stakeholders, that "current modeling efforts [in the LTP] do not account for the evolving competition between the economics of gas appliances and electric appliances (e.g., gas furnace and heat pump) over the next decades." NYECC also urges the Companies to account for this competition in the Hybrid and Deep Electrification pathways, even though NYECC acknowledges that the Companies account for this competition in the Reference pathway. The Companies reply that they have provided estimates

for all pathways that incorporate relevant economic statistics on this competition, including bill impacts recommended by PA.

In response to comments from PA and other stakeholders concerning aspects of the Companies' supply portfolio, the Companies supplemented the Final LTP with all information currently available related to the flexibility and limitations of managing their Joint Portfolio. The Companies state that they have also "discussed the limitations of continued reliance on Delivered Services and the flexibility that new Firm Transportation contracts will provide in reducing, or even eliminating the future reliance on these services by 2030."

As for PA's recommendations to modify or expand the evaluation of de-contracting frameworks as gas demand diminishes, the Companies state that they have responded with all information currently available related to de-contracting approaches in consideration of the supply-demand outlook in the Reference Pathway of the LTP and potential requirements in the other pathways.

PA also recommends that the Companies better clarify their strategies to mitigate bill impacts by considering the important tradeoffs between emissions reductions and affordability. CPA specifically notes that the final LTP does not fully address the potential negative impacts of higher energy costs on healthcare facilities. In response, the Companies state that the BCA provided in the Final LTP illustrates the tradeoffs between emissions reductions and other benefits with their associated costs. According to the Companies, costs used in the BCA "were also used in the bill impact analysis and the comparison of annual residential gas bills." The Companies do not address CPA's comments regarding the potential negative impacts to healthcare facilities.

## 2) Recommendations for Further Consideration

Regarding the primary objection to the LTP's failure to select a preferred pathway, AGREE, NYCP, NRDC, and PA all recommend that the Companies adopt the Deep Electrification Pathway because of its overall benefits to the environment, despite the inherent economic disadvantages involved.

In their reply, the Companies continue to stress that the selection of a single pathway remains "premature [...] [d]ue to the number of outside factors inherent in the Hybrid and Deep Electrification Pathway assumptions," which necessitates preparation for a "range of possible outcomes." The Companies reference their BCA analysis to support their decision to not choose a pathway at this time. Their analysis shows a wide range of ratios for each pathway that overlap and, in turn, render future developments unclear, especially given sensitivities and uncertainties surrounding factors such as rate impacts, depreciation, and electric peak load. The Companies additionally assert that future trajectories of other important factors—such as legislation, regulation, technology, and customer behavior are not entirely within their control. The Companies specifically discuss uncertainties regarding low-carbon fuels, since they play a large prospective role in the Hybrid and Deep Electrification pathways. The Companies rebuff PA's recommendation that the Companies conduct both a sensitivity analysis and an optimization process to determine the best possible pathway. The Companies observe extreme difficulties in the development of these tools, citing uncertainties surrounding technology assumptions and costs, a wide variation in building stock, and carbon impacts. The Companies affirm that the implementation of these PA recommendations would require substantial time and resources.

The Companies then respond to stakeholder recommendations for the Final LTP to provide calculated bill impacts for each

service classification over time. PA disagrees with the use of a constant value for assumed gas consumption in bill impact calculation and argues that the Companies should instead use projected average gas volumes for each service class. NYECC echoes PA's concerns and the need for more precise and accurate bill impact estimates. The Companies reply that they did not perform class-specific demand analyses because of the limited information currently available. The Companies pledge to make necessary refinements in the future once the necessary information becomes available.

The Companies also address PA's comments on the insufficiencies undermining the Final LTP's discussion of disadvantaged communities. The Companies claim that they have agreed to perform extensive reporting on disadvantaged communities, which will include data on "investments, engagement, and workforce development efforts." The Companies mention other efforts and programs that they have instituted or will institute to better support disadvantaged communities.

PA additionally recommends that the Companies coordinate with the NYC Department of Buildings to develop a list and geographical distribution of "hard to electrify" customers, for the purpose of ensuring the prioritization of these locations. In response, the Companies assert that this information remains subject to considerable uncertainty due to factors which are, for the most part, out of the Companies' control.

The Companies conclude this section of their reply comments by responding to NYC's recommendation for Con Edison to implement a new "Clean Heat" Electrification Program. The Companies, referring to their November reply comments, agree that a program of this sort could be effective under the right conditions and also mention that Con Edison has two existing electrification programs, the Statewide Clean Heat program, and Electric

Advantage NPAs, and is developing a third program which focuses on avoiding replacements to existing gas service lines. The Companies also state that they will continue to monitor changes in the legislative and regulatory landscape and will work with NYC to consider when and how to implement program of this sort.

### 3) Areas of Disagreement

The Companies begin this section of their reply comments by noting that several stakeholders make recommendations concerning infrastructure investment reduction. NYECC, SC/EJ, AGREE, and NYCP focus on LPP replacement and related costs, as well as reducing overall gas infrastructure and the associated repairs needed. The Companies respond by stating that the specific level of investment in LPP programs has been a topic of discussion in their recent rate cases. The Companies stress that they have been in dialog with Staff and other stakeholders regarding LPP investment to balance the cost impact of those investments on customer rates with customer safety, as well as with other beneficial impacts, such as reduced emissions, for example.

The Companies then address comments regarding a lag that exists between construction project completion and their reflection in the Companies' mapping systems. PA recommends that the Companies ensure that the Commission and Staff are aware of the procedures and systems in place which provide field personnel with "accurate information about the gas system components they should expect to encounter in performing their work". The Companies take issue with PA's recommendation, noting that map functionality is adequate, and that the software has numerous built-in tools aligned with worker activities.

The Companies also acknowledge that several stakeholders express concerns with specific economic assumptions made in the Final LTP relating to the feasibility of low-carbon fuels and,

in turn, the Hybrid Pathway's goals. The Companies reply that their investments in low-carbon fuel research and their involvement in low-carbon fuel initiatives and programs substantiate the Company's inclusion of low-carbon fuels in the LTP, despite the unknowns associated with low-carbon fuels such as hydrogen and certified natural gas. The Companies claim that they designed the Hybrid Pathway to allow for flexibility as low-carbon fuel technology evolves.

The Companies conclude this section by addressing PA's recommendation that the Companies provide more information about the various EE programs, such as annual participation and savings. PA urges the Companies to assess how they can leverage or upscale these programs to support the pathways. The Companies state in reply that the Annual Reports filed by the Companies publicize "considerable information [...] related to expected participation rates and savings in the Companies' Low- and-Moderate income (LMI) and non-LMI energy efficiency programs."

Sierra Club and Earth Justice

The reply comments submitted by SC/EJ focus on the Final LTP's failure to "capture the myriad policy decisions that will affect the future cost of household utility bills." SC/EJ view this failure as an obstacle to the development of bill impacts that affordably support decarbonization efforts implemented by the Companies. Ultimately, SC/EJ recommend that the Companies adopt "a more holistic household utility bill impact analysis that explores the impact that state policy and individual household weatherization and electrification decisions would have on their total utility costs."

SC/EJ identify several policies that are "currently being designed and developed in New York" which "will impact the affordability of future utility bills." They cite the

commitment in Governor Hochul's State of the State book to ending the utility obligation to serve and advancing the Affordable Gas Transition Act, which eliminates the 100-foot rule. SC/EJ contend that these commitments can reduce both "system costs that would be recovered through gas utility bills" and "the cost of electrification-based decarbonization approaches" because these commitments can "facilitate the implementation of non-pipe alternatives in lieu of costly pipe replacement and enable a more proactive shrinking of the gas system." SC/EJ also cite the Cap-and-invest program that the DEC and NYSEERDA are "actively developing." The price set by this program on "the greenhouse gas content of fuels" can, according to SC/EJ, enhance energy bill affordability by raising revenues to return to households and to fund programs that can help households weatherize or electrify. SC/EJ contend that this program can also "encourage electrification" by increasing the cost of gas relative to electricity. SC/EJ also advise the Companies to remain attentive to the Commission's implementation of its Energy Affordability Program, which "will determine how electric and gas rate changes will impact future gas and electric bills for low-income households". SC/EJ urge the Companies to consider "individual household weatherization and electrification decisions" so that the Companies can develop a more nuanced appreciation of the "fixed and volumetric charges" for a household's gas and electric bills. According to SC/EJ, both "weatherization measures" and "more efficient appliances" can "lower the volumetric side" of these bills by reducing a household's use of gas or electricity. SC/EJ state that "switch[ing] a household off of the gas system will eliminate gas fixed charges, while shifting volumetric costs from gas to electricity".