

STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

**In the Matter of a Review of the Long-Term Gas
System Plan of Consolidated Edison and Orange and Rockland Utilities, Inc.**

Case 23-G-0147

Comments of
Natural Resources Defense Council,
with technical assistance and analysis from Synapse Energy Economics

Date: October 25, 2023

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The Natural Resources Defense Council (NRDC) provides these comments on the Revised Long-Term Gas System Plan (Revised LTP) of Consolidated Edison Company of New York, Inc. (Con Edison) and Orange and Rockland Utilities, Inc. (O&R) (the Companies). We appreciate the opportunity to submit comments and the Companies' efforts with the Revised Long-Term Plan. NRDC developed these comments with assistance and analysis from Synapse Energy Economics (Synapse).

1. Introduction

On May 12, 2022, the New York Public Service Commission (PSC or Commission) issued its Order Adopting Gas System Planning Process in Case 20-G-0131. This order requires each gas utility to file a comprehensive, long-term gas system plan that meets the requirements of the *Climate Leadership and Community Protection Act (CLCPA)*. Analyses underlying each long-term plan must consider energy efficiency and non-pipeline alternatives (NPA), and the utility must include an NPA-only scenario unless it presents sufficient evidence that an NPA-only scenario is not feasible. For the long-term plans, utilities must compare alternatives using bill impact analysis and emissions impacts. Each utility must present a likely and a preferred plan for its portfolio of investments. In addition, the order requires benefit-cost analysis of alternative resources.

On May 31, 2023, the Consolidated Edison Company of New York, Inc. (Con Edison) and Orange & Rockland Utilities, Inc. (O&R) (the Companies) filed their Initial Gas Long-Term Plan (Initial LTP), prompting the Commission to launch case number 23-G-0147. New York State Department of Public Service (DPS) commissioned PA Consulting Group, Inc. (PA Consulting) to assess the Companies' initial long-term plan and to develop a report with its findings, which it released on July 14, 2023. Other parties filed comments on the Initial LTP on August 21, 2023.

On September 22, 2023, the Companies filed their Revised Gas Long-Term Plan (Revised LTP). Subsequently, on October 16th, PA Consulting issued a report that assesses the Revised LTP and revised and clarified prior recommendations.

2. Overview of differences between Initial LTP and Revised LTP

2.1 The Revised LTP is not substantially different from the initial LTP

The Companies have made a number of updates to their key projected outcomes for each scenario in the Revised LTP. They anticipate greater emissions reductions and greater declines in gas volumes across all scenarios, including the Reference pathway.¹ The Revised LTP also

¹ Consolidated Edison Company of New York, Inc. and Orange & Rockland Utilities, Inc. 2023. Revised Gas System Long-Term Plan. p. 4, NY PSC Case 23-G-0147, (hereafter, "Revised LTP"); Consolidated Edison Company of New

features a drop in certified fossil gas’s share of the supply mix in the Deep Electrification scenario, though certified fossil gas remains a sizeable portion of the supply mix in both the Hybrid and Deep Electrification scenarios.² These changes are represented in Table 1 and Table 2 below.

Table 1. Key Outcome Updates in the Initial LTP and Revised LTP

	Initial Plan			Revised Plan		
	Reference	Hybrid	Deep Elec.	Reference	Hybrid	Deep Elec.
Emissions Reductions	21%	61%	82%	25%	62%	87%
Gas Volume Reductions	18%	39%	76%	23%	43%	82%

Table 2. Certified Fossil Gas Percentage of the Supply Mix in the Initial LTP and Revised LTP

	Initial Plan			Revised Plan		
	Reference	Hybrid	Deep Elec.	Reference	Hybrid	Deep Elec.
Cert. Fossil Gas % of Supply Mix	5%	57%	87%	5%	58%	79%

The Revised LTP includes some assumptions for utility-owned thermal energy network (UTEN) projects, which were absent from all of the pathways in the Initial LTP. The Companies report they have submitted UTEN project proposals, but the full scope and scale of UTEN deployment are still uncertain. The Companies are still evaluating their pilot to better understand that component. In addition, the Companies included in the Revised LTP a new assumption of using

York, Inc. and Orange & Rockland Utilities, Inc. 2023. Revised Gas System Long-Term Plan. p. 4, NY PSC Case 23-G-0147, (hereafter, “Initial LTP”).

² Revised LTP, p.4; Initial LTP, p. 4.

ground-source heat pumps for 20 percent of electrified floor space in Westchester for both the Hybrid and Deep Electrification pathways, and for UTEN to be included in that assumption.³

However, most aspects of the Initial LTP remain unchanged. These include a good number of assumptions, methodologies, and approaches that NRDC and other stakeholders have criticized. For example:

- **The LTP inappropriately relies on certified fossil gas.** The Revised LTP provides insufficient explanation of how certified fossil gas will reduce greenhouse gas (GHG) emissions compared to fossil gas, how much that reduction might be, and the relative cost.
- **The Companies do not incorporate sufficient consideration of cost and affordability issues in their LTP.** They defer issues of affordability of rate impacts to a future rate case, which is an inadequate approach considering that investment decisions today will have affordability impacts for decades.⁴
- **The Revised LTP includes many uncertain assumptions but does not adequately address these risks.** For example, the Companies acknowledge uncertainties with low-carbon fuel (LCF) supplies and costs but have not taken the next step of modeling the potential impact of those supplies and costs.
- **The Plan still does not offer a strategy for shrinking the Companies' systems, even at a high level.** The Companies say: "[While they] recognize that their distribution systems will become smaller as gas usage decreases over time, how, where and when the systems become smaller is subject to considerable uncertainty due to factors largely outside of the Companies' direct control. These factors include the pace of advances in technology, changes in statutory/regulatory requirements, and customer behavior. It is anticipated that NPAs may help the Companies gather more data regarding these factors. Given the uncertainty associated with these and other factors, the Companies have no plausible basis on which to develop meaningful plans for shrinking their systems."⁵ In part, this statement refers to uncertainties related to conflicting regulatory and legislative directives, which the PSC has a duty to address. To the extent that the Commission is prevented from doing so by statute, it should articulate the problem and potential solutions with specificity so that the legislature can address it. Also, within this LTP proceeding, the Companies

³ Revised LTP, p. 53.

⁴ See Consolidated Edison and Orange and Rockland, *Reply to PA Consulting Initial Report and Stakeholder Comments on the Companies' Initial Gas System Long-Term Plan*, NY PSC Case 23-G-0147, p. 5 (Hereafter, "Companies' reply comments").

⁵ Companies' reply comments, p. 23-24.

could undertake analysis to identify the most critical factors and conduct risk assessments on those factors.

- **The Companies have not incorporated bottom-up modeling.**⁶ In response to comments by NRDC, the Companies plan to provide annual estimates for the total cost of ownership of a gas/LCF combustion heating system along with the electric rate at which electrification would be cost-effective over a 15-year lifecycle. However, it does not appear that they plan to incorporate this analysis into their overall scenario modeling in any way.
- **The Companies have not identified any general changes to their main replacement programs (MRP)** for replacement of leak-prone pipe or to how they will consider NPAs at a neighborhood scale in lieu of leak-prone pipe replacement. NRDC and other parties urged the Companies to place greater emphasis on NPAs instead of pipe replacement as much as possible.⁷ However, in the Revised LTP, the Companies merely respond to these concerns by restating the scope of the MRP program and claim that they do prioritize the identification of NPAs.⁸
- **The Companies continue to not select a preferred pathway, as required in the Gas Planning Order.**⁹ They maintain that they cannot predict “the precise course the transition will follow” and will plan for a range of possible outcomes.¹⁰ Though we understand there may be some uncertainty regarding the applicable framework, the lack of selection of any single pathway is noncompliant and insufficient. Given the distinct schedule for investment and implementation required for the Companies to follow the Deep Electrification scenario, the Companies do not have flexibility if they opt for the Hybrid scenario but the assumptions underlying that scenario prove incorrect. The Deep Electrification scenario does not prevent pursuit of LCFs in the future, if these fuels are found to provide real emissions reductions at a reasonable cost, but the Hybrid scenario does not support the timing and investments required for the Deep Electrification scenario.

The remainder of these comments discusses these issues further.

⁶ A bottom-up model uses data or assumptions at a granular level (e.g., customers or accounts) and uses that information to generalize to an entire population.

⁷ Natural Resources Defense Council, *Initial Comments of Natural Resources Defense Council, with assistance from Synapse Energy Economics*, NY PSC Case 23-G-0147, p. 12 (Hereafter, “NRDC Initial Comments”).

⁸ Companies’ reply comments, p. 27.

⁹ New York Public Service Commission. Order Adopting Gas System Planning Process (Gas Planning Order). Case Nos. 20-G-0131 and 12-G-0297. Issued May 12, 2022

¹⁰ Companies’ reply comments, p. 24.

2.2 The Revised LTP does not include all information the PSC and stakeholders need to understand and provide meaningful input

The Companies have identified several areas where they will provide additional information in later versions of the Plan. The Companies have several energy efficiency and demand-side management programs that have been in place for decades for which they will provide additional information, including annual participation rates and how these programs can be leveraged or adapted to support decarbonization efforts over the next decade.¹¹ Such information should incorporate the impacts of potential program improvements and program expansions. To the extent these programs can be improved upon, the Companies plan to include bill impact quantification for core service classes (SC1, SC2, and SC3) for the final version of the plan.¹² The Companies will also provide additional individual Company data in later versions of the Plan and its appendices to clarify the analyses relevant to each company.¹³ Finally, in response to NRDC Comments, the Companies say they plan to provide annual estimates for the total cost of ownership of a gas/LCF combustion heating system along with the electric rate at which electrification would be cost-effective over a 15-year lifecycle, although they do not specify when or where they will provide that information.¹⁴

The Companies stated that they would provide more detail on technology assumptions in the Revised LTP. This includes high-level assumptions about market readiness and policies/regulation “dependencies” and assumptions that indirectly support adoption rates for different technologies in each pathway for space heating, energy efficiency, and low-carbon fuels.¹⁵ While the Revised LTP includes additional information in this regard, it is at a very high level. Figures 62, 64, and 66 in the Revised LTP provide a rough comparison of assumption dependencies for each scenario, but they do not indicate what specific factors in the Companies’ modeling those dependencies affect. For example, regarding building electrification, Figure 62 mentions an assumption dependency regarding “Facilitate deployment of innovative third-party financing models.” Presumably, this assumption dependency would have an impact on customer adoption of electrification measures, although the Revised LTP is silent on this. The Revised LTP leaves other basic questions unanswered: does this assumption dependency apply to all end uses or just certain ones (space heating, water heating, cooking, clothes drying, or other uses)? What is the range of impacts of the assumption dependency? Which specific assumption dependencies did the modeling include?

¹¹ *Id.* p. 5.

¹² Companies’ reply comments, p. 5.

¹³ *Id.*, p. 7.

¹⁴ *Id.*, p. 8.

¹⁵ *Id.*, p. 6.

For the information that the Companies have yet to provide, it is not clear if that additional information will address the concerns raised by stakeholders or PA Consulting. The format of the data to be provided is also not clear. If the data are not sufficiently granular or do not have a small enough time interval, they may fail to adequately support further stakeholder input and analysis that would shed further light on the critical decisions facing the Companies and their customers.

Equally concerning, the Companies propose to provide the additional data *after* the opportunity to comment on the Revised LTP has elapsed. The timing of this makes it unlikely that stakeholder input can influence the strategy that is ultimately selected. Instead, the Companies should have requested more time to file the additional data along with the Revised LTP. Given that the PSC recently approved Con Edison's 3-year rate plan, there is more than enough time to conduct a robust, transparent LTP process before the Companies' need to start planning for the approach and investment strategy for their next rate filing.

3. Assumptions and methodologies

In the Companies' modeling of the Revised LTP, they use several questionable assumptions. These include the assumptions about certified gas, hydrogen, and RNG. Perhaps even more fundamentally problematic is the lack of consideration of the cost of the scenarios to consumers and lack of emphasis on reducing leak-prone pipe replacement and infrastructure investment in the gas system more broadly. These issues are discussed below.

3.1 Assumptions on LCFs are problematic

Certified gas

NRDC's review of this case and the literature more generally calls into question whether certified fossil gas should play any part in a system decarbonization strategy. As noted in NRDC's comments on the Initial LTP, certified fossil gas suffers from some critical problems: there are no official standards to verify that certified gas provides incremental benefits above what is already occurring in the industry; certified gas will leak from the distribution system and from customer end-use equipment just the same as "uncertified" fossil gas, and it will cause indoor and outdoor air quality problems when combusted; and customers may invest in long-lived gas consuming equipment because they believe that certified gas is sufficient to comply with state policy. Thus, the inclusion of certified gas is likely to work at cross-purposes and is inconsistent with the CLCPA.

As of this filing, the Companies have not set the requirements for certified gas. The Companies state that they are waiting for the U.S. Environmental Protection Agency to update its GHG reporting rules for certified gas pursuant to the requirements of the *Inflation Reduction Act*, in order to 'further solidify estimates of the potential emissions reductions of Certified Natural

Gas.’¹⁶ It is unclear what specific rules the Companies are referring to by this statement or when they expect these rules to be released.¹⁷

The Companies also mention their plans to hire a third-party certifier to create standards for them and focus on minimizing methane leaks/emissions in upstream production. Yet, the GHG emission reductions associated with its purchase are unknown. With no set requirements for certified gas, their claim that “certified gas reduces the upstream emissions factor associated with natural gas usage by 74%” is unfounded,¹⁸ as are projections of its cost.

If the Companies choose to procure certified gas, it will be important for them to ensure that the emissions reductions are credible. For example, the emissions reductions should be *additional* to what would have occurred in the absence of the certification program. It will also be critical that the emissions reductions are *verifiable*—that is, they are monitored and regularly verified by an independent third-party. In addition, the reductions should be *enforceable*, meaning no other entity can make a claim on the value of the emissions reduction for the certified gas. Other criteria are surely needed as well. Lacking standards, all of these criteria have yet to be addressed. Once these criteria are addressed, the emissions reductions creditable to certified gas may be much lower than claimed by the Companies. At current time, NRDC is opposed to any inclusion of any emissions reductions accredited to any certified gas construct, and it is premature to consider them in the context of the current proceeding.

Hydrogen

The Companies’ Hybrid scenario plans for hydrogen to make up 6 percent of the gas supply mix, which is a much lower percentage than renewable natural gas (RNG) and certified fossil gas; but it still raises concerns. NRDC’s Initial Comments discussed problematic assumptions concerning hydrogen, specifically concerns with energy intensity, costs associated with the need for hydrogen pipelines, safety, and warming related to potential leaks.¹⁹ The Initial Comments also discussed how hydrogen is not a green resource with zero emissions, as assumed in the Plan,

¹⁶ Revised LTP, p. 53.

¹⁷ The U.S. Department of Energy stated that it will not introduce or endorse any natural gas certification measures or standards (S&P Global, “US DOE will not develop certified natural gas standard amid focus on international framework, July 21, 2023. Accessed: <https://www.spglobal.com/commodityinsights/en/market-insights/latest-news/natural-gas/072123-us-doe-will-not-develop-certified-natural-gas-standard-amid-focus-on-international-emissions-framework>).

The U.S. Environmental Protection Agency has a pending proposal to reduce methane and other pollution from oil and gas operations, but this proposal does not refer to certified gas. See, “EPA Issues Supplemental Proposal to Reduce Methane and Other Harmful Pollution from Oil and Natural Gas Operations, Nov. 11, 2022. Available at: <https://www.epa.gov/controlling-air-pollution-oil-and-natural-gas-industry/epa-issues-supplemental-proposal-reduce>.

¹⁸ Revised LTP, p. 72.

¹⁹ See NRDC Initial Comments, p. 11-12.

without dedicated hour-by-hour green resources; the source of electricity used in production is a critical consideration when making assumptions about GHG emissions from hydrogen. The Companies do not address these concerns about hydrogen in their Revised LTP, and their discussion of hydrogen in their reply comments is limited. They say that they are waiting for the Commission to provide direction on a standardized accounting methodology to address contributions to meeting CLCPA objectives.²⁰ The Companies also decline to address criteria pollutants associated with hydrogen and other fuel options, because they believe it is not required by the Order. The Companies do not provide details concerning how hydrogen will be produced to support the designation of hydrogen as a clean option. Additionally, the cost concerns for clean hydrogen remain for both its production, which requires large amounts of electricity, and construction of additional infrastructure necessary to deliver it. The LTP proposes a new dedicated pipeline for delivering and blending hydrogen by 2040 but does not discuss costs associated with that pipeline, nor does it discuss the costs associated with blending hydrogen, retrofitting equipment, and leak-response.²¹

The Companies acknowledge the uncertainties with the long-term costs and benefits of the LCFs included in the Plan, but they do not revise assumptions or modeling to adequately address the risks in the Revised Plan. This inadequate consideration of cost risks indicates that risk modeling, including a high LCF cost sensitivity is needed to provide greater clarity of potential impacts of the Plan's pathways.

Renewable Natural Gas

For RNG, it appears the Companies are assuming they can have access to a share of the full potential for RNG equivalent to their current share of fossil gas. In the Revised LTP, the Companies state:

“Though RNG is already being produced at considerable quantities in the United States today and is expected to scale up, our adoption of RNG would be supply-limited based on our share of gas consumption and the amount of RNG produced in the Eastern U.S. We assume that Con Edison and O&R use their representative share of RNG produced by anaerobic digestion from the Mid-Atlantic and the rest of the Eastern U.S., in addition to the full amount produced by anaerobic digestion in our service territories, which is 40 TBTU total in an “achievable deployment” scenario where only 33% of total RNG feedstock is captured (ICF RNG Technical Potential Study). Due to the uncertainty around thermal gasification, we would only count on the thermal gasification located in our service territories, which is projected to be 7 TBTU total in the same achievable deployment scenario (ICF RNG Technical Potential Study). As a result, the estimated

²⁰ Companies' reply comments, p. 30.

²¹ See Revised LTP, p. 75.

maximum amount of RNG that we will be able to source is 48 TBTU of RNG per year, representing approximately 20% of current annual volumetric usage.”

This quote indicates that the Companies plan on accessing RNG based on their current share of gas. It does not appear to consider the demands of other sectors for RNG.²² Considering that other sectors lack commercially available, viable alternative technologies or face high costs to decarbonize (e.g., industrial processes and long-haul transportation), these are the sectors for which RNG should be strategically reserved.

In addition, as stated in our comments on the Initial LTP, RNG is not an inherently environmental solution. The carbon intensity and emissions associated with RNG vary substantially depending on certain factors such as feedstocks and production methods. They also vary based on production location and how the fuel is transported and distributed. In addition, estimates of emissions reductions vary, and studies often show wide ranges for emissions associated with RNG.²³ To the extent that the mix of the Companies’ future RNG supply differs from the RNG potential mix in the NYSERDA study, or the assumptions in the NYSERDA study are incorrect, the actual GHG emissions rate will not be the same as assumed in the LTP.²⁴

As discussed further below, costs and the cost effectiveness of options should be considered in this proceeding, to understand tradeoffs between different objectives (minimizing costs, reducing emissions, serving customers with limited or no alternatives to gas). To this end, it is critical that the methodology for monetization of avoided GHG emissions for use in a BCA use a gross emissions accounting framework consistent with the CLCPA emission limits. The use of net accounting to estimate the monetized value of avoided emissions with respect to gas service when the State uses gross accounting to track and enforce compliance with the CLCPA emission limits would significantly over value the avoided emissions from RNG supply to gas utility customers.

²² In Appendix C, the Companies indicate that they assume they represent “100% of CECONY gas territory + 59% of Hudson Valley” and provide a table with a break-out of their assumed share of RNG potential by feedstock type based on the NYSERDA Achievable Deployment scenario. However, the derivation of the numbers in the table is not apparent. The potential indicated in Appendix C (11.57 tBtu per year for both Companies) is about half the Achievable Deployment potential per the NYSERDA study of 23.13 tBtu per year for New York City (which includes more than the Con Edison gas service area) plus 59 percent of Hudson Valley totals. (NYSERDA and ICF. 2022. Potential of Renewable Natural Gas in New York State, Appendix A, Tables A-8 and A-9.)

²³ For example, see ranges of emissions reduction estimates associated with different feedstocks and by region of the U.S., as presented in ICF 2019. Renewable Sources of Natural Gas: Supply and Emissions Reduction Assessment, Appendix B.

²⁴ Revised LTP, Appendix E, p. E-2.

We note that this recommendation counters the methodology laid out by NYSERDA in its guidance for emission accounting within a BCA.²⁵ NYSERDA’s guidance uses net accounting, which is inconsistent with the basis that the CLCPA uses for emissions reductions requirements. RNG can only avoid roughly 35% of fossil gas emissions (RNG produces 117 lbs/mmBtu CO₂e vs. 182 lbs/mmBtu CO₂e for fossil gas), because it only avoids the upstream emissions associated with fossil fuel use and not the emissions produced when the gas is combusted at the point of consumption. The use of a net-basis would attribute approximately 65% greater emission reduction value (relative to fossil gas) to utility gas customers than they would receive from consuming RNG (i.e., it counts their gas use as zero emission instead of 117 lbs/mmBtu CO₂e). The net-basis simplifying assumption of zero emissions might work for RNG that is produced in-state, because the remainder of the avoided emissions are likely to occur in other sectors of New York’s economy (i.e., the agricultural or waste sectors that produce the feedstock used to produce the RNG). However net accounting becomes deeply problematic when it is applied to RNG that is produced out-of-state, because out-of-state RNG does not provide any emission reduction benefits in-state to offset the emissions produced when the RNG is consumed in-state (GHGs have been sequestered in another state’s agriculture or waste sector and cannot offset the combustion of the gas produced from those out-of-state sectors in New York). If the emissions accounting to measure and enforce achievement of the CLCPA’s emission limits were to account for in-state emission reductions for RNG produced out-of-state, the policy would result in the economic, environmental, and health benefits occurring out of the state where the RNG is produced, and it would perpetuate the economic, environmental, and health harms of combusting RNG in-state—harms indistinguishable from those caused by combusting fossil gas.

Indeed, in addition to potentially net-positive carbon emissions, producing RNG using thermal gasification could result in emissions of air pollutants that are harmful to human health, including nitrogen oxides (“NO_x”) and particulates. As proposed by the Companies, emissions from production of RNG using with thermal gasification processing in their service territories could further degrade air quality in areas that currently struggle with air quality issues. Further, the strategy runs counter to CLCPA co-pollution goals, including maximizing reductions of GHGs and co-pollutants in disadvantaged communities.

When burned, RNG (like methane from any source) produces NO_x and other toxic air pollutants. In light of these facts, there are serious questions about air quality impacts—both indoor and outdoor— from relying on this fuel. Despite these concerns, the Companies decline to address impacts on criteria pollutant emissions, because they believe it is not required by the gas planning order. However, the CLCPA specifically requires Commission regulation of gas utilities to “prioritize reductions of greenhouse gas emissions and *co-pollutants* in

²⁵ See New York State Energy Research and Development Authority, *Fossil and Biogenic Fuel Greenhouse Gas Emission Factors*, NYSERDA Report 22-23, (September 2022, Revised May 2023) <https://www.nysesda.ny.gov/-/media/Project/Nyserda/Files/Publications/Energy-Analysis/22-23-Fossil-and-Biogenic-Fuel-Greenhouse-Gas-Emission-Factors.pdf>.

disadvantaged communities . . ." (emphasis added).²⁶ Further, the consideration of impacts on disadvantaged communities from LTP projects or scenarios, which is required by the Gas Planning Order pursuant to the CLCPA, would not be complete without an analysis of criteria pollutants.

3.2 The Companies punt on cost considerations

The Companies are generally not considering cost of the options in a meaningful way. As noted above, they defer issues of affordability of rate impacts to a future rate case.²⁷ This approach fails to provide an adequate foundation for decision-making that will have affordability impacts for ratepayers for many years into the future. Other parties have expressed similar concerns about the lack of consideration of BCA in the planning process. For example, PA Consulting recommended that the Companies provide a BCA of the Hybrid and Deep Electrification scenarios to provide stakeholders "with sufficient information and details to understand the benefits and costs of each pathway and compare and evaluate trade-offs of each pathway."²⁸

Also, the Companies strictly used top-down modeling. In response to comments by NRDC, the Companies plan to provide annual estimates for the total cost of ownership of a gas/LCF combustion heating system along with the electric rate at which electrification would be cost-effective over a 15-year lifecycle. However, it does not appear they plan to incorporate this analysis into their overall scenario modeling. Not incorporating bottom-up modeling may fail to shed light on the costs and rate impacts of different options. Customer decisions to electrify their end uses on their own or in response to federal incentives would reduce the amount needed for ratepayer-funded incentives to promote electrification.

3.3 The overall approach emphasizes risky gas-system investments and costly fuels

The Revised LTP does not adequately emphasize the need to reduce leak-prone pipe replacement and infrastructure investment in the gas system more broadly, which risks inciting a rate crisis that drives unmanageable customer defections and substantial stranded costs. The Companies dedicate more of the plan to risk categorization of leak-prone pipe than they do to opportunities for downsizing,²⁹ which is problematic because it fails to address primary factors (i.e., high rates, brought on by high LCF costs and gas system investment) that will spur unmanageable customer defections from the gas system. The Companies did not address these

²⁶ § 7(3).

²⁷ See Consolidated Edison and Orange and Rockland, *Reply to PA Consulting Initial Report and Stakeholder Comments on the Companies' Initial Gas System Long-Term Plan*, NY PSC Case 23-G-0147, p. 5 (Hereafter, "Companies' reply comments").

²⁸ PA Consulting, Initial Report, p. 10.

²⁹ See Revised LTP, p. 50 (discussion of non-pipeline alternative assessments); Revised LTP, p. 40 (discussion of Main Replacement Program NPA).

concerns and responded by saying that they are already drastically scaling back the scope of MRP programs through 2031.³⁰ This approach to the transition of the gas system risks significant stranded costs and will disproportionately impact disadvantaged communities in terms of affordability and pollution impacts.

The MRP, the largest capital cost component for both Companies, is currently expected to end in about 2030 for O&R and 2040 for Con Edison.³¹ Under the Hybrid scenario the program will continue longer, covering more activities through the 2030s compared to Deep Electrification. As a result, capital expenditures for MRP are expected to be *\$3.1 billion higher* in the Hybrid scenario for the year 2043.³² Under the Hybrid scenario in particular, the Companies' strategy appears to prioritize investments in the gas system that could and should be avoided. The Deep Electrification scenario has a much earlier end date for the MRP than the Hybrid does, pointing to foregone opportunities to downsize the system in the Hybrid scenario. Rather, the strategy should emphasize opportunities to avoid as much investment as possible while maintaining safety (i.e., by addressing active leaks and deferring replacement of pipe that is not imminently high risk).

The Companies anticipate high levels of investment to interconnect LCFs to the existing gas system: Con Edison plans to spend \$10 million per year and O&R plans to spend \$1 million per year beginning in 2030. The Companies should not prioritize building out the gas system for LCF interconnection as many concerns remain regarding LCFs, including that these costs will be included in the rate base in the future. The Companies emphasize the need for these additional investments but provide little detail on how they can prioritize solutions that avoid further expansion of the gas system.

As constructed, the Hybrid scenario would increase rate base dramatically more than the Deep Electrification case by continuing investments in MRP beyond what the Companies present as a reasonable program end date (i.e., 2030/2031, the end date for the MRP in the Deep Electrification scenario). Investments in MRP and in the gas system in general will drive up rates and accelerate customer actions to defect from the gas system or to dramatically reduce consumption, which is happening organically due to technological improvements and as a result

³⁰ Companies' reply comments, p. 24-25.

³¹ Revised LTP, p. 54.

³² Revised LTP, p. 89.

of federal,³³ state,³⁴ and local³⁵ policies. Reduced demand will leave the utilities with unrecovered fixed costs, reduced returns to investors, or both, prompting them to seek rate increases from an ever-smaller customer base. This represents a high risk that gas system assets will become stranded—that is, these assets may have unanticipated or premature write-downs, devaluation or conversion to liabilities. The larger rate base in the Hybrid scenario translates into a larger balance that could be stranded in the future as sales continue to decline and customers depart the system, leaving the most vulnerable customers to bear the costs of the increasingly expensive system.

The uncertainties with viability and costs of technologies for creating, LCFs like RNG and hydrogen, call into question the viability of the Hybrid scenario as an option for emissions compliance, and the higher costs of these fuels give rise to concerns about rate impacts and customer migration from the gas system to the electric system.

Synapse conducted modeling to better understand the rate and financial impacts of the LCF strategy in the Companies' proposed Hybrid scenario (hereafter called, Hybrid As Proposed). Using its Gas Rate Model (GRM),³⁶ Synapse modeled a scenario that combines the higher fuel

³³ The IRA offers Efficiency Tax Credits for 30 percent of the cost of qualified energy efficiency projects, up to \$2,000 for heat pumps and up to \$2,000 for heat pump water heaters. The IRA 25C tax credit covers electric upgrades needed to switch to heat pumps. The IRA also created the High-Efficiency Electric Home Rebate Program where households earning less than 80 percent of the area median income are eligible for a rebate of up to \$1,750 for heat pump water heater installation. Households earning up to 150 percent of the area median income can receive a rebate of up to \$875 for that measure. (Ungar, L., and S. Nadel. 2022. Home Energy Upgrade Incentives: Programs in the Inflation Reduction Act and Other Recent Federal Laws. Washington, DC: American Council for an Energy-Efficient Economy. Accessed: https://www.aceee.org/sites/default/files/pdfs/home_energy_upgrade_incentives_2-1-23_1.pdf).

³⁴ Under the Clean Heating and Cooling Communities Campaign, participants receive no-cost support to switch to clean, efficient heat pump system and away from oil or gas. (New York State Energy Research and Development Authority (NYSERDA). Clean Heating and Cooling Communities Campaign. <https://www.nysesda.ny.gov/All-Programs/Clean-Heating-and-Cooling-Communities>) Also, the New York State Clean Heat program provides rebates for installing cold-climate, electric heat pumps that can be combined with IRA incentives. (NYS Clean Heat. <https://cleanheat.ny.gov/>)

³⁵ Local Law 97 supports efficiency retrofits, including oil or gas to electric heating. (Local Laws of the City of New York for the Year 2019: Local Law No. 97 of 2019 (April 2019), https://www.nyc.gov/assets/buildings/local_laws/ll97of2019.pdf)

³⁶ The GRM allows Synapse to project gas utility rates based on different scenarios for utility investment, sales, and financial models. Synapse used input data from annual utility reports to state regulators, alongside data from the Pipeline and Hazardous Materials Safety Administration (for gas pipeline investment data) and rate cases (such as depreciation and cost-of-service studies) to build a model of the past up to the present. The model tracks utility plant in service, depreciation, capital additions and retirements, operations and maintenance, and income taxes. It accounts for capital structure and changes in tax rates. Looking forward from the present, the model allows testing scenarios for different levels of investment and customer growth or decline, pipeline replacement programs, early retirements, stranded costs, and changes in depreciation rates. Synapse has

costs and the fuel mix from the Hybrid As Proposed case, with an end of the MRP in 2030/2031. This scenario, called Modified Hybrid, considers the incremental impact of the higher cost fuels on rates by controlling for the impact of the MRP relative to the Deep Electrification scenario and aligning the end dates for the MRP in the early 2030s (see Table 1 and Table 2). The modeling demonstrates the contribution of the higher fuel supply cost associated with LCFs to increases in rates, and highlights just how tenuous the alleged lower bill impacts really are.

Table 1. Con Edison pathways critical assumptions

	Reference	Deep Electrification	Hybrid As Proposed	Modified Hybrid
End date of MRP ³⁷	2040	2031	2040	2031
Customers*	902,416	404,098	874,562	404,098
Sales (TBTU)*	151.2	30.6	110.2	30.6
Cert. fossil gas (TBTU)*	7.6	24.5	64.5	17.9
RNG (TBTU)*	0.0	6.1	39.2	10.9
Hydrogen (TBTU)*	0.0	0.0	6.5	1.8
Simple weighted average fuel price (\$/Dekatherm)*	\$6.36	\$9.30	\$13.00	\$13.00

Sources: Revised LTP, p. 66 & 76 (end date of MRP). Revised LTP Appendix C p. C 6-8 (fuel price, volume, and sales), Appendix B p. B 3 (customers), Synapse modeling (Modified Hybrid)

*Values projected in 2043

Table 2. O&R pathways critical assumptions

	Reference	Deep Electrification	Hybrid As Proposed	Modified Hybrid
End date of MRP	2030	2030	2030	2030
Customers*	110,875	57,243	95,550	57,243

developed ways to map changes in customer numbers to changes in miles of pipeline in service and other aspects of capital plant.

³⁷ Con Edison's main replacement program is called the Gas Infrastructure Reduction or Replacement Program (GIRRP). In these comments, we refer to both companies' programs as MRP.

Sales (TBTU)*	19.3	8.1	14.4	8.1
Cert. fossil gas (TBTU)*	1.0	6.0	7.9	4.4
RNG (TBTU)*	0.0	2.0	5.7	3.2
Hydrogen (TBTU)*	0.0	0.0	0.8	0.5
Simple weighted average fuel price (\$/Dekatherm)*	\$6.36	\$9.98	\$13.49	\$13.49

Sources: Revised LTP, p. 66 & 76 (end date of MRP). Revised LTP Appendix C p. C 6-8 (fuel price, volume, and sales), Appendix B p. B 3 (customers), Synapse modeling (Modified Hybrid)

*Values projected in 2043

In light of the U.S. Department of Energy’s decision to not fund the Northeast Hydrogen Hub, a higher cost pathway for hydrogen is more likely. Thus, for all scenarios, the modeling assumes higher hydrogen prices, consistent with the Integration Analysis’s out-of-state prices and base case RNG prices. The modeling assumes no changes to the Companies’ capital structure from the most recently approved in cases 21-G-0073 and 21-E-0074. Lastly, it holds the Companies’ capital and operational expenses constant in real dollar terms throughout the study period. For both companies, it assumes an equity ratio of 47.98 percent. For Con Edison, it assumes a pre-tax return on equity (ROE) of 8.8 percent and an after-tax weighted average cost of capital (WACC) of 6.52 percent. For O&R, it assumes an ROE of 9.2 percent and an after-tax WACC of 6.68 percent.³⁸

The modeling shows that the lower residential rates seen in the Hybrid As Proposed scenario are primarily due to continued high customer counts and throughput levels. This effect dilutes the impact of higher supply costs for LCFs, which otherwise push up rates for Hybrid As Proposed. The Modified Hybrid scenario assumes a decline in gas throughput as customers respond to high gas prices, brought on by continued gas system investment and incorporation of more expensive fuels. Those customers remaining on the system will see drastically increasing rates and bills, even higher than those under the Deep Electrification scenario. Figure 2 through Figure 5 present the projected rates and bills for each scenario and company.

³⁸ NY PSC, Order Adopting Terms of Joint Proposal and Establishing Electric and Gas Rate Plans, with Additional Requirements (issued April 14, 2022), Cases 21-E-0074 and 21-G-0073 (Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of Orange and Rockland Utilities, Inc. for Electric Service and Gas Service), p. 40.

Figure 1. Con Edison residential rates

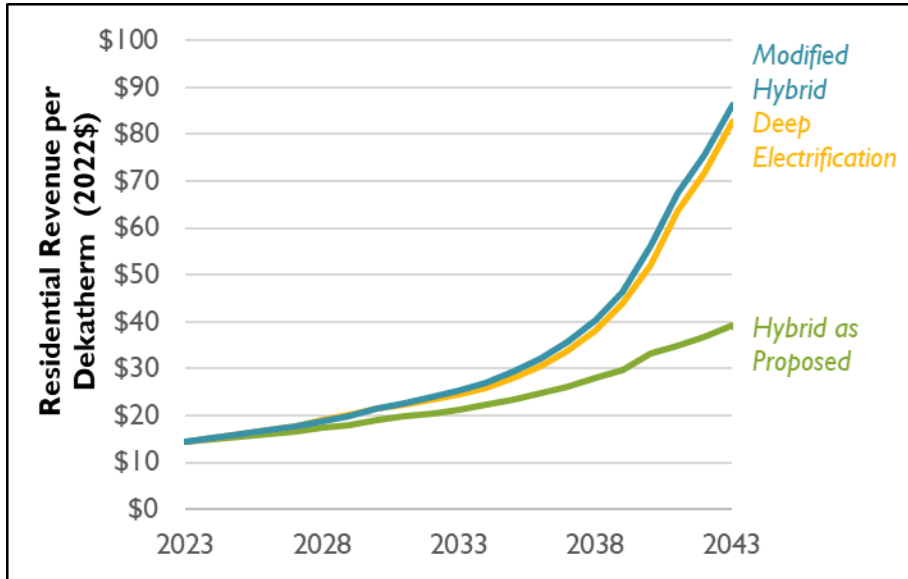


Figure 2. Con Edison residential bills

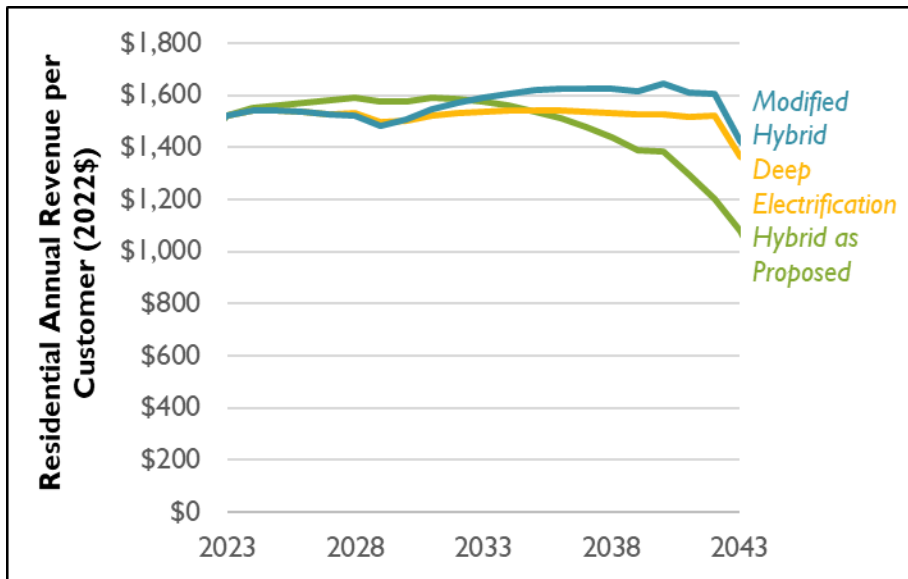


Figure 3. O&R residential rates

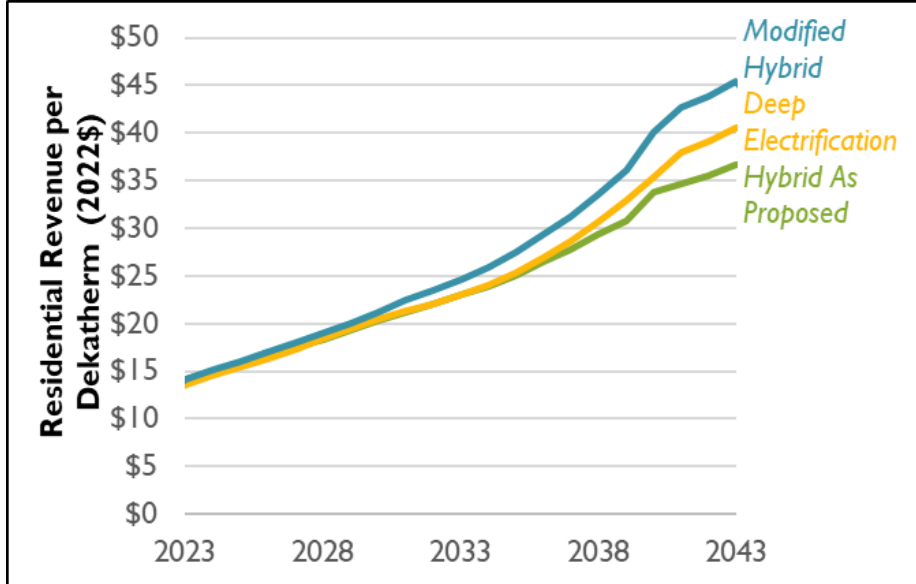
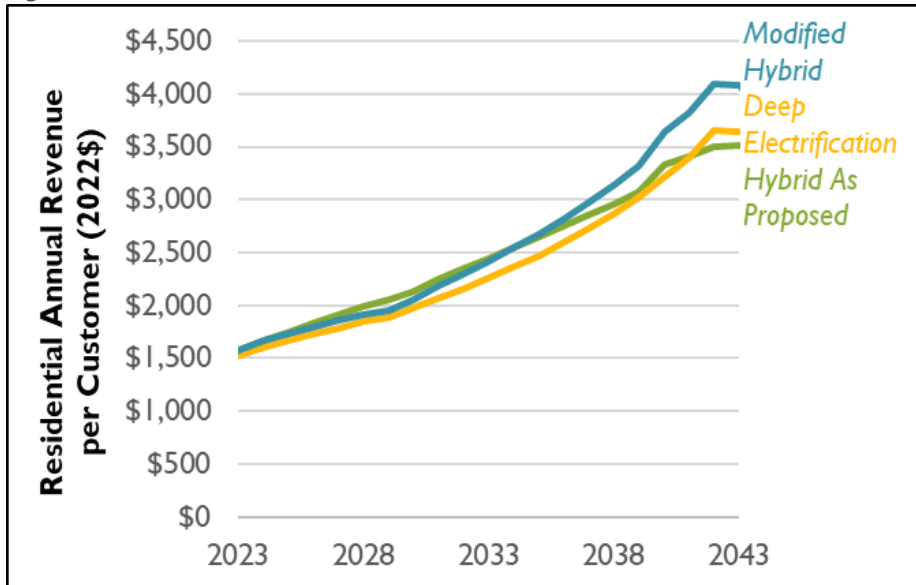


Figure 4. O&R residential bills



As shown in Figure 5 and Figure 7, comparison of the Hybrid As Proposed and the Modified Hybrid scenarios (which have the same investments as the Deep Electrification scenario and thus follow the same curve) shows the impact of shortening the MRP on rate base. Conversely, the increases in rate base in the Hybrid As Proposed scenario represent a larger balance that could be stranded in the future.

Figure 5. Con Edison rate base

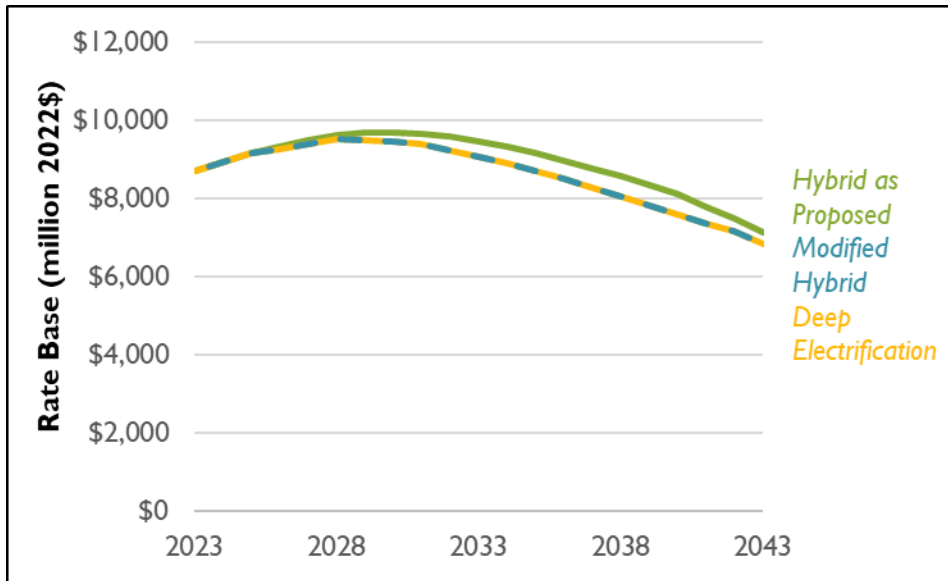


Figure 6. Con Edison revenue requirement

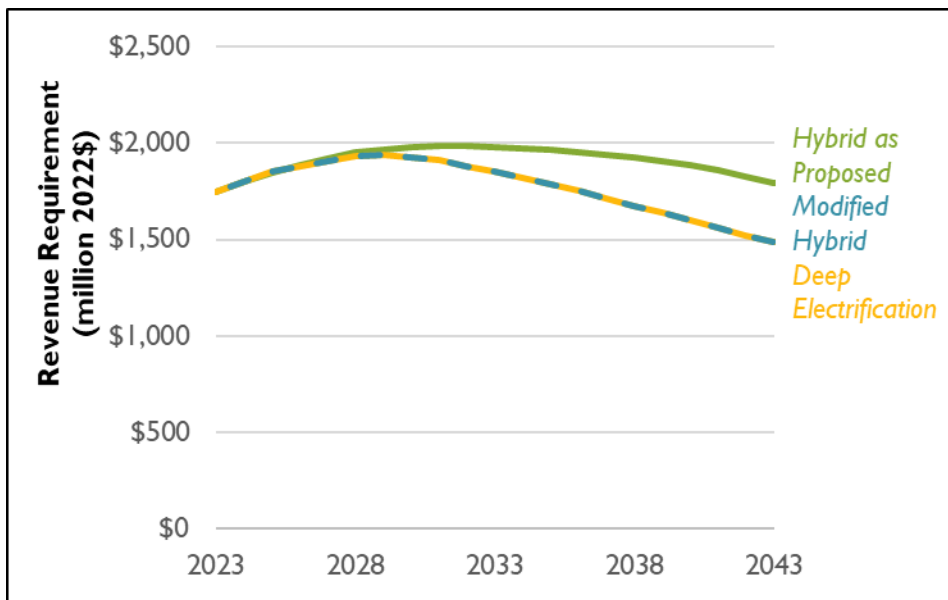


Figure 7. O&R rate base

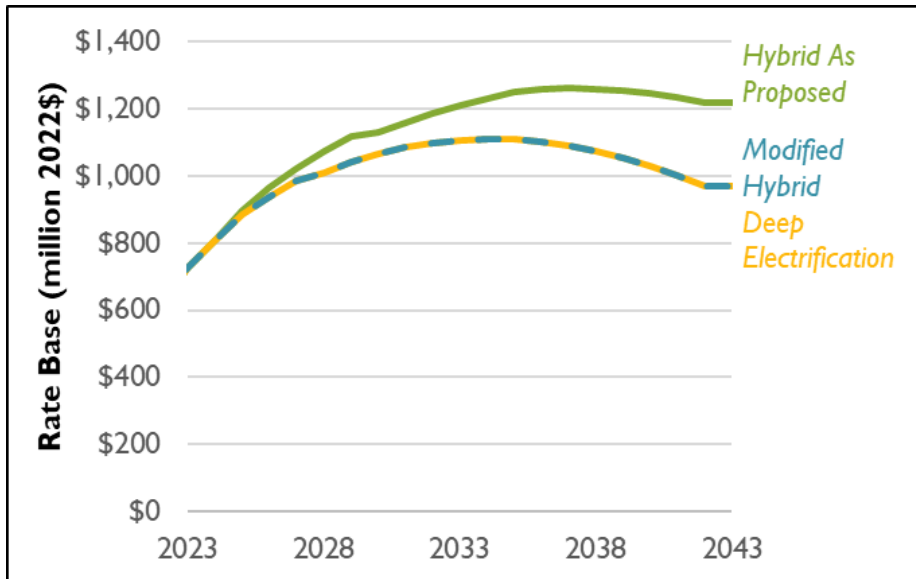
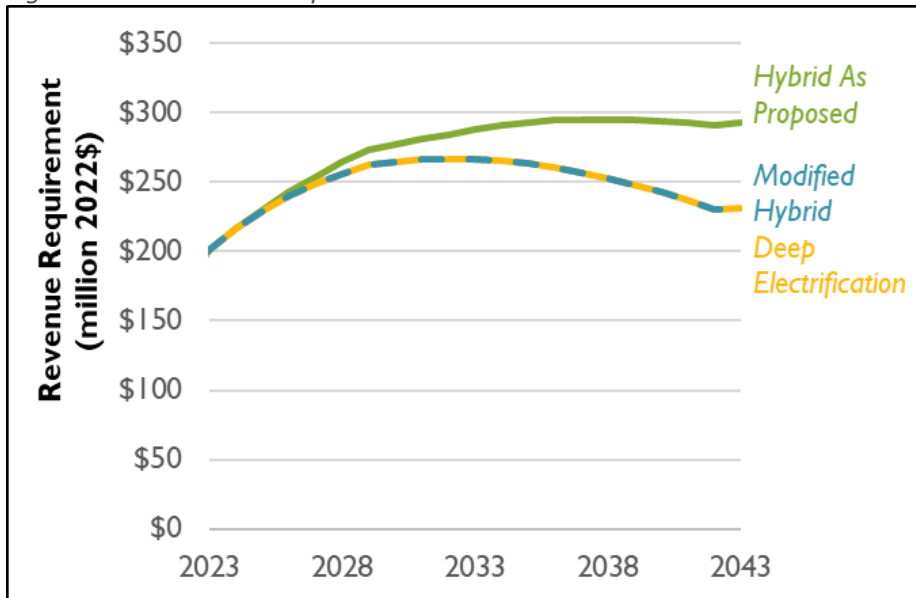


Figure 8. O&R revenue requirement



4. Conclusions

4.1 Affordability

The Companies suggest that the Hybrid scenario (as proposed) will have a small impact on rates. The Revised LTP shows the Hybrid pathway as having an increase in rates compared to the Reference Pathway. This increase reflects higher fuel costs and lower sales. Yet sales

declines may be steeper and fuel costs could be higher than modeled by the Companies in the Revised LTP.

Synapse modeling of a Modified Hybrid scenario sheds light on what rates could look like if higher rates from incorporation of expensive LCF and certified gas into the mix and from continued gas system investments prompt customers to reduce demand or migrate from the system at a faster pace. As illustrated in Figures 3 and 5, in the Modified Hybrid scenario, projected residential rates remain elevated, showing rates higher than the Deep Electrification scenario. A rate crisis could ensue: to avoid higher gas bills, some customers seek relief by electrifying or otherwise substantially reducing their use of pipeline gas. In response, the Companies will seek to increase gas rates for customers who remain on the gas system to cover their fixed costs. This will prompt even more customers to reduce or eliminate gas use, potentially leaving an enormous burden on customers such as renters and low-income households that have the least control over their building systems. Potential stranded assets in this case are immense.

The Revised LTP projects Hybrid and Reference scenario rates that are much lower than the Deep Electrification scenario. *However, these estimates are misleading because, as discussed above, they do not reflect potentially larger stranded costs in the future.*

The Companies fail to adequately consider the affordability of each pathway. They claim that issues of rates and affordability should primarily be considered in a rate case. This approach defers responsibility for the consideration of just and reasonable to a point in the future when it will be difficult or impossible to shift course, because MRP costs will have already been incurred and the best opportunities for downsizing the system will have been squandered. While the Companies are working to develop bill impacts for service classes for their pathways for the final version of the LTP, that timing won't give stakeholders an opportunity to weigh in and for the Companies to revise their LTP.

4.2 Emissions

For reasons discussed above, the Companies' claims about emissions reductions in the Hybrid scenario should not be accepted at face value. There are serious concerns about emissions attributable to certified natural gas and LCFs as proposed. Many uncertainties remain, including regarding implementation of the LCFs, which make it impossible for the Companies to know the precise level of emissions that will result from the Hybrid scenario. In contrast, emissions from the Deep Electrification scenario will reflect emissions trends on the grid, which will track the progress of the Renewable Portfolio Standard.

5. Recommendations

For the reasons described in these comments, NRDC recommends the Companies modify their modeling to capture the risk of rate pressure due to continued MRP investment and higher LCF

costs, and the lower sales and greater customer migration off the gas system that is likely to result. This includes conducting sensitivities to better understand the options and their potential risks, particularly for the Hybrid scenario. It also includes conducting a bottom-up assessment of customer-level choice and economics and incorporating this assessment into their modeling.

A sharp focus on opportunities to downsize the gas system is critical for the Companies at this juncture. The Companies should provide more information on their strategy for shrinking the system while also recognizing the value that some resource options offer in terms of flexibility to change course. Given these considerations, the Hybrid scenario falls far short of the action needed to decarbonize the system in a responsible and affordable way.

The Deep Electrification scenario is more consistent with the emissions reduction requirements of the CLCPA and will reduce risk of stranded assets and unrealistic estimates of emissions reductions associated with LCFs over the mid-to long-term terms. However, the Companies should modify the Deep Electrification scenario by fixing problematic assumptions regarding RNG and by eliminating certified gas, which will provide a better estimate of the emission reductions associated with the LTP.

Finally, we recommend that the Commission clarify the requirements for LTPs to address cost-effectiveness and non-GHG/criteria air pollution.