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December 19, 2022

Honorable Michelle L. Phillips, Secretary
New York State Public Service Commission
Three Empire State Plaza
Albany, NY 12223-1350

Re: Case 14-M-0094 - Proceeding on Motion of the Commission to Consider a Clean
Energy Fund
Case 18-M-0084 - In the Matter of a Comprehensive Energy Efficiency Initiative

Dear Secretary Phillips:

Pursuant to the Public Service Commission's September 15, 2022, Order,¹ the Department of Public Service staff (Staff) hereby file a comprehensive Energy Efficiency and Building Electrification Report (EE/BE Report) summarizing portfolio performance and posing questions soliciting feedback from stakeholders.

Sincerely,

/s/

Peggie Neville
Deputy Director,
Office of Markets & Innovation

(Enc.)

¹ Order Initiating the New Efficiency: New York Interim Review and Clean Energy Fund Review, filed in the above referenced cases, issued September 15, 2022.



Case 14-M-0094 – Proceeding on Motion of the Commission to Consider a Clean Energy Fund

Case 18-M-0084 – In the Matter of a Comprehensive Energy Efficiency Initiative

DEPARTMENT OF PUBLIC SERVICE STAFF
ENERGY EFFICIENCY AND BUILDING ELECTRIFICATION REPORT

Dated: December 19, 2022

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I. Introduction

This report summarizes the performance of current ratepayer-supported energy efficiency and building electrification programs administered by the State's Investor-Owned Utilities² (collectively, the Utilities) and the New York State Energy Research and Development Authority (NYSERDA), collectively the Program Administrators, and provides Department of Public Service Staff (Staff) observations and a series of questions that should be considered as the Public Service Commission (Commission) deliberates on the future of energy efficiency and building electrification programs.

This report is structured to first provide readers with an understanding of the current policy context within which the energy efficiency and building electrification portfolios operate. Following this contextualization, the report summarizes the performance of these ratepayer-supported programs. The performance periods presented in this report align with past Commission Orders as follows: Utility Non-Low- to Moderate-Income (LMI) data are presented from 2019 through Quarter 2, 2022; NYSERDA Non-LMI data are presented from 2016 through Quarter 2, 2022; and Statewide LMI data are presented from 2020 through Quarter 2, 2022. Figures used in this report have been compiled from data publicly reported by the Program Administrators. This information is compiled by segments of the respective portfolios in a manner intended to aid stakeholders and interested parties engaging in the review of utility and NYSERDA energy efficiency and building electrification programs (referred to herein as Interim Review). For each segment – A) Utility Electric and Gas Non-LMI portfolios, B) the Statewide Clean Heat portfolio, C) NYSERDA Non-LMI portfolio, and finally, D) the Statewide LMI portfolio – the sections are organized to first present high-level performance data, followed by observations from Staff and associated questions to solicit stakeholder input.

Within this report, Staff provides performance data for all the Program Administrators but notes that data are not intended for direct comparison between NYSERDA and the Utilities because the activities conducted by each are intentionally different and complementary, rather than duplicative and competitive, as discussed further within this report. A critical component of this report and the review commenced by the Commission, however, is an examination to determine whether the current suite of programs and activities offered by the various Program Administrators are truly complementary and making the best use of the collective ratepayer funds.

In compiling the Program Administrator performance data, Staff encountered various issues including inconsistencies amongst the Program Administrators in modifying program-level

² Central Hudson Gas & Electric Corporation (Central Hudson), Consolidated Edison Company of New York, Inc. (Con Edison), KeySpan Gas East Corporation (KEDLI), The Brooklyn Union Gas Company (KEDNY), National Fuel Gas Distribution Corporation (NFG), New York State Electric & Gas Corporation (NYSEG), Niagara Mohawk Power Corporation d/b/a National Grid (Niagara Mohawk), Orange and Rockland Utilities, Inc. (O&R), and Rochester Gas and Electric Corporation (RG&E).

budgets and targets and updating performance data, as well as discrepancies between the various plans and the quarterly scorecards. Staff strongly believes that to remedy these inconsistencies, an integrative technological solution for data management is essential and must be adopted and adhered to. Staff intends to address the shortcomings identified through this process to implement a better solution for data management to ensure that the energy efficiency and building electrification programs are implemented, monitored, and assessed in a manner that supports regulatory oversight, continued Program Administrator flexibility regarding implementation, transparency for stakeholders, and the nimbleness necessary for portfolio success in an evolving paradigm.

The Staff observations in this report are based on experience in the oversight of these programs, as well as feedback received from various sources, including comments at public forums, discussions with Program Administrators, and recommendations from the Strategic Advisory Group (SAG), which are addressed in more detail below.³ The series of questions included herein are intended to solicit input from parties as the Commission deliberates the future era of ratepayer-supported energy efficiency and building electrification programs. Questions are listed in the sections of most relevance; however, Staff notes that some questions may be relevant to more than one section. Parties submitting comments in response to these questions should be explicit as to whether their comments are more general in nature or focused on a specific sector or portfolio. Finally, the questions contained in this report are intended to facilitate the organization and systematic review of the public comments. For commentary that falls outside of the specific Staff questions, Staff requests that parties organize additional feedback in a manner that aligns with the sections and subsections of this report.

II. Background

On September 15, 2022, the Commission issued its Order Initiating the New Efficiency: New York Interim Review and Clean Energy Fund Review (Order Initiating NE:NY/CEF Review).⁴ As described in the Order, the Commission segmented the Review into four groups: Group 1) the Statewide LMI portfolio jointly administered by the Utilities and NYSERDA; Group 2) the Non-LMI Energy Efficiency and Building Electrification portfolio administered by the Utilities and NYSERDA's Market Development portfolio; Group 3) the Innovation & Research portfolio administered by NYSERDA; and Group 4) the New York Green Bank administered by

³ Pursuant to the Commission's January 16, 2020, Order Authorizing Utility Energy Efficiency and Building Electrification Portfolios in Case 18-M-0084, Staff was instructed to commence a Performance Management & Improvement Process (PM&IP) for the ratepayer funded energy efficiency and building electrification portfolios. As detailed in Staff's May 29, 2020, PM&IP Plan, a component of this Process was a Strategic Advisory Group (SAG), representing a broad cross section of knowledgeable stakeholders to be utilized to provide Staff and the Program Administrators with relevant market, strategic and technical expertise.

⁴ Case 14-M-0094, Proceeding on Motion of the Commission to Consider a Clean Energy Fund, and Case 18-M-0084, In the Matter of a Comprehensive Energy Efficiency Initiative, Order Initiating the New Efficiency: New York Interim Review and Clean Energy Fund Review (issued September 15, 2022).

NYSERDA. The Commission indicated that the first phase of the Review would focus on Groups 1 and 2, the LMI and Non-LMI Energy Efficiency and Building Electrification portfolios, and required Staff to file an Energy Efficiency and Building Electrification Report summarizing the performance of the respective initiatives and soliciting input from parties through the inclusion of questions.

III. State & Federal Policy Context

Climate Leadership and Community Protection Act (CLCPA)

The CLCPA, which was signed into law in July 2019, is the most comprehensive and ambitious climate policy legislation enacted in the country. It set nation-leading climate and energy goals in the form of greenhouse gas (GHG) emissions reductions targets and standards to ensure that the benefits of clean energy investments directly serve Disadvantaged Communities in the State that are disproportionately impacted by environmental pollution and the effects of climate change.

The CLCPA established specific targets designed to achieve carbon neutrality in all sectors of the economy and eliminate GHG emissions produced by energy generation. In addition to the statewide mandate to reduce GHG emissions by at least 40 percent from 1990 levels by 2030 and by at least 85 percent from 1990 levels by 2050, the CLCPA also established electric sector–specific mandates.⁵ Among these is the directive for the Commission to establish a clean energy program under which, by 2030, the State’s jurisdictional load serving entities procure at least 70 percent of the State’s electric load from renewable energy resources, and, by 2040, the statewide electrical demand system is zero emissions.⁶

The buildings sector represents the largest source of GHG emissions in New York State, accounting for more than a third of overall emissions.⁷ These emissions derive largely from the on-site combustion of fossil fuels for space and water heating. Analysis performed by NYSERDA indicates that any strategy to achieve CLCPA emissions reduction targets will include a significant degree of electrification of building heating, water heating, and cooking equipment.⁸ In past Orders, the Commission has emphasized that the transition away from fossil fuels for use in New York’s building stock must be undertaken carefully to ensure the continuation of safe and reliable utility service. As this transition proceeds, the State’s energy efficiency programs will play an

⁵ CLCPA §4.

⁶ *Id.*; Public Service Law (PSL) §66-p(2).

⁷ NYS DEC 2021 Statewide Greenhouse Gas Emissions Report, found at: <https://www.dec.ny.gov/energy/99223.html#Process>.

⁸ New York State Climate Action Council Draft Scoping Plan, Appendix G: Integration Analysis Technical Supplement, found at: <https://climate.ny.gov/-/media/Project/Climate/Files/Draft-Scoping-Plan-Appendix-G-Integration-Analysis-Technical-Supplement.pdf>.

important role not only in reducing buildings-sector emissions, but also in managing demand on the electric system.

Disadvantaged Communities

The CLCPA also required the Commission to design programs in a manner to provide substantial benefits for Disadvantaged Communities, including LMI customers, at a reasonable cost while ensuring safe and reliable electric service.^{9,10} Specifically, with regard to Disadvantaged Communities and LMI customers, the CLCPA requires, to the extent practicable, the Commission to: a) direct available programmatic resources in such a manner that Disadvantaged Communities receive a target of 40 percent, with no less than 35 percent, of the overall benefits of spending on clean energy and energy efficiency programs, projects or investments;¹¹ b) in any proceeding commenced by the Commission with a goal of achieving 185 trillion British thermal units of end-use energy savings below the 2025 energy-use forecast, include mechanisms to ensure that, where practicable, at least 20 percent of investments in residential energy efficiency, including multi-family housing, are invested in a manner that will benefit Disadvantaged Communities, including LMI consumers;¹² and c) require NYSERDA and the Investor Owned Utilities (IOUs) to develop and report metrics for energy savings and clean energy market penetration in the LMI market and in Disadvantaged Communities and post such information on the NYSERDA's website.¹³

The CLCPA provides for a process through which the Climate Justice Working Group, formed pursuant to the CLCPA, will establish specific criteria for identifying Disadvantaged Communities. On December 13, 2021, the Climate Justice Working Group released draft criteria, followed by extensive public comments, which it is now considering prior to finalizing the criteria.

Climate Action Council Scoping Plan

The CLCPA required the formation of a Climate Action Council (CAC) responsible for developing a Scoping Plan laying out recommendations for achieving the greenhouse gas emissions limits established by the CLCPA. The Scoping Plan will present recommendations for reducing emissions from each emitting sector of the State's economy and economy-wide emissions reductions strategies, informed by sectoral advisory panels, a Just Transition Working Group, and a Climate Justice Working Group. The CAC released its Draft Scoping Plan on December 30,

⁹ PSL §66-p(7).

¹⁰ The CLCPA defines "Disadvantaged Communities" as "communities that bear burdens of negative public health effects, environmental pollution, impacts of climate change, and possess certain socioeconomic criteria, or comprise high-concentrations of low- and moderate-income households, as identified pursuant to section 75-0111 of [the Environmental Conservation Law (ECL)]." ECL §75-0111 provides for a process through which a Climate Justice Working Group will establish specific criteria for identifying Disadvantaged Communities. On December 13, 2021, the Climate Justice Working Group released draft criteria and the 120-day public comment period began on March 2, 2022.

¹¹ ECL §75-0117.

¹² PSL §66-p(6).

¹³ PSL §66-p(7)(c).

2021, followed by several months of public meetings and a public comment process. The CAC is required to issue a Final Scoping Plan by January 2023 and recently voted to approve the Final Scoping Plan on December 19, 2022.¹⁴

Two Million Climate Friendly Homes

With buildings representing nearly a third of New York’s climate pollution, Governor Kathy Hochul announced, as part of the 2022 State of the State Address, an approach to achieve two million climate-friendly, electrified or electrification-ready homes by 2030. This comprehensive approach included a series of legislative proposals related to enhanced building codes and appliance efficiency standards, statewide benchmarking requirements, advancement of clean energy alternatives, and ending the obligation to serve customers with natural gas that currently exists in state law; efforts to engage private financing and provide training to develop the necessary skilled workforce; and the creation of a dedicated green electrification fund through the new \$25 billion, five-year housing capital plan of Homes and Community Renewal, which will advance the State’s goals of creating green affordable housing. In addition, the Governor directed the Department of Public Service, NYSEDA, Homes and Community Renewal, and the New York State Department of State to deliver an executable plan to achieve this goal, with a funding proposal and strategies to leverage private capital.

Inflation Reduction Act

On August 16, 2022, President Biden signed into law the Inflation Reduction Act (IRA) of 2022 which dramatically scales up federal funding for clean energy solutions, including around \$369 billion for energy and climate provisions, by far the largest climate investment in U.S. history.

The Act specifically targets significant federal funding for energy efficiency and electrification of buildings, with nearly 10% of the total climate and energy funds dedicated to home energy improvements. With respect to the NE:NY and CEF portfolios, the most relevant are the High Efficiency Electric Home Rebate Act Program targeting LMI customers, with \$4.5 billion allocated over 10 years and up to \$14,000 per home, and the Home Owner Managing Energy Savings (HOMES) Rebate program, also funded at \$4.3 billion over 10 years. Additionally, there are clean energy and efficiency tax credits for individual homeowners, with tax credits of up to 30% of the cost of materials and labor for selected energy efficiency and electrification measures. There are additional tax credits and other incentives for efficiency and electrification projects for commercial and industrial customers.

The exact amounts available to New York have yet to be determined, though the two residential rebate programs will be disbursed via formula grants to State Energy Offices, and

¹⁴ The Climate Action Council’s Final Scoping Plan can be found at www.climate.ny.gov.

preliminary analysis suggests that each of the residential rebate programs will bring an estimated over \$300 million to New York over the ten-year period.

IV. Regulatory Construct

Future Strategic Framework

The Commission's December 2018 Order Adopting Accelerated Energy Efficiency Targets (December 2018 NE:NY Order)¹⁵ recognized that the portfolios and measure mixes would evolve over time and envisioned the need for ongoing monitoring and improvement of program performance, and therefore directed Staff to initiate a Performance Management & Improvement Process (PM&IP).¹⁶ A key element of the PM&IP was the establishment of an Energy Efficiency and Building Electrification Strategic Advisory Group (SAG), with members who bring market expertise and varied perspectives to advise Staff on changes in the market and potential improvements to utility and NYSEERDA programs and portfolios. The SAG convened for an initial two-year term which expired in August 2022.

With the pending commencement of this Interim Review, Staff requested that the SAG develop recommendations on the evolution of both the electric and gas energy efficiency portfolios. These recommendations were presented in publicly noticed meetings in early 2022 and are included as Appendix 7 to this report. In considering potential program changes, SAG members attempted to break potential measures and programs into three areas, Strategic, Neutral, and Non-Strategic, with an aim to expand funding and priority for Strategic measures and programs and phase out funding of Non-Strategic measures and programs.¹⁷ During the process of preparing the recommendations, SAG members requested that DPS provide guidance regarding what, in Staff's opinion, should be considered Strategic. Guidance from Staff to the SAG was as follows:

Electric Ratepayer Funded Programs:

"Strategic" energy efficiency measures or programs are considered those that incentivize actions to:

¹⁵ Case 18-M-0084, In the Matter of a Comprehensive Energy Efficiency Initiative, Order Adopting Accelerated Energy Efficiency Targets (Issued December 13, 2018).

¹⁶ Matter 20-01201, In the Matter of the Performance Management and Improvement Process.

¹⁷ SAG members recommended the following guidelines be considered for the treatment of programs/measures found to be Strategic, Non-Strategic and Neutral: 1) Funding and incentives for strategic measure programs should be prioritized and leverage mid-stream incentives wherever possible to achieve market transformation goals; 2) Funding and incentives for non-strategic measures should be eliminated as part of the New Efficiency: NY Interim Review unless program administrators demonstrate they cannot meet NY's energy savings goals through strategic and neutral measures; 3) Funding and incentives for neutral measures that are cost-effective on a lifetime savings basis can be maintained but should not be prioritized over strategic measures.

· Permanently reduce or eliminate electricity usage on an annual basis, which would not occur absent the program's intervention.

· Permanently reduce or eliminate electricity usage on peak which would not occur absent the program's intervention. (Currently New York's electric system is summer peaking, however as the state electrifies its building stock, considerations should be given for measures/programs that can mitigate winter peaks.)

· Improve the building envelope resulting in near-term reduction in electric usage in instances of cooling and position the building for possible electrification by way of proper sizing of equipment and mitigating future winter peaks.

Or:

· Permanently reduce or eliminate on-site combustion of fossil fuels through the installation of efficient heating or hot water electrification

Gas Ratepayer Funded Programs:

“Strategic” energy efficiency measures or programs are considered those that incent actions to:

· Permanently reduce or eliminate fossil gas usage on an annual basis, which would not occur absent the program's intervention.

· Permanently reduce or eliminate fossil gas usage on a peak-day or peak-hour basis (in areas of current or anticipated near-term supply constraints), which would not occur absent the program's intervention.

· Improve the building envelope resulting in near-term reduction in gas usage (and electric usage, in instances of cooling) that will also serve to mitigate future winter peaking on the electric grid in the event the property's heating system is electrified.

With this guidance from Staff about “strategic” energy efficiency measures, the SAG presented recommendations for the evolution of programs and portfolios, including which types of measures or programs are non-strategic and might be phased out as quickly as reasonably possible to maximize the impact of ratepayer funds.

Staff Observations & Questions for Comment

Staff believes the framework of Strategic and Non-Strategic is useful for the conduct of this review and consideration of future ratepayer-supported efforts, as it can help focus limited ratepayer funds in the most appropriate manner. Further, Staff finds the SAG recommendations to be helpful and consistent with the direction New York's energy efficiency and building electrification programs should move in as dictated by current State policy objectives. While the SAG's recommendations have helped to shape the observations in this report, Staff finds that further deliberations and refinements would be needed before adopting them outright. Some

recommendations would need to be articulated in greater detail, and all would require further examination of the implications of and potential timelines for adoption.

In order for a Strategic/Non-Strategic Framework to be established to provide guidance to Program Administrators as to the programs and measures that should be included, Non-Strategic must also be defined. One could determine, definitionally, something is Non-Strategic simply if it does not meet the criteria established for Strategic. However, Staff does not believe it is a completely binary choice, and therefore there may be value in allowing for a Neutral designation as well.

Staff proposes Non-Strategic programs or measures are those that incent actions that:

- *Jeopardize the advancement of Strategic energy efficiency or building electrification programs or measures*
- *Increase the use of fossil fuels*

Staff proposes Neutral programs or measures are those that:

- *Neither advance or jeopardize Strategic programs or measure but produce overall reductions in annual energy consumption*

- Q1. To establish a Strategic/Non-Strategic Framework for ratepayer-supported energy efficiency and building electrification programs, how should the definitions of Strategic, Non-Strategic, and Neutral be further refined?
- Q2. The scale of CLCPA-level energy efficiency and building electrification goals is far greater than what can be achieved through ratepayer-funded programs alone. How can the Strategic/Non-Strategic Framework be further refined to focus ratepayer funds on the activities that are most appropriate for this funding source? What criteria should the Commission adopt to direct investments to ensure prioritization of ratepayer funds within this Framework?

Delivering Benefits to Disadvantaged Communities

As noted earlier, the CLCPA requires the Commission to ensure, to the extent practicable, that a minimum of 35% with a goal of 40% of benefits of clean energy and energy efficiency program spending accrue to Disadvantaged Communities. While there may be significant alignment between the designated Disadvantaged Communities and the geographic areas in which LMI customers reside, it is important to note that investments in Disadvantaged Communities are not wholly the responsibility of the dedicated LMI residential programs. To deliver on the CLCPA mandate, it will be necessary for non-LMI programs to also target investments in Disadvantaged Communities.

Staff Observations & Questions for Comment

Staff is currently working with the Program Administrators to baseline the investments of their current energy efficiency and building electrification programs using the Climate Justice

Working Group’s Draft Criteria. Staff believes financial incentives will be necessary to deliver greater benefits in Disadvantaged Communities; however, financial incentives alone are unlikely to result in the type of transformational shift envisioned. Program Administrators will need to examine current processes, program designs, and outreach mechanisms to assess their effectiveness and engage with members and representatives of Disadvantaged Communities to identify and implement modifications that will improve services in these areas.

- Q3. What are the strengths and weaknesses of the current suite of energy efficiency and building electrification programs in providing benefits to Disadvantaged Communities?
- Q4. It is expected that benefits to Disadvantaged Communities will result both from LMI programs as well as non-LMI programs administered by the Utilities and NYSERDA. Specifically, how can non-LMI energy efficiency and building electrification programs be altered in design, outreach, and implementation to increase benefits to Disadvantaged Communities? What other modifications should be made beyond potential increases in incentive levels?
- Q5. If greater incentives or resources are needed to support projects in Disadvantaged Communities, what impact could that have on the Program Administrators’ ability to achieve the targets established by the Commission through 2025? How should this requirement factor into any post-2025 budgets and targets authorized by the Commission?

Metrics

In 2008, the Commission initiated the Energy Efficiency Portfolio Standard (EEPS), which was intended to reduce the State’s electricity usage by 15% of forecasted levels by the year 2015, with comparable results for natural gas usage. The EEPS programs represented the first generation of the State’s concerted and coordinated effort between the Utilities and NYSERDA to pursue significant clean energy goals by adding utility-administered offerings into the energy efficiency framework, which had previously consisted primarily of NYSERDA-administered System Benefits Charge (SBC) programs. Since 2008, there has been meaningful evolution of New York State’s strategies and goals for a cleaner energy future, including a growing focus on electrification; a shift away from reliance on natural gas; and a push for deeper, longer-lasting energy efficiency savings. Over that same period, however, the key metrics used to measure portfolio performance have remained constant. The Commission has authorized annual savings targets (i.e., the savings achieved in the one year following installation of a measure) as the primary metric. The determination of success has been largely limited to counting up annual and lifetime megawatt hour (MWh) or million British thermal unit (MMBtu) savings and the associated program expenditures, as demonstrated by this report.

Staff Observations & Questions for Comment

Given the evolving State policy landscape surrounding energy efficiency and electrification (with particular emphasis on building electrification for purposes of this report and the Interim

Review), Staff is not confident that the historic metrics around which the State's energy efficiency and building electrification programs have been designed align with the future framework necessary to meet the expanded climate goals. Staff believes that there may not be a singular metric to measure and compare the performance of different types of energy efficiency and electrification initiatives. Staff also posits that metrics related to unit costs, with a goal of reducing the unit costs the Utilities are currently experiencing, are likely not sustainable. It is highly unlikely that utility portfolios could transform and transition to delivering deeper measures and more comprehensive projects while reducing unit costs from the current set of initiatives that are heavily reliant upon low-cost energy savings resulting from rebates in mature efficient lighting markets and inexpensive home energy reports. Continuous unit cost reductions for portfolios of programs designed to help transform markets and reduce total costs of newer technologies is not possible as new technologies and markets are brought into the portfolio mix. It is much more likely that, given a change in focus to measures and technologies associated with envelope/shell work and building electrification, unit costs will increase beyond the more recently experienced portfolio unit costs. That is not to say that unit costs should no longer be tracked or that unit cost reduction should no longer be a goal to work toward; only that a new unit cost baseline (at a higher level) would need to be set and then expect to see decreases over time as those markets mature.

Because metrics can guide state policy decisions, as well as decisions by Program Administrators on where to focus authorized budgets, it is important to get them right. Similarly, the targets that are set for those metrics also demand careful consideration. Any metrics and targets developed through this process should be transparent, easily understood, meaningful, and linked in some way to ultimately reaching the State's clean energy goals.

- Q6. Given the necessity for energy efficiency and building electrification portfolios to evolve to support the State's ambitious climate goals and mandates, what performance metrics (i.e., beyond annual and lifetime MWh and MMBtu savings) should the Commission consider prioritizing to drive the types of programs, innovation, and outcomes needed?
- Q7. Would distinct metrics and targets for different types of programs (e.g., heat pumps, envelope/shell, electric energy efficiency, gas energy efficiency, etc.) be more appropriate than a single metric and goal? If so, what level of granularity would be optimal?

Budget and Target Time Periods

The regulatory framework under which New York's energy efficiency and building electrification programs are implemented has also undergone significant changes since 2008. Over the course of time, the Commission granted Program Administrators significantly greater flexibility to manage the day-to-day implementation of their programs and portfolios. Budgets and targets, which the Commission had originally approved program by program, are now approved at a portfolio level and Program Administrators have full authority, in accordance with certain overarching requirements related to a portfolio-level benefit cost testing and minimum investment

in LMI programs, to allocate that money to specific years as they see fit. Prior to 2019, utilities were provided specific annual budgets and targets. Now for NE:NY, the Commission established cumulative 2019-2025 budgets and targets for each utility, but also provided annual allocations as a guidepost.

Within the CEF Framework Order,¹⁸ the Commission acknowledged that the types of programs operating under the CEF often have long lead times and do not lend themselves to strict adherence to annual budgets and targets. Therefore, for NYSERDA's CEF portfolios, the Commission originally authorized a cumulative 10-year budget and target, with a commitment-based goal, whereby NYSERDA was required to have its budget encumbered and corresponding benefits committed to projects by the end of the 10-year period, December 31, 2025. However, in its CEF Modifications Order, the Commission recognized the need for more transparency around the timing of the expected acquisition of energy savings and expenditure of funds. As a result, the Commission retained NYSERDA's ability to commit funds through 2025 but adopted acquired targets through 2025 and through 2030, in recognition of the lag in savings for NYSERDA's market transformation programs.¹⁹

Staff Observations & Questions for Comment

The time periods associated with portfolio budgets and targets is an important consideration that impacts portfolio design and performance management. Staff has found that the authorization of annual budgets and targets can provide significant accountability for Program Administrators and offer a consistent near-term measurement of portfolio success and failure essential for meaningful regulatory oversight. However, a strict adherence to annual budgets and targets does not provide Program Administrators with flexibility to moderate program offerings in response to the realities of the fluctuating economic and social conditions within which these portfolios must operate. For instance, programs with rigid annual budgets can result in interruptions of service to the market as programs may "close" prior to the end of the year and restart when funding for the next year becomes available. Annual budgets and targets have also led to program designs that do not support the multi-year commitments often necessary for more complex or comprehensive projects or capital cycle planning for certain building types. In recognition of these issues, the current utility portfolios operate under the ability to view the budgets and targets as a cumulative goal for the period. This, too, is not without its drawback, as was shown by the Con Edison and Central Hudson NYS Clean Heat experience (discussed further, below) in which high demand led the companies to realize targets and either expend, or be on pace to expend, their full budgets prior to the end of the program period. From a strict view of achievement of the target for the funding authorized, this could be viewed as a success; however, premature closure of a program, particularly in a nascent market, is extremely detrimental to the overall development of the market and its ability to scale to meet the longer-term needs of the State.

¹⁸ Case 14-M-0094, *Supra*, Order Authorizing the Clean Energy Fund Framework (issued January 21, 2016).

¹⁹ Case 14-M-0094, *Supra*, Order Approving Clean Energy Fund Modifications (issued September 9, 2021).

In contrast, as was experienced with the initial authorization of the CEF, adopting long-term/multi-year budgets and targets facilitates market transformation programs that have delayed benefits but makes it difficult to measure performance during the early phases of the implementation period. Staff believes that such long-term budgets and targets make it very difficult to uncover planning or market failures that may compound the effects of underperformance, leaving significant deficits at the end of the period. Staff, therefore, believes the time scale for budgets and targets must balance the flexibility to shift funds and achievements across multiple years while also providing regular guideposts at which performance and progress toward goals may be measured and adjusted.

- Q8. Should implementation flexibility and performance measurement carry equal weight when determining the appropriate time period for budgets and targets? Should portfolio budgets and targets be single-year, multi-year, or some combination of the two? What would the reasonable bounds be for multi-year budgets and targets?

Fuel Neutrality

Within the CEF Framework Order, the Commission determined the most equitable approach to funding energy efficiency and clean energy market development programs was to limit collections to electric customers only, because all customers, regardless of heating type, are electric customers.²⁰ This approach allows NYSERDA to offer fuel-neutral market development programs as it is agnostic towards a customer's fuel source, eliminating restrictions on which measures may be pursued, so long as the project creates a net-positive outcome towards CEF program goals and targets.²¹ The Commission further supported its decision to allow NYSERDA to approach energy efficiency in a fuel-neutral manner, stating that "from the customer's perspective...we should look to gain energy efficiency at the lowest overall cost. Rules that restrict efficiency improvements to only electric or only gas can undermine achievement of this objective."²²

In contrast, utility programs continue to be funded through specific collections associated with either gas or electric ratepayers. The rationale for this cost recovery method is that programs administered locally by a utility, as opposed to on a more global statewide basis, should result in direct benefits to the applicable distribution system and directly benefit the ratepayers from whom funding is collected, beyond the overall societal benefit of GHG emission reductions. However, this does not always lead to effective program design, because it can interfere with a utility's ability to offer comprehensive services (e.g., reducing electricity, gas and/or fuel oil usage within a

²⁰ NYSERDA also receives funding from other sources outside the Commission's jurisdiction to support clean energy activities such as regional greenhouse gas allowance auction proceeds (RGGI), direct NYS appropriations, and grant proceeds.

²¹ Only customers who contribute towards program revenues, the System Benefit Collection surcharge, are eligible to participate within NYSERDA's CEF programs, therefore customers who receive electric delivery through another provider, such as the New York Power Authority or municipal electric utilities are not eligible to directly participate.

²² Case 14-M-0094, Supra, Order Authorizing the Clean Energy Fund Framework, issued January 21, 2016, pg 61.

single project) and lead to the emergence of competing programs in instances where utilities' geographic service territories overlap.

Tangentially related to the consideration of a fuel neutral approach, is the recent Con Edison petition²³ in which the company proposes to initiate energy efficiency programs for its steam customers. Additionally, Con Edison included discussions of these same programs within its steam rate case which was filed with the Commission for consideration on November 23, 2022.²⁴ The Con Edison steam programs would expand program opportunities for MMBtu savings to steam customers in the Con Edison service territory and would again provide additional opportunities to more comprehensively address customer needs.

Staff Observations & Questions for Comment

The Commission sought to expand the Utilities' ability to offer programs on a fuel-neutral basis in the December 2018 NE:NY Order by adopting an overarching TBtu target for the 2019-2025 utility portfolios. The Commission explicitly indicated in that Order that when assessing the utility proposals for the 2021-2025 portfolios, it would employ "a pragmatic standard of optimal reduction, with the paramount goals of achieving TBtu reduction and minimizing overall program costs." At the same time, however, the Commission retained single-fuel sub-targets – for example, the subsidiary target of an annual reduction of 3% in electricity sales by 2025.²⁵ These single-fuel sub-targets substantially undercut the opportunity afforded by the overarching TBtu target to reshape utility programs on a fuel-neutral basis. The exception to this circumstance is the electric utilities' NYS Clean Heat program, for which the Commission authorized MMBtu targets that ordered the use of electric ratepayer funds to reduce fossil fuel usage resulting from the installation of heat pumps.²⁶

Adopting a fuel-neutral approach for utilities is complicated by the geographic boundaries of individual utility service territories, especially in the case of gas-only utilities. Challenges stem from the difficulties of coordination between two utilities competing to procure energy savings related to their fuel-specific delivered energy, e.g., electricity or natural gas. At the same time, the single-fuel approach to energy efficiency programming also creates challenges. This siloed approach can cause confusion for prospective participants, making it difficult to identify which programs are available to them and which solutions would serve them best, and potentially placing the onus on the participant to coordinate the various offerings. While recognizing the practical challenges of adopting a fuel-neutral approach, Staff believes there is a need for more integrated energy efficiency and building electrification programming that provides streamlined access to

²³ Case 18-M-0084, In the Matter of a Comprehensive Energy Efficiency Initiative, Con Edison Steam Energy Efficiency Petition, filed November 8, 2022.

²⁴ Case 22-S-0659, Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of Consolidated Edison Company of New York, Inc. for Steam Service.

²⁵ The subsidiary target of 3% of electric sales by 2025 was based on the collective efforts of the electric utilities and NYSERDA with each contributing 2% and 1% respectively and intended to net out any increased usage associated with beneficial electrification.

²⁶ The MMBtu targets established for NYS Clean Heat reflect the reduction in fossil fuel as well as the increase electricity usage associated with the installation of heat pumps.

comprehensive energy solutions, and that the current regulatory framework may need to be modified to remove barriers to this approach.

Regarding the proposed Con Edison steam energy efficiency programs, Staff recommends the Commission address the Con Edison program proposal within this interim review proceeding as it establishes the appropriate criteria for energy efficiency and building electrification programs and wholistically considers the program administrators' approaches to meeting the State's carbon emission reduction goals.

- Q9. To date, programs providing support for building electrification have been predominantly funded by electric ratepayers and administered by electric utilities. Should gas utilities administer building electrification programs and if so, how should this be coordinated with electric utilities?
- Q10. Building envelope and shell measures are likely to become a larger component of energy efficiency and building electrification programs than in the past. What approach will work best in the marketplace, given the overlap between electric and gas service territories and the inherent complexities of programs co-existing with other programs targeting the same building stock or customers?
- Q11. How does the overlapping nature of utility territories in some areas of the state hinder energy efficiency or building electrification program performance or customer engagement? What alternative approaches should be considered to alleviate these issues?

Earning Adjustment Mechanisms

To reward utilities for performance and drive particular activities, the Commission shifted from the negative and positive shareholder incentive mechanism that existed under the early EEPS 1 portfolio, which were implemented from 2009-2011, to the current Earning Adjustment Mechanism (EAM) structure. The Commission first introduced the concept of EAMs in 2016 as a transitional way in which to reward utility shareholders for a utility's focus on and extraordinary achievements of overarching policy goals as the utilities shifted away from the traditional utility business model.²⁷ Since 2016, energy efficiency and building electrification EAMs have been developed and implemented within individual utility rate cases and, to date, all but NFG are subject to energy efficiency and/or building electrification EAMs. Although the Commission has provided some broad guidance on how those energy efficiency and building electrification EAMs should be structured, the specific details of the EAMs have been subject to negotiations and differ across the utilities. Most recently, energy efficiency and building electrification EAMs adopted within the utility rate cases have been designed as Share-the-Savings metrics, allowing utility shareholders to earn a portion of the difference between a baseline cost per lifetime energy savings and the actual expenditures per acquired lifetime energy savings. The Share-the-Savings design

²⁷ Case 14-M-0101, Proceeding on Motion of the Commission in Regard to Reforming the Energy Vision, Order Adopting a Ratemaking and Utility Revenue Model Policy Framework (issued May 19, 2016).

rewards utilities for achieving a lower cost per unit of lifetime energy savings than an agreed upon baseline.

Staff Observations & Questions for Comment

By design and in practice EAMs and other incentive mechanisms have influenced the way in which utilities design and implement their portfolios of energy efficiency and building electrification programs. Although not directly assessed in this Staff Report, Staff notes that the current focus on cost savings for EAMs, while an important consideration, does not fully align with the current clean energy goals that rely upon utilities pursuing deeper, often more expensive, energy savings. Additionally, the cost savings claimed by utilities are highly dependent upon a predetermined baseline. Establishing these predetermined baselines can be a contentious endeavor in rate cases and a poorly established baseline could lead to undeserved utility shareholder awards.

Beyond the current misalignment in the design of the EAMs, Staff is also cognizant of the increasing costs to ratepayers of the energy efficiency and building electrification activities necessary to meet the State's goals. There is a compounding effect to ratepayers when those ratepayers are also expected to provide shareholder incentives for the successful implementation of the energy efficiency and building electrification activities for which they already pay. Under the CLCPA, energy efficiency and building electrification activities are now essential to comply with statute, and Staff does not believe it is appropriate to ask ratepayers to bear the additional costs to reward utility shareholders for engaging in activities that are already fully funded by ratepayers to attain a mandated goal. However, Staff could see a role for negative revenue adjustments for failure to attain the required achievements, particularly as the utility currently carries no risk for failure to attain the energy efficiency and building electrification performance that positions the State to attain the carbon reduction goals set forth in the CLCPA.

- Q12. Under what circumstances, if any, should utility shareholders be financially rewarded for meeting energy efficiency and building electrification targets that are necessary to achieve the GHG emissions reductions mandated by the CLCPA? Should the Commission consider adopting a negative shareholder revenue adjustment if energy efficiency and building electrification targets are not achieved?
- Q13. Given Staff's concerns about the current energy efficiency and building electrification EAM Share-the-Savings metrics detailed in this report, is there a more appropriate positive revenue incentive structure for utility shareholders? Upon what metric(s) should energy efficiency and building electrification performance be measured to best align the State's clean energy policies with a potential shareholder incentive? How should the targets and the value of the shareholder incentive be determined? Should all utilities be subject to the same shareholder incentive design?

NYSERDA and Utility Respective Roles

As discussed herein, the Commission has authorized the various energy efficiency and building electrification portfolios administered by the electric and gas utilities and NYSERDA to

work in tandem with one another to support the overall objectives. Within the CEF Framework Order the Commission identified that it is “paramount that programs and activities delivered by the utilities and NYSERDA are complementary and do not result in inappropriate overlap or competition.”²⁸ At the time, the Commission envisioned that NYSERDA’s role would shift to reducing barriers to clean energy adoption, while utility programs would focus on enabling service delivery to consumers. The cooperative arrangement, as described in the December 2018 NE:NY Order, was to better connect the market development work in the CEF with utility strategies which may include greater emphasis on more traditional resource acquisition programs.²⁹ The collaboration was also expected to develop the market-enhancing structures that support more effective roles for market actors in driving uptake, reducing costs, and developing innovative solutions.

Staff Observations & Questions for Comment

As the Commission conducts this review and considers the future energy efficiency and building electrification programming, Staff believes it is appropriate to assess the distinctions that have been made to date and consider possible refinements to the roles and responsibilities among the electric and gas utilities and NYSERDA with regard to the energy efficiency and building electrification portfolios.

This assessment should identify the relative strengths and weaknesses between the different Program Administrator types and consider these as the Commission identifies parameters for future programming to meet the State’s objectives. Based on Staff’s experience in overseeing the various programs offered to date, as well as various interactions with stakeholders and service providers, Staff provides the following observations with regard to relative strengths and weaknesses of the Program Administrators. These observations are based on historic perspectives on different Program Administrator activity, as well as the unique potential capabilities each Program Administrator may possess relative to one another. Staff notes that the potential capabilities listed may not have been fully explored, if at all, but the advantages of doing so may take on increased importance as the Commission considers the respective roles and direction of the future energy efficiency and building electrification programs.

²⁸ Case 14-M-0094, *Supra*, CEF Framework Order (page 51).

²⁹ Resource acquisition programs are designed to achieve direct energy and/or demand savings; they generally involve encouraging customers to replace existing equipment with more efficient equipment.

Table 1: NYSERDA and Utility Characteristics

	NYSERDA	Utilities
Relative Strengths/Unique Capabilities	a. Ability to leverage additional funding streams (e.g., non-ratepayer funds such as state or federal) b. Demonstrated experience in partnering with other State agencies, local agencies/Community Based Organizations (CBOs) c. Capability to aggregate demonstration projects /learnings d. Demonstrated experience in supporting comprehensive (including all fuels) or more complex projects e. Exists to advance public policy and achievement of state energy and climate objectives without pressures that may be present for an investor-owned entity f. Demonstrated experience in attracting interest from novel technology providers and testing out innovative solutions g. Only entity that has Statewide deployment potential which can provide consistency and standardization that may benefit and simplify administration and/or the development of markets h. Conducting independent technology, market and potential studies to inform all ratepayer supported programs	a. Ability for direct communication with all customers on a regular basis b. Potential for better use of customer data, including energy consumption data, and ability to use it to tailor program offerings c. Strong customer relationships, particularly with large customers/key accounts d. Demonstrated experience in implementing mass market prescriptive programs at scale e. Potential to coordinate energy efficiency and building electrification programs with system needs/build out or other unique needs of their service territory f. Potential to handle transactions that could be coordinated into customer bills (e.g., on-bill financing) g. The utility business model, particularly its goal of pursuing the best interest of its shareholders, makes positive and negative revenue adjustments particularly effective in persuading utility management to mobilize resources in response to Commission directives
Relative Weaknesses	a. Generally, pace of deployment can be slower perhaps due to type of initiatives or multi-year approach rather than annual targets b. Difficult for market participants to navigate the number of programs and/or understand the interaction between them	a. Complexities in delivering programs in areas where service territory overlaps with another utility b. Generally tend to be risk averse

Q14. Do stakeholders agree or disagree with the relative strengths and weaknesses of the Program Administrators as articulated by Staff? What are other relative strengths or weaknesses? Do these relative strengths and weaknesses differ by sector (low-income, market-rate residential, multifamily, commercial, industrial, institutional)?

V. Review of Performance to Date³⁰

The following sections present quantitative summaries of the various sub-components of the Utilities' and NYSERDA's Energy Efficiency and Building Electrification portfolios, organized as follows: a) Utilities' Non-LMI Energy Efficiency portfolios; b) Statewide New York State Clean Heat portfolio; c) NYSERDA's Non-LMI Market Development portfolio; d) the Statewide LMI portfolio representing both Utilities' and NYSERDA's efforts. NYSERDA and each utility's annual reports should be referenced for additional information including more detailed descriptions of portfolio and program activities.³¹

Of note, the Commission's authorization of ratepayer funding to support the energy efficiency and building electrification portfolios is based on the assumptions that the energy saving targets established and reported against are being realized. As such, and pursuant to the March 2018 Order, Staff issued CE-08: Gross Savings Verification Guidance (GVS Guidance)³² outlining the process for verifying gross savings for the Utilities and NYSERDA. The GVS Guidance broadly states that every program in the Utilities' and NYSERDA's energy efficiency portfolio must be evaluated at least once in a five-year time frame and that such verification of savings will be prioritized and a continual process, particularly for programs contributing high percentages of the Program Administrator's portfolio energy savings and those with greater levels of uncertainty.

Since Staff issued the GVS Guidance document in August 2019, the volume and frequency of program evaluations have increased substantially. However, Staff finds some Program Administrators have directed more attention to the savings verification process and resultant realization rates than others.³³ As such, the figures presented in this report represent a blend of gross and verified gross savings figures. While these differences in verification rates introduce asymmetries in the confidence of the savings being reported by each Program Administrator, they reflect the current state of transition and compliance with the verified gross savings policy. For transparency, each performance section below includes information on the individual verification rates of each Program Administrator.

Lastly, Staff notes that the performance period reflected in this report includes program years 2020 and 2021, which saw unprecedented challenges in New York State and society as a whole due to the COVID-19 pandemic. Customer-facing programs ceased operation for at least one quarter during 2020 while other program areas faced substantial delays advancing program

³⁰ The data provided in the following sections are derived from the Q2/2022 Program Administrator scorecard reports filed in Case 18-M-0084 and 14-M-0094 as of October 26, 2022.

³¹ In accordance with CE-06: SEEP Annual Report Guidance, the Utilities are required to file all annual reports in the Document Matter Management (DMM) system in Case-18-M-0084, In the Matter of a Comprehensive Energy Efficiency Initiative. NYSERDA is required to file annual reports in accordance with CE-11: Clean Energy Fund Reporting Guidance in the DMM in Case 14-M-0094, Proceeding on Motion of the Commission to Consider a Clean Energy Fund.

³² Clean Energy Guidance documents are posted on the NYS Department of Public Service website at <https://www3.dps.ny.gov/W/PSCWeb.nsf/All/255EA3546DF802B585257E38005460F9>

³³ Individual verification rates range from 0% to 100% among the Program Administrators.

activities, including continuing workforce and supply chain disruptions and increased materials costs.

A. Utility Electric and Gas Non-LMI Energy Efficiency Portfolio³⁴

The utility-administered non-LMI electric and gas energy efficiency portfolios provide a mix of offerings to customers to encourage reduced energy consumption and the installation of energy efficient measures, including lighting, heating, ventilation, and air-conditioning (HVAC) equipment, controls, commercial refrigeration and cooking equipment, and, in some limited cases, building shell measures, among others. Currently, the portfolios include programs that target upstream, midstream and downstream market participants within the residential, multifamily, commercial, institutional and industrial sectors.³⁵ These programs are designed to facilitate energy efficiency achievements that will allow the State to reach its broad and ambitious clean energy goals in a cost-effective manner.

The electric and gas utilities have budgets and targets authorized through 2025 from both the December 2018 and January 2020 NE:NY Orders³⁶ and provide detailed quarterly and annual reports on progress and updates to future program plans.³⁷ The performance information presented below represents performance from Quarter 1, 2019 through Quarter 2, 2022, representing 50% of the seven-year performance period (2019-2025).

1. Utility Electric Non-LMI Energy Efficiency Program Performance

The Commission authorized over \$2.2 billion for utility electric non-LMI energy efficiency programs for 2019 through 2025. The Utilities performed well against, and generally exceeded, Commission-authorized cumulative energy savings targets for 2019 through Q2, 2022, with none of the utilities over-expending its associated original budget authorized in the January 2020 NE:NY Order for the same period, as detailed further in Appendix 2. One exception is that Con Edison has slightly overspent its revised budget to date, through Q2, 2022, after accounting for the funding transfers out of and future budget reallocations away from Con Edison's electric non-LMI energy efficiency portfolio and into its Clean Heat program. Con Edison filed a petition in

³⁴ For purposes of this report, the Utility Non-LMI Energy Efficiency Portfolio does not include utility programs operated under the NYS Clean Heat Program, supporting the installation of heat pumps. These building electrification efforts are discussed in a subsequent section of this report.

³⁵ Upstream market participants include manufacturers, manufacturer representatives and suppliers, midstream market participants include distributors, retailers and other vendors positioned between the manufacturer and the customer and downstream market participants include the utility customer, although can include contractors and installers that are involved in installing the eligible equipment or measure(s).

³⁶ Case 18-M-0084, Supra, Order Authorizing Utility Energy Efficiency and Building Electrification Portfolios Through 2025, (Issued January 16, 2020).

³⁷ As required by the March 2018 Order, the December 2018 NE:NY Order, and the January 2020 NE:NY Order, the Utilities each file quarterly reports, in the form of Excel spreadsheets, reflecting data pertaining to their respective energy efficiency portfolio performance against Commission-authorized annual budgets, associated energy savings targets, and other metrics. The Utilities each also file an individual SEEP Annual Report, with a more traditionally narrative format, for the same portfolio performance information. These reports are all available in DMM Case 18-M-0084.

February 2022 regarding the need for additional funding for its Clean Heat program. The Commission's August 2022 Order³⁸ approving funding for Con Edison's Clean Heat program addressed transfers and reallocations of electric non-LMI energy efficiency budgets and targets to further support the Clean Heat program. The Commission approved these transfers given that Con Edison had achieved, and projected it would continue to achieve, savings in its electric non-LMI energy efficiency portfolio at a rate of dollars per unit savings below what was authorized in the Commission's December 2018 NE:NY Order.

Individual utility electric portfolio savings and expenditures as percentages of cumulative authorized targets and budgets and prorated targets and budgets to date are shown in Table 2 below. Further details, charting the trajectories of targets acquired and budgets expended by individual utility and combined Utilities on a statewide basis, are presented in Appendix 2.

Table 2: Utility Electric Non-LMI Energy Efficiency Program Performance

	2019-Q2,2022 Acquired (MWh)	2019-2025 NENY Target (MWh)	Acquired as a % of 2019- 2025 Target	Acquired as a % of Target to Date (2019- Q2, 2022)	2019- Q2, 2022 Expended (\$)	2019-2025 NENY Budget (\$)	Expended as a % of 2019- 2025 Budget	Expended as a % of Budget to Date (2019- Q2, 2022)
CenHud	263,569	440,007	60%	134%	\$29,852,849	\$80,001,583	37%	84%
ConEd	1,992,269	3,579,206	56%	158%	\$387,510,918	\$1,194,528,313	32%	85%
ConEd*	1,992,269	2,980,775	67%	116%	\$387,510,918	\$709,643,093	55%	107%
NiMo	1,666,077	2,855,089	58%	140%	\$188,594,507	\$554,961,258	34%	80%
NYSEG	277,218	997,989	28%	86%	\$52,262,671	\$227,921,683	23%	64%
O&R	214,651	454,722	47%	97%	\$22,683,281	\$79,238,381	29%	64%
RG&E	134,434	536,063	25%	70%	\$24,190,440	\$124,942,579	19%	49%
All Utilities	4,548,218	8,863,075	51%	134%	\$705,094,666	\$2,261,593,797	31%	79%
All Utilities*	4,548,218	8,264,644	55%	118%	\$705,094,666	\$1,776,708,577	40%	88%

Q2, 2022 represents 50% of the time period 2019 through 2025.

* Data includes adjustments to Con Edison's originally authorized budgets and targets as detailed in the Commission's August 2022 Order authorizing additional funding for Con Edison's Clean Heat program.

The performance period reflected in Table 2 above represents a three-and-a-half-year period (2019 through Q2, 2022), or in other words 50% of the seven-year program authorization

³⁸ Case 18-M-0084, supra, Order Approving Funding for Clean Heat Program (issued August 11, 2022).

period (2019-2025). Program achievement and expenditures are not necessarily expected to be linear given the scaling of the target inherent in the Commission's authorization; nonetheless, it is somewhat instructive to compare the performance through Q2, 2022 on a percentage basis, 50% of the way through the program authorization period.

As indicated in Table 2, four of the six electric utilities are above or near 50% achievement of their respective original cumulative savings targets for the seven-year period of 2019 through 2025, while no utility has expended more than 37% of its originally authorized electric energy efficiency portfolio budget. Individual utility MWh savings, as a percentage of their original seven-year cumulative targets, range from 25% to 60%, with the Utilities collectively having achieved 51% of their original combined cumulative MWh targets. Individual utility expenditures, as a percentage of their original seven-year cumulative budgets, range from 19% to 37%, with the Utilities collectively having expended 31% of their original combined cumulative budgets.

These performance indicators for Con Edison, and for the combined efforts of all the Utilities, changed slightly following the Commission's August 2022 Order that modified Con Edison's budgets and targets for its Clean Heat Program and non-LMI electric energy efficiency portfolios due to authorized funding transfers. As indicated in Table 2 above, Con Edison's reported MWh savings achievement is 67% as a percentage of its modified seven-year cumulative target, resulting in the Utilities collectively having achieved 55% of their combined cumulative MWh targets. Con Edison's expenditures, as a percentage of its modified seven-year cumulative budgets, is 55%, resulting in the Utilities collectively having expended 40% of their combined cumulative budgets.

The efforts necessary to reach the goals at the end of 2025 varied slightly from one utility to the next and none of the annual increases to targets and budgets were linear. Therefore, Staff also compared the cumulative spending and savings acquired to a prorated budget and target through Q2, 2022, based on the annual budgets and targets shown in the January 2020 NE:NY Order, to determine a "budget or target to date" metric. That comparison of the data shows that Central Hudson, Con Edison, and Niagara Mohawk are all currently ahead of pace, achieving over 100% of their respective prorated targets to date. This also drives the statewide Utilities' combined numbers to show overachievement of the savings target to date through Q2, 2022. O&R has reported acquired savings through Q2, 2022 that are just about meeting its prorated target through Q2, 2022, while NYSEG and RG&E show achievement of only 86% and 70% of their respective prorated goals through Q2, 2022. All utilities are spending below their authorized budgets to date through Q2, 2022, with the exception of Con Edison's recently revised non-LMI electric budget. Con Edison has spent only slightly more than 100% of its revised budget to date through Q2, 2022; however, Con Edison has achieved 116% of its revised target to date through the same time period – meaning Con Edison has taken advantage of the flexibility granted to the utilities to move budgets and targets between years in order to effectuate a more rapid acceleration of program deployment.

With the Utilities generally overachieving their respective energy savings targets, and underspending the associated budgets, each utility's unit costs, or dollars expended per MWh of energy savings achieved, were significantly lower during this performance period than those used to calculate the budgets and targets in the December 2018 and January 2020 NE:NY Orders, as shown in Table 3.

Table 3: Utility Electric Non-LMI Energy Efficiency Portfolio Unit Costs

	Planned 2019-2025 NE:NY (\$/MWh)	Actual to Date 2019 through Q2, 2022 (\$/MWh)	Difference between Actual to Date 2019 through Q2, 2022 and Planned Unit Costs for 2019-2025 per NE:NY	Difference between Actual to Date 2019 through Q2, 2022 and Planned Unit Costs to Date (2019 through Q2, 2022 per NE:NY)
CenHud	\$181.82	\$113.26	-38%	-38%
ConEd	\$333.74	\$194.51	-42%	-46%
ConEd*	\$238.07	\$194.51	-18%	-8%
NiMo	\$194.38	\$113.20	-42%	-43%
NYSEG	\$228.38	\$105.68	-54%	-58%
O&R	\$174.26	\$105.68	-39%	-35%
RG&E	\$233.07	\$179.94	-23%	-29%
All Utilities	\$255.17	\$155.03	-39%	-41%
All Utilities*	\$214.98	\$155.03	-28%	-25%
* Data includes adjustments to Con Edison's originally authorized budgets and targets as detailed in the Commission's August 2022 Order authorizing additional funding for Con Edison's Clean Heat program.				

The unit cost differences ranged from 23% to 54% below the originally planned cost per MWh for the entire period (2019-2025) as reflected in the Orders, and collectively the Utilities saw unit costs that were 39% lower than those originally ordered (or 28% lower than the resulting collective unit costs when taking account of Con Edison's modified budgets and targets subsequent to the Commission's August 2022 Order authorizing funding for Con Edison's Clean Heat program). Comparing unit costs to the prorated budgets and targets to date for each of the utilities reveals unit costs of 29% to 58% lower than those which were originally ordered with a collective unit cost 41% below that which was ordered (or 25% lower than the resulting collective unit costs when taking into account Con Edison's modified budgets and targets subsequent to the Commission's August 2022 Order authorizing funding for Con Edison's Clean Heat program).

As noted, the figures presented represent a blend of gross and verified gross savings figures. Table 4 presents the verification rates for the Utility Electric Non-LMI Energy Efficiency programs.

Table 4: Utility Electric Non-LMI Portfolio Savings Verified

Utility	Percent of Gross Savings Verified
CenHud	100%
ConEd	98%
NiMo	68%
NYSEG	59%
O&R	0%
RG&E	46%

Electric Energy Efficiency Measure Mix

Each utility's SEEP Annual Report includes information on the various energy saving measures that were incented through the programs resulting in the energy savings reported. While savings by measure category and customer sector (residential, multifamily, commercial, industrial, and institutional) vary by utility, it is informative to look at the measure categories that constitute the total statewide energy savings from 2021, the most recently reported period, for the utility electric energy efficiency programs.³⁹ This information can provide insights as to the current makeup of the programs, including the level of reliance on certain measure types.

Table 5: 2021 Reported Utility Electric Non-LMI Savings by Measure Category

Sector	2021 MWh Savings	Sector Fraction of Total Savings	Lighting	Home Energy Reports ⁴⁰	Custom ⁴¹	All Other ⁴²
Commercial/ Industrial/ Institutional	499,528	35%	61%	0%	17%	22%
Residential/ Multifamily Residential	916,746	65%	73%	15%	0%	11%
Total Savings for All Sectors	1,416,274	100%	68%	10%	6%	16%

³⁹ As reported by each utility in their respective 2021 SEEP Annual Reports, filed in Case 18-M-0084, In the Matter of a Comprehensive Energy Efficiency Initiative. Measure categories are based on the applicable version of the NYS Technical Resource Manual at the time 2021 SEEP Annual Reports were filed.

⁴⁰ The Utilities' Annual Reports categorize these savings generically as "Behavioral", however Staff's review shows these savings are exclusively attributable to Home Energy Report Programs. For purposes of this report, the more discrete categorization of Home Energy Reports is used to provide clarity to the reader.

⁴¹ Custom measure category involves unique, site-specific projects where the energy savings calculations do not follow a prescriptive or deemed approach. The estimated energy efficiency savings and incentives offered are typically identified through technical assessments unique to the project site.

⁴² Other refers to the combination of all remaining measure categories reported excluding lighting, behavioral, and custom.

As reflected in Table 5, most electric energy efficiency savings are attributed to the residential/multifamily sector (65%) with the vast majority of those sector savings attributed to lighting (73%), followed by Home Energy Reports (15%). Lighting represents a significant portion of electric savings across the remaining sectors (61%). While lighting continues to provide the largest portion of savings for all of the utilities, savings associated with Home Energy Report Programs range from 11% to 44% of total residential electric portfolio savings on an individual utility basis. A complete tabulation of electric savings by sector and measure category for each utility is presented in Appendix 3.

Lighting Policies

The following lighting policies relate to the evolution of ratepayer-funded energy efficiency portfolios. These policies are discussed further under Staff Observations and Questions for Comment: Lighting, on p. 26.

Federal Lighting Standards Change

The U. S. Department of Energy (DOE) published a Final Rule May 9, 2022, in the Federal Register pertaining to General Service Lamps (GSLs) and General Service Incandescent Lamps (GSILs) with an effective date of July 8, 2022. The rule adopts expanded definitions and associated supplemental definitions for GSLs, GSILs, compact fluorescent lamps, general service light-emitting diode lamps, organic light-emitting diode lamps, and other lamps typically found in lighting applications in the residential sector. While GSLs and GSILs are not solely found in residential applications, they are most prevalent in the residential sector and therefore the effects of this policy will be most likely experienced in ratepayer funded programs targeting residential consumers.

Additionally, DOE published a Final Rule May 9, 2022, with an effective date of July 25, 2022, that prohibits the manufacture, sale, and distribution of any GSL that is less than 45 lumens/watt. The 45 lumens/watt efficiency standard applies to compliance requirements with all lamps covered by the expanded GSL and supplemental definitions.⁴³ DOE's Final Rules impacts manufacturers, importers, distributors, and retailers of GSLs.⁴⁴ For transparency, DOE issued an enforcement policy prescribing how its enforcement discretion would be applied.⁴⁵

DOE has undertaken a phased enforcement approach for manufacturers, importers, and private labelers with a lenient enforcement period beginning on the effective date of the backstop rule through August 31, 2022. A more progressive enforcement period with warning notices and penalties considered will continue through December 31, 2022, with full enforcement to begin January 1, 2023. A progressive enforcement period was adjusted by seven months for distributors

⁴³ Code of Federal Regulations 10 CFR Part 430, 2022-05-09 Energy Conservation Program: Energy Conservation Standards for General Service Lamps; Final rule. Document ID EERE-2021-BT-STD-0005-0070

⁴⁴ See DOE Appliance and Equipment Standards Notice on General Service Lamps:

https://www1.eere.energy.gov/buildings/appliance_standards/standards.aspx?productid=4

⁴⁵ Enforcement Policy Statement—General Service Lamps, Issued: April 26, 2022

https://www.energy.gov/sites/default/files/2022-04/GSL_EnforcementPolicy_4_25_22.pdf

and retailers with warning notices beginning in January 2023 and penalties beginning two months later, leading to full enforcement by July 2023. The practical implication of these rules is that, upon full enforcement of the GSL rulemaking, consumers will only be able to purchase high efficiency lighting equipment for all except a small number of specialty lamps. Ratepayer-funded programs administered by the Utilities and NYSERDA operate under a baseline policy which identifies the appropriate baselines from which energy savings are calculated. This policy dictates that energy savings claims are based on the difference in the energy consumption of the efficient product compared to the minimally compliant product as defined by the applicable state or municipal code, or federal appliance standard (code or standard).⁴⁶ The revised GSL definitions and backstop rule for GSLs therefore become the baseline from which energy savings are calculated, as a result incremental energy savings will likely decrease.

Commercial & Industrial Lighting Policy

The Commercial & Industrial Lighting Policy, as detailed in Appendix O of the New York State Technical Resource Manual,⁴⁷ was adopted as a result of the Commission's July 18, 2011 Order Approving Modifications to the Technical Manual (TRM Order) in Case 07-M-0548, the EEPs proceeding. The TRM Order directed "the Implementation Advisory Group to attempt to resolve the issues of determining the age of lighting equipment and the correct approach for valuing savings from lighting replacements under the mechanism we provided for modifying the Consolidated Technical Manual in our June 20, 2011 Order in this proceeding."⁴⁸ As such, Appendix O: Commercial and Industrial Lighting Policy was incorporated into the TRM to outline the principles for commercial lighting replacements, including for the replacement of operational fixtures and irreparable fixtures.

For context, at the time Appendix O was adopted Program Administrators were required to conduct measure-level Total Resource Cost (TRC) screening. For purposes of TRC screening, first-year savings were modeled for the full Effective Useful Life (EUL) of the replacement measure. Similarly, costs were to be modeled as full costs, meaning the total cost of the replacement, not the incremental costs between the efficient fixture and the fixture meeting the applicable code or standard. This diverged from the typical treatment of early replacement which explicitly required the establishment of the age of equipment in place as less than its EUL. For irreparable lighting fixtures, "normal" or "end of life" baseline applies, requiring incremental savings and costs between the common practice and the high efficiency measures be used for TRC screening and reported savings and there is no requirement for determination of age.

⁴⁶ Current baseline policy allows for exceptions and other considerations in the determination of the applicable code or standard baseline used to calculate energy savings, including some program types, measure-specific installations, and specific building project scenarios. Specifically, treatment for early replacement of measures, low-to moderate-income programs, areas of stretch code adoption, and commercial lightings (as noted, requiring a revisit).

⁴⁷ New York Standard Approach for Estimating Efficiency Programs – Residential, Multi-Family, and Commercial/Industrial, known as the Technical Resource Manual (TRM).

⁴⁸ Case 07-M-0548, Order Approving Modifications to the Technical Manual, pp. 16-17.

Appendix O resolved the issue of determining the age of the existing lighting equipment and the approach for estimating the savings from lighting replacements for the commercial and industrial sector as independent of the age of the operational fixture and considers both the lamp and fixture replacement as “early replacement.” Appendix O and the resulting application of an early replacement baseline for the lamp and fixture in place, regardless of age, reflected the frequent impracticality of determining the age of the fixtures at the time. As such, Program Administrators are allowed to use an existing condition baseline, which allows the Program Administrator to report the full savings against the fixture in place as annual savings.⁴⁹

Although Appendix O recognized the in-field challenges at the time, it also spoke extensively about a reconsideration of the policy, anticipated for March of 2015, to be based on in-progress studies and program experience. To date, the policy has not been revised.

Staff Observations & Questions for Comment

In general, most utilities have focused their program activity to align with the goals outlined in the NE:NY Orders and appear generally on track to meet the authorized targets while significantly underspending their authorized budgets. The Utilities are to be commended for their efforts and responding with strong performance against the framework established by the Commission which, to date, has emphasized achievement of annual energy savings at the lowest cost. However, Staff notes the January 2020 NE:NY Order recognized that there would need to be significant changes to the types of programs offered, as well as to the types of measures eligible to receive incentives, to capture savings from projects that are generally more complex, more expensive and require greater lead time and engagement with service providers, but necessary in the current policy context. Staff observes that in order to see these types of program evolutions, the regulatory framework within which the programs operate must also evolve, including the metrics used to determine program success. Considerations related to this evolution are contained throughout this report. Focusing specifically on funding associated with electric energy efficiency, Staff believes that future programming must transition away from the reliance on lighting and towards building electrification and envelope work, as well as more complex offerings including controls that can shift how energy is used within buildings.

Q15. Do the various programs administered by the electric utilities recognize and take advantage of the unique strengths of the electric utilities? If not, in what areas could improvements be made?

Lighting

While the current programmatic offerings have driven a tremendous amount of MWh reductions and corresponding customer bill savings and GHG reductions, as noted, a large majority of electric energy efficiency program savings are derived from lighting. Rapid transformation in the lighting market has led to a high awareness and adoption rate by consumers of high efficiency LED technology. It should be noted that support provided by ratepayer funded energy efficiency

⁴⁹ The full savings differs from incremental savings in subtracting the consumption of the fixture supported by the program from the consumption of the fixture in place, not from the consumption of the current common alternative.

programs have directly contributed to this market transformation. Emergence and proliferation of high-efficient LED technology has transformed the lighting market to a place where incentive programs are no longer needed to promote consumer acceptance. Given the recent changes to the federal lighting efficiency standards, as well as the increase in market penetration of high-efficiency lighting products, and the diminished amount of savings that can be claimed from lighting, Staff believes it is necessary in the conduct of this review to reassess ratepayer support for incentives to install high efficiency lighting.

Staff is also concerned that the Commercial & Industrial Lighting Policy, articulated in Appendix O, has not kept pace with the transformation experienced in the commercial lighting market since its adoption. While the policy was intended to address a legitimate problem encountered by contractors in the field over a decade ago, Staff believes the exception granted to standard baseline policy for commercial and industrial lighting applications should be phased out.

Q16. Given the recent adoption of federal lighting efficiency standards for GSLs and the general penetration of high-efficiency lighting, what should the role be for continued ratepayer support for lighting incentives in the residential market? Should there be different considerations for incenting lighting measures for LMI programs or customers in designated Disadvantaged Communities?

Q17. Given the advancement in the commercial lighting market, over what period of time should the use of an existing-condition baseline for commercial and industrial lighting be phased out? What are the implications of such a phase-out and how can they be managed?

Discrete Program Offerings

There are several discrete programs or measure types offered by most utilities that Staff believes should be reassessed at this time. While these offerings have been successful in producing relatively inexpensive annual energy savings to date, Staff questions the role they should play in future utility energy efficiency and building electrification portfolios. These discrete programs and Staff's concerns are identified below.

Behavioral Programs use strategic messaging to raise awareness and educate customers about how to change their energy usage behavior to conserve energy. To date, behavioral programs offered by utilities in New York have consisted almost exclusively of Home Energy Report programs, which provide customers with information about their energy usage compared with that of their “neighbors,”⁵⁰ along with energy saving tips. These programs have been primarily limited to the residential sector.

Staff believes that Home Energy Report programs⁵¹ have been moderately successful over the past ten years or so, with customers receiving the reports saving modest amounts of energy on

⁵⁰ Home Energy Report programs typically compare each customer's energy usage against a set of nearby occupied homes with similar characteristics.

⁵¹ As noted, the more discrete categorization of Home Energy Reports is used in place of “Behavioral” to describe the programs currently offered by the Utilities.

a relatively consistent basis. However, in previous Orders, the Commission has noted that the savings associated with Home Energy Report programs do not appear to persist much beyond the receipt of the report, and has expressed doubt that these programs can achieve savings at a scale commensurate with the State's energy efficiency and emissions reduction objectives.⁵² Staff reiterates these concerns and questions whether ratepayer funds should continue to support, and whether utilities should continue to claim savings from, Home Energy Report programs in their current form.

At the same time, Staff recognizes that behavioral programs more broadly may have an important role to play in achieving the GHG emissions reductions required by the CLCPA. The State's ambitious clean energy goals will require concerted efforts to change customer behavior, not only in the residential sector, but also within the multifamily and commercial sectors. Home Energy Reports as stand-alone programs have not demonstrated the capacity to achieve savings at sufficient scale, but they might be more effectively harnessed to drive customer participation in other energy efficiency and building electrification programs. Further, Staff believes that newer-generation behavioral demand management programs, which, for example, might utilize live load data that can send targeted messages to customers based on energy demand and that are connected to distributed energy resources, have the potential to drive deeper and more persistent savings. Therefore, it is important to consider what behavioral programs, beyond those relying on Home Energy Reports, should be offered as part of the Program Administrators' portfolios going forward.

Additional Staff Observations on behavioral programs and associated questions for stakeholder consideration are included in the Utility Gas Non-LMI Energy Efficiency Program Performance section, p. 36.

Online Marketplaces are internet-based platforms that offer customers products and services at "point-of-purchase" reduced costs to help them reduce energy consumption. Marketplaces can offer a wide range of products and services, ranging from energy efficient lighting to procuring weatherization services. Most utilities are currently funding the development and operation of their own online marketplace or providing the funding to buy down the costs of measures sold on third party marketplaces through their energy efficiency budgets.⁵³ NYSEERDA is also currently in the process of piloting an online marketplace targeted at LMI customers that will be offered statewide and include eco-financing opportunities. Central Hudson has discontinued its online marketplace due to the high cost to maintain the platform.⁵⁴

Staff has observed that online marketplaces can be useful as a customer outreach and engagement tool and have provided an efficient means for customers to obtain smart thermostats to participate in utilities' demand response programs. Online marketplaces also have the potential to seamlessly integrate a customer's ability to consent to data sharing and to connect with qualified

⁵² January 2020 NE:NY Order, pp. 44-45.

⁵³ In the latter instance, the development costs and some portion of ongoing maintenance costs may have been born from ratepayer funding outside of the EE portfolios, e.g., REV Demo, etc.

⁵⁴ Central Hudson Gas & Electric Corporation 2020 System Energy Efficiency Plan Annual Report (pg. 47-48), filed May 12, 2021 in Cases 15-M-0252 and 18-M-0084.

contractors who provide more comprehensive services, such as weatherization and building shell improvements. However, Staff has observed that the latter, more innovative approaches related to weatherization and the procurement of such services, have yet to materialize. The energy savings associated with online marketplaces are overwhelmingly from the sale of residential lighting products. In fact, in 2021, most of the utilities that have an online marketplace reported that greater than 50% of the energy savings were from the sale of lighting products, while some utilities reported savings from lighting products at over 90% of their total online marketplace program energy savings.

Q18. Given the majority of savings currently being reported from the online marketplaces are derived from residential lighting products and the fact that recent federal lighting efficiency standards changes related to General Service Lamps will reduce the energy savings attributable to the programs, should such marketplaces continue to be offered as a part of the energy efficiency portfolios? If so, how should the online marketplaces evolve to continue to provide value in the energy efficiency portfolios?

Q19. Are there economies of scale and therefore overall reduced costs to ratepayers for a statewide online marketplace, such as NYSEERDA's statewide pilot LMI marketplace, that should be explored in lieu of the continued practice of each utility either contracting out or providing this platform in-house?

Appliance Recycling and Replacement Programs offer customers rebates to retire and recycle their refrigerators, freezers, dehumidifiers, and room air conditioners, as well as provide incentives for the purchase of new appliances, including refrigerators and freezers, dishwashers, dehumidifiers, clothes washers, dryers, and other appliances. Appliance recycling programs have been offered as energy efficiency programs for decades.

Staff has observed that incentives for the purchase of a new appliance are often provided by one utility through multiple programs, targeting multiple market channels. Adding to the various program approaches, some utilities offer a stand-alone recycling program while other utilities have integrated their recycling program within their new appliance incentive program. Similarly, many appliance incentives are offered through an online marketplace. The inconsistency in program approach related to appliance recycling and the overlap in programs offering incentives for new appliance purchases creates complexity in attribution and verification of savings associated with such programs. Additionally, the utility programs typically have a minimum qualifying efficiency standard established by Energy Star while maintaining a baseline at the applicable federal standard. Given the prevalence of higher-efficient Energy Star-rated models readily available in the market, it appears the Utilities are claiming energy savings for the market transformation impacts of Energy Star and not promoting the installation of appliances above Energy Star efficiency levels. Therefore, Staff is concerned that these programs have a high amount of free ridership, wherein Program Administrators are claiming savings that would have been achieved regardless of the program intervention.

Q20. Should Program Administrators continue to provide rebates and claim savings for the recycling of appliances such as refrigerators, freezers, and room air conditioners? If not, how should these programs be phased out? If so, are there certain criteria that should be imposed for the continued operation of these programs? Is there a benefit to streamlining and consolidating utility programs that provide incentives for the same measures across multiple market segments?

Q21. Should incentives be provided for the purchase and replacement of new major appliances? If not, how should these appliance incentives be phased out? If so, are there certain criteria that should be imposed for the continuation of such program incentives? Should the program approach be revisited in conjunction with the review of online marketplaces?

2. Utility Gas Non-LMI Energy Efficiency Program Performance

The Commission has authorized over \$884 million for utility non-LMI gas energy efficiency programs for 2019 through 2025. Individual utility gas portfolio savings and expenditures as percentages of cumulative authorized targets and budgets and prorated target and budgets to date are shown in Table 6 below.

Individual utility gas portfolio savings and expenditures as percentages of cumulative authorized targets and budgets and prorated targets and budgets to date are shown in Table 6 below. Further details, charting the trajectories of targets acquired and budgets expended by individual utility and combined Utilities on a statewide basis, are presented in Appendix 2.

Table 6: Utility Gas Non-LMI Energy Efficiency Program Performance

	2019-Q2,2022 Acquired (MMBtu)	2019-2025 NENY Target (MMBtu)	% of 2019- 2025 Target Acquired	% of Target to Date (2019- Q2, 2022)	2019- Q2, 2022 Expended (\$)	2019-2025 NENY Budget (\$)	% of 2019- 2025 Budget Expended	% of Budget to Date (2019- Q2, 2022)
CenHud	259,383	438,242	59%	126%	\$3,394,193	\$8,822,593	38%	81%
ConEd	1,695,952	7,440,388	23%	46%	\$81,299,948	\$300,817,299	27%	53%
KEDLI	1,581,099	4,142,404	38%	137%	\$27,219,064	\$130,553,795	21%	69%
KEDNY	2,074,912	5,059,670	41%	128%	\$42,203,988	\$186,980,902	23%	69%
NFG	745,686	2,616,932	28%	76%	\$23,797,743	\$59,345,443	40%	126%
NiMo	2,838,763	6,687,145	42%	91%	\$38,523,087	\$109,091,556	35%	77%
NYSEG	244,671	1,071,491	23%	54%	\$5,655,094	\$22,356,428	25%	59%
O&R	135,631	461,326	29%	82%	\$2,150,126	\$14,672,179	15%	44%
RG&E	485,368	1,352,986	36%	87%	\$9,488,104	\$25,465,422	37%	89%
All Utilities	10,061,465	29,633,154	34%	81%	\$233,731,347	\$884,065,433	26%	63%
Q2, 2022 represents 50% of the time period 2019 through 2025.								

The performance period reflected in Table 6 above represents a three-and-a-half-year period (2019 through Q2, 2022), or in other words 50% of the seven-year program authorization period (2019-2025). Program achievement and expenditures are not necessarily expected to be linear given the scaling of the target inherent in the Commission’s authorization; nonetheless, it is somewhat instructive to compare the performance through Q2, 2022 on a percentage basis, 50% of the way through the program authorization period. As indicated in Table 6 above, only one of the nine gas utilities is above 50% achievement of its respective cumulative savings targets for the seven-year period of 2019 through 2025, though no utility has expended more than 40% of its authorized gas energy efficiency portfolio budget. Individual utility MMBtu savings, as a percentage of seven-year cumulative targets, range from just 23% to 59%, with the Utilities collectively having achieved only 34% of their combined cumulative MMBtu targets. Individual utility expenditures, as a percentage of seven-year cumulative budgets, range from 15% to 40%, with the Utilities collectively having expended 27% of their combined cumulative gas budgets.

As with the Utilities’ electric non-LMI portfolio, the efforts necessary to reach the goals at the end of 2025 varied slightly from one utility to the next. Because none of the increases to targets and budgets were linear, Staff also compared the cumulative spending and savings acquired to a prorated “budget and target to date” through Q2, 2022 based on the annual budgets and targets shown in the January 2020 NE:NY Order. That comparison of the data shows that Central Hudson, KEDLI, and KEDNY are ahead of pace, achieving over 100% of the prorated targets to date through Q2, 2022. Three utilities – Con Edison and NYSEG – have achieved less than 54% of the MMBtu prorated targets to date through Q2, 2022. The remaining utilities – NiMo, NFG, O&R, and RG&E – are achieving between 76% and 91%, with the combined utilities at 84% of the prorated savings target to date through Q2, 2022. All of the utilities, except NFG are spending below the prorated authorized budgets to date through Q2, 2022, ranging from 44% to 89%.

With the exception of Con Edison, NFG, NYSEG and RG&E, the gas utilities’ unit costs, or dollars expended per MMBtu of energy savings achieved, were lower during this performance period than those used to calculate the budgets and targets in the December 2018 NE:NY Order and the January 2020 NE:NY Order, as shown in Table 7 below.

Table 7: Utility Gas Non-LMI Portfolio Unit Costs

	Planned 2019-2025 NE:NY (\$/MMBtu)	Actual to date 2019 through Q2, 2022 (\$/MMBtu)	Difference between Actual to date 2019 through Q2, 2022 and Planned Unit Costs for 2019-2025 per NE:NY	Difference between Actual to date 2019 through Q2, 2022 and Planned Unit Costs to Date (2019 through Q2, 2022 per NE:NY)
CenHud	\$20.13	\$13.09	-35%	-35%
ConEd	\$40.43	\$47.94	19%	16%
KEDLI	\$31.52	\$17.22	-45%	-49%
KEDNY	\$36.96	\$20.34	-45%	-48%
NFG	\$22.68	\$31.91	41%	67%
NiMo	\$16.31	\$13.57	-17%	-16%
NYSEG	\$20.86	\$23.11	11%	10%
O&R	\$31.80	\$15.85	-50%	-46%
RG&E	\$18.82	\$19.55	4%	3%
All Utilities	\$29.32	\$23.23	-21%	-21%

The unit cost differences ranged from 50% below to 41% above the planned cost per MMBtu for the entire period (2019-2025) as ordered by the Commission. Collectively the Utilities saw unit costs that were 21% lower than those ordered by the Commission for the entire period. Comparing unit costs to the prorated budgets and targets to date for each of the utilities reveals unit costs ranging from 49% below to 67% above those which were ordered by the Commission. Collectively the Utilities saw unit costs 21% below the prorated budgets and targets to date.

As previously discussed, the figures presented represent a blend of gross and verified gross savings figures. Table 8 presents the verification rates for the Utility Gas Non-LMI Energy Efficiency programs.

Table 8: Utility Gas Non-LMI Portfolio Savings Verified

Utility	Percent of Gross Savings Verified
CenHud	100%
ConEd	97%
KEDLI	48%
KEDNY	59%
NFG	100%
NiMo	31%
NYSEG	64%
O&R	0%
RG&E	49%

Gas Energy Efficiency Measure Mix

As with the electric energy efficiency portfolio, the Utilities are required to submit SEEP Annual Reports that present details of their gas energy efficiency portfolio and program activity from the previous year. Staff analysis of the Utilities' 2021 SEEP Annual Reports found that most savings for gas energy efficiency programs come from Home Energy Report programs, and from the sale and installation of efficient HVAC measures.⁵⁵ While savings by measure category and customer sector (residential, multifamily, commercial, industrial, and institutional) vary by utility, it is informative to look at the total statewide energy savings by measure category resulting from utility gas programs.

Table 9: 2021 Reported Gas Non-LMI Savings by Measure Category

Sector	2021 MMBtu Savings	Sector Fraction of Total Savings	Home Energy Reports ⁵⁶	HVAC Controls	HVAC Equip.	All Other ⁵⁷
Commercial/Industrial/Institutional	1,031,183	36%	0%	14%	15%	70%
Residential/Residential Multifamily	1,798,568	64%	38%	24%	28%	10%
Total Savings	2,829,751	100%	24%	20%	24%	32%

As reflected in Table 9, the majority of gas energy efficiency savings have occurred within the residential sector (64%), and more than one third of those residential savings (38%) are associated with the delivery of Home Energy Reports. Across all sectors, HVAC equipment accounts for 24% of utility gas saving and HVAC controls⁵⁸ account for 20% of utility gas savings. Of note, the residential sector savings associated with HVAC controls is largely attributed to the sale of thermostats purchased through a utility online marketplace. A complete tabulation of gas savings by sector and measure category for each utility is presented in Appendix 3.

Staff Observations & Questions for Comment

Overall, the Utilities are seeing varying degrees of success within their gas portfolios with some utilities seemingly on track to meet their energy savings targets, while others are lagging significantly. The Commission, within the NE:NY Orders, required utilities to significantly ramp

⁵⁵ SEEP Annual Reports are filed in Case 18-M-0084 and are generally submitted by March 31 of each calendar year. Some utilities have filed subsequent updates to their 2021 SEEP Annual Reports.

⁵⁶ The Utilities' Annual Reports categorize these savings generically as "Behavioral", however Staff's review shows these savings are exclusively attributable to Home Energy Report Programs. For purposes of this report, the more discrete categorization of Home Energy Reports is used to provide clarity to the reader.

⁵⁷ "All Other" category largely encompasses custom and process equipment measures across the National Grid companies and Con Edison, respectively.

⁵⁸ The "HVAC Controls" measure category included in the applicable version of the TRM includes energy management systems, outdoor temperature setback control for hydronic boiler, steam trap - low pressure space heating, submetering, thermostat - learning, thermostat - programmable setback, thermostat - Wi-Fi (communicating), and thermostatic radiator valve - one pipe steam radiator.

up their gas savings, and in its January 2020 NE:NY Order, specifically addressed gas program design, stating:

“Long term modification in consumer behavior is essential to ultimately meet the State’s climate objectives; however, when considered as stand-alone energy efficiency programs, particularly in the form of basic Home Energy Reports, behavioral savings have relatively limited persistence and are unlikely to deliver the scale necessary to meet the State’s needs. Further, the Utilities’ current portfolios do not sufficiently target building envelope improvements. Increased activities in building envelope improvements will be necessary to achieve the State’s climate objectives. Lastly, with regard to incenting natural gas heating and hot water equipment, an effective and necessary resource in the near term, incentives should be structured to encourage the adoption of the highest levels of efficiency. Utilities are directed to transition their existing portfolios accordingly.”⁵⁹

Staff has not seen demonstrable evidence of the Utilities transitioning their portfolios in this manner. Staff believes that to at least some extent, the focus on annual savings and cost reduction on a dollar per MMBtu basis have introduced competing priorities that may have prevented the Utilities from fully embracing new approaches and adopting different measure mixes within their portfolios. This point is best illustrated by the Utilities’ continued reliance on simple Home Energy Report programs for the majority of residential savings, along with the continued focus on simple rebate-based programs for HVAC and hot water controls and equipment – with very little, if any, savings resulting from substantive building envelope measures.⁶⁰

While the focus on cost-effectiveness within the NE:NY Orders may have played a role in shaping the measure mix of the Utilities’ gas energy efficiency portfolios, the fact remains that those portfolios are operating at a rate of dollars per MMBtu below what was authorized in the Orders. For this reason, Staff believes there is potential for the Utilities to dramatically adjust their portfolios to fund deeper and more expensive measures without overspending the current authorizations. As portfolios shift toward deeper measures like building envelope improvements, Staff recommends a corresponding evaluation of the lower-cost measures that have been part of the Utilities’ portfolios to date. There are several discrete programs or measure types in particular, offered by most utilities, that have been successful in producing relatively inexpensive annual energy savings, but about which Staff questions the role they should play in future utility energy efficiency and building electrification portfolios.

⁵⁹ Case 18-M-0084, In the Matter of a Comprehensive Energy Efficiency Initiative, Order Authorizing Utility Energy Efficiency and Building Electrification Portfolios through 2025, pg. 44-45 (issued January 15, 2020).

⁶⁰ The exceptions to this are miniscule building shell and envelope measures reported by O&R, and NiMo Multifamily, which as shown in Appendix 3 have 71% and 81% savings from the “Building Shell” measure category, however these are nearly all hot water pipe insulation, which is included as “building shell” in the applicable version of the TRM measure categorization.

Q22. Do the various programs administered by the gas utilities recognize and take advantage of the unique strengths of the gas utilities? If not, in what areas could improvements be made?

Gas-Fired Space & Water Heating Equipment

As shown in Table 9, the largest portion of utility gas savings (44%) can be attributed to programs that provide incentives for residential HVAC and Domestic Hot Water (DHW) equipment and controls. Staff believes a significant portion of incentives paid by utilities for such gas-fired equipment are free riders and that current market conditions are driving the majority of gas-fired equipment to be sold at efficiency levels higher, sometimes by as much as 15%, than required by the minimum federal standard.

Data collected from HARDI (Heating, Air-Conditioning & Refrigeration Distributors International) on 2021 New York State market sales shows that 77% of gas furnace sales are at an efficiency level (expressed in AFUE, or Annual Fuel Utilization Efficiency) of 92% or higher, with 64% of 2021 sales at an AFUE of 95% or greater. The minimum efficiency required by federal standard is only 80%. Only 23% of gas furnace sales in 2021 were around the minimum code or standard efficiency level of 80-81% AFUE.

Similar market activity is evidenced by 2021 sales of gas-fired boilers, with approximately 50% of unit sales at 95-96% AFUE, which is much higher than the minimum efficiency levels required by federal standard. Current federal standard minimum efficiency for residential gas hot water boilers and for steam boilers manufactured through January 15, 2021, is 84% and 82%, respectively.⁶¹

Staff analysis of program and HARDI data on gas-fired furnace and boiler units sold in NYS indicates that equipment receiving incentives likely represents a very small portion of the overall statewide volume of units sold at program-qualifying efficiencies.⁶² For context, the minimum efficiency level required by federal standard for gas-fired boilers and furnaces has not been materially revised, from a low efficiency range of 80-84%, since 2015. The data suggests that market conditions are driving higher efficiency sales of these products without the need for incentives, thereby indicating the potential for a high prevalence of free ridership. As such, it is not clear that incentives provided through the programs for higher efficiency gas-fired equipment are driving any significant portion of the market toward higher efficiency equipment.

Additionally, modeling presented through the Climate Action Council process suggests attainment of CLCPA goals will require a reduction in natural gas use for heating and domestic hot water needs. Consideration should therefore be given to how long ratepayer funding should support the installation of new gas-fired equipment with 15-to-30-year equipment lives.

⁶¹ Code of Federal Regulations Title 10 Chapter II Subchapter D Part 430 Subpart C – Energy and Water Conservation Standards § 430.32 Energy and water conservation standards and their compliance dates.
<https://www.ecfr.gov/current/title-10/chapter-II/subchapter-D/part-430/subpart-C/section-430.32>

⁶² Based on information provided by utilities, Staff estimates 3,046 boilers and 12,378 furnaces were incented through the utility programs. HARDI data estimates total NY sales in 2021 of 82,000 gas boilers and 106,000 furnaces in New York.

- Q23. Under what timeframe should the Commission require a phasing out of incentives supporting gas-fired space heating and domestic hot water heating equipment? Should different considerations be made for programs targeting LMI households or Disadvantaged Communities, or for different sectors (e.g., small residential, large multifamily residential, commercial, institutional, or industrial)?

Behavioral Programs

Utility behavioral programs use strategic messaging to raise awareness and educate customers about how to change their energy usage behavior to conserve energy. To date, behavioral programs offered by utilities in New York have consisted almost exclusively of Home Energy Report programs, which provide customers with information about their energy usage compared with that of their “neighbors,” along with energy saving tips. These programs have been primarily limited to the residential sector.

As noted above, the Commission has expressed concerns about the limited persistence of savings associated with Home Energy Reports and these programs’ capacity to scale beyond their current impact. These concerns are particularly important with regard to the utility gas energy efficiency portfolio, because Home Energy Report programs account for more than one third of residential gas savings, more than any other measure type.

In the Utility Electric Non-LMI Energy Efficiency Program Performance section, Staff reiterated the Commission’s doubts regarding the value of stand-alone Home Energy Report programs but noted that meeting CLCPA targets will certainly require concerted efforts to change customer behavior. Staff believes that more advanced behavioral programs will need to be developed to achieve these goals; however, Home Energy Reports may have a supporting role to play in driving customer participation in other energy efficiency, building electrification, and demand response programs.

Instead of abandoning Home Energy Reports, Staff questions whether they should be adopted as a standard practice and normal course of business, rather than offered as a separately funded and tracked energy efficiency program. In current practice, the modest benefits of Home Energy Reports are inherently limited by the structure of Home Energy Report programs, which typically designate a subset of customers as a control group against which the effects of the program interventions may be measured; these customers, by design, do not receive any messaging intended to drive energy use reductions. Distributing Home Energy Reports to all relevant utility customers would allow those benefits to be achieved across the board and enable Home Energy Reports to more effectively support future behavioral and demand management programs. It would also enable utilities to shift NE:NY funds to other uses within their portfolios, including the development and implementation of more innovative behavioral programs with the potential to drive deeper and more persistent energy savings. In the absence of these more innovative behavioral programs, Staff believes that funding should be redirected to other non-behavior-related energy efficiency and building electrification programs.

- Q24. Should Home Energy Report programs continue to operate as stand-alone energy efficiency programs, or should they be discontinued? Alternatively, should Home

Energy Reports be reimagined as a customer engagement tool or marketing component of other programs and deployed to all utility customers?

- Q25. Ultimately, achievement of New York’s climate objectives will necessitate a wholesale shift in how consumers use energy. How can utilities deploy more innovative types of behavioral programs to provide greater benefit, for example full integration with various rate designs, or other demand management programs? How can these programs be expanded beyond the residential sector?

Building Envelope & Shell Improvements

The NE:NY Orders provided direction to move from traditional measures to more comprehensive approaches, including reductions in heating and air conditioning loads through building envelope and shell improvements. New construction and retrofitting of the building’s envelope, such as roofs, walls, windows, doors, and floors, with a focus on the energy performance of the thermal barrier while maintaining appropriate ventilation, will reduce a building’s energy consumption, reduce emissions, and increase comfort in the indoor environment. These load reductions reduce the peak fuel usage of the installed equipment and can lead to the installation of equipment sized at the lowest capacity necessary. As buildings transition to electric heat pump equipment, improving the building envelope has benefits related to mitigating seasonal peak demand and generating capacity for the electric system and installation and operating cost savings for the customer. However, it is often difficult to convince building owners of the benefits of high efficiency building envelope measures, as it can be challenging to quantify the direct energy savings and there is often a longer payback on the required customer investment than the simpler gas-fired equipment programs offered by the utilities. The Utilities, with minor exceptions of targeted pilot activity, have struggled to get beyond gas-fired equipment incentives to move toward more comprehensive program offerings that make significant improvements to the building envelope. On a more limited basis, some utilities have partnered with third-party providers that offer building envelope and shell improvements, which are designed for the customers to pay for these services, in part, by the energy savings achieved by the project.

- Q26. How can program incentives be structured to mitigate barriers associated with the deployment of building shell measures? What beyond program incentives can be done to support the shift to these types of measures?

Efficient Natural Gas Commercial Cooking Equipment

Some utilities offer incentives for high efficiency natural gas commercial cooking equipment. The Strategic/Non-Strategic Framework developed by the Strategic Advisory Group recommended that incentives for efficient natural gas commercial cooking equipment be phased out as soon as practically possible. Following public presentation of the SAG Gas Program Evolution recommendations in March 2022, several stakeholders expressed concerns that eliminating incentives for commercial gas cooking equipment would result in backsliding in the marketplace to lower efficiency equipment. With growing options for high efficiency electric cooking equipment entering the market, consideration should be given to whether ratepayers

continue to support higher efficient gas cooking equipment rather than supporting the transition to efficient electrification.

- Q27. Given the advancements in efficiency and options for commercial cooking equipment, how quickly should ratepayer-funded incentives for high efficiency gas commercial cooking equipment be phased out? During the transition period, should any criteria be imposed for the continuation of such program incentives?

B. New York State Clean Heat Program Performance

The January 2020 NE:NY Order initiated a long-term, far-reaching heat pump strategy for New York, which directed a common statewide framework across the electric utilities and NYSEDA to provide customers, contractors, and other heat pump solution providers with a consistent experience and business environment throughout New York State. As such, the NYS Clean Heat program was launched in early 2020 with the electric utilities providing incentives to support customer adoption of eligible heat pump technologies, including cold climate air source heat pump systems, ground source heat pump systems, and heat pump water heaters and NYSEDA providing initiatives complementing utility programs with meaningful market-enabling development of workforce, supply chain, and consumer demand. The NYS Clean Heat program aims to advance the adoption of efficient electric heat pump systems for space and water heating applications.

In accordance with the January 2020 NE:NY Order, NYSEDA and the Utilities formed a Joint Management Committee (JMC)⁶³ and filed a Statewide Heat Pump Implementation Plan⁶⁴ which identified utility-specific annual energy savings targets, associated budgets, and other metrics for 2020-2025 and outlined the NYS Clean Heat Market Development Plan administered by NYSEDA, including investments in workforce development and consumer education and engagement. The Utilities and NYSEDA also file Annual Reports⁶⁵ to document NYS Clean Heat program performance against those targets and budgets.

Con Edison filed a petition in February 2022 to address funding transfers and additional funding needed to continue operating the NYS Clean Heat Program in their service territory. Through the August 2022 Con Edison Clean Heat Order,⁶⁶ the Commission authorized funding transfers and budget reallocations from Con Edison's Electric Non-LMI Energy Efficiency portfolio into the Clean Heat program and established a continuity funding mechanism to provide

⁶³ The NYS Clean Heat Joint Management Committee provides the Program Administrators an established forum to meet, discuss, and calibrate the implementation of the program.

⁶⁴ The first iteration of the NYS Clean Heat: Statewide Heat Pump Program Implementation was filed on March 16, 2020. Subsequent versions have been filed and are available in DMM Case 18-M-0084, In the Matter of a Comprehensive Energy Efficiency Initiative.

⁶⁵ NYS Clean Heat Program Annual Reports are available in DMM Case 18-M-0084, In the Matter of a Comprehensive Energy Efficiency Initiative.

⁶⁶ Case 18-M-0084, In the Matter of a Comprehensive Energy Efficiency Initiative. Order Approving Funding for Clean Heat Program (issued August 11, 2022).

additional funding for Con Edison's Clean Heat program until new budgets and targets are considered through this Interim Review process.

1. Electric Utility NYS Clean Heat Program Activities

The Commission originally authorized over \$454 million for electric utility-administered discrete heat pump programs for 2020 through 2025. Individual utility heat pump program savings and expenditures as percentages of cumulative authorized targets and budgets and prorated target and budgets to date are shown in Table 10 below.

Individual utility Clean Heat Program savings and expenditures as percentages of cumulative authorized targets and budgets and prorated targets and budgets to date are shown in Table 10 below. Further details, charting the trajectories of targets acquired and budgets expended by individual utility and combined Utilities on a statewide basis, are presented in Appendix 4.

Table 10: NYS Clean Heat Program Performance by Utility

	2020-Q2,2022 Acquired (MMBtu)	2020-2025 NE:NY Target (MMBtu)	% of 2020- 2025 Target Acquired	% of Target to Date (2019- Q2, 2022)	2020 - Q2, 2022 Expended (\$)	2020-2025 NE:NY Budget (\$)	% of 2020- 2025 Budget Expended	% of Budget to Date (2019- Q2, 2022)
CenHud	255,804	255,292	100%	380%	\$36,462,262	\$43,221,312	84%	293%
ConEd	1,328,050	1,000,000	133%	495%	\$270,547,753	\$227,315,834	119%	416%
ConEd*	1,328,050	5,034,667	26%	166%	\$270,547,753	\$1,105,315,834	24%	151%
NiMo	156,512	1,112,681	14%	54%	\$15,057,970	\$84,398,834	18%	57%
NYSEG	210,495	992,737	21%	82%	\$15,642,647	\$75,130,577	21%	67%
O&R	35,840	86,657	41%	153%	\$6,114,273	\$15,003,888	41%	139%
RG&E	54,284	119,223	46%	176%	\$3,698,016	\$9,247,775	40%	131%
All Utilities	2,040,985	3,566,590	57%	218%	\$347,522,921	\$454,318,220	76%	258%
All Utilities*	2,040,985	7,601,257	27%	139%	\$347,522,921	\$1,332,318,220	26%	140%

Q2, 2022 represents 42% of the time period 2020 through 2025.

* Data includes adjustments to Con Edison budgets and targets as described in the Commission's August 2022 Con Edison Clean Heat Order authorizing funding for Con Edison's Clean Heat program.

The performance period reflected in Table 10 above represents a two-and-a-half-year period (2020 through Q2, 2022), or in other words 42% of the six-year program authorization period (2020-2025). Program achievement and expenditures are not necessarily expected to be linear given the scaling of the target inherent in the Commission's authorization; nonetheless, it is somewhat instructive to compare the performance to date on a percentage basis, 42% of the way through the program authorization period. Two and a half years into the six-year period for which

heat pump savings targets and associated budgets have been authorized, all but two of the utilities (Niagara Mohawk and NYSEG) appear on track to meet their respective cumulative targets, with both Con Edison and Central Hudson having already exceeded their original six-year individual savings targets. Similarly, all but Niagara Mohawk and NYSEG appear on track to fully expend their authorized budgets, with Central Hudson and Con Edison poised to greatly over-expend their originally authorized budgets. Individual reported MMBtu savings through Q2, 2022 as a percentage of the post–August 2022 Con Edison Clean Heat Order modified six-year cumulative targets range from 14% to 100%, with the Utilities collectively having achieved 27% of the combined statewide cumulative targets. Actual expenditures through Q2, 2022 as a percentage of the post–August 2022 Con Edison Clean Heat Order modified six-year cumulative budgets range from 18% to 84%, with the Utilities collectively having expended 26% of the combined statewide cumulative budgets.

As with the Utilities’ electric and gas non-LMI energy efficiency portfolio, the efforts necessary to reach the goals at the end of 2025 varied slightly from one utility to the next. Because none of the increases to targets and budgets were linear, Staff also compared the cumulative spending and savings acquired to a prorated “budget and target to date” through Q2, 2022 based on the annual budgets and targets shown in the January 2020 NE:NY Order. That comparison of the data shows for the utility heat pump programs, that the Utilities performed generally well against Commission-authorized energy savings targets to date for 2020 through Q2, 2022, with only Niagara Mohawk falling critically short of its savings target to date, and Central Hudson and Con Edison having significantly overspent their respective original budgets to date as established in the January 2020 NE:NY Order. Individual MMBtu achievement against targets to date ranges from 54% to 380%, with the Utilities collectively achieving 139% of their combined MMBtu savings “target to date.” Expenditures ranged from 57% to 293% of ordered budgets to date and, collectively, the Utilities expended 140% of their combined budgets to date for 2020 through Q2, 2022.

Based on reported figures, the Utilities’ heat pump program unit costs varied significantly among utilities, with some utilities significantly lower than the unit costs originally represented in the January 2020 NE:NY Order, while others were much higher. The unit cost differences ranged from 27% above to 16% below the originally planned cost per MMBtu for the entire period (2019-2025) as reflected in the January 2020 NE:NY Order, and collectively the Utilities saw unit costs that were 34% higher than those originally ordered (or 3% lower than the resulting collective unit costs when taking account of Con Edison’s modified budgets and targets subsequent to the Commission’s August 2022 Order authorizing funding for Con Edison’s Clean Heat program). Comparing unit costs to the prorated budgets and targets to date for each of the utilities reveals unit costs of 6% above to 26% below those which were originally ordered with a collective unit cost virtually equal to that which was ordered (or 19% higher than the resulting collective unit costs when taking into account Con Edison’s modified budgets and targets subsequent to the

Commission's August 2022 Order authorizing funding for Con Edison's Clean Heat program). Details of the Clean Heat program unit costs are shown in the Table 11 below.

Table 11: Electric Utility NYS Clean Heat Program Unit Costs

	Planned 2020-2025 NENY (\$/MMBtu)	Actual to Date 2020 through Q2, 2022 (\$/MMBtu)	Difference between Actual to Date 2019 through Q2, 2022 and Planned Unit Costs for 2019-2025 per NENY	Difference between Actual to Date 2019 through Q2, 2022 and Planned Unit Costs to Date (2019 through Q2, 2022 per NENY)
CenHud	\$169.30	\$142.54	-16%	-23%
ConEd	\$227.32	\$203.72	-10%	-16%
ConEd*	\$219.54	\$203.72	-7%	-9%
NiMo	\$75.85	\$96.21	27%	6%
NYSEG	\$75.68	\$74.31	-2%	-18%
O&R	\$173.14	\$170.60	-1%	-10%
RG&E	\$77.57	\$68.12	-12%	-26%
All Utilities	\$127.38	\$170.27	34%	0%
All Utilities*	\$175.28	\$170.27	-3%	19%
* Data includes adjustments to Con Edison budgets and targets as described in the Commission's August 2022 Con Edison Clean Heat Order authorizing funding for Con Edison's Clean Heat program.				

Staff Observations & Questions for Comment

Overall, the reported data shows that, on a statewide basis, the NYS Clean Heat program is spending money faster than originally anticipated and hitting target milestones earlier than anticipated. However, this trend is driven largely by the unexpected and extraordinary pace of the Clean Heat program in Con Edison's service territory. Central Hudson, although a much smaller share of the overall statewide budget and target, is in a similar situation, spending its budget and exceeding its target much more quickly than was anticipated in the Commission's January 2020 NE:NY Order.

As noted, there is wide variability between the Utilities in terms of performance depicted by the reported spending and acquired savings, with some utilities showing huge numbers beyond projections, others falling well short of projections, and some in the middle. To gain a comprehensive view of the NYS Clean Heat program performance, it is important to consider not only the reported performance metrics, but also a more detailed breakdown of the types of projects being incentivized. Over 90% of the savings claimed by the NYS Clean Heat program are attributed to the prescriptive space heating categories in the residential sector, with part-load and full-load Air-Source Heat Pumps (ASHPs) representing 97% of savings and full-load Ground Source Heat Pumps (GSHPs) representing 3%. The NYS Clean Heat program offers specific incentives for different categories of heat pump installations. Of the ASHP projects, one quarter are for part-load (Category 1) installations and three quarters are for full-load (Categories 2, 2a,

and 2b) installations. Category 2 is for full-load installations while Category 2a includes the installation of integrated controls with the heat pump to allow the existing fossil fuel system to operate for supplemental or backup heating, and Category 2b requires the decommissioning of the existing fossil fuel system. These subcategories were introduced in the program by Con Edison and Orange and Rockland in the middle of 2021 and began to be offered statewide in September 2022. Of the full-load ASHP installations, data provided by the utilities reflects 73% are for Category 2, 7% are for Category 2a, and 15% are for Category 2b.

Staff further notes that the NYS Clean Heat program is still relatively new, and changes to incentive levels and other program modifications have been implemented through the Joint Management Committee and as a result of the Commission's August 2022 Con Edison Clean Heat Order which need to continue to be monitored and refined.

Stakeholders raised several issues in comments received in response to Con Edison's February 2022 Clean Heat Petition. These issues include: 1) the allocation of Clean Heat program funding among different building sectors and between retrofits and new construction projects; 2) program specifications for large and multifamily building projects; and 3) additional measures or incentive levels to facilitate program uptake for LMI customers, including affordable multifamily housing and customers in Disadvantaged Communities. The August 2022 Con Edison Clean Heat Order noted that these types of programmatic adjustments should be contemplated in the Interim Review. Many of the issues raised by stakeholders are reflected in the questions below and in the Statewide LMI Portfolio section of this report.

Additionally, some Program Administrators and electrification advocates have suggested incentives should be provided to help offset the costs of electrical panel upgrades that are necessary to provide adequate electric service for the proper installation and operation of a heat pump system. Estimates for the percentage of the building stock that may require electrical panel upgrades are not readily available, however due to the age of New York's building stock, it may be significant and even more prevalent in Disadvantaged Communities and LMI buildings. Electrical panel upgrades are sometimes referred to as a component of an "electrification ready" home or building. Staff believes all incentives associated with electrification should be considered as a component of this review.

Q28. Given the current imbalance of program activity between Air Source Heat Pumps (ASHP) and Ground Source Heat Pumps (GSHP), should the Commission dictate budgets for each heat pump technology type?

Q29. Given the overall objective to electrify buildings' space and water heating uses, should ratepayer-funded programs continue to support projects that do not fully electrify these uses? If so, how can the program be structured to mitigate negative consequences such as heat pumps being installed only for cooling purposes, customers needing to maintain two systems, uncertainty with regard to resultant GHG emission reductions, etc.?

- Q30. Given the implications of a future winter-peaking electric system, should minimum levels of building envelope/shell conditions be a prerequisite for the receipt of heat pump incentives? If so, how could this practically be implemented?
- Q31. Given the necessary evolution of other programs among the Program Administrators' portfolios, should the NYS Clean Heat program continue to operate as a heat-pump specific program, or should building electrification incentives become a part of other programs targeting the various building types? What are the pros and cons of these different approaches?
- Q32. Should ratepayer funds be used to incent electrical panel upgrades necessary for the installation and operation of heat pumps? If so, should this be restricted to LMI/DAC customers? How would it best be structured?
- Q33. What criteria should be considered for allocation of NYS Clean Heat program funding among different building sectors?

2. NYSERDA NYS Clean Heat Program Activities

NYSERDA is working in collaboration with the electric utilities to implement the NYS Clean Heat program. NYSERDA's primary role is in the development and delivery of market-enabling initiatives through the NYS Clean Heat Market Development Plan. The Market Development Plan is funded through a budget of approximately \$230 million⁶⁷ and includes activities within the following areas to address market barriers and needs:

- Building customer demand through community outreach, marketing campaigns, and technical support and assistance.
- Encouraging innovation in clean heating and cooling technologies through research and development and demonstrations of larger scale systems such as commercial buildings, high rises, and multi-building campus or community-style geothermal systems.
- Providing workforce development including an Internship Program, On-the-Job Training Program working on heat pumps and/or building electrification activities, and online building electrification training series on heat pump design and installation.
- Focused LMI electrification pilots to better understand the unique challenges and needs of the LMI sector in pursuing electrification.
- Getting homes "heat pump ready" through NYSERDA's Comfort Home program that offers rebates for building envelope packages and encourages pairing building envelope improvements with heat pump adoption.

⁶⁷ The Commission did not authorize this funding discretely for the NYS Clean Heat Program, rather these are program funding allocations (net of administrative and EM&V) that NYSERDA has made as components of their Non-LMI and LMI Market Development portfolios. Associated funding and metrics associated with these activities are included in the Non LMI and LMI portions of this report.

- Building and coordinating supply chain through market insights, partnerships, and trade ally support.
- Developing a Building Electrification Roadmap to chart a path forward to align with the 2030 state goals as defined by the CLCPA.

An example of the effectiveness of these market-enabling efforts to further support the end-use customer incentives offered by the Utilities can be seen in the performance statistics, as provided by NYSERDA, of the targeted marketing program. This targeted marketing program drives customers to a single landing environment, www.cleanheat.ny.gov, where consumers can learn about heat pumps and their benefits, explore customized solutions, and find a contractor in their area. Since launching this effort:

- Familiarity with benefits of heat pumps (+12%) and likelihood to install heat pumps (+11%) increased during wave one of the marketing program while those attributes decreased significantly with audiences not targeted (-38%).
- 1,005,463 visitors conducted 1,673,766 sessions on cleanheat.ny.gov, viewing an average of 2.55 pages during a 5:15 minute session. The session length experienced is greater than the average of 2-4 minutes, indicating a potential for high conversion.
- Lead generation is expected to reduce customer acquisition costs for installation of heat pumps to be more at parity with traditional HVAC systems. To date, 377,634 leads have been generated for contractors.

Staff Observations & Questions for Comment

NYS Clean Heat represents a collaborative model of program administration in which electric utilities and NYSERDA have differentiated roles and are working in tandem to advance the overall objectives of supporting discrete projects while scaling the building electrification market. Staff believes this model represents a valuable approach and holds promise. However, the unfamiliarity of working in this coordinated manner has presented challenges. For instance, the market response has varied dramatically in some utility service territories compared to others. Additionally, there has been a lack of clarity with regard to whether projects can avail themselves of incentives offered by both the electric utilities and NYSERDA's demonstration programs. Furthermore, for NYSERDA to develop and modify its market-enabling efforts in support of NYS Clean Heat, it needs access to data associated with NYS Clean Heat customers and contractors collected by the Utilities which has not historically been made available. While there has been progress to date in these areas, attention must be given to reassessing processes in order to gain the full benefits of the collaborative model envisioned by the Commission.

Q34. Do the various activities administered by the electric utilities and NYSERDA through the NYS Clean Heat program recognize and take advantage of the unique strengths of the respective organizations? If not, in what areas could improvements

be made? Are there refinements that could be made to the collaborative model to improve effectiveness?

Q35. It is generally recognized that the workforce necessary to scale building electrification to meet the CLCPA goals needs to be further developed and significantly expanded. What critical building electrification workforce training and development needs are not currently being met, that should be further supported through ratepayer-funded programs?

C. NYSERDA Non-LMI Market Development Program Performance

As directed in the Order Initiating NE:NY/CEF Review, the energy efficiency and building electrification elements of NYSERDA's Market Development Portfolio are discussed in this report. NYSERDA's Market Development Portfolio consists of initiatives that seek to address market gaps and non-monetary barriers and work alongside the programs administered by the Utilities to achieve lasting market changes that rebate programs alone cannot achieve. The non-LMI energy efficiency and building electrification components of the Market Development Portfolio, which represent nearly \$1.6 billion of funding through 2025, are designed to provide financial support, technical knowledge, data, education, and workforce training to service providers and customers. A full description of all Market Development Portfolio initiatives can be found in NYSERDA's Compiled Investment Plan.⁶⁸

The Commission assigned collective performance targets for the Clean Energy Fund across all four of its portfolios,⁶⁹ however for purposes of this report, the cumulative annual site MWh and MMBtu energy savings performance targets will be the primary metrics addressed.⁷⁰ For purposes of this report, Staff has disaggregated these performance targets and corresponding budgets, based on NYSERDA's Compiled Investment Plan and quarterly scorecard reports, into the component parts necessary to conduct this review. It is important to note that while MWh and MMBtu savings are the primary performance targets for the energy efficiency and building electrification market development activities, there are other market outcomes sought that do not lend themselves as easily to comparable roll-up metrics. These outcomes include increased consumer awareness and consumer confidence, engagement of market actors such as financing institutions and service and installation providers, availability of products and services, on-the-job and career advancement training, economic development, and technology cost reductions. Measuring the effects of these types of market development outcomes is often done through longitudinal market studies to assess the associated indirect savings. While there are some leading indicators that are currently being tracked, it is relatively early in the process, with a number of

⁶⁸ Case 16-00681, In the Matter of the Clean Energy Fund Investment Plan.

⁶⁹ The four CEF Portfolios are 1) Market Development; 2) Innovation & Research; 3) NY-Sun; and 4) NY Green Bank.

⁷⁰ Other performance targets established for the CEF include Renewable Distributed Solar Capacity Installed (GW); Mobilization/Leveraged Funds (\$\$); and Benefits of CEF Investments Accruing to Disadvantaged Communities.

market studies in progress or scheduled for the coming year(s) to fully quantify the impacts of the investments made to date.

Table 12: NYSERDA Non-LMI Market Development Budgets and Performance Targets

	Budget (2016 – 2025) (Expenditures + Encumbrances)¹	Budget (2016 – 2030)^{1,2} (Expenditures)
Non-LMI Market Development EE/BE	\$1,570,400,398	\$1,570,400,398
Metric	Performance Target (2016- 2025)	Performance Target (2016-2030)
Cumulative Annual Electricity Savings – approximate	22.2 TBtu (6.5 million MWh)	32.8 TBtu (9.6 million MWh)
Cumulative Annual Natural Gas Savings – approximate	20.7 Tbtu	30.1 TBtu
Cumulative Annual Other Fuels Savings – approximate	14 TBtu	15.2 TBtu
¹ Budgets include Program and Cost Recovery Fee as well as a proportional share of Administrative and Evaluation, Measurement & Verification (EM&V) costs. Given the NYSERDA Market Development Portfolio was not authorized discretely for energy efficiency and building electrification vs non-energy efficiency and building electrification activities, the budgets included here include some modest funding associated with initiatives, such as workforce development, that may also include activities focused on other clean energy technologies such as solar, offshore wind, etc. ² All funding must be encumbered by 12/31/2025 as per CEF Modifications Order.		

The CEF Framework Order established ten-year commitment-based cumulative annual goals and encumbrance-based budgets for the CEF, for the performance period 2016-2025.⁷¹ Subsequently, in its CEF Modifications Order, the Commission recognized a need to place greater emphasis on the realization of these savings and re-established the CEF’s goals on an acquired basis.⁷² Given that the CEF is authorized to commit funding up through December 31, 2025, the CEF Modifications Order recognized there will be annual savings associated with CEF programs that will occur after 2025. Therefore, the CEF Modifications Order adopted energy efficiency and building electrification cumulative annual acquired savings goals for the periods through 2025 and 2030. As previously discussed, this approach differs from the regulatory framework established for

⁷¹ In this context, commitment-based goals represent energy savings from projects/activities that have been “committed” to but for which the projects are not yet complete. Committed projected have accompanying encumbered funds that have been dedicated to these projects but for which expenditures have not yet occurred. Commitments/encumbrances are an informative data point to represent the pipeline of various programs. For example, new construction project may have encumbered funds and committed savings, however expenditures will happen over a multi-year period as the project passes various stages of completion and associated savings will be considered acquired.

⁷² In this context acquired savings represent savings for which projects are completed and operational. In general, expenditures and acquired savings are reported when projects are completed. Encumbrances and committed savings are reported when projects are contracted or otherwise accepted in the program(s).

the utility energy efficiency and building electrification programs that were provided annual budgets and targets.⁷³

Given the CEF was authorized for a ten-year performance period, the Commission in its first review of the CEF determined that the most appropriate gauge of progress is performance to date compared to a prorated view of the goals. This report adopts that approach. The period through Q2, 2022 represents 65% of the initial CEF performance period (2016-2025); therefore, savings metrics trending near the 65% would reflect being on track towards achievement of the 2025 performance targets. Taking a longer view, Q2, 2022 represents 43% of the CEF performance period through 2030 (2016-2030); therefore, metrics trending near 43% of the 2030 savings target reflect being on track for that period. However, Staff notes that achievement of performance targets was not expected to be linear over the period, and that it is reasonable to assume some level of backloading due to the nascent nature of many of the initiatives and their intended longer-term objectives. Nonetheless, in the absence of any nearer-term or annual performance targets established by the Commission, Staff is using a simplified, linearly modeled cumulative view for analytic purposes.

NYSERDA's Non-LMI MD portfolio expenditures and encumbrances as percentages of the cumulative authorized budget are shown in Table 13 below. Further details, charting the trajectories of expenditures and encumbrances, are presented in Appendix 5.

Table 13: NYSERDA Non-LMI Financial Performance Data

	2016-Q2, 2022 Expended (\$)	Q2, 2022 Encumbered (\$)	2016-2025 NENY Budget (\$)	Expended as a % of 2016-2025 Budget	Expended + Encumbered as a % of 2016-2025 Budget
Non-LMI Market Development	\$465,588,474	\$350,992,314	\$1,570,400,398	30%	52%
Q2, 2022 represents 65% of the time period 2016 through 2025 and 43% of the time period 2016 through 2030.					

Table 13 illustrates through Q2, 2022, NYSERDA's Non-LMI Market Development Portfolio has incurred expenditures (\$466 million) and encumbrances (\$351 million) totaling over \$817 million. This represents 30% of the total Non-LMI budget on an expenditure-only basis and 52% on a combined, expended-plus-encumbered basis.⁷⁴ As previously noted, the Commission has

⁷³ Although the Commission articulated annual budgets and targets for utility programs, the programs are allowed to operate on a cumulative basis providing a level of flexibility to utility program administrators to shift budgets and targets between years as long as the cumulative budgets or targets are met at or before the end of the performance period.

⁷⁴ In this context, "expended" represents actual expenditures while "encumbrances" represent financial commitments to specific projects or activities for which the funds are dedicated but the expenditures have not been made. Encumbrances are an informative data point to represent the pipeline of various programs. For example, a new construction project may have encumbered funds, however expenditures will happen over a multi-year period as the project passes various stages of completion.

allowed this funding to be expended or encumbered by 2025, and any encumbrances remaining as of December 31, 2025, must be fully expended by December 31, 2030. Therefore, one can gauge performance by comparing the expenditures and encumbrances to date (52%) to the prorated time period through 2025 (65%). It is also instructive to compare the expenditures to date (30%) to the timeframe over which NYSERDA has been granted authorization to fully expend the budget – i.e., through 2030 (43%). By these metrics, the portfolio’s financial performance is lagging. As noted earlier, however, this comparison implies a simplified linear expenditure rate, which is not necessarily consistent with how these programs will operate. Staff also notes that while encumbrances are an important metric for understanding the pipeline of activities, the pipeline must be continually monitored for project progress and attrition so that funds can be redeployed as necessary.

NYSERDA’s Non-LMI MD portfolio savings and commitments as percentages of cumulative authorized targets are shown in Table 14 below. Further details, charting the trajectories of acquired and committed savings, are presented in Appendix 5.

Table 14: NYSERDA Non-LMI Energy Savings Performance Data

	2016-Q2,2022 Acquired (MWh)	Q2, 2022 Committed (MWh)	2016-2025 Target (MWh) (Acquired)	Acquired to Date as a % of 2016-2025 MWh Target	Acquired + Committed as a % of 2016- 2025 MWh Target	2016-2030 Target (MWh)(Acq uired)	Acquired as a % of 2016- 2030 MWh Target	Acquired + Committed as a % of 2016-2030 MWh Target
Electric Savings	1,447,497	1,093,431	6,501,962	22%	39%	9,618,657	15%	26%
	2016-Q2,2022 Acquired (MMBtu)	Q2, 2022 Committed (MMBtu)	2016-2025 Target (MMBtu) (Acquired)	Acquired to Date as a % of 2016-2025 MMBtu Target	Acquired + Committed as a % of 2016- 2025 MMBtu Target	2016-2030 Target (MMBtu)(A cquired)	Acquired as a % of 2016- 2030 MMBtu Target	Acquired + Committed as a % of 2016-2030 MMBtu Target
Gas Savings	6,242,381	5,587,023	20,727,243	30%	57%	30,125,523	21%	39%
Other Fuel Savings	10,638,353	4,017,330	13,977,454	76%	105%	15,190,898	70%	96%
Q2, 2022 represents 65% of the time period 2016 through 2025 and 43% of the time period 2016 through 2030.								

Table 14 illustrates the NYSERDA Non-LMI Market Development Portfolio’s progress towards its acquired energy savings targets through 2025 and through 2030. At Q2, 2022, or 65% of the 2016-2025 time period, the portfolio’s acquired savings stand at 22% for electric energy efficiency, 30% for gas energy efficiency, and 76% for other fuels efficiency of the 2025 Non-LMI respective targets. On this acquired-only basis, the performance is lagging for electric and gas efficiency and ahead of pace for other fuels efficiency. However, there are also significant

commitments within the portfolio, a portion of which will result in the acquisition of savings by 2025. Taking both acquired and committed savings into account, the portfolio has achieved 39% for electric energy efficiency, 57% for gas energy efficiency, and 105% for other fuels of the 2025 Non-LMI respective targets. Although it is not expected that all committed savings as of Q2, 2022 will become acquired by 2025, these figures are nonetheless useful as upper bounds to the range of the portfolio's achievements in each category at the 65% mark of the time period through 2025.

Q2, 2022 represents 43% of the period through 2030. NYSERDA's Non-LMI Market Development Portfolio's energy savings on an acquired basis reflect 15% for electric efficiency, 21% for gas efficiency, and 70% for other fuel efficiency of the 2030 Non-LMI respective targets. On an acquired-only basis, this performance is lagging for electric and gas efficiency and significantly ahead of pace for other fuels efficiency. Here too, significant commitments exist within the portfolio that may be converted to acquired savings by 2030. Taking both acquired and committed savings into account, the portfolio has achieved 26% for electric, 39% for gas, and 96% for other fuels of the 2030 Non-LMI respective targets. Although it is not expected that all committed savings will become acquired, as there is often attrition of projects in the pipeline, these figures are nonetheless useful as upper bounds to the range of the portfolio's achievements in each category at the 43% mark of the time period through 2030.

Staff also recognizes that NYSERDA has programmed the vast majority (97%) of the Non-LMI Market Development energy efficiency and building electrification funding to specific programs and initiatives. There are additional savings planned from these funds which are reflected in NYSERDA's Comprehensive Investment Plan but are not represented in the figures above because they are not yet tied to specific projects. Lastly, NYSERDA's Non-LMI Market Development portfolio is designed to include indirect savings—additional savings that will result from the actions taken in these programs and be measured through market studies. As these market studies are completed, indirect savings will be reported, but because of the time required to conduct the market interventions and subsequent studies, only modest indirect savings have been reported to date.

With regard to NYSERDA's Non-LMI Market Development performance on the MWh reduction metric, Staff notes that the current MWh performance targets are based on a "no-backsliding" approach imposed by the Commission at the outset of the CEF, which required a comparable level of MWh savings to the targets of the predecessor EEPS programs. As noted in the CEF Modifications Order, the lagging MWh performance is in part due to market response, however Staff posits that it is also indicative of the types of initiatives pursued by NYSERDA through this portfolio which, at their core, are intended to address market barriers. As detailed elsewhere in this report, significant market adoption has occurred for efficient lighting. As a result, many of the Non-LMI Market Development initiatives seek to make progress in non-lighting areas even though the MWh performance target against which it is being measured is based on a historic portfolio, driven predominantly by inexpensive lighting savings.

As previously noted, the figures presented represent a blend of gross and verified gross savings figures. Table 15 presents the verification rates for the NYSERDA Market Development Non-LMI Portfolio.

Table 15: NYSERDA Market Development Non-LMI Portfolio Savings Verified

Metric	Percent of Gross Savings Verified
Direct Gross Annual Electricity Savings (MWh)	67%
Direct Gross Annual Natural Gas Savings (MMBtu)	77%
Direct Gross Annual Heating Oil Savings (MMBtu)	82%
Direct Gross Annual LPG Savings (MMBtu)	44%
Direct Gross Annual Other Fuel Savings (MMBtu)	15%

NYSERDA Non-LMI Market Development Examples

As discussed, NYSERDA’s Market Development activities related to energy efficiency and building electrification are designed to complement the more traditional end-use incentive-based resource acquisition programs offered by the State’s utilities. NYSERDA has numerous initiatives designed to advance the adoption of new market technologies and business models, many of which are beginning to demonstrate market transformation among market participants and service providers. Staff provides the following illustrative examples of NYSERDA Non-LMI Market Development initiatives to further describe these types of investments and illustrate how they differ from the more traditional consumer incentive-based programs administered by the Utilities. Further details and a description of all of the Non-LMI Market Development initiatives can be found in NYSERDA’s Compiled Investment Plan.⁷⁵

Energy Management Technology

NYSERDA’s Energy Management Technology (EMT) initiative addresses the advancement of energy management system technologies and works to reduce the risk assumed by building owners when undertaking investments in energy management technologies. Importantly, EMT initiatives facilitate the establishment of replicable business models for existing and new service providers. EMT includes a program specifically targeting Real-Time Energy Management (RTEM).⁷⁶ RTEM technology captures discrete data, such as set points, power loads, flow rates, temperature, and humidity, and feeds the information back to building operators with key insights about operations and systems that they then use to fine-tune the building energy system operations and identify capital projects with energy-saving opportunities. RTEM projects empower building owners with data and training necessary to reduce energy consumption and overall building operation and maintenance costs and could serve as a tool to help further reduce long-term system needs. RTEM investments also produce studies and tools to provide confidence to market

⁷⁵ Case 16-00681, In the Matter of the Clean Energy Fund Investment Plan, Compiled Investment Plan (filed November 9, 2022).

⁷⁶ Real Time Energy Management is included in both the Commercial, Industrial & Agriculture and the Multi-Family Residential Focus Areas.

participants that the measures being adopted will save energy and reduce operating costs. This market intervention strategy includes the development and identification of technology-specific best practices and system qualifications, preferred vendor qualifications, site-specific design requirements, and associated return on investments.

As identified in NYSERDA's 2021 CEF Annual Report, the RTEM initiative was on pace to meet its near-term objectives, including having recruited 1,238 buildings into its incentive program, undertaking 12 pilots, and enrolling 160 providers into its qualified providers list. The initiative's outputs identified a significant adoption rate of technologies and use of technical guidance documents facilitated by the program. Further, the initiative surpassed its energy management information system subscription rate goal of 75% of participating projects with a reported achievement of 85% through 2021.

NYSERDA's RTEM program originally focused on the commercial and industrial sectors, targeting demonstrations of energy management technologies with focused activities related to analyzing, sharing learning and successes related to the technology, and demonstrating the value proposition to stimulate investor confidence and replication. In 2021, NYSERDA concluded its base offering due to the program's success at reducing market uncertainty in performance and return on investment of RTEM solutions implemented within large commercial and industrial buildings, which led to the achievement of market exit goals.⁷⁷ Subsequently, NYSERDA refocused its RTEM activities toward commercial tenant spaces, recognizing that energy management solutions within such commercial tenant spaces needed to be accelerated. NYSERDA noted that extending energy management monitoring and analytic capabilities to more systems, such as integrating existing siloed technologies, lighting, and HVAC controls, and expanding RTEM solutions to tenant-controlled loads, offers a significant opportunity for deeper energy conservation and building optimization. According to NYSERDA, as of 2021 a number of RTEM solution providers were beginning to offer energy management solutions for tenant spaces and anticipated that demand for these services will grow in light of COVID-19 and a return to office work.

Additional market penetration within other sectors is more aptly to be addressed by the Utilities. As NYSERDA noted in 2021, the availability and penetration of energy management solutions lag within small-medium businesses, multifamily buildings, small commercial spaces, and retail facilities. As part of the progression of market development initiatives, by design and as expected, NYSERDA has begun to exit the commercial and industrial sectors, having proved out the concept of the technology and effectiveness and opening the approach/measure up to utility to deploy in order to scale the utilization of this technology. National Grid and Con Edison identified interest in exploring RTEM program offerings within their commercial sector programs in their respective 2022 SEEPs.⁷⁸ National Grid's states its intention to establish an RTEM initiative within both its electric and gas commercial and industrial portfolio and anticipates identifying an

⁷⁷ Case 16-0068, In the Matter of the Clean Energy Fund Investment Plan, Commercial Chapter, (filed May 07, 2021).

⁷⁸ Case 18-M-0084, supra, Con Edison SEEP 2019-2025 (filed November 4, 2022); and NMPC SEEP Revision (filed October 31, 2022).

implementation contractor before the end of 2022. Con Edison anticipates launching its RTEM Pilot in January 2023 and awarding twenty projects during the 2023 calendar year.

Energy Management Practices

NYSERDA's Energy Management Practices initiatives seek to demonstrate the value proposition of On-site Energy Managers (OSEM) and Strategic Energy Management (SEM) and the overall value of EMP services.⁷⁹ Energy Management Practices integrate the adoption of energy efficiency and clean energy into companies' core business processes utilizing SEM technological components and behavioral strategies resulting in continuous energy efficiency gains. OSEM are dedicated energy management staff responsible for utilizing SEM processes to identify and implement opportunities to improve energy performance, ultimately decreasing energy costs and waste.

The 2021 CEF Annual Report recognized the significant update in OSEM and SEM processes. Through 2021, the Energy Management Practices initiative identified over 300 potential projects during its engagement pilot. NYSERDA identified an additional 1,097 facilities that had adopted SEM technologies since 2016. NYSERDA identified that 184 industrial plants outside of the pilot program had adopted OSEM positions, at least in part due to NYSERDA's initiative.⁸⁰

Technical Services

NYSERDA's Technical Services initiatives⁸¹ provide cost sharing of technical assistance, tools, and capital planning services to help building owners conduct building-level and portfolio-level capital planning services and project-predevelopment support to undertake and invest in advanced energy efficiency and low-carbon upgrades through phased capital plans.⁸² Projects supported by these initiatives span multiple sectors, including not just commercial and industrial buildings, but also multi-family, affordable multi-family, and agriculture sectors. Projects are selected based on their ability to contribute towards replicable solutions and dissemination of information which can be used to develop technical and financial playbooks for select building typologies and reduce long term project development costs for like projects. Participants receive site specific recommendations and a comprehensive action plan.

Combined, the Technical Service initiatives are projected to contribute an estimated 8 TBtu of energy savings towards NYSERDA's goals.⁸³ As identified in NYSERDA's 2021 Clean Energy Fund Annual Report, the FlexTech program had continued to maintain a 65% adoption rate by

⁷⁹ Strategic Energy Management and On-site Energy Manager is included within the Commercial, Industrial, & Agriculture Focus Area.

⁸⁰ Case 14-M-0094, *supra*, NYSERDA 2021 CEF Annual Report Revised, filed July 15, 2022,

⁸¹ Technical Services includes NYSERDA's historical FlexTech program which has operated for several years and pre-dated the CEF.

⁸² The Technical Services initiative is a part of both the Commercial, Industrial & Agriculture and Multi-family Focus Areas.

⁸³ This total accounts for the estimated direct and indirect MMBtu savings identified by NYSERDA in its Compiled Investment Plan Budget and Benefits Chapter (filed September 9, 2022).

participants and had facilitated the establishment of 83 energy service firm providers. Further, the program has developed 14 case studies and facilitated 30 pilots with energy service firms.⁸⁴

Codes and Standards for Carbon Neutral Buildings

NYSERDA's Codes and Standards for Carbon Neutral Buildings (formerly Codes to Zero)⁸⁵ initiative is a multi-faceted program working to increase adoption of energy efficiency and carbon neutral solutions throughout all building typologies and customer sectors. The activities supported by these investments have already been successful at moving the sector to enhanced standards and continue to increase the percentage of buildings that are energy code compliant and the number of jurisdictions adopting stretch code (NYStretch Energy Code 2020). The program has also improved energy code enforcement by increasing the number of jurisdictions that adopt alternative code enforcement structures.

This initiative has reached communities and workers throughout the entire state. Through Q2, 2022, 30 municipalities had adopted NYStretch Code 2020, attracting significantly greater interest than its projected 2021 projected outcome of 10 municipalities.⁸⁶ The Code to Zero Year Two Study reviewed the impact and estimated energy benefits facilitated by the program's trainings. Trainings covered a variety of topics and technologies including envelope measures, mechanical systems, lighting, and thermal systems.⁸⁷ Through 2021, NYSERDA had trained 6,171 industry code officials and building professionals, with code officials accounting for about 80% of those trained.⁸⁸ The Code to Zero Year Two Study also found that participants believed that the trainings facilitated a better understanding of energy codes and their functions.⁸⁹ Additionally, the study suggests that there is an increase in code compliance, at least partially due to NYSERDA's programmatic activities.

Staff Observations & Questions for Comment

During this performance period, the NYSERDA portfolio has undergone a significant transformation, as required by the Commission, from the types of programs operated prior to the CEF (e.g., during the EEPS era).⁹⁰ Although this transition resulted in a reduction in the scale of annual energy savings attributed to the NYSERDA portfolio, it was purposeful in order to begin to

⁸⁴ Case 14-M-0094, *supra*, NYSERDA 2021 CEF Annual Report Revised, filed July 15, 2022, Appendix C.

⁸⁵ Clean Energy Fund Codes, Standards and other Multi-sector Solutions Focus Area

⁸⁶ Case 14-M-0094, *supra*, NYSERDA 2021 CEF Annual Report Revised, filed July 15, 2022, Appendix C.

⁸⁷ Case- 16-02180, In the Matter of Clean Energy Program Evaluation, Measurement and Verification, NYSERDA Code to Zero Initiative Year Two Evaluation Report, (filed June 29, 2022).

⁸⁸ 2021 CEF Annual Report

⁸⁹ *Id.*, Figure 4.

⁹⁰ The Energy Efficiency Portfolio Standard (EEPS) was a predecessor energy efficiency portfolio that operated from 2008-2016 with both electric and gas funding provided to NYSERDA and the utilities to administer traditional resource acquisition programs. NYSERDA also operated energy efficiency programs under the System Benefits Charge (SBC) programs since 1998. It was generally recognized during the EEPS era that a number of programs operated by utilities and NYSERDA overlapped in the marketplace. This overlap, in many cases, resulted in driving up overall costs to ratepayers as each program bore their own marketing and outreach costs and often had to ratchet up incentive levels to compete with other ratepayer funded programs in order to attract customers. Following EEPS, per Commission direction, the NYSERDA programs began to differentiate themselves from the programs operated by the utilities.

differentiate the Utility and NYSERDA offerings in the marketplace and to develop the complementary approach envisioned by the Commission.

Many of NYSERDA's Non-LMI Market Development activities related to energy efficiency and building electrification are longer term in nature and, to some degree, more speculative and riskier than traditional resource acquisition programs of the past. However, these activities, not only complement end-user incentives offered by the Utilities, but offer an opportunity for greater long-term potential, particularly for developing and deploying next generation technologies and testing out potential program offerings that might move to scale for implementation by Utilities.

- Q36. What in-field experiences are there that demonstrate the complementary nature of NYSERDA's energy efficiency and building electrification market development activities and those of the Utilities' more traditional resource acquisition type programs? Alternatively, are there in-field experiences that demonstrate challenges to the complementary approach sought by the Commission?
- Q37. Given the nature of NYSERDA's market development activities, are there more appropriate performance targets, other than MWh and MMBtu savings, that should be imposed to track performance and the impacts of these investments?
- Q38. Does the NYSERDA Non-LMI Market Development Portfolio appropriately recognize and take advantage of NYSERDA's relative strengths in program design and administration? If not, what should be modified?

D. Statewide LMI Portfolio Performance

Background

The Commission has a long-standing history of supporting LMI energy efficiency programs. Since the inception of the System Benefits Charge (SBC) in 1998 there has been consistent dedicated LMI energy efficiency programming supported by New York's ratepayers. In the early SBC period, the Commission authorized low-income programs administered by NYSERDA, Niagara Mohawk, and NYSEG. In 2006, the Commission consolidated all SBC-funded LMI programs under NYSERDA, citing the operational and administrative efficiencies and increased program uniformity that can be achieved through a statewide administrator. NYSERDA has continuously operated LMI programs since that time.

As previously discussed, the December 2018 NE:NY and January 2020 NE:NY Orders dramatically increased the funding for utility energy efficiency programs. Stakeholders advocated for the Commission to ensure a portion of the increased utility funding be dedicated to LMI programming. In response, the Commission required 20% of the Utilities' incremental funding authorized in the December 2018 and January 2020 NE:NY Orders be allocated to LMI programs. In recognition of the pre-existing LMI programs administered by NYSERDA, the Commission further required the development of a single platform for LMI energy efficiency program

administration, inclusive of NYSERDA's LMI activities and the newly authorized utility funding, recognizing the unique strengths that both NYSERDA and the Utilities could contribute towards improving services to this sector. The Commission also directed the Program Administrators to consider several features in the development of the Statewide LMI Portfolio, including increased use of direct-install approaches, community-based outreach and programming, and a greater emphasis on multifamily buildings by directing 40% of the incremental LMI utility program budgets to affordable multifamily programs.

The Commission reasserted its commitment to the development of a Statewide LMI Portfolio in its January 2020 NE:NY Order, stating:

*"[A] Statewide LMI Portfolio will improve access to programs, overall customer experience and impact for customers in this sector. To achieve this goal, a business-as-usual approach will not be adequate. Innovation in program designs and delivery must be pursued. Utilities and NYSERDA must maximize the impact of available resources and leverage existing program infrastructure to maximize cost reduction potential wherever possible. This should include streamlining program participation for LMI customers and affordable property owners, where possible. It will also be necessary to ensure program offerings are complementary and remove redundancy by leveraging the strengths and market reach of each program administrator."*⁹¹

Combined, the December 2018 and January 2020 NE:NY Orders established \$308 million of incremental LMI funding through 2025 for the electric and gas utilities to be administered through the Statewide LMI Portfolio. This represented a new focus for most utilities, who were not administering targeted LMI programs. Two exceptions to this were NFG, which administered a dedicated Low-Income program through a contractual relationship with NYSERDA for several years, and KEDLI, which was required to work with NYSERDA to pursue alternatives to EmPower NY within its service territory beginning in 2017.⁹² All utility LMI funding was directed to be deployed alongside the LMI funding provided through NYSERDA's Market Development portfolio. NYSERDA funding to be administered through the Statewide LMI Portfolio totals approximately \$715 million.⁹³ Collectively, the Statewide LMI Portfolio represents over \$1 billion in ratepayer funding through 2025.

⁹¹ Jan 2020 NE:NY Order at page 97.

⁹² As a result of the Commission directing NYSERDA's funding to come solely from electric ratepayers, NYSERDA could no longer offer programs in the KEDLI gas-only service territory. In KEDLI's 2016 rate proceeding, the Company established the KEDLI HEAT Program to serve low-income residential customers in their service territory.- See Case 16-G-0058 et al., *Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of KeySpan Gas East Corporation d/b/a National Grid for Gas Service, Order Adopting Terms of Joint Proposal and Establishing Gas Rate Plans* (issued December 16, 2016) at 45-46.

⁹³ NYSERDA operated LMI activities prior to the creation of the Statewide LMI Portfolio. These activities, which operated from 2016-2019, totaled expenditures of \$153 million, including a prorated share of administrative and EM&V costs.

Additionally, the Commission adopted a household energy burden standard in 2016, providing nearly two million low-income New Yorkers with approximately \$250 million in direct cost relief each year.⁹⁴ Case 14-M-0565, Proceeding on Motion of the Commission to Examine Programs to Address Energy Affordability for Low Income Utility Customers, Order Adopting Low Income Program Modifications and Directing Utility Filings (issued May 20, 2016). In the CEF Modifications Order, the Commission recognized that coupling bill discounts with permanent usage reductions via energy efficiency is the best approach to furthering longer-term energy affordability for low-income households. The Commission sought to enhance the linkage between the bill discount programs and energy efficiency programs by directing the utilities to assess and improve the referral process of their low-income bill discount program customers, including targeting high-use customers, to NYSERDA's low-income energy efficiency program, EmPower, for services.

In accordance with the aforementioned Commission Orders, NYSERDA and the Utilities formed a Joint Management Committee (JMC)⁹⁵ and developed a Statewide LMI Portfolio of energy efficiency and building electrification programs for LMI customers, described in a jointly filed Statewide LMI Portfolio Implementation Plan.⁹⁶ The Statewide LMI Implementation Plan presents the portfolio's overall goals, implementation strategies, and individual and collective budgets and energy savings performance targets, as well as other qualitative metrics for gauging impact. The Statewide LMI Implementation Plan was filed in 2020 and updated in 2022.⁹⁷

In the 2021 CEF Modifications Order, the Commission identified NYSERDA and utility coordination within the LMI Statewide Portfolio as a programmatic area requiring strategic refinement given its concerns with the level of progress that had been demonstrated at that time. The Commission recognized that the coordinated approach it envisioned requires a significant level of change to standard operating practices for the Program Administrators. As such, the CEF Modifications Order directed the institution of an LMI JMC Executive Council to help drive progress with the development and implementation of enhanced offerings necessary to serve the needs of the LMI market segment.

⁹⁴ Case 14-M-0565, Proceeding on Motion of the Commission to Examine Programs to Address Energy Affordability for Low Income Utility Customers, Order Adopting Low Income Program Modifications and Directing Utility Filings (issued May 20, 2016).

⁹⁵ The NYS Joint LMI Management Committee provides the Program Administrators an established forum to meet, discuss, and calibrate the implementation of the Statewide LMI Portfolio.

⁹⁶ The Statewide LMI Portfolio is predominantly an energy efficiency portfolio however it does include approximately \$30 million from NYSERDA's CEF budget dedicated towards assessing the unique considerations and conducting pilots related to electrification of LMI homes and buildings.

⁹⁷ The first iteration of the Statewide LMI Portfolio Implementation Plan was filed on July 24, 2020. Subsequent versions have been filed and are available in DMM Case 18-M-0084, In the Matter of a Comprehensive Energy Efficiency Initiative. The most recent version of the Implementation Plan was filed on November 1, 2022.

Treatment of Performance Metrics to Support the Transition to Statewide LMI Portfolio

NYSERDA

When the Commission ordered the implementation of the Statewide LMI Portfolio in 2020, it directed NYSERDA to bifurcate the performance metrics associated with its LMI programs during the period 2016-2019 from those in the 2020-2025 period. The former continues to reside within the CEF Market Development Compiled Investment Plan, while the latter resides within the Statewide LMI Implementation Plan. This report includes performance data for both periods in order to provide transparency and a full accounting of NYESRDA's LMI programming; however, the focus is on the LMI programming beginning in 2020.

Utilities

The Statewide LMI Implementation Plan presents annual budgets and targets for each of the utility Program Administrators over the 2020-2025 period. The December 2018 NE:NY Order authorized incremental LMI budgets and associated savings targets for some of the utilities for 2019 as well. Given the flexibility granted by the Commission to move funding between years and the lack of spending that occurred in 2019, for purposes of this Staff report, Staff has included the 2019 LMI budgets and associated savings targets towards the Statewide LMI Portfolio goals and included those 2019 numbers in the performance targets labeled as 2020-2025.⁹⁸

For the utility Program Administrators that operated Low Income programs prior to the requirement for a statewide LMI program framework, Staff worked with the Program Administrators to include all LMI-associated activities, regardless of origination or funding source, into the Statewide LMI Implementation Plan for the period 2020 forward. Therefore, the budgets reflected herein represent all dedicated LMI ratepayer funding.

The Commission granted the Utilities flexibility to move budgets and targets between years and between programs within the electric or gas portfolios, under certain conditions. Any such adjustments related to the LMI portfolios are documented in the Statewide LMI Implementation Plan and represent the Program Administrators' best estimate, at the time of filing, of the timing and level of expected expenditures and associated acquired energy savings. While the Statewide LMI Implementation Plan provides an important view for planning and monitoring, it has limited value as a basis for assessing performance to date as the figures are revised with each Statewide LMI Implementation Plan filing to represent historic actuals and revised forecasts for future performance.

Utility and NYSERDA Performance Data

Due to the differing ways in which the Commission authorized the Utilities' and NYSERDA's LMI portfolios, it is challenging to view the performance of each in a consistent manner. These differences relate to annual budgets and targets authorized for the Utilities allowing

⁹⁸ This is particularly relevant due to the transition to the LMI Statewide approach. Little, if any, 2019 Utility-LMI funds were expended in 2019 and therefore, per the flexibility granted by the Commission, roll forward for use in the 2020-2025 period.

for the presentation of both cumulative performance against the total goals for the period as well as performance through Q2, 2022 compared against prorated budgets and targets to date. In contrast, NYSERDA's activities were originally authorized in 2016 with a ten-year period, rather than annual budgets and goals. Further, NYSERDA's budgets/savings are required to be encumbered/committed by 2025, with expected completion of projects through 2030, while the Utilities' budgets are established through 2025 and are intended to be spent on completed projects through 2025.

Additionally, as noted elsewhere in this report, the Commission has authorized budgets for NYSERDA's activities, fully funded by electric ratepayers, but operating on a fuel-neutral basis, thereby allowing for the delivery of a comprehensive set of services through a single funding source (e.g., achieving electric MWh, gas MMBtu and/or other fuel MMBtu savings associated with the expenditures of electric ratepayer funding). In contrast, the Utilities have discrete electric and gas budgets and associated targets. This does not lend itself easily to a common view of unit costs per achieved energy savings across the Program Administrators.

Staff believes this Interim Review should result in alignment of the way in which budgets and targets are authorized across the Program Administrators, particularly in areas where direct collaborative implementation is expected, such as the Statewide LMI Portfolio.

1. NYSERDA

NYSERDA's LMI energy efficiency activities prior to the initiation of the Statewide LMI Portfolio are included herein for transparency and are identified as "LMI CEF (2016-2019)."

Table 16 LMI CEF (2016-2019) Financial & Energy Savings Performance⁹⁹

	2016- Q4, 2019 Expended (\$)	2016-Q4,2019 Acquired (MWh)	2016 – Q4, 2019 Acquired Gas (MMBtu)	2016-Q4, 2019 Acquired Other Fuels (MMBtu)
LMI CEF (2016-2019)	\$153,365,734	16,476	405,427	193,051

The focus of this report, however, is on the performance of the Statewide LMI Portfolio (i.e., initiatives post-2020). The following tables should be viewed with the context of Q2, 2022 representing approximately 42% of the performance period through 2025 and approximately 23% of the performance period through 2030. The financial performance of NYSERDA's portion of the Statewide LMI portfolio is illustrated in Table 17.

⁹⁹ There were no prescribed budgets or targets solely for the NYSERDA LMI programs for 2016-2019 period. Actual expenditures and acquired savings are provided for this period.

NYSERDA's LMI MD portfolio expenditures and encumbrances as percentages of the cumulative authorized budget are shown in Table 17 below. Further details, charting the trajectories of expenditures and encumbrances, are presented in Appendix 6.

Table 17: NYSERDA Statewide LMI Energy Efficiency Financial Performance

	2020- Q2, 2022 Expended (\$)	Q2, 2022 Encumbered (\$)	2020-2025 NENY Budget (\$)	Expended as a % of 2020-2025 Budget	Expended + Encumbered as a % of 2020-2025 Budget
LMI (Statewide Portfolio) (2020-2030)	\$222,194,207	\$195,562,896	\$726,066,776	31%	58%
Q2, 2022 represents 42% of the time period 2020 through 2025 and 23% of the time period 2020 through 2030.					

Based on NYSERDA's reported figures through Q2, 2022, NYSERDA's portion of the Statewide LMI portfolio has incurred expenditures (\$222 million) and encumbrances (\$196 million) totaling of over \$418 million. This represents 31% of NYSERDA LMI Statewide portfolio budget on an expenditure-only basis and 58% on a combined expended-plus-encumbered basis.¹⁰⁰ As previously noted, the Commission has allowed this funding to be expended or encumbered by 2025, and any encumbrances remaining as of December 31, 2025 must be fully expended by December 31, 2030. Therefore, one can gauge performance by comparing the expenditures and encumbrances to date (58%) to the prorated time-period through 2025 (42%). It is also instructive to compare the expenditures to date (31%) to the timeframe over which NYSERDA has been granted authorization to fully expend the budget – i.e., through 2030 (23%). Based on such an analysis, these financial metrics are ahead of pace through both 2025 and 2030. As noted earlier, this comparison implies a simplified linear expenditure rate, which is not necessarily consistent with how the programs operate. Staff also notes encumbrances, while an important metric to understand the pipeline of activities, must be continually monitored for project progress and attrition so that funds can be redeployed as necessary.

NYSERDA's LMI MD portfolio savings and commitments as percentages of cumulative authorized targets are shown in Table 18 below. Further details, charting the trajectories of acquired and committed savings, are presented in Appendix 6.

¹⁰⁰ In this context, expended represents actual expenditures while encumbrances represent financial commitments to specific projects or activities for which the funds are dedicated but for which expenditures have not yet occurred. Encumbrances are an informative data point to represent the pipeline of various programs. For example, a new construction project may have encumbered funds, however expenditures will happen over a multi-year period as the project passes various stages of completion.

Table 18: NYSERDA Statewide LMI Energy Savings Performance

	2020-Q2,2022 Acquired (MWh)	Q2, 2022 Committed (MWh)	2020-2025 Target (MWh) (Acquired)	Acquired to Date as a % of 2020-2025 MWh Target	Acquired + Committed as a % of 2020-2025 MWh Target	2020-2030 Target (MWh) (Acquired)	Acquired to Date as a % of 2020-2030 MWh Target	Acquired + Committed as a % of 2020-2030 MWh Target
Electric Savings	33,927	117,286	173,193	20%	87%	356,498	10%	42%
	2020-Q2,2022 Acquired (MMBtu)	Q2, 2022 Committed (MMBtu)	2020-2025 Target (MMBtu)	Acquired to Date as a % of 2020-2025 MMBtu Target	Acquired + Committed as a % of 2020-2025 MMBtu Target	2020-2030 Target (MMBtu) (Acquired)	Acquired to Date as a % of 2020-2030 MMBtu Target	Acquired + Committed as a % of 2020-2030 MMBtu Target
Gas Savings	531,874	1,278,943	3,691,360	14%	49%	7,293,080	7%	25%
Other Fuels Savings	176,082	455,599	829,075	21%	76%	1,615,630	11%	76%
Q2, 2022 represents 42% of the time period 2020 through 2025 and 23% of the time period 2020 through 2030.								

Table 18 illustrates NYSERDA's portion of the Statewide LMI Portfolio's progress towards its acquired energy savings targets through 2025 and through 2030. At Q2, 2022, or 42% of the 2020-2025 time period, the portfolio's acquired savings stand at 20% for electric efficiency; 14% for gas efficiency; 21% for other fuel efficiency of the 2025 NYSERDA Statewide LMI respective targets. On this acquired-only basis, the performance is lagging significantly. However, there are significant commitments within the portfolio, a portion of which will result in the acquisition of savings by 2025. Taking both acquired and committed savings into account, the portfolio has achieved 87% for electric energy efficiency; 49% for gas energy efficiency; and 76% for other fuels of the 2025 NYSERDA Statewide LMI respective targets. Although it is not expected that all committed savings as of Q2, 2022 will become acquired by 2025, these figures are nonetheless useful as upper bounds to the range of the portfolio's achievements in each category at the 42% mark of the time period through 2025.

Q2, 2022 represents 23% of the period through 2030. NYSERDA's Statewide LMI Portfolio's energy savings on an acquired basis reflect 10% for electric efficiency; 7% for gas efficiency; and 11% for other fuel efficiency of the 2030 NYSERDA Statewide LMI respective targets. On an acquired only basis, the performance is lagging significantly. Here too, significant commitments exist within the portfolio that may be converted to acquired savings by 2030. Taking both acquired and committed savings into account, the portfolio has achieved 42% for electric; 25% for gas and 76% for other fuels of the 2030 NYSERDA's Statewide LMI portfolio's respective targets. Although it is not expected that all of the committed will become acquired, as

there is often attrition of projects in the pipeline, these figures are nonetheless useful as upper bounds to the range of the portfolio's achievements in each category at the 23% mark of the time period through 2030.

Staff also recognizes that NYSERDA has programmed all of the Statewide LMI funding to specific programs and initiatives. There are additional savings planned from these funds that are reflected in NYSERDA Comprehensive Investment Plan, but are not represented in the figures above because they are not yet tied to specific projects. Lastly, NYSERDA's portfolio is designed to include indirect savings – additional savings that will result from the actions taken in these programs and be measured through market studies. As these market studies are completed, indirect savings will be reported, however due to the time necessary to conduct the market interventions and subsequent market studies, no indirect savings have been reported to date.

Table 19: NYSERDA LMI Unit Costs

	Actual to date 2020 through Q2, 2022 (Acquired) (\$/MMBtu-e)	Actual to date 2020 through Q2, 2022 (Acquired + Committed) (\$/MMBtu-e)	2020-2030 Unit Cost Target (Direct + Indirect) (\$/MMBtu-e)	Projected 2020- 2030 per Statewide Implementation Plan (Direct) (\$/MMBtu-e)	Projected 2020- 2030 per Statewide Implementation Plan (Direct + Indirect) (\$/MMBtu-e)
LMI (Statewide Portfolio) (2020-2030)	\$ 269.75	\$ 141.21	\$142.05	\$138.51	\$71.84

NYSERDA's LMI Portfolio delivers electric MWh, gas MMBtu and other fuel MMBtu savings all under a single, fuel-neutral budget. Therefore, unit costs can only be calculated on a dollar per MMBtu equivalent (\$/MMBtu-e) basis, converting MWh to MMBtu, for a common unit. While NYSERDA's LMI activities were not ordered as a standalone portfolio with a specific implied unit cost authorized by the Commission, the proration of the overall CEF Market Development portfolio into its Non-LMI and LMI components reveals an overall unit cost target of \$142.05/MMBtu-e. This projected unit costs also includes indirect savings that are projected to materialize from the activities undertaken.¹⁰¹ Obtaining indirect savings is a consideration in program design and are intended to result in longer lasting market changes than a focus on direct savings alone would produce. However, projecting indirect savings is speculative and requires longitudinal studies over a number of years to demonstrate. Therefore, Staff believes it is instructive to look at unit costs on a direct basis as a marker of current program activity and its more near-term results. From this view, NYSERDA's LMI portfolio since 2020 is experiencing a

¹⁰¹ Indirect benefits reflected in the calculations in this table reflect 50% of the projected indirect benefits anticipated to account for overlap within the portfolio and uncertainty associated with the timing and measurement of indirect benefits.

unit cost of \$270/MMBtu-e, or 90% greater than the unit cost target; factoring in commitments to existing projects the unit cost is projected to be \$141/MMBtu-e, or 0.6% lower than the unit cost target.¹⁰² NYSERDA’s projected unit cost for direct savings as represented in the Statewide LMI Implementation Plan is \$139/MMBtu-e and is ~2% less than the unit cost target. When factoring in the full projected savings, both direct and indirect, NYSERDA projects a unit cost of \$72/MMBtu-e.

As previously discussed, the figures presented represent a blend of gross and verified gross savings figures. Table 20 presents the verification rates for the NYSERDA LMI portfolio.

Table 20: NYSERDA LMI Portfolio Savings Verified

Metric	Percent of Gross Savings Verified
Direct Gross Annual Electricity Savings (MWh)	59%
Direct Gross Annual Natural Gas Savings (MMBtu)	78%
Direct Gross Annual Heating Oil Savings (MMBtu)	1%
Direct Gross Annual LPG Savings (MMBtu)	0%
Direct Gross Annual Other Fuel Savings (MMBtu)	0%

2. Utility Electric LMI

Similar to the approach taken for the Non-LMI components of this report, Staff compared the performance of the Utilities’ Statewide LMI Portfolios for 2020 through Q2, 2022 to: 1) an assumed straight-line performance through 2025 and 2) a prorated “budgets and targets to date” view of the 2020-2025 annual budgets and targets established by the Commission in its January 2020 NE:NY Order. For context, 2020 through Q2, 2022 represents 42% of the period 2020 through 2025.

Individual utility electric LMI portfolio savings and expenditures as percentages of cumulative authorized targets and budgets and prorated targets and budgets to date are shown in Table 21 below. Further details, charting the trajectories of targets acquired and budgets expended by individual utility and combined Utilities on a statewide basis, are presented in Appendix 6.

¹⁰² NYSERDA’s LMI portfolio for the 2016-2019 period experienced a unit cost of \$180/MMBtu-e.

Table 21: Utility Electric Energy Efficiency LMI Performance

	2020-Q2,2022 Acquired (MWh)	2020-2025 NENY Target (MWh)	Acquired as a % of 2020- 2025 Target	Acquired as a % of Target to Date (2020- Q2, 2022)	2020-Q2, 2022 Expended (\$)	2020-2025 NENY Budget (\$)	Expended as a % of 2020- 2025 Budget	Expended as a % of Budget to Date (2019- Q2, 2022)
CenHud	77	1,579	5%	37%	\$243,850	\$910,438	27%	204%
ConEd	55,156	106,935	52%	147%	\$13,635,102	\$61,649,935	22%	63%
NiMo	2,053	15,438	13%	115%	\$371,713	\$8,900,079	4%	36%
NYSEG	2,744	17,861	15%	47%	\$1,917,516	\$10,296,587	19%	57%
O&R	-	4,027	0%	0%	\$0	\$2,321,659	0%	0%
RG&E	1,583	9,095	17%	48%	\$1,116,581	\$5,243,396	21%	59%
All Utilities	61,612	154,934	40%	122%	\$17,284,763	\$89,322,095	19%	59%
2020-Q2, 2022 represents 42% of the time period 2020-2025.								

With regard to Utilities’ LMI electric energy efficiency performance, only one of the six electric utilities has reported savings that exceed 42% achievement of the savings target for the six-year period of 2020-2025, while no utility has expended more than 27% of its total authorized LMI electric energy efficiency portfolio budget. Individual utility MWh savings, as a percentage of the six-year cumulative targets, range from 0% to 52%, with the Utilities collectively having achieved 40% of their combined cumulative MWh targets. Individual utility expenditures, as a percentage of the six-year cumulative budgets, range from 0% to 27%, with the Utilities collectively having expended 19% of their combined total authorized budgets through 2025.

The efforts necessary to reach the goals at the end of 2025 varied slightly from one utility to the next and none of the annual increases to targets and budgets were linear. Therefore, Staff also compared the cumulative spending and savings acquired to a prorated budget and target through Q2, 2022 based on the annual budgets and targets shown in the January 2020 NE:NY Order to determine a “budget or target to date” metric. That comparison of the data shows that Con Edison and Niagara Mohawk are each ahead of pace, achieving over 100% of their respective prorated targets to date, which also drives the statewide Utilities combined numbers to show overachievement of the savings target through Q2, 2022. The other utilities are significantly lagging in their performance against their respective targets to date with O&R the furthest behind, having reported no savings or expenditures. All of the utilities, with the exception of Central Hudson, are spending well below the authorized budgets to date through Q2, 2022.

As noted above, the Statewide LMI Implementation Plan reflects the view of what each utility believes it will expend along with the resulting energy savings it expects to achieve. Therefore, this information is instructive to gauge what the utility program administrators are projecting in comparison to what the Commission has ordered. The table below reflects the

difference between the Commission’s ordered budgets and targets, for the period 2020-2025, and those stated in the most recent Statewide LMI Implementation Plan for the Utility LMI Electric portfolio.

Table 22: Utility Electric LMI Ordered vs Projected Budgets and Targets

Company		2020-2025 Electric Budget	2020- 2025 Target (MWh)	Company		2020-2025 Electric Budget	2020- 2025 Target (MWh)
CenHud	LMI Imp Plan	\$ 838,189	1,876	NYSEG	LMI Imp Plan	\$ 10,326,483	15,087
	NENY Order(s)	\$ 910,438	1,579		NENY Order(s)	\$ 8,680,124	17,861
	Difference	\$ (72,249)	297		Difference	\$ 1,646,359	-2,774
	Difference (%)	-8%	19%		Difference (%)	19%	-16%
ConEd	LMI Imp Plan	\$ 43,381,887	106,934	O&R	LMI Imp Plan	\$ 2,321,659	3,625
	NENY Order(s)	\$ 61,649,935	106,935		NENY Order(s)	\$ 2,357,427	4,027
	Difference	\$ (18,268,048)	-1		Difference	\$ (35,768)	-402
	Difference (%)	-30%	0%		Difference (%)	-2%	-10%
NiMo	LMI Imp Plan	\$ 8,900,080	12,234	RG&E	LMI Imp Plan	\$ 5,042,690	7,641
	NENY Order(s)	\$ 8,900,079	15,438		NENY Order(s)	\$ 4,643,455	9,095
	Difference	\$ 1	-3,204		Difference	\$ 399,235	-1,454
	Difference (%)	0%	-21%		Difference (%)	9%	-16%

For the Utility LMI electric portfolio, Central Hudson and Con Edison both project spending less than their authorized LMI electric budgets and maintaining or exceeding the MWh savings targets directed by the Commission. Niagara Mohawk projects spending its electric LMI budget while falling short of the LMI electric savings target. O&R projects underspending its LMI electric budget and underachieving its LMI electric savings target. NYSEG and RG&E both project spending more than their authorized LMI Electric budgets, due to transferring in non-LMI energy efficiency funding to support their LMI electric portfolios, while falling short of their LMI electric savings targets.

As indicated in the Table below, all utilities, with the exception of Central Hudson and Con Edison are projecting unit costs far exceeding those authorized by the Commission. Two of the electric utilities (Con Edison and Niagara Mohawk) are projecting, per the Statewide LMI Implementation Plan, unit costs that exceed the actual unit costs they have each experienced to date. NYSEG, RG&E, and Central Hudson are projecting lower unit costs than they have

experienced to date, although Staff notes an anomaly with the Central Hudson actual performance data that warrants further investigation. Due to the lack of performance from O&R there is no basis for comparison. Staff observes, however, that the actual unit costs experienced to date may be skewed as it reflects: a) limited activity to date within the portfolios; and b) planned programmatic activities that reflect more substantive services than those delivered to date.

Table 23: Utility Electric LMI Energy Efficiency Portfolio Unit Costs

	Planned 2020-2025 NE:NY (\$/MWh)	Actual to date 2020 through Q2, 2022 (\$/MWh)	Difference between Actual to date 2020 through Q2, 2022 and Planned 2020-2025 NE:NY	Projected 2020-2025 per Statewide Implementation Plan	Difference between Statewide Implementation Plan projection and Planned 2020-2025 NE:NY
CenHud	\$576.52	\$3,175.13	451%	\$446.80	-23%
ConEd	\$576.52	\$247.21	-57%	\$405.69	-30%
NiMo	\$576.52	\$181.06	-69%	\$727.49	26%
NYSEG	\$576.50	\$698.92	21%	\$684.46	19%
O&R	\$576.53	N/A	N/A	\$640.46	11%
RG&E	\$576.51	\$705.18	22%	\$659.95	14%

Utility Gas LMI

Similar to the approach taken for the Non-LMI Electric and Gas portfolios and for the Utility Electric LMI section of this report, Staff compared the performance of the Utilities' Statewide Gas LMI Portfolios for 2020 through Q2, 2022 to: 1) an assumed straight-line performance through 2025 and 2) a prorated "budgets and targets to date" view of the 2020-2025 annual budgets and targets established by the Commission in its January 2020 NE:NY Order. For context, 2020 through Q2, 2022 represents 42% of the period 2020 through 2025.

Individual utility gas LMI portfolio savings and expenditures as percentages of cumulative authorized targets and budgets and prorated targets and budgets to date are shown in Table 24 below. Further details, charting the trajectories of targets acquired and budgets expended by individual utility and combined Utilities on a statewide basis, are presented in Appendix 6.

Table 24: Utility Gas Energy Efficiency LMI Performance

	2020-Q2, 2022 Acquired (MMBtu)	2020-2025 NE:NY Target (MMBtu)	Acquired as a % of 2020- 2025 Target	Acquired as a % of Target to Date (2020- Q2, 2022)	2020-Q2, 2022 Expended (\$)	2020-2025 NE:NY Budget (\$)	Expended as a % of 2020-2025 Budget	Expended as a % of Budget to Date (2020- Q2, 2022)
CenHud	620	19,666	3%	24%	\$663,157	\$2,124,356	31%	238%
ConEd	405,664	1,074,165	38%	195%	\$29,323,272	\$116,031,326	25%	130%
KEDLI	15,527	186,087	8%	47%	\$2,289,689	\$20,101,130	11%	65%
KEDNY	2,978	225,844	1%	7%	\$611,523	\$24,395,776	3%	13%
NFG	77,633	354,814	22%	52%	\$12,802,094	\$40,441,291	32%	63%
NiMo	3,094	192,250	2%	14%	\$734,618	\$20,766,851	4%	30%
NYSEG	8,909	174,911	5%	36%	\$2,160,859	\$18,894,024	11%	81%
O&R	-	34,361	0%	0%	\$0	\$3,711,702	0%	0%
RG&E	5,662	85,666	7%	42%	\$1,291,325	\$9,253,656	14%	89%
All Utilities	520,086	2,347,764	22%	104%	\$49,876,537	\$272,620,212	18%	75%

2020-Q2, 2022 represents 42% of the time period 2020-2025.

With regard to Utilities’ LMI gas energy efficiency performance, only one of the nine gas utilities (Con Edison) is close to 42% achievement of the savings target for the six-year period of 2020-2025, while no utility has expended more than 32% of its total authorized LMI gas energy efficiency portfolio budget. Individual utility MMBtu savings, as a percentage of the six-year cumulative targets, range from 0% to 38%, with the Utilities collectively having achieved 22% of their combined cumulative MMBtu targets. Individual utility expenditures, as a percentage of the six-year cumulative budgets, range from 0% to 32%, with the Utilities collectively having expended 18% of their combined total authorized budgets through 2025.

The efforts necessary to reach the gas goals at the end of 2025 varied slightly from one utility to the next and none of the increases to targets and budgets were linear. Therefore, Staff also compared the cumulative spending and savings acquired to a prorated budget and target through Q2, 2022 based on the annual budgets and targets shown in the January 2020 NE:NY Order to determine a “budget or target to date” metric. That comparison of the data shows that only Con Edison is currently ahead of pace, achieving 195% of its respective prorated target to date. Due to the relative size of the Con Edison program, Con Edison’s reported overachievement drives the statewide Utilities’ combined numbers to appear on pace at 104% of the savings to date target through Q2, 2022. The other utilities are significantly lagging in their performance against a “target to date” with O&R being the furthest behind, having reported no savings or expenditures. All of the utilities, with the exception of Con Edison and Central Hudson, are spending below the prorated authorized budgets to date through Q2, 2022.

As noted above, the Statewide LMI Implementation Plan reflects the view of what each utility believes it will expend along with the resulting energy savings it expects to achieve. The table below reflects the difference between the Commission's ordered budgets and targets and those stated in the most recent Statewide LMI Implementation Plan for the Utility LMI gas portfolio.

Table 25: Utility Gas LMI Ordered vs Projected Budgets and Targets

Company		2020-2025 Gas Budget	2020-2025 Target (MMBtu)	Company		2020-2025 Gas Budget	2020-2025 Target (MMBtu)
CenHud	LMI Imp Plan	\$ 2,705,808	11,374	NiMo	LMI Imp Plan	\$ 20,766,851	113,227
	NENY Order(s)	\$ 2,124,356	19,666		NENY Order(s)	\$ 20,766,851	192,250
	Difference	\$ 581,452	-8,292		Difference	\$ (0)	-79,023
	Difference (%)	27%	-42%		Difference (%)	0%	-41%
ConEd	LMI Imp Plan	\$ 134,299,375	1,222,709	NYSEG	LMI Imp Plan	\$ 21,902,260	173,144
	NENY Order(s)	\$ 116,031,326	1,074,165		NENY Order(s)	\$ 18,894,024	174,911
	Difference	\$ 18,268,049	148,544		Difference	\$ 3,008,236	-1,767
	Difference (%)	16%	14%		Difference (%)	16%	-1%
KEDLI*	LMI Imp Plan	\$ 30,101,130	161,722	O&R	LMI Imp Plan	\$ 3,711,702	27,476
	NENY Order(s)	\$ 20,101,131	186,087		NENY Order(s)	\$ 3,711,702	34,361
	Difference	\$ 9,999,999	-24,365		Difference	\$ (0)	-6,885
	Difference (%)	50%	-13%		Difference (%)	0%	-20%
KEDNY	LMI Imp Plan	\$ 24,395,776	182,636	RG&E	LMI Imp Plan	\$ 10,226,933	85,603
	NENY Order(s)	\$ 24,395,775	225,844		NENY Order(s)	\$ 9,253,657	85,666
	Difference	\$ 1	-43,208		Difference	\$ 973,276	-63
	Difference (%)	0%	-19%		Difference (%)	11%	0%
NFG	LMI Imp Plan	\$ 40,441,391	140,582				
	NENY Order(s)	\$ 40,441,391	354,814				
	Difference	\$ 0	-214,232				
	Difference (%)	0%	-60%				

* KEDLI budgets and targets reflected in this table reflect only those authorized through the December 2018 NE:NY Order and the January 2020 NE:NY Order and do not include additional LMI funding authorized rate order.

For the Utility LMI gas portfolio, only Con Edison projects exceeding its MMBtu savings target established by the Commission but plans to spend more than authorized. Niagara Mohawk, KEDNY, and O&R project spending their authorized budgets while under achieving the MMBtu savings targets directed by the Commission. RG&E projects spending more than its authorized

budget while essentially maintaining its LMI gas savings target. Central Hudson, KEDLI, NFG, and NYSEG project spending more than their authorized budgets while falling short of their LMI gas MMBtu savings targets as directed by the Commission. All utilities projecting expenditures greater than those authorized by the Commission reflect transfers from their other energy efficiency portfolios into the LMI Gas portfolio, as allowed by the flexibility rules granted by the Commission.

As indicated in the Table 26, all utilities are projecting unit costs as documented in the Statewide LMI Implementation Plan exceeding those authorized by the Commission. KEDNY, Niagara Mohawk, NYSEG, RG&E, and Central Hudson are projected unit costs lower than actual unit costs experienced to date, although an anomaly with Central Hudson data requires further investigation. Con Edison, KEDLI, and NFG are each projecting unit costs greater than what they have experienced to date. Due to the lack of performance from O&R there is no basis for comparison. Staff observes, however, that the actual unit costs experienced to date may be skewed as it reflects: a) limited activity to date within the portfolios and b) planned programmatic activities that may reflect more substantive services than those delivered to date.

Table 26: Utility Gas LMI Energy Efficiency Program Unit Costs

	Planned 2020-2025 NE:NY (\$/MMBtu)	Actual to date 2020 through Q2, 2022 (\$/MMBtu)	Difference between Actual to date 2020 through Q2, 2022 and Planned 2020-2025 NE:NY	Projected 2020-2025 per Statewide Implementation Plan	Difference between Statewide Implementation Plan projection and Planned 2020-2025 NE:NY
CenHud	\$108.02	\$1,069.09	890%	\$237.89	120%
ConEd	\$108.02	\$72.28	-33%	\$109.84	2%
KEDLI	\$108.02	\$147.46	37%	\$186.13	72%
KEDNY	\$108.02	\$205.37	90%	\$133.58	24%
NFG*	\$113.98	\$164.91	45%	\$287.67	144%
NiMo	\$108.02	\$237.46	120%	\$183.41	70%
NYSEG	\$108.02	\$242.54	125%	\$126.50	17%
O&R	\$108.02	N/A	N/A	\$135.09	25%
RG&E	\$108.02	\$228.08	111%	\$119.47	11%
*NFG's planned 2020-2025 NE:NY unit cost expressed here takes account of its pre-existing LMI program which operated prior to the January 2020 NE:NY Order.					

Unit Costs

Program Administrators have conveyed concerns as to the ability to deliver the LMI energy savings ordered by the Commission for the LMI budgets authorized. Staff believes this concern has contributed to the delays in the delivery of services to LMI households as Program Administrators continue to seek less expensive approaches to the achievement of savings that, at times, can be at odds with the delivery of substantive services to the LMI sector.

Current LMI budgets and targets were based, in part, on NYSERDA's historic LMI portfolio performance experienced during the EEPS era and was additionally informed by the deliberations that led to the January 2020 NE:NY Order. Staff posits that historic statewide performance data serves as a useful data point however this must be revisited given the increased costs of goods and services that has been experienced since that time. This issue is further exacerbated by some increases in costs directly related to the COVID-19 pandemic, including the Personal Protective Equipment (PPE) now necessary for conducting in-house services, supply chain delays, and labor market shortages. Additionally, the historic figures represent a total portfolio, inclusive of 1-4 family LMI and affordable multifamily program offerings delivered throughout the state. Given affordable multifamily programs often deliver at a lower cost per unit of energy savings compared to 1-4 family LMI programs, any given utility territory may experience misalignment with the ordered unit costs if the program mix within their service territory varies significantly from the statewide proportion of 1-4 family LMI versus multifamily programs.

Counterbalancing these elements, that would result in upwards pressure on the cost of delivering LMI programs, is the anticipated economies of scale inherent in delivering a statewide LMI program designed to leverage the unique strengths of each program administrator. Staff has not seen demonstrable evidence of the Program Administrators aggressively seeking these opportunities for cost-reductions or streamlined approaches, rather utility program administrators appear to have privileged the coordination of program activities within their own energy efficiency portfolios (e.g., between non-LMI and LMI portfolios) at the expense of the development and delivery of a more streamlined Statewide LMI Portfolio at the lowest cost to ratepayers.

Lastly, the topic of LMI electrification has not been explicitly addressed by the Commission. Specifically, the current LMI budgets and targets were not designed to deliver LMI electrification programs, with the exception of NYSERDA's \$30 million allocation for LMI Heat Pump pilots intended to inform longer term LMI electrification programming. Relatedly, the NYS Clean Heat Program, discussed elsewhere in this report, was not designed to offer differentiated incentives for LMI sector versus market rate customers. Staff notes there are specific issues associated with LMI electrification such as the potential to increase a household's overall energy burden due to the installation and operation of heat pumps that must be carefully addressed as we seek to advance both our climate goals and our energy affordability policies. Due to these issues and the importance of serving the LMI sector in a comprehensive manner, Staff believes funding for LMI programming should be all inclusive to address the full needs of serving this sector, addressing both energy efficiency and building electrification, while the NYS Clean Heat Program focus on targeting market rate customers.

LMI Electric and Gas Measure Mix

Measure level reporting has not yet been incorporated into the Statewide LMI Portfolio Annual reporting. However, for illustrative purposes, Staff requested information from NYSERDA, comparable to that of which is received through the Annual SEEP Reports, for projects with acquired savings reported in calendar year 2021 for the three primary LMI programs administered by NYSERDA. Staff notes the statewide Multifamily Performance Program (MPP),

administered by NYSERDA, has been phased out and replaced by the Utility-administered Assisted Multifamily Energy Efficiency Program (AMEEP). Therefore, the measure mix represented in the tables below, particularly for the multifamily sector, may not be indicative of the measure mix experienced in the primary LMI multifamily program now operating in the field.

Table 27: 2021 NYSERDA Electric LMI Savings by Measure Category

Program	2021 Estimated Annual MWh Savings	Program Fraction of Total Savings	Lighting	Bldg. Shell	DHW Equip.	HVAC Equip.
EmPower	7,185	36%	52%	36%	4%	-8% ¹⁰³
Assisted Home Performance (AHP)	4,246	22%	1%	46%	9%	30%
Multifamily Performance (MPP)	8,311	42%	27%	8%	51%	6%
Total Savings	19,742	100%	31%	26%	25%	6%

As reflected in Table 27, the LMI program-related electric energy efficiency savings are attributed relatively evenly across the three programs, with MPP accounting for the largest proportion of savings (42%). Similarly, the attribution of measure-specific savings is also relatively evenly distributed for the highest proportions of total savings, including lighting (31%), building shell (26%) and domestic hot water equipment (25%). The savings associated with the EmPower Program, which serves the 1-4 family residential sector is highest for lighting measures (52%) followed by building shell measures (36%), with the largest fraction of building shell savings specifically associated with insulation (attic, wall, and other types). Similarly, the Assisted Home Performance Programs attributes almost half of its savings to building shell measures, with almost all of the building shell savings associated with insulation (attic, wall, and other types) and air sealing. The highest savings-contributing measure for MPP is categorized as DHW equipment, largely for a project that included the installation of a combined heating and DHW boiler (51%).

¹⁰³ HVAC Equipment includes 1) heating repair and includes several measures: tune-ups, duct sealing/insulation and other distribution work, among other custom work and 2) heating replacements, and include same fuel source for efficiency, heating emergencies, conversions from one source of heating fuel to another, and conversion from heating fuel to heat pumps as well as savings from ECM,s, circulator pumps, and reset controls, among others.

Table 28: 2021 NYSERDA Gas and Other Fuels LMI Savings by Measure Category

Program	2021 Estimated Annual MMBtu Savings	Program Fraction of Total Savings	Bldg. Shell	HVAC Controls	HVAC Equip.	All Other
EmPower	270,690	42%	84%	3%	11%	0%
Assisted Home Performance (AHP)	356,815	56%	48%	3%	29%	12% ¹⁰⁴
Multifamily Performance (MPP)	13,816	2%	60%	69%	48%	0%
Total Savings	641,321	100%	64%	5%	22%	7%

As reflected in Table 28, the LMI program-related gas savings are largely attributed to EmPower and AHP, with MPP accounting for a minimal amount of savings (2%). Building shell measures contribute the largest proportion of program-specific savings for EmPower and AHP, with 84% and 48%, respectively followed by HVAC equipment with 11% for EmPower and 29% for AHP. Like the specific building shell measures accounted for in the electric portfolio, gas savings for building shell measures installed through EmPower and AHP is almost exclusively attributed to insulation (attic, wall, and other types) and air sealing. The highest savings-contributing measure for MPP is HVAC controls (69%), largely associated with the installation of thermostatic radiator valves (TRV) on steam radiators and HVAC energy management systems.

Staff Observations & Questions for Comment

As evidenced by the performance metrics above, the performance of the Statewide LMI Portfolio to date has not realized the objectives laid out by the Commission. Utilities clearly struggled to ramp up LMI activities during the 2020 to Q2, 2022 performance period. Further, Staff has not seen demonstrable evidence that the Statewide LMI portfolio has prioritized leveraging the relative strengths of the various Program Administrators to improve services and scale of LMI programming.

Staff recognizes that this performance period represented the beginning of a wholesale shift from offering independent energy efficiency programs to a coordinated approach to deploy a comprehensive statewide LMI framework. For some utilities, this period represented the first time their portfolio included dedicated LMI programming. Staff notes some successes, such as the development and launch of the NY Energy Advisor Website, a platform that offers streamlined access to initiatives and services for LMI customers, affordable multifamily property owners and

¹⁰⁴ Other refers to several measures including but not limited to: AC coil repair, air cleaners, attic venting, vent repair, chimney improvement, drywall thermal barrier, and other types of improvements and repairs.

managers, contractors, and stakeholders throughout the state. NY Energy Advisor is designed to provide clear, consistent, and easy-to-find information on all relevant LMI initiatives and services, including energy efficiency, renewable energy, and energy education materials. Further, the Program Administrators launched the Assisted Multifamily Energy Efficiency Program (AMEEP) on November 3, 2021 as a new, coordinated statewide program to serve the affordable multifamily sector. AMEEP includes a technical assistance component to help building owners inform capital planning and is structured to encourage comprehensive upgrades to achieve greater energy efficiency savings. AMEEP also deployed the use of a single application for customers seeking services through different electric and gas utilities as well as technical support provided through NYSERDA. Lastly, of note, are multi-year partnerships that NYSERDA has created with NYS Housing and Community Renewal (HCR) and NYC Housing Preservation Department (HPD) in which NYSERDA is providing technical assistance and incentives directly into the housing finance process while supporting the development of more aggressive sustainability guidelines, new energy savings underwriting guidelines, and training of housing agency staff.

Nonetheless, Staff finds the performance to date of the Statewide LMI portfolio unacceptable especially during this time of heightened concerns regarding utility arrearages and energy affordability. The significant underspending of the dedicated LMI funding intended to help New York's most vulnerable customers must be addressed.

Regulatory Construct and Administrative Model

Through Staff's engagement with the LMI Joint Management Committee (JMC)¹⁰⁵ and the LMI JMC Executive Council, Staff believes the primary factors that contributed to the slow rate of progress and lack of achievement include:

- Incompatibility between requiring a statewide LMI framework to better serve LMI customers and individual utility budgets and targets.
- Lack of appreciation for the level and type of resources required to transition to a set of collective programs under a statewide framework.
- The JMC structure was not organized to effectively resolve issues in a timely manner.
- Concerns related to the unit costs authorized by the Commission not sufficient to support the type of LMI programming expected of the Statewide Portfolio.¹⁰⁶

As noted, the Program Administrators launched the statewide Utility-administered Affordable Multifamily Energy Efficiency Program (AMEEP) after months of design, deliberation, and outreach to market participants in late 2021. Additionally, Staff has been

¹⁰⁵ The LMI Joint Management Committee was developed consistent with the January 2020 NE:NY Order to provide the Program Administrators an established forum to meet, discuss, and calibrate the Implementation Plan.

¹⁰⁶ A very specific issue arose during the JMC deliberations related to unit costs authorized by the Commission. The 2020 NE:NY Order benchmarked its \$/MWh and \$/MMBtu to performance of the NYSERDA portfolio during the EEPS era. The benchmarked figures included a blend of multifamily and single-family programs. For those utilities who do not anticipate significant savings to come from the LMI multifamily sector which are generally more cost effective than single family LMI programs, their authorized budgets appear too low to achieve the requisite goal

informed by the JMC that as of early 2022 all utilities have executed an agreement with NYSERDA to deliver services to the single-family LMI sector through EmPower New York, the long-standing ratepayer supported LMI program serving the single family LMI market. The results of these efforts have not yet fully materialized in increased reported savings through Q2, 2022, however, they are recognized as major milestones for the collective Program Administrators.

Staff notes this program performance period also coincided with the onset of the COVID-19 pandemic. While the pandemic has certainly impacted the programs, primarily through stalled activities, increased costs due to necessary Personal Protective Equipment (PPE)/COVID protocols, and labor/material shortages, the lack of performance to date cannot be wholly attributable to the COVID-19 pandemic.

The Commission's decision to require the Utilities and NYSERDA to work collaboratively to develop and implement the Statewide LMI Portfolio was based on the objectives to a) offer consistent services to LMI customers throughout the State, while allowing some level of differentiation to meet regional needs, as necessary, and b) effectuate economies of scale and provide improved services to the LMI sector utilizing each entity's inherent strengths in delivery. As evidenced by the inferior performance to date, the Statewide approach has struggled to deploy greater services to the LMI sector while requiring a disproportionate level of administrative resources on the part of the Program Administrators.

Q39. Given the lack of performance to date and the administrative resource commitment required in developing and administering a statewide LMI framework, should this policy objective continue to be pursued? If so, what should be done differently to improve performance and delivery of services to LMI customers? If not, what alternative approach should the Commission take? Is it incompatible to impose individual program administrator budgets and targets within a statewide portfolio approach?

Q40. What barriers have prevented greater progress in the deployment of the Statewide LMI Portfolio and the expected scaling of services to the LMI Sector?

Q41. What are the unique strengths that the electric utilities, gas utilities, and NYSERDA possess as LMI program administrators? Do the various activities administered by the electric utilities, gas utilities and NYSERDA under the Statewide LMI portfolio recognize and take advantage of these unique strengths? If not, in what areas could improvements be made?

Q42. Are there programmatic gaps in the LMI Portfolio as is currently being administered? If so, what services or market segments are not adequately addressed?

APPENDICES

Appendix 1 – Compiled List of Questions for Stakeholder Input

Appendix 2 - Non-LMI Utility Specific Performance Data Charts

Appendix 3 –Utility Electric and Gas Measure Mix Information

Appendix 4 – NYS Clean Heat Utility Specific Performance Targets Charts

Appendix 5 – Non-LMI NYSERDA Market Development Specific Performance Data Charts

Appendix 6- LMI Utility and NYSERDA Specific Performance Data Charts

Appendix 7 – SAG Recommendations

Appendix 1 – Compiled List of Questions for Stakeholder Input

Questions are listed in the sections of most relevance; however, Staff notes some questions may be relevant to more than one section. Parties submitting comments in response to this report, should consider this in their comments and be explicit if their comments are more general in nature or focused on a specific sector or portfolio. Parties do not need to answer all questions but should focus on those most relevant to their interests and expertise.

- Q1. To establish a Strategic/Non-Strategic Framework for ratepayer-supported energy efficiency and building electrification programs, how should the definitions of Strategic, Non-Strategic, and Neutral be further refined?
- Q2. The scale of CLCPA-level energy efficiency and building electrification goals is far greater than what can be achieved through ratepayer-funded programs alone. How can the Strategic/Non-Strategic Framework be further refined to focus ratepayer funds on the activities that are most appropriate for this funding source? What criteria should the Commission adopt to direct investments to ensure prioritization of ratepayer funds within this Framework?
- Q3. What are the strengths and weaknesses of the current suite of energy efficiency and building electrification programs in providing benefits to Disadvantaged Communities?
- Q4. It is expected that benefits to Disadvantaged Communities will result both from LMI programs as well as non-LMI programs administered by the Utilities and NYSERDA. Specifically, how can non-LMI energy efficiency and building electrification programs be altered in design, outreach, and implementation to increase benefits to Disadvantaged Communities? What other modifications should be made beyond potential increases in incentive levels?
- Q5. If greater incentives or resources are needed to support projects in Disadvantaged Communities, what impact could that have on the Program Administrators' ability to achieve the targets established by the Commission through 2025? How should this requirement factor into any post-2025 budgets and targets authorized by the Commission?
- Q6. Given the necessity for energy efficiency and building electrification portfolios to evolve to support the State's ambitious climate goals and mandates, what performance metrics (i.e., beyond annual and lifetime MWh and MMBtu savings) should the Commission consider prioritizing to drive the types of programs, innovation, and outcomes needed?
- Q7. Would distinct metrics and targets for different types of programs (e.g., heat pumps, envelope/shell, electric energy efficiency, gas energy efficiency, etc.) be more

- appropriate than a single metric and goal? If so, what level of granularity would be optimal?
- Q8. Should implementation flexibility and performance measurement carry equal weight when determining the appropriate time period for budgets and targets? Should portfolio budgets and targets be single-year, multi-year, or some combination of the two? What would the reasonable bounds be for multi-year budgets and targets?
- Q9. To date, programs providing support for building electrification have been predominantly funded by electric ratepayers and administered by electric utilities. Should gas utilities administer building electrification programs and if so, how should this be coordinated with electric utilities?
- Q10. Building envelope and shell measures are likely to become a larger component of energy efficiency and building electrification programs than in the past. What approach will work best in the marketplace, given the overlap between electric and gas service territories and the inherent complexities of programs co-existing with other programs targeting the same building stock or customers?
- Q11. How does the overlapping nature of utility territories in some areas of the state hinder energy efficiency or building electrification program performance or customer engagement? What alternative approaches should be considered to alleviate these issues?
- Q12. Under what circumstances, if any, should utility shareholders be financially rewarded for meeting energy efficiency and building electrification targets that are necessary to achieve the GHG emissions reductions mandated by the CLCPA? Should the Commission consider adopting a negative shareholder revenue adjustment if energy efficiency and building electrification targets are not achieved?
- Q13. Given Staff's concerns about the current energy efficiency and building electrification EAM Share-the-Savings metrics detailed in this report, is there a more appropriate positive revenue incentive structure for utility shareholders? Upon what metric(s) should energy efficiency and building electrification performance be measured to best align the State's clean energy policies with a potential shareholder incentive? How should the targets and the value of the shareholder incentive be determined? Should all utilities be subject to the same shareholder incentive design?
- Q14. Do stakeholders agree or disagree with the relative strengths and weaknesses of the Program Administrators as articulated by Staff? What are other relative strengths or weaknesses? Do these relative strengths and weaknesses differ by sector (low-income, market-rate residential, multifamily, commercial, industrial, institutional)?
- Q15. Do the various programs administered by the electric utilities recognize and take advantage of the unique strengths of the electric utilities? If not, in what areas could improvements be made?

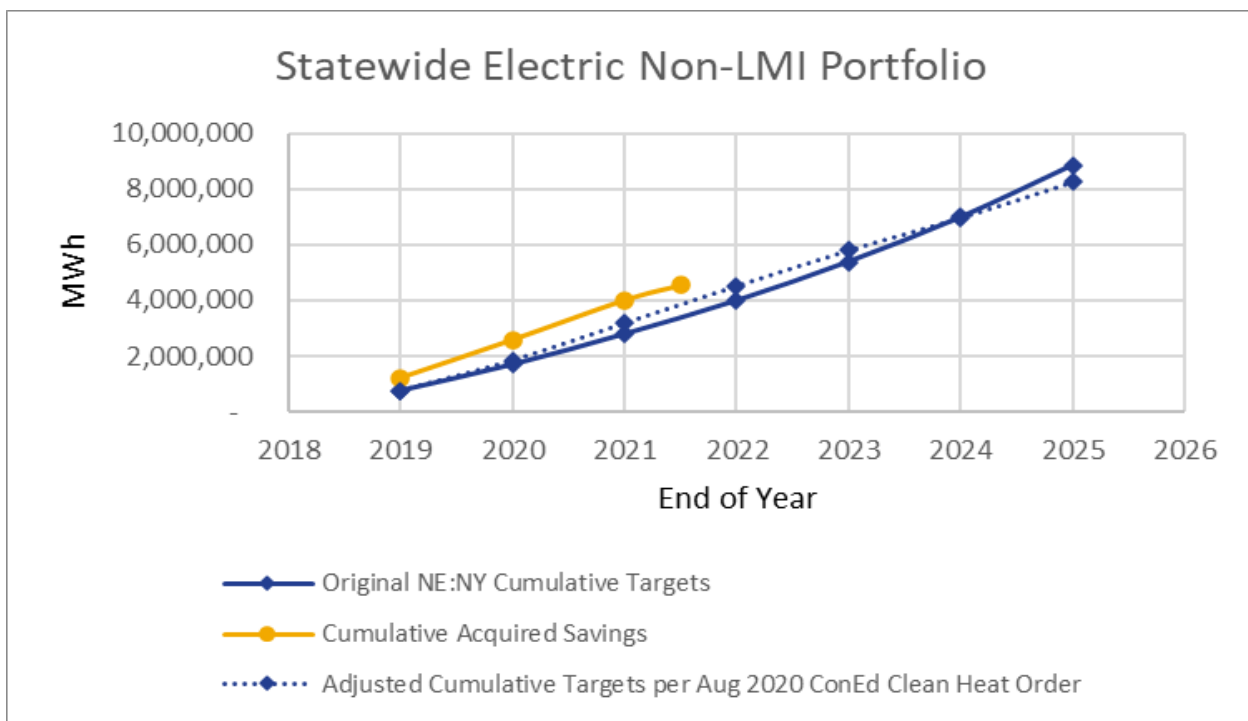
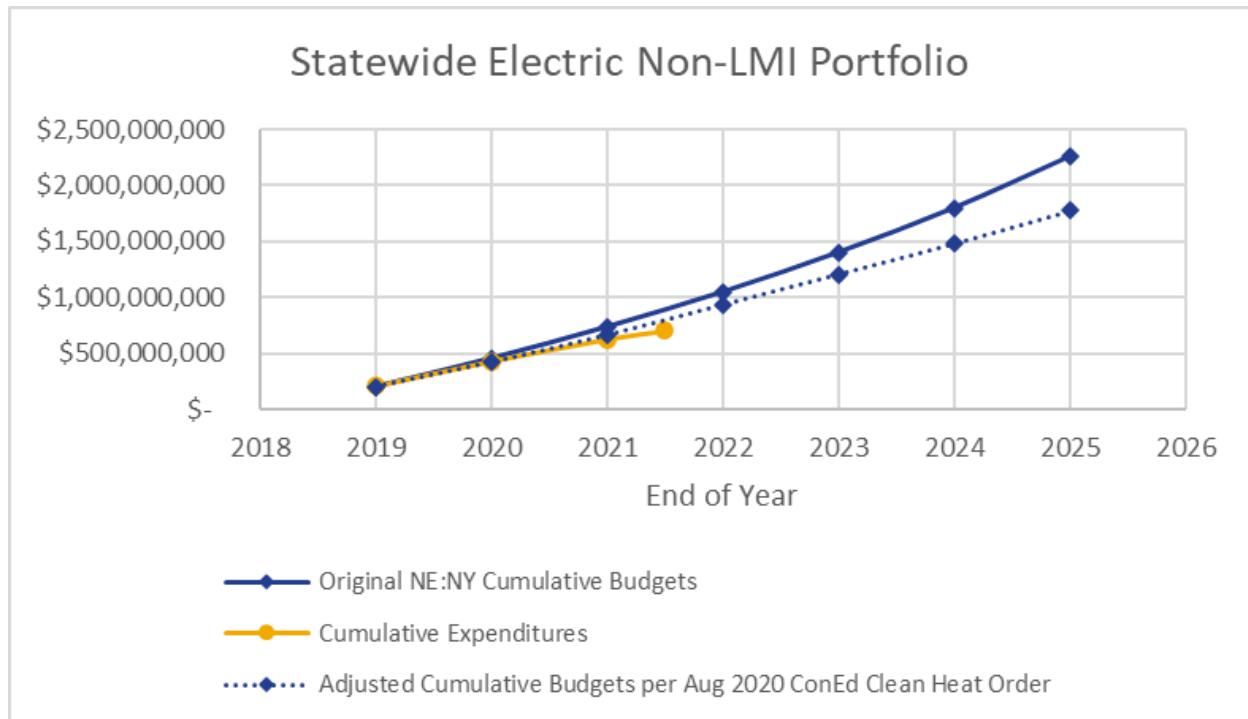
- Q16. Given the recent adoption of federal lighting efficiency standards for GSLs and the general penetration of high-efficiency lighting, what should the role be for continued ratepayer support for lighting incentives in the residential market? Should there be different considerations for incenting lighting measures for LMI programs or customers in designated Disadvantaged Communities?
- Q17. Given the advancement in the commercial lighting market, over what period of time should the use of an existing-condition baseline for commercial and industrial lighting be phased out? What are the implications of such a phase-out and how can they be managed?
- Q18. Given the majority of savings currently being reported from the online marketplaces are derived from residential lighting produces and the fact that recent federal lighting efficiency standards changes related to General Service Lamps will reduce the energy savings attributable to the programs, should such marketplaces continue to be offered as a part of the energy efficiency portfolios? If so, how should the online marketplaces evolve to continue to provide value in the energy efficiency portfolios?
- Q19. Are there economies of scale and therefore overall reduced costs to ratepayers for a statewide online marketplace, such as NYSEERDA's statewide pilot LMI marketplace, that should be explored in lieu of the continued practice of each utility either contracting out or providing this platform in-house?
- Q20. Should Program Administrators continue to provide rebates and claim savings for the recycling of appliances such as refrigerators, freezers, and room air conditioners? If not, how should these programs be phased out? If so, are there certain criteria that should be imposed for the continued operation of these programs? Is there a benefit to streamlining and consolidating utility programs that provide incentives for the same measures across multiple market segments?
- Q21. Should incentives be provided for the purchase and replacement of new major appliances? If not, how should these appliance incentives be phased out? If so, are there certain criteria that should be imposed for the continuation of such program incentives? Should the program approach be revisited in conjunction with the review of online marketplaces?
- Q22. Do the various programs administered by the gas utilities recognize and take advantage of the unique strengths of the gas utilities? If not, in what areas could improvements be made?
- Q23. Under what timeframe should the Commission require a phasing out of incentives supporting gas-fired space heating and domestic hot water heating equipment? Should different considerations be made for programs targeting LMI households or Disadvantaged Communities, or for different sectors (e.g., small residential, large multifamily residential, commercial, institutional, or industrial)?

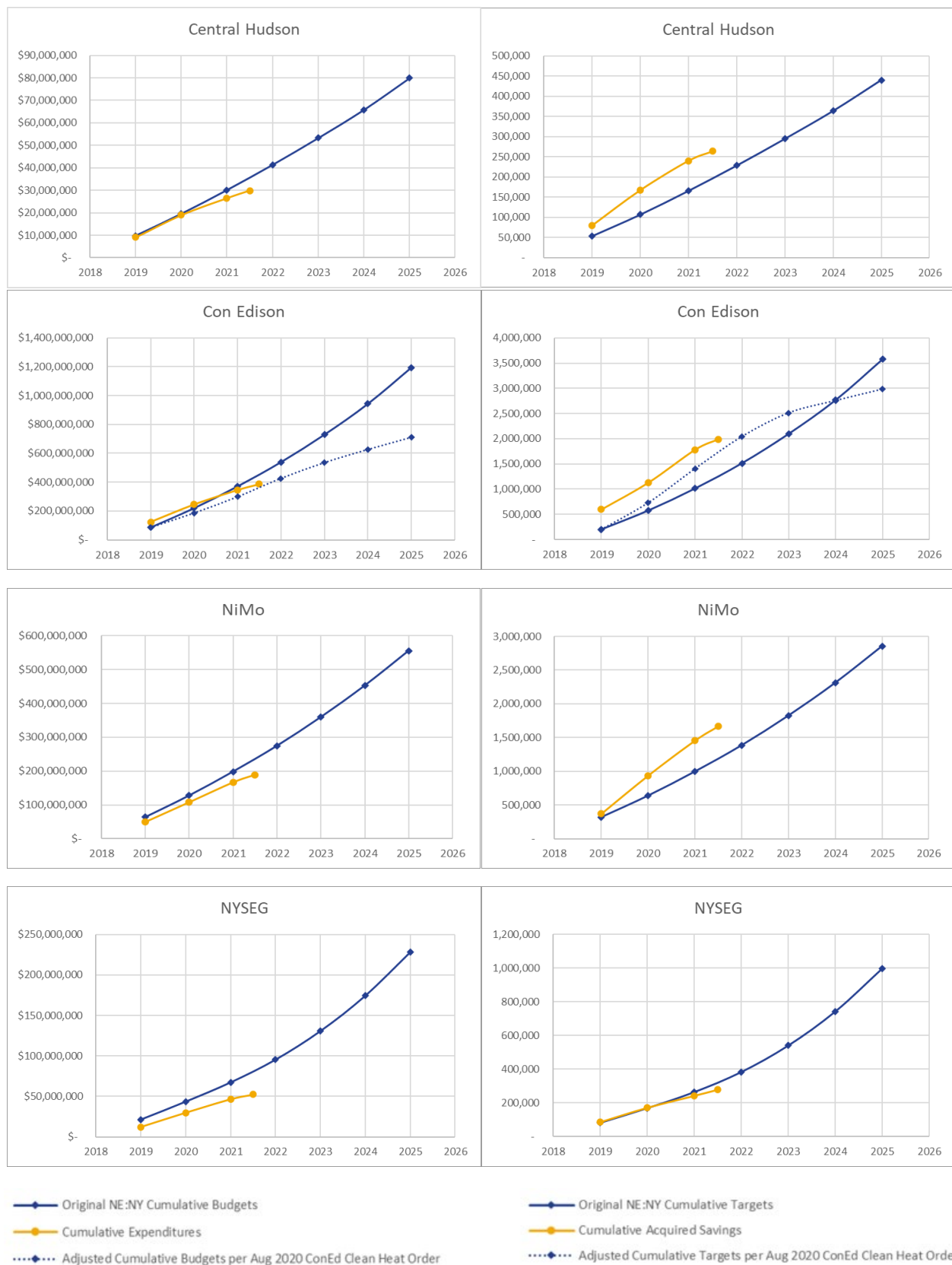
- Q24. Should Home Energy Report programs continue to operate as stand-alone energy efficiency programs, or should they be discontinued? Alternatively, should Home Energy Reports be reimagined as a customer engagement tool or marketing component of other programs and deployed to all utility customers?
- Q25. Ultimately, achievement of New York's climate objectives will necessitate a wholesale shift in how consumers use energy. How can utilities deploy more innovative types of behavioral programs to provide greater benefit, for example full integration with various rate designs, or other demand management programs? How can these programs be expanded beyond the residential sector?
- Q26. How can program incentives be structured to mitigate barriers associated with the deployment of building shell measures? What beyond program incentives can be done to support the shift to these types of measures?
- Q27. Given the advancements in efficiency and options for commercial cooking equipment, how quickly should ratepayer-funded incentives for high efficiency gas commercial cooking equipment be phased out? During the transition period, should any criteria be imposed for the continuation of such program incentives?
- Q28. Given the current imbalance of program activity between Air Source Heat Pumps (ASHP) and Ground Source Heat Pumps (GSHP), should the Commission dictate budgets for each heat pump technology type?
- Q29. Given the overall objective to electrify buildings' space and water heating uses, should ratepayer-funded programs continue to support projects that do not fully electrify these uses? If so, how can the program be structured to mitigate negative consequences such as heat pumps being installed only for cooling purposes, customers needing to maintain two systems, uncertainty with regard to resultant GHG emission reductions, etc.?
- Q30. Given the implications of a future winter-peaking electric system, should minimum levels of building envelope/shell conditions be a prerequisite for the receipt of heat pump incentives? If so, how could this practically be implemented?
- Q31. Given the necessary evolution of other programs among the Program Administrators' portfolios, should the NYS Clean Heat program continue to operate as a heat-pump specific program, or should building electrification incentives become a part of other programs targeting the various building types? What are the pros and cons of these different approaches?
- Q32. Should ratepayer funds be used to incent electrical panel upgrades necessary for the installation and operation of heat pumps? If so, should this be restricted to LMI/DAC customers? How would it best be structured?
- Q33. What criteria should be considered for allocation of NYS Clean Heat program funding among different building sectors?

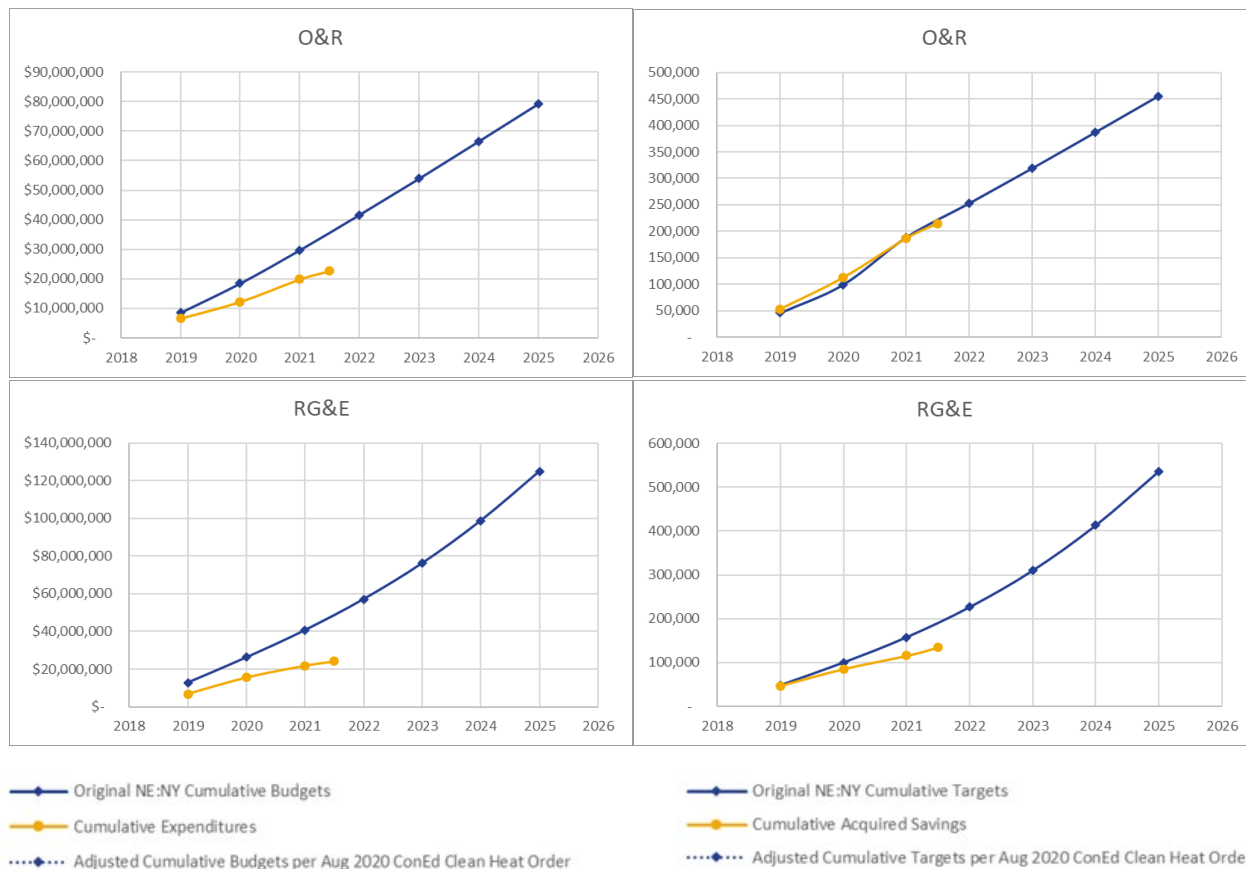
- Q34. Do the various activities administered by the electric utilities and NYSERDA through the NYS Clean Heat program recognize and take advantage of the unique strengths of the respective organizations? If not, in what areas could improvements be made? Are there refinements that could be made to the collaborative model to improve effectiveness?
- Q35. It is generally recognized that the workforce necessary to scale building electrification to meet the CLCPA goals needs to be further developed and significantly expanded. What critical building electrification workforce training and development needs are not currently being met, that should be further supported through ratepayer-funded programs?
- Q36. What in-field experiences are there that demonstrate the complementary nature of NYSERDA's energy efficiency and building electrification market development activities and those of the Utilities' more traditional resource acquisition type programs? Alternatively, are there in-field experiences that demonstrate challenges to the complementary approach sought by the Commission?
- Q37. Given the nature of NYSERDA's market development activities, are there more appropriate performance targets, other than MWh and MMBtu savings, that should be imposed to track performance and the impacts of these investments?
- Q38. Does the NYSERDA Non-LMI Market Development Portfolio appropriately recognize and take advantage of NYSERDA's relative strengths in program design and administration? If not, what should be modified?
- Q39. Given the lack of performance to date and the administrative resource commitment required in developing and administering a statewide LMI framework, should this policy objective continue to be pursued? If so, what should be done differently to improve performance and delivery of services to LMI customers? If not, what alternative approach should the Commission take? Is it incompatible to impose individual program administrator budgets and targets within a statewide portfolio approach?
- Q40. What barriers have prevented greater progress in the deployment of the Statewide LMI Portfolio and the expected scaling of services to the LMI Sector?
- Q41. What are the unique strengths that the electric utilities, gas utilities, and NYSERDA possess as LMI program administrators? Do the various activities administered by the electric utilities, gas utilities and NYSERDA under the Statewide LMI portfolio recognize and take advantage of these unique strengths? If not, in what areas could improvements be made?
- Q42. Are there programmatic gaps in the LMI Portfolio as is currently being administered? If so, what services or market segments are not adequately addressed?

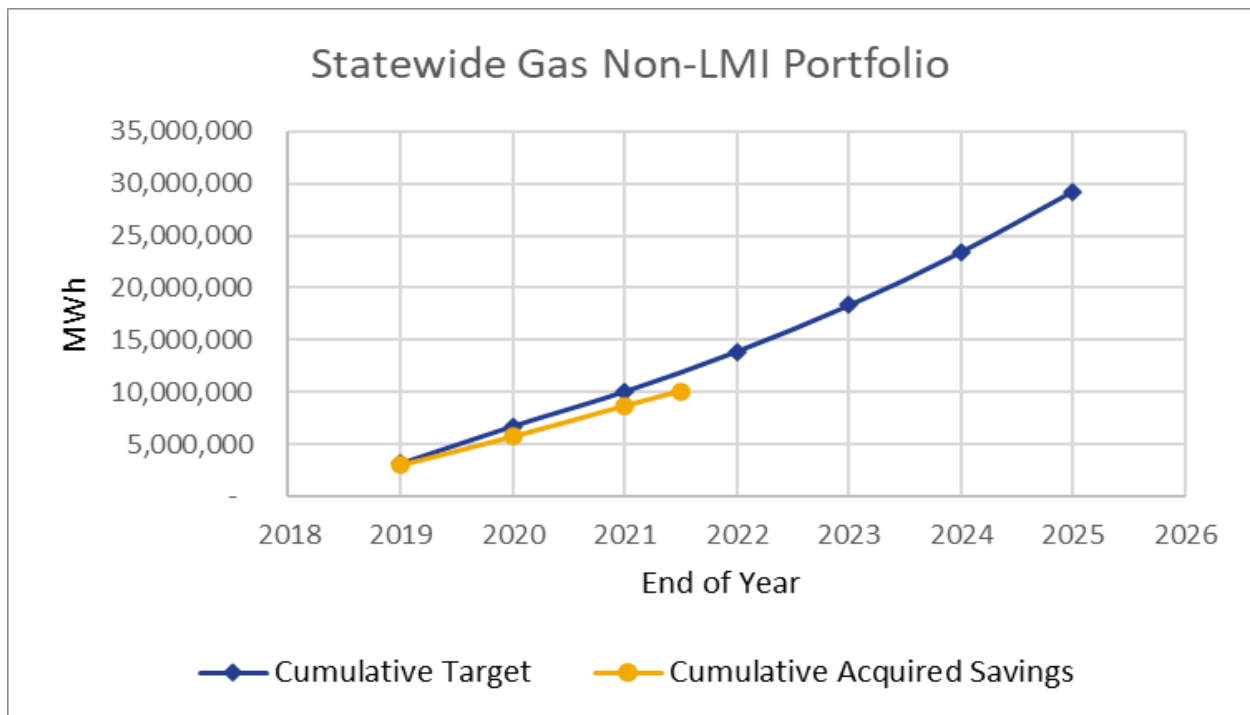
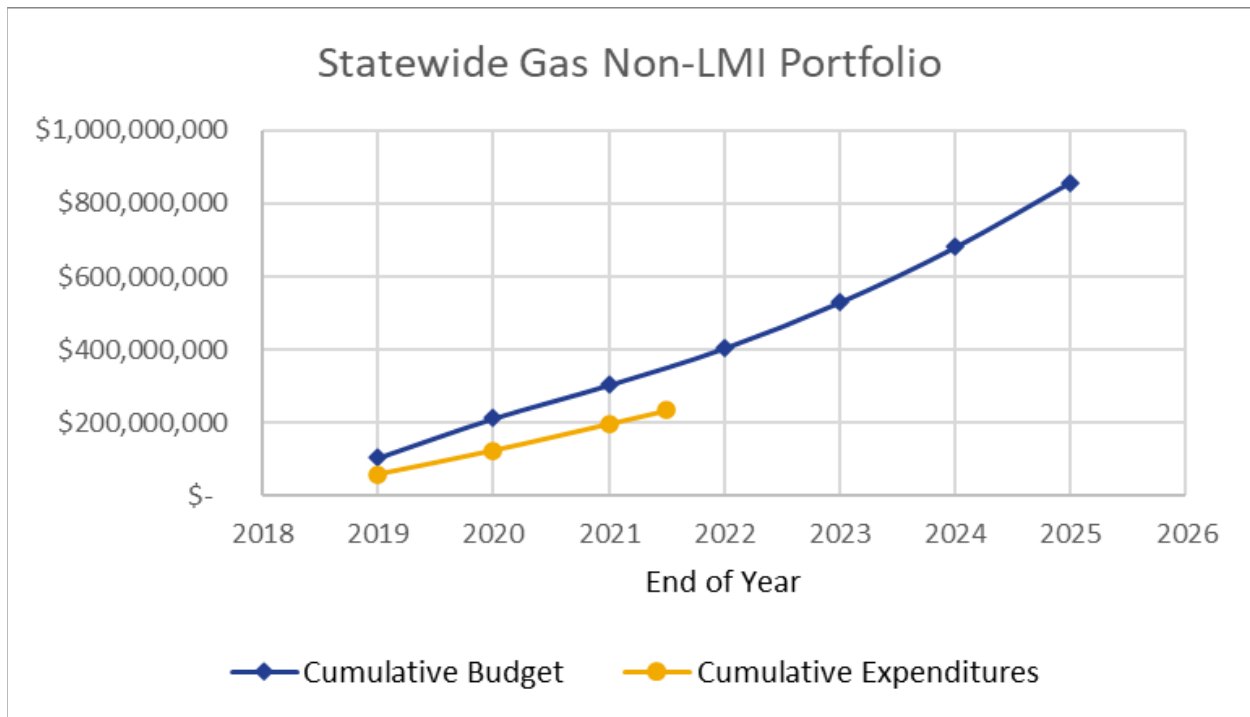
Appendix 2 – Non-LMI Utility Specific Performance Data Charts

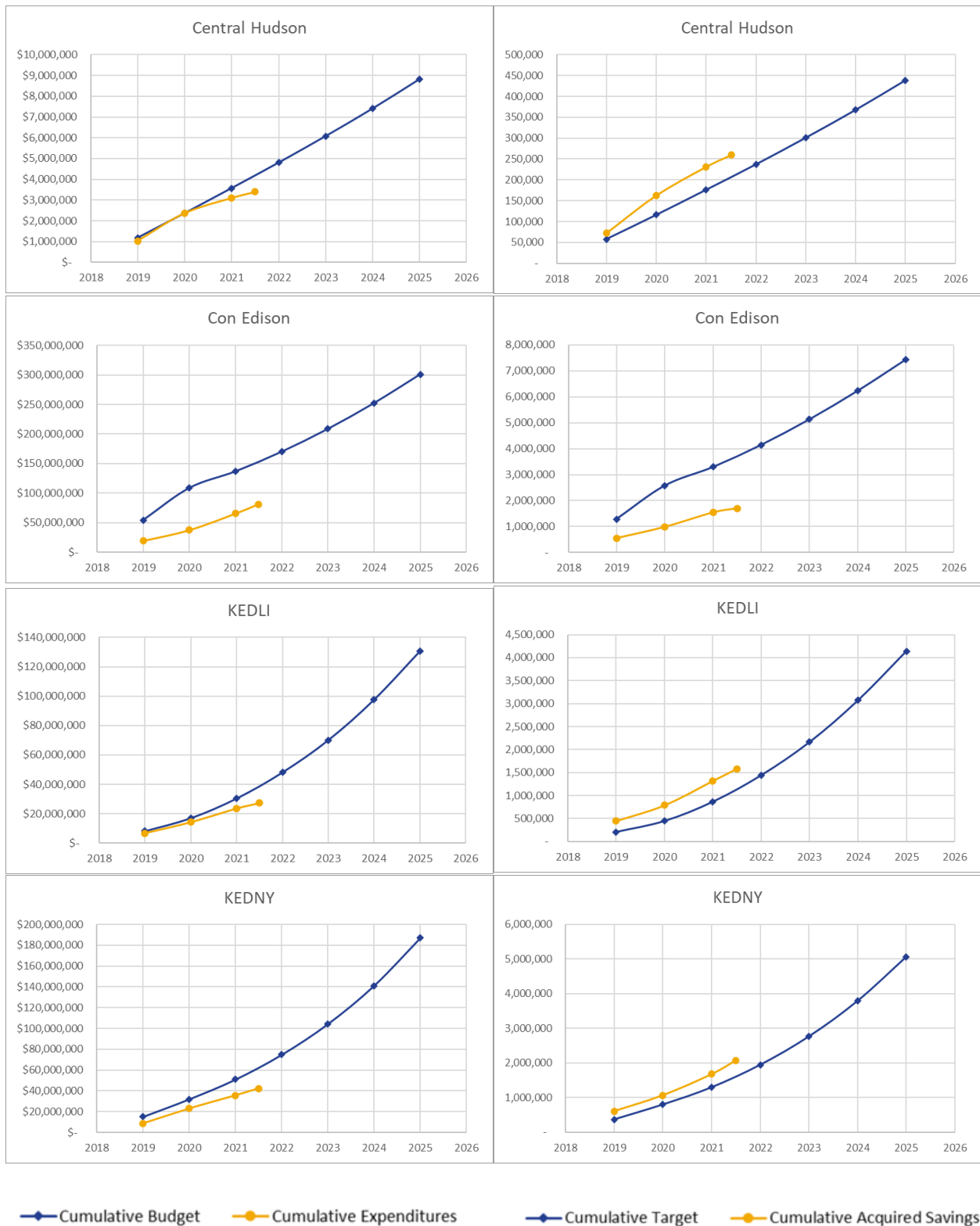
Electric Non-LMI

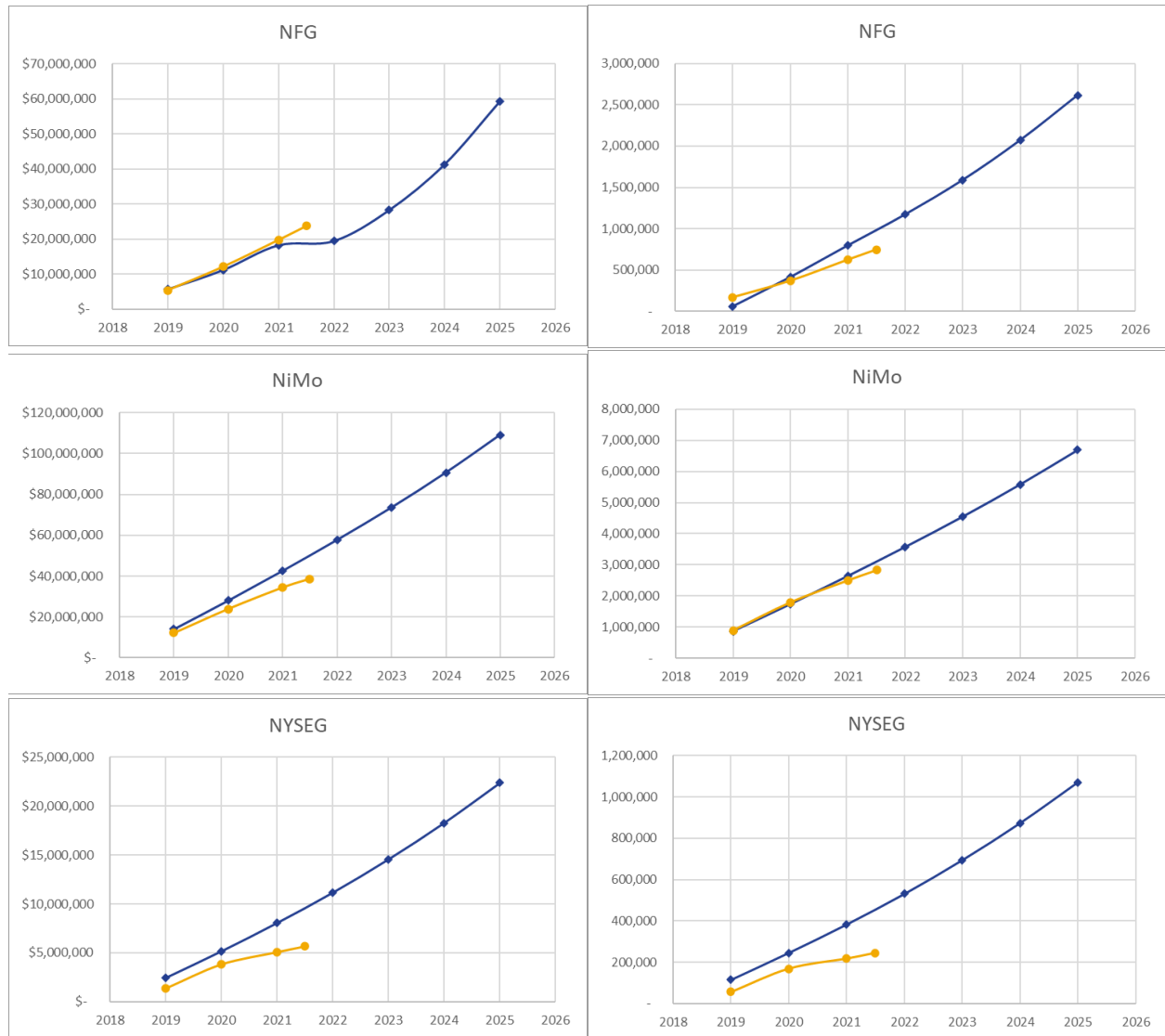


Electric Non-LMI - *Years on charts represent end of year

Electric Non-LMI - *Years on charts represent end of year

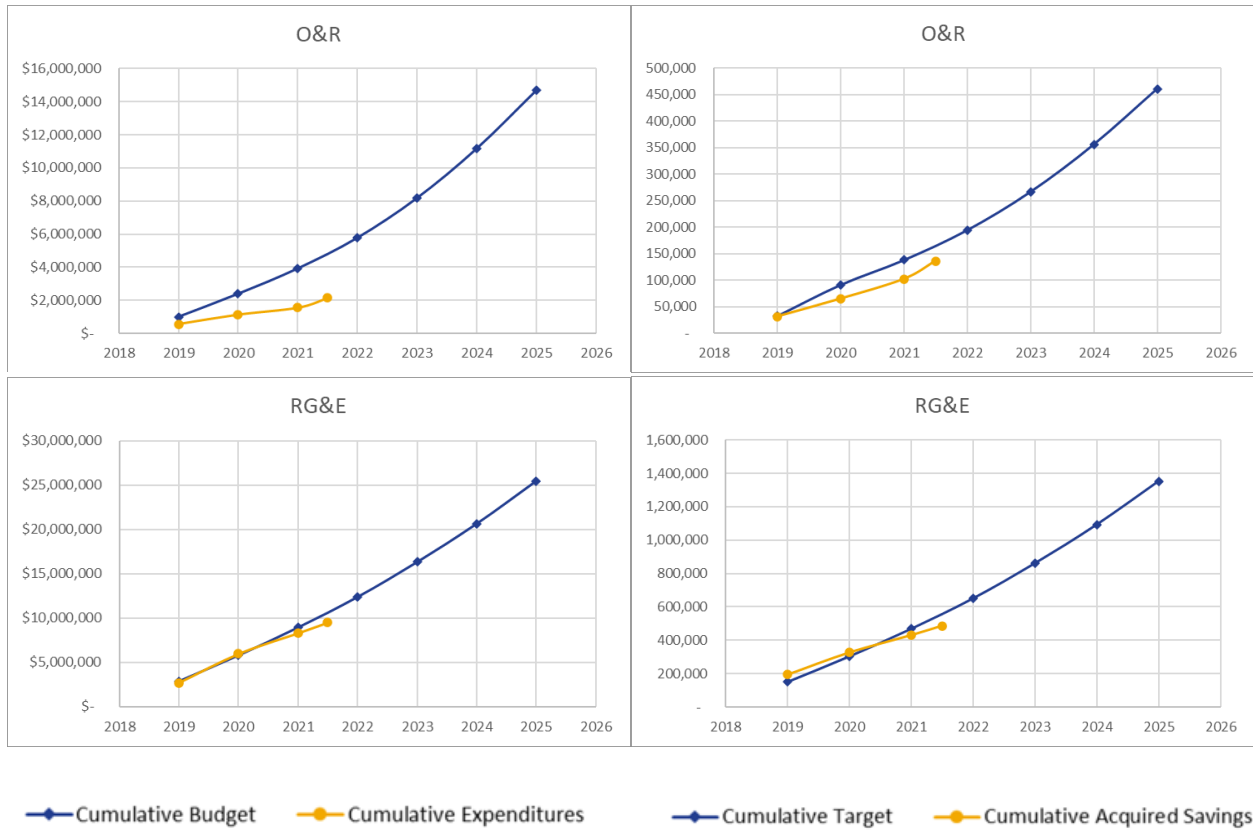
Gas Non-LMI - *Years on charts represent end of year

Gas Non-LMI - *Years on charts represent end of year

Gas Non-LMI - *Years on charts represent end of year

◆ Cumulative Budget ● Cumulative Expenditures

◆ Cumulative Target ● Cumulative Acquired Savings

Gas Non-LMI - *Years on charts represent end of year

Appendix 3 – Utility Electric and Gas Measure Mix Information

Sector Electric Savings Data, 2021 SEEP Annual Reports (filed by utilities March 31, 2022), Savings by Measure Category																			
Utility	Sector	2021 MWh Savings	MWh Savings by Measure Category																
			Lighting	Lighting Control	Appliances	Appliance Recycle	Behavior	Bldg Shell	Controls	HVAC Controls	DHW Controls	Motors and Drives	Custom	DHW Equip	HVAC Equip	HVAC/DHW Equip	Process Equip	Refrigeration	Other
Central Hudson	Commercial	22,249	85%												3%			9%	3%
Con Edison	Commercial	157,923	64%							9%		6%			7%			10%	4%
National Grid (NMPC)	Commercial	210,086	54%										41%						5%
NYSEG	Commercial	63,053	59%	4%						37%									
Orange & Rockland	Commercial	23,004	94%																6%
RG&E	Commercial	23,213	36%	1%						63%									
35%	Comm Subtotal	499,528	60%	1%	0%	0%	0%	0%	0%	10%	0%	2%	17%	0%	2%	0%	0%	4%	4%
Con Edison	Multifamily	6,762	100%																
National Grid (NMPC)	Multifamily	6,079	19%					0%						81%					
1%	MF Subtotal	12,841	61%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	38%	0%	0%	0%	0%	0%
Central Hudson	Residential	51,785	66%				28%												6%
Con Edison	Residential	491,687	84%				16%												
National Grid (NMPC)	Residential	298,305	61%				38%												1%
NYSEG	Residential	7,753	21%		14%	33%	11%	1%	1%	15%					4%				
Orange & Rockland	Residential	50,829	77%				21%												2%
RG&E	Residential	3,546	13%		5%	25%	44%			10%					1%				
64%	Res Subtotal	903,905	74%	0%	0%	0%	24%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%
100%	Grand Total Savings	1,416,274	69%	0%	0%	0%	16%	0%	0%	4%	0%	1%	6%	0%	1%	0%	0%	1%	2%

Notes:

Percent savings by sector included in first column.

Residential sector savings includes Multifamily sector savings for Central Hudson, NYSEG and RGE.

Reported percentages may not add to 100% due to rounding.

The Other column refers to measure categories combined for the portion of the savings percentage that makes up less than 10 percent of the total.

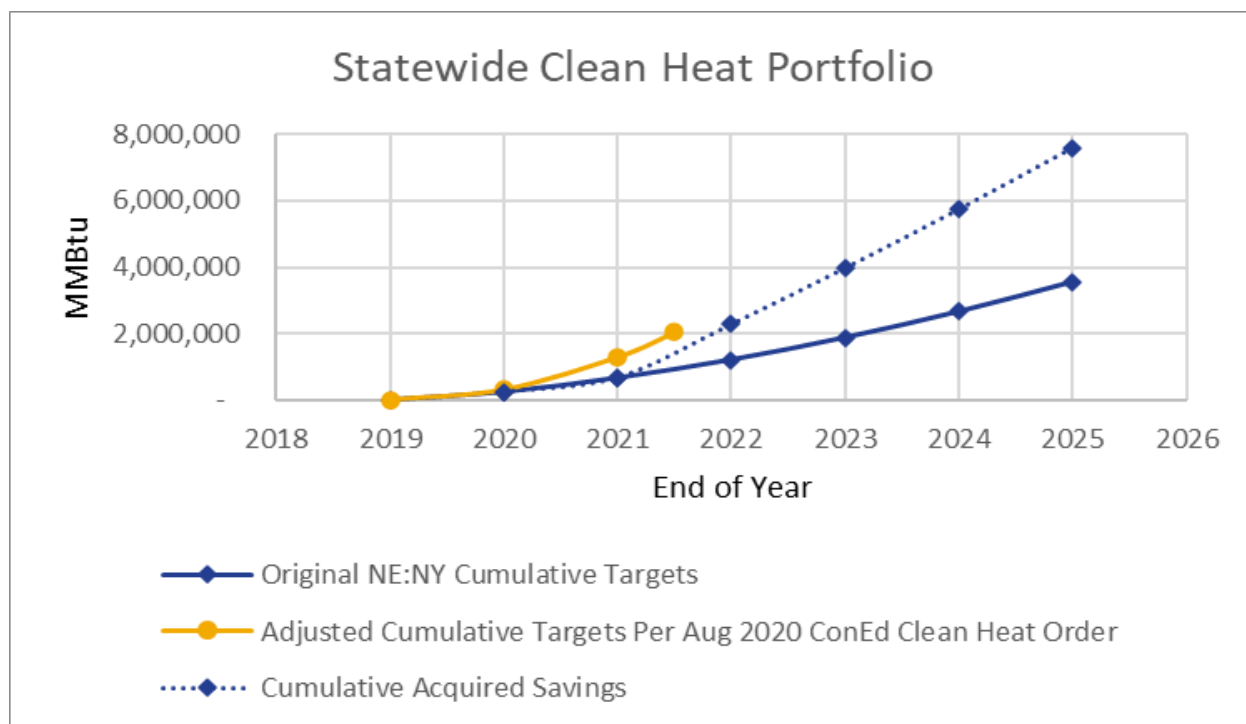
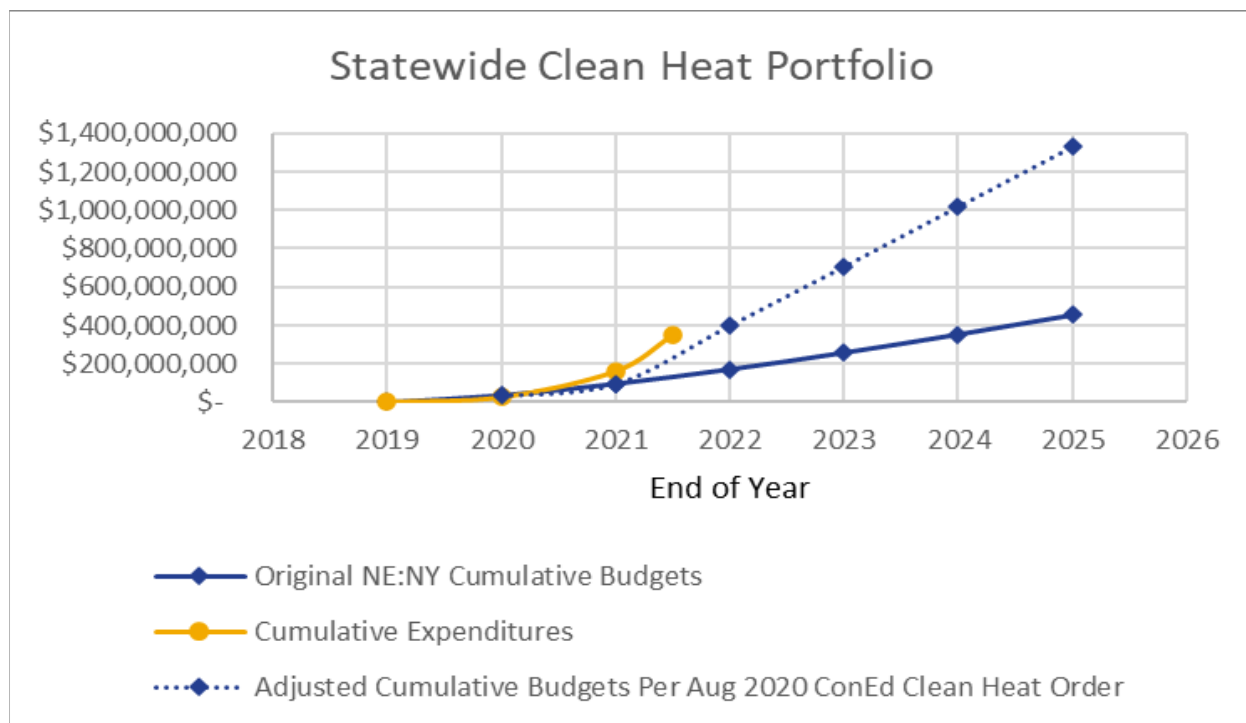
Appendix 3

Utility Electric and Gas Measure Mix Information

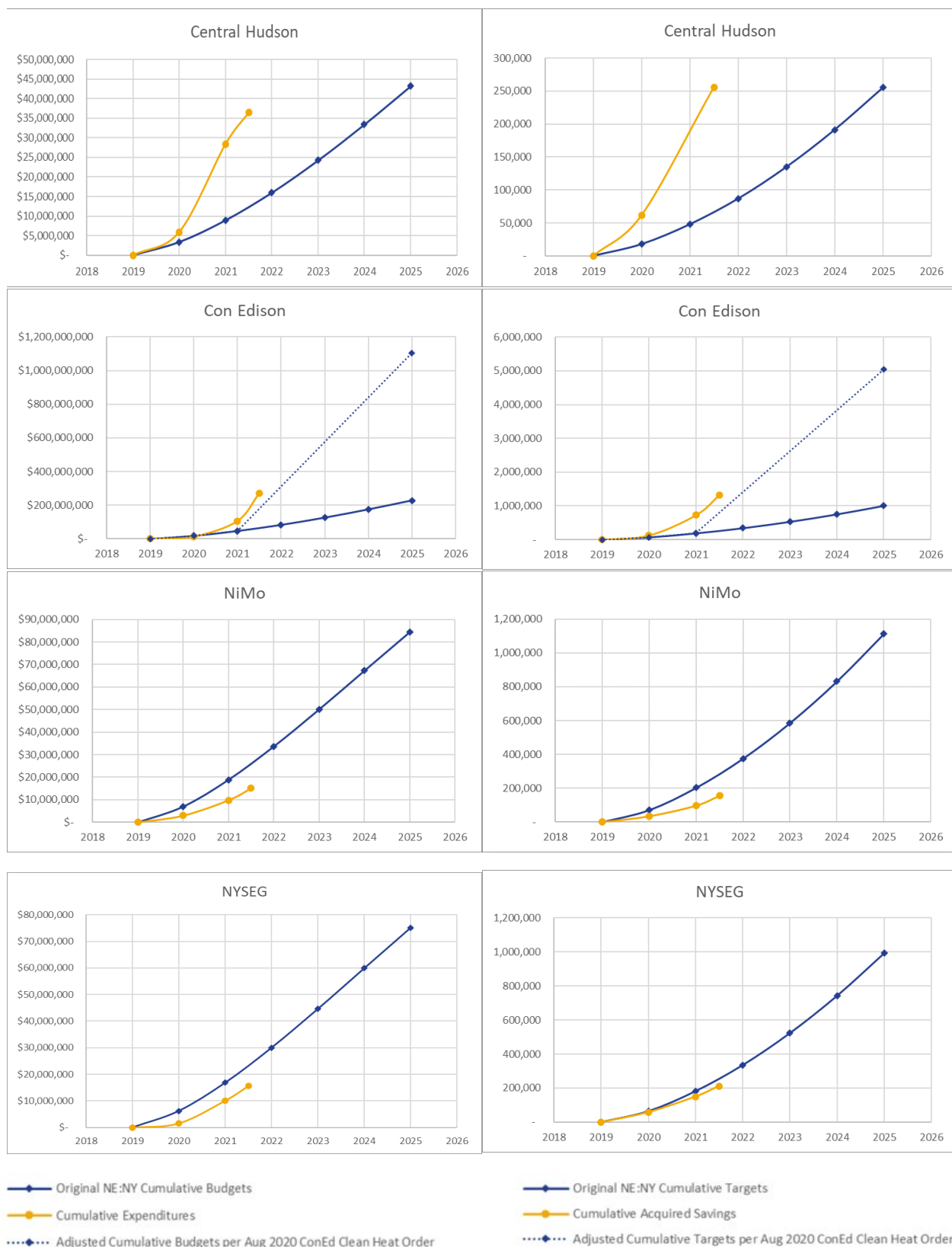
Sector Gas Savings Data, 2021 SEEP Annual Reports (filed by utilities March 31, 2022), Savings by Measure Category															
MMBtu Savings by Measure Category															
Utility	Sector	2021 MMBtu Savings	Appliances	Behavior	Bldg Shell	Controls	HVAC Controls	DHW Controls	Custom	DHW Equip	HVAC Equip	HVAC/DHW Equip	Process Equip	Refrigeration	Other
Central Hudson	Commercial	19,392									99%				1%
Con Edison	Commercial	241,606			12%		23%			10%	11%		39%		5%
National Fuel Gas	Commercial	50,911	2%				10%			10%	78%				
National Grid (KEDLI)	Commercial	204,385	11%		4%		8%	14%	27%	31%	5%				
National Grid (KEDNY)	Commercial	257,739	8%		5%		15%	13%	40%	13%	6%				
National Grid (NMPC)	Commercial	238,747	9%				8%	42%	15%		21%				5%
NYSEG	Commercial	4,858					99%								
Orange & Rockland	Commercial	7,092			71%		15%				13%				1%
RG&E	Commercial	6,453					100%								
36%	Comm Subtotal	1,031,183	6%	0%	5%	0%	14%	16%	19%	12%	16%	0%	9%	0%	2%
Con Edison	Multifamily	173,069			14%		79%			1%	6%				
National Grid (KEDLI)	Multifamily	33,072						7%	16%	9%	65%				3%
National Grid (KEDNY)	Multifamily	72,463			6%		17%	7%	20%	14%	36%				
National Grid (NMPC)	Multifamily	38,435			81%		7%			12%					
11%	MF Subtotal	317,039	0%	0%	19%	0%	48%	2%	6%	6%	18%	0%	0%	0%	0%
Central Hudson	Residential	50,097		70%			8%			2%	19%				1%
Con Edison	Residential	98,393		63%			18%	18%							1%
National Fuel Gas	Residential	167,367					5%			4%	91%				
National Grid (KEDLI)	Residential	289,839		60%			26%				13%				1%
National Grid (KEDNY)	Residential	273,080		79%			15%								6%
National Grid (NMPC)	Residential	431,949		43%			16%				38%				3%
NYSEG	Residential	44,451			1%		36%	4%			60%				
Orange & Rockland	Residential	30,068		35%			54%				5%				6%
RG&E	Residential	96,285					35%	4%			61%				
52%	Res Subtotal	1,481,529	0%	46%	0%	0%	19%	2%	0%	1%	30%	0%	0%	0%	2%
100%	Grand Total Savings	2,829,751	2%	24%	4%	0%	21%	7%	8%	5%	24%	0%	3%	0%	2%
Notes:															
Percent savings by sector included in first column.															
Residential sector savings includes Multifamily sector savings for Central Hudson, NYSEG and RGE.															
Reported percentages may not add to 100% due to rounding.															
The Other column refers to measure categories combined for the portion of the savings percentage that makes up less than 10 percent of the total.															

Appendix 4 – NYS Clean Heat Utility Specific Performance Data Charts

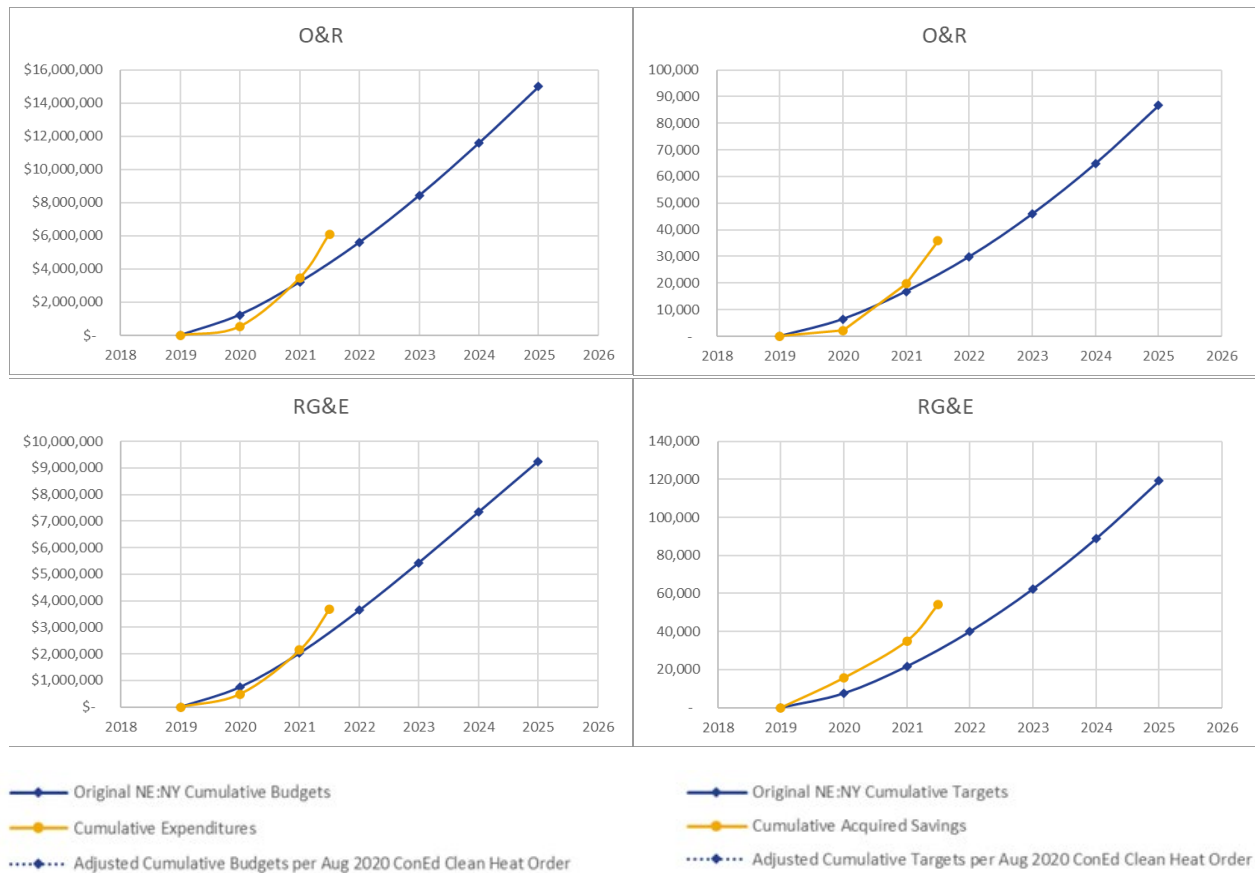
NYS Clean Heat - *Years on charts represent end of year



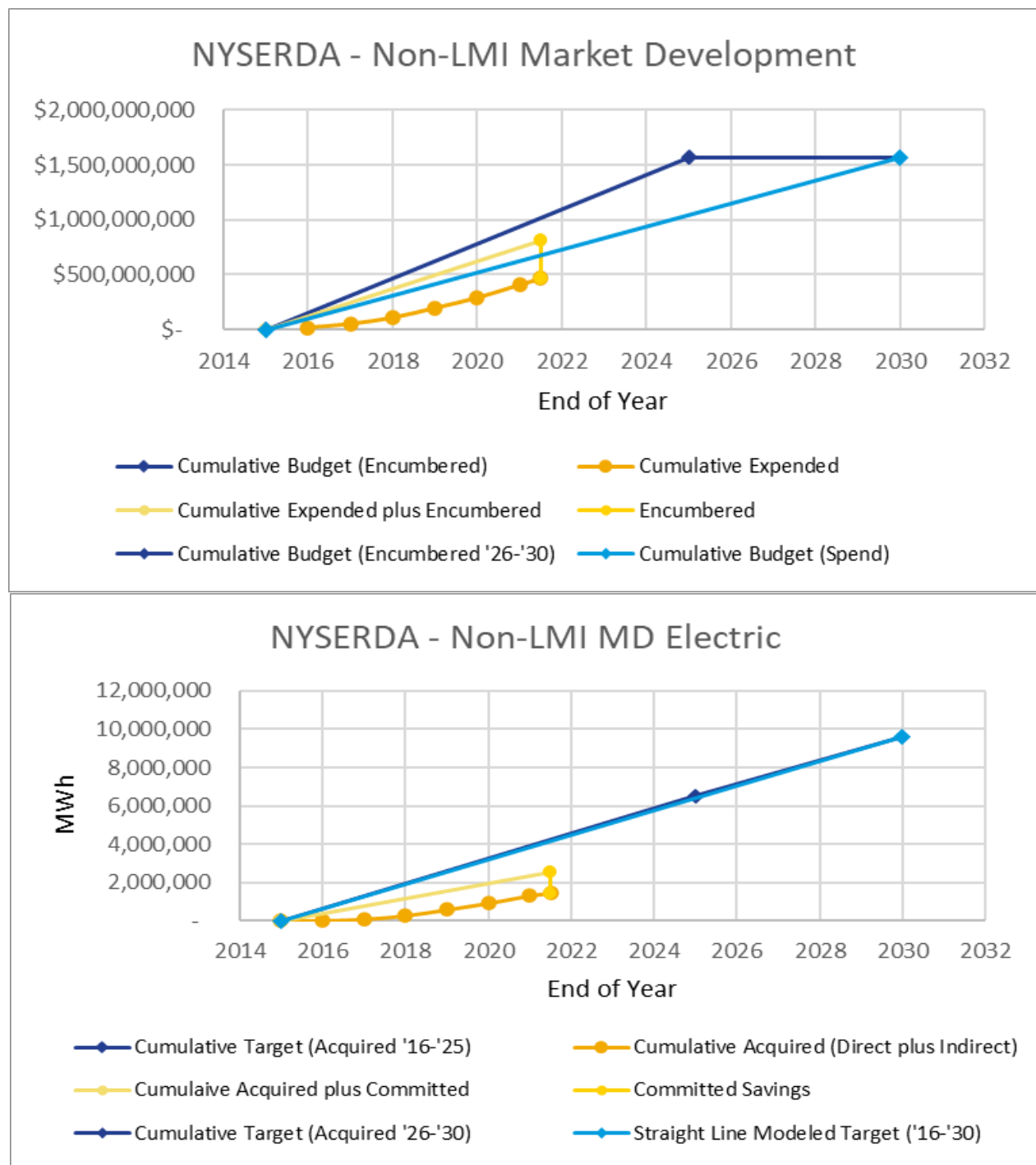
NYS Clean Heat - *Years on charts represent end of year

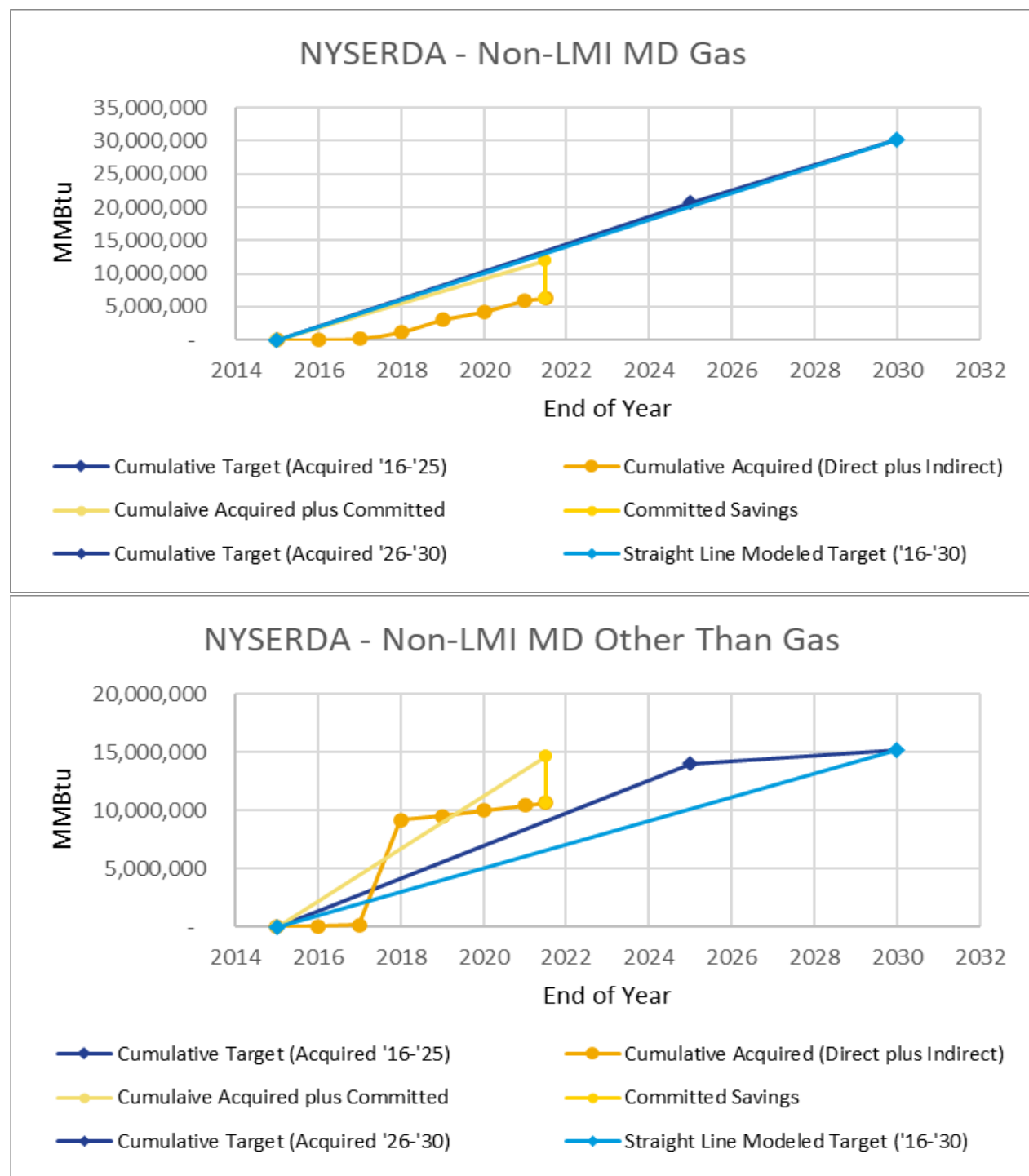


NYS Clean Heat - *Years on charts represent end of year

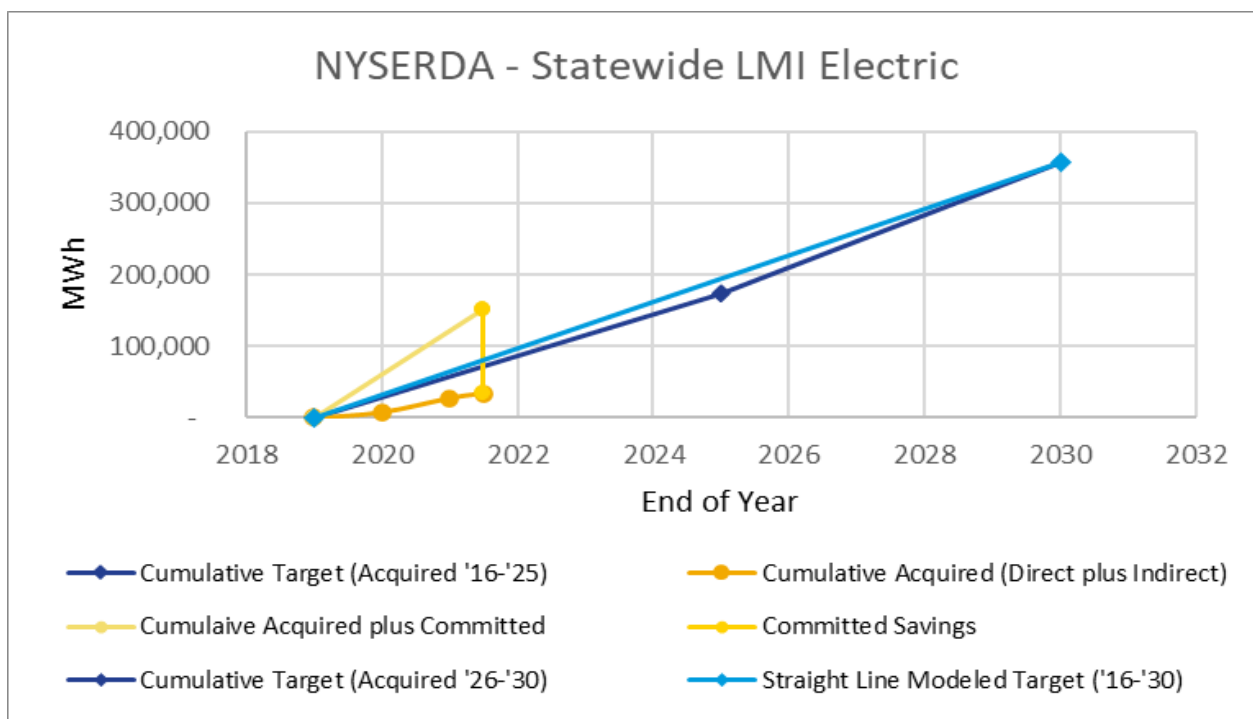
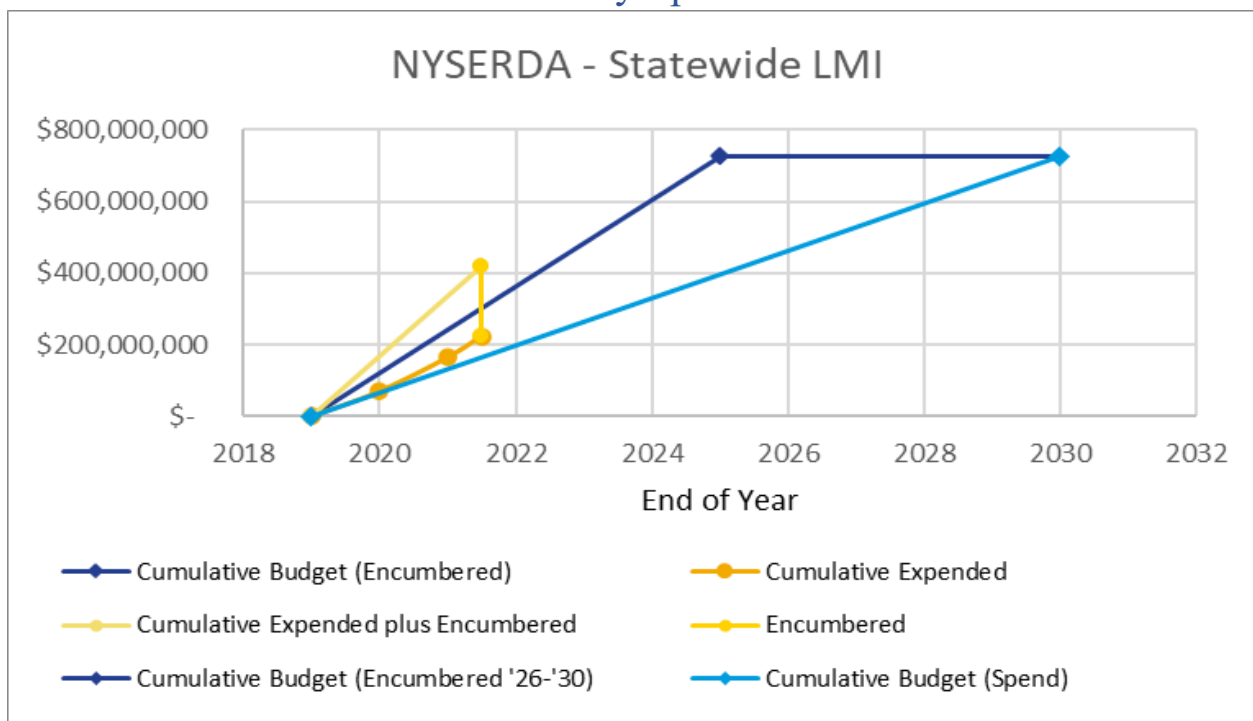


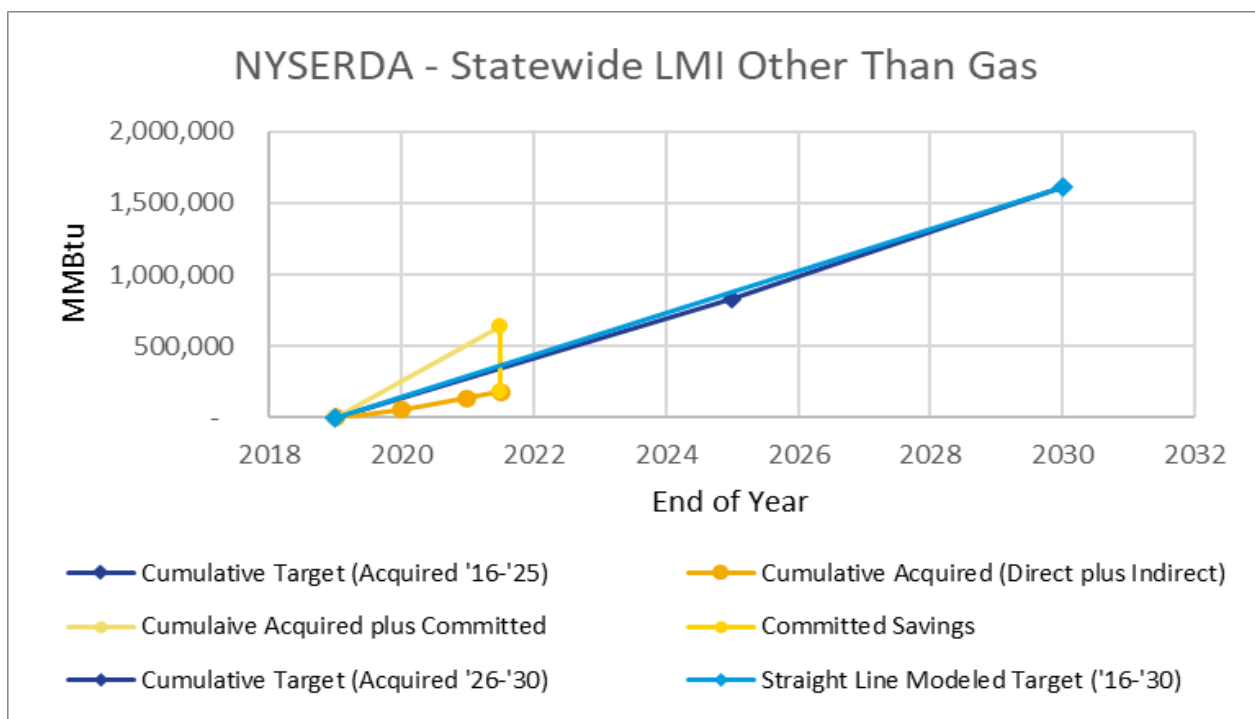
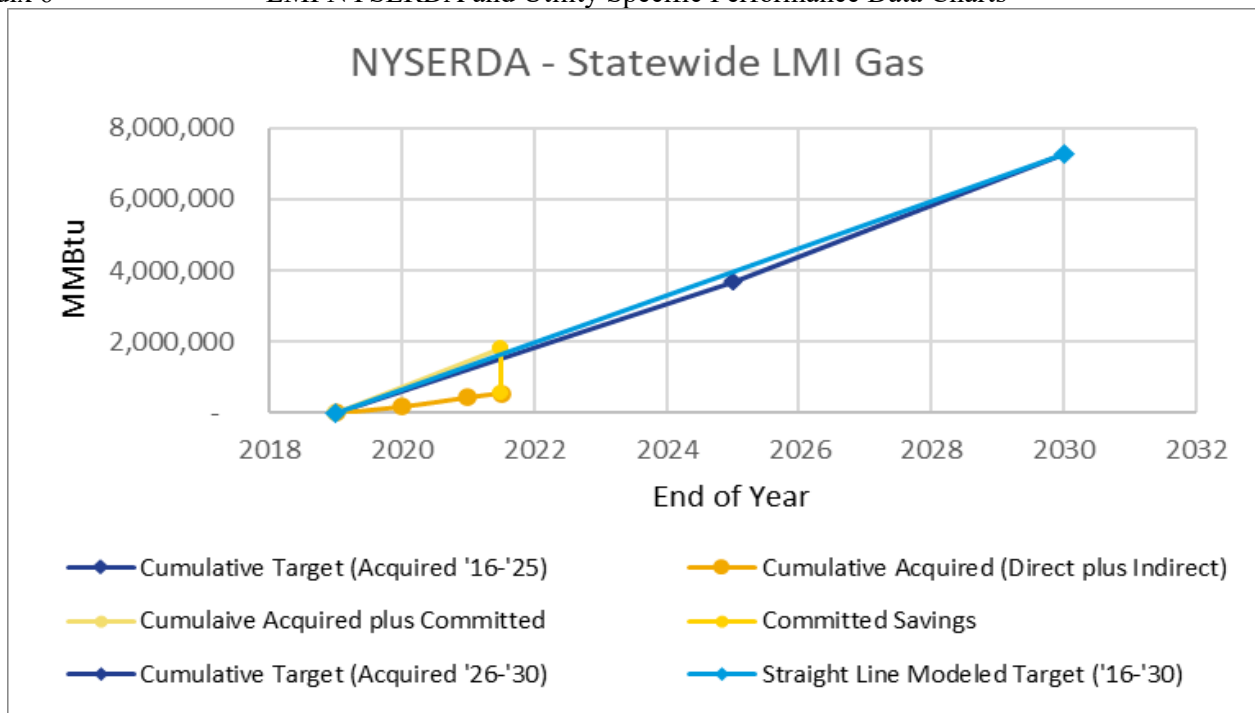
Appendix 5 – Non-LMI NYSERDA Specific Performance Data Charts

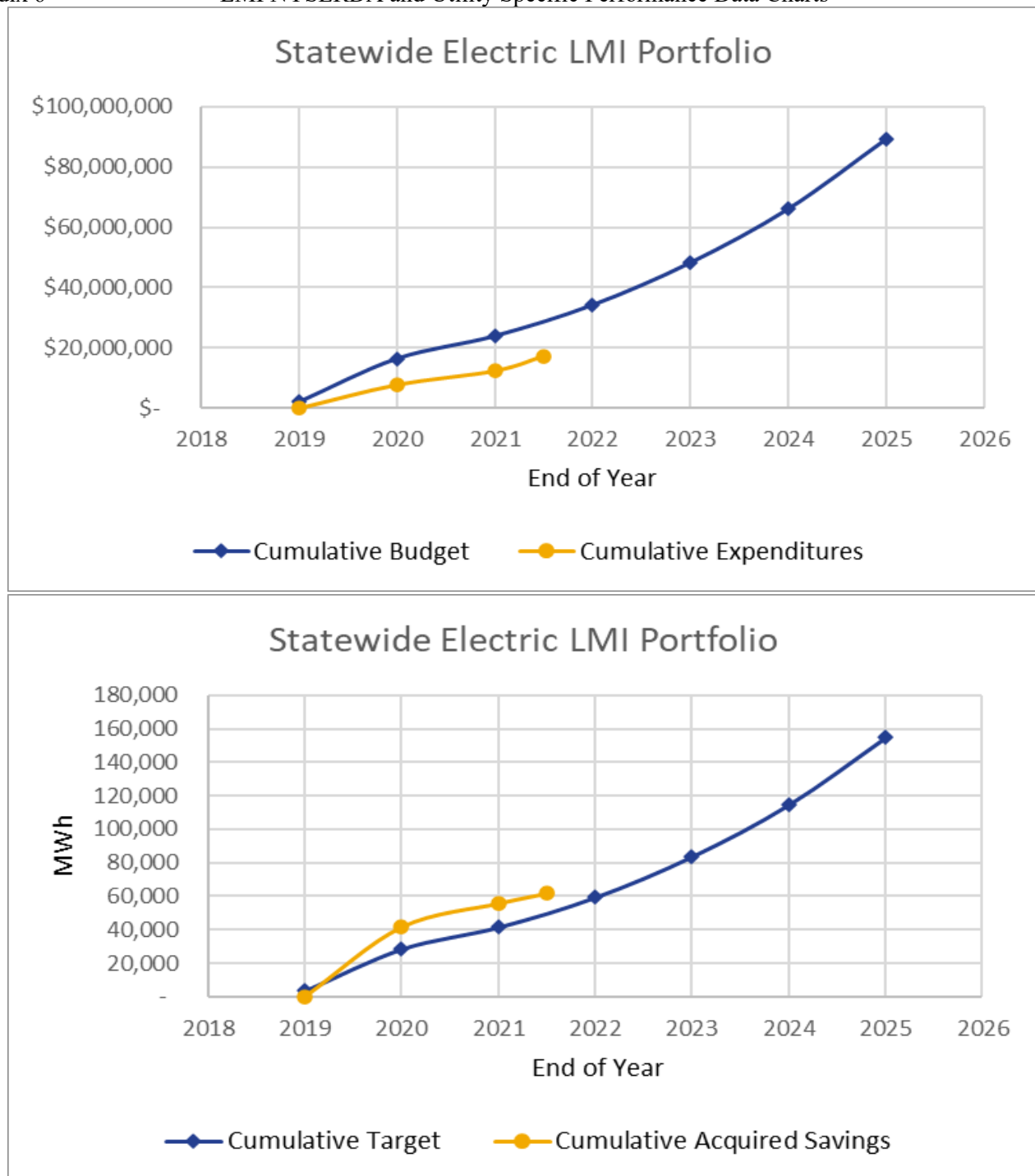




Appendix 6 - LMI NYSEERDA and Utility Specific Performance Data Charts

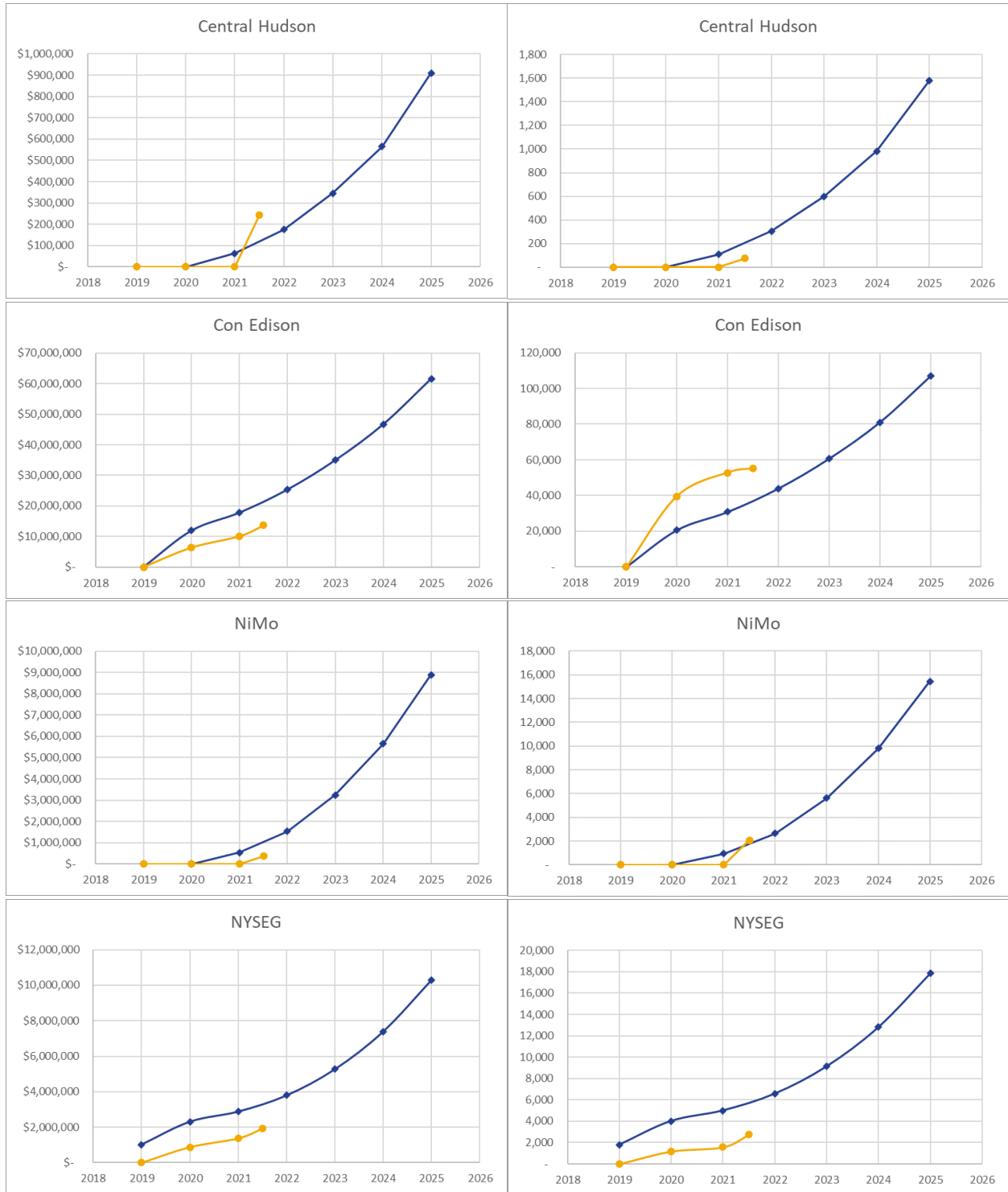






Appendix 6 LMI NYSEERDA and Utility Specific Performance Data Charts

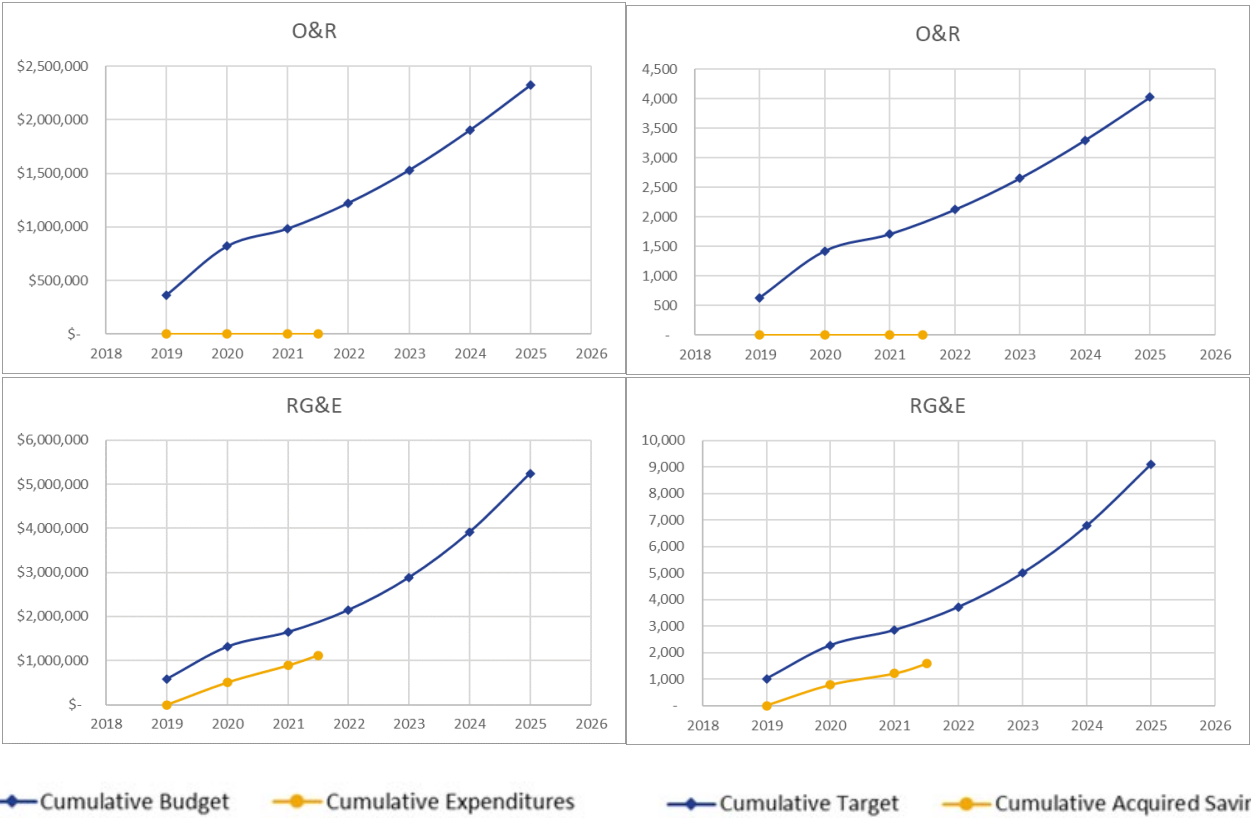
Individual IOU Contributions to Statewide Electric LMI Portfolio

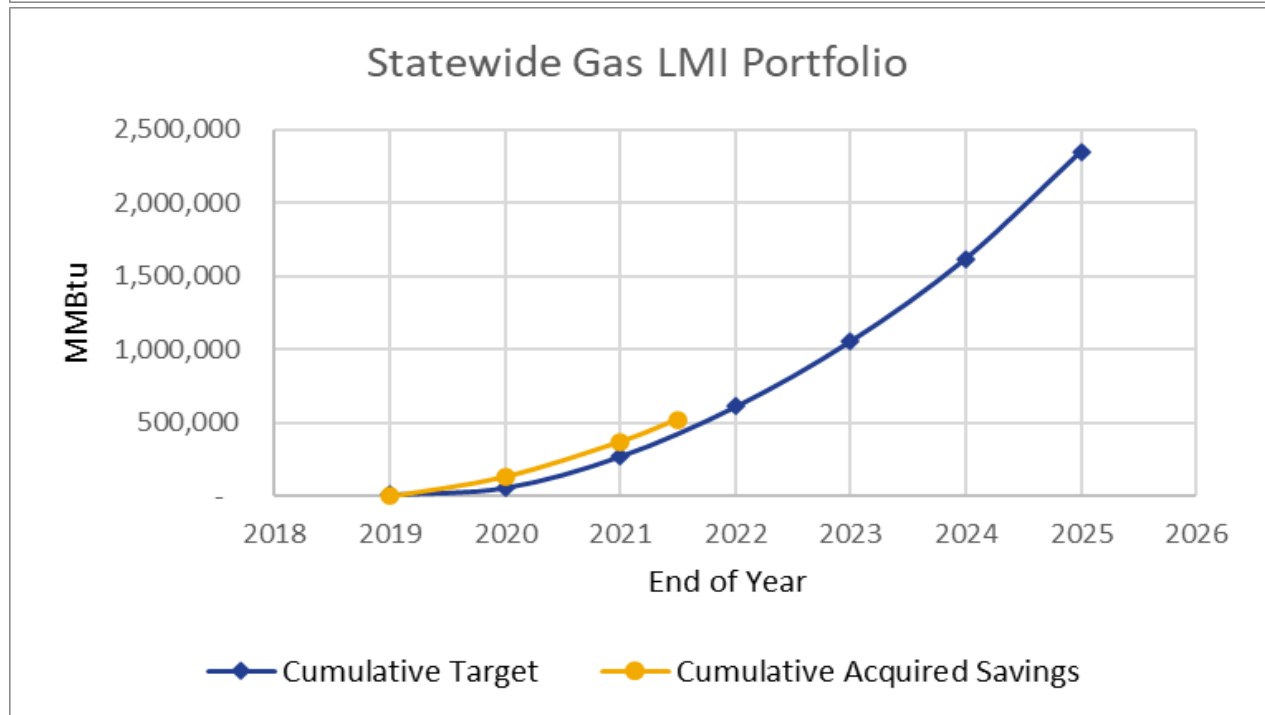
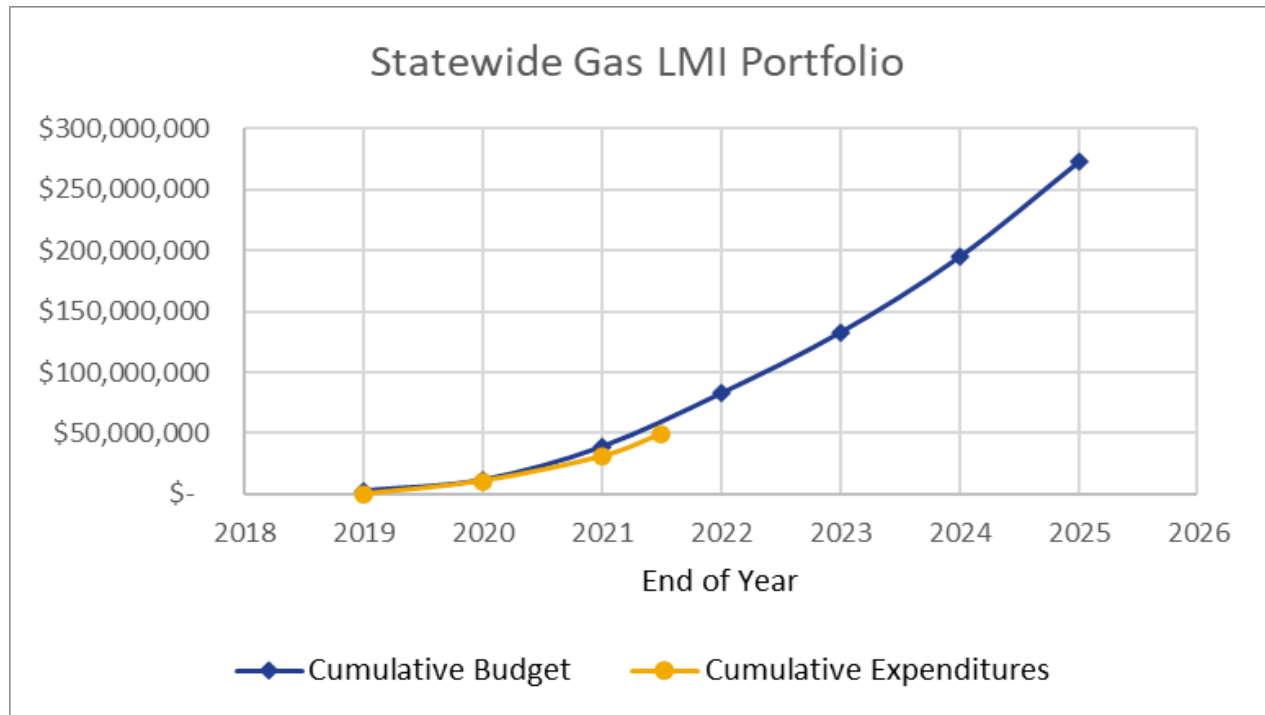


◆ Cumulative Budget
 ● Cumulative Expenditures
 ◆ Cumulative Target
 ● Cumulative Acquired Savings

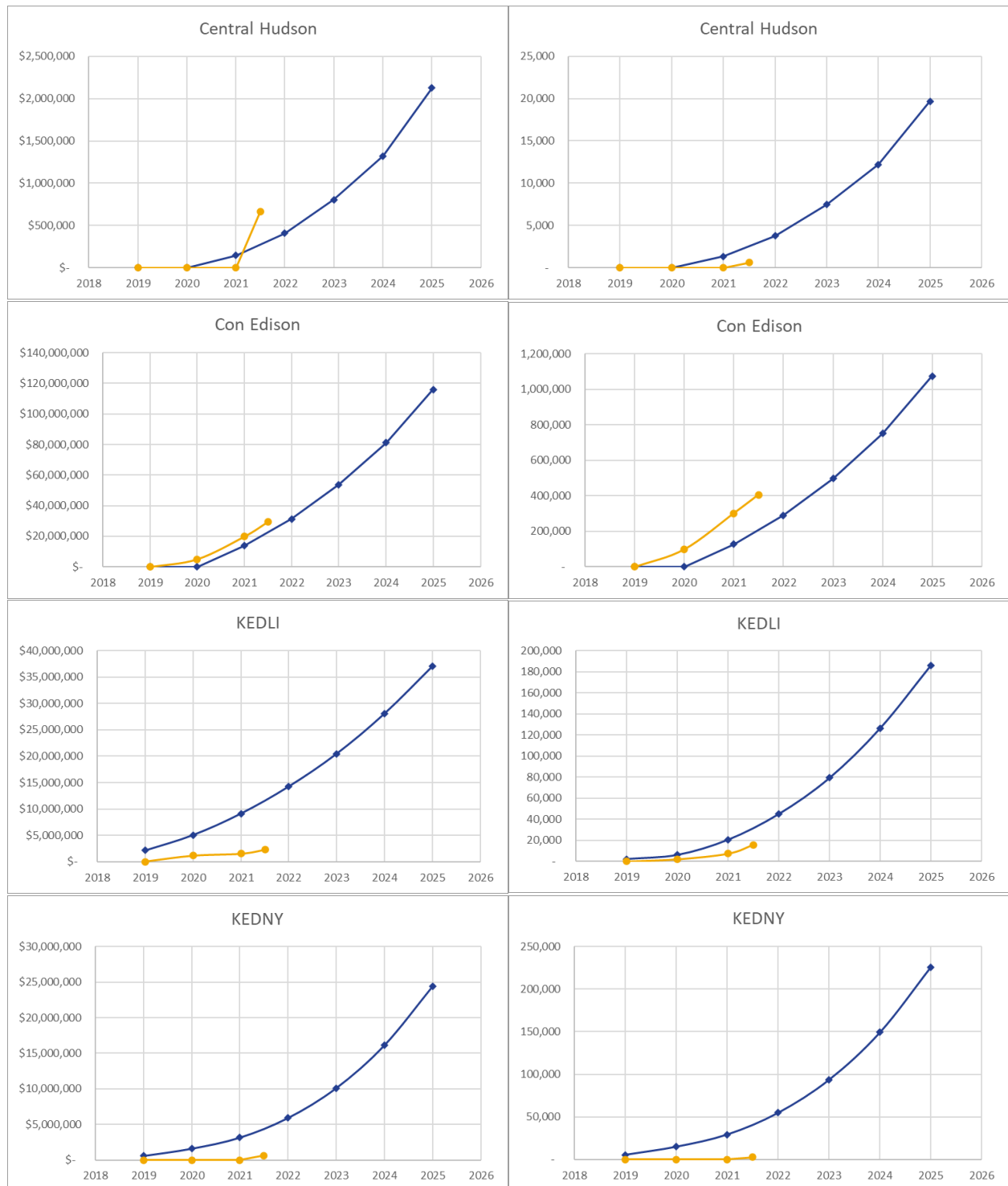
Appendix 6

LMI NYSERDA and Utility Specific Performance Data Charts
IOU Contributions to Statewide Electric LMI Portfolio - *Years on charts represent end of year





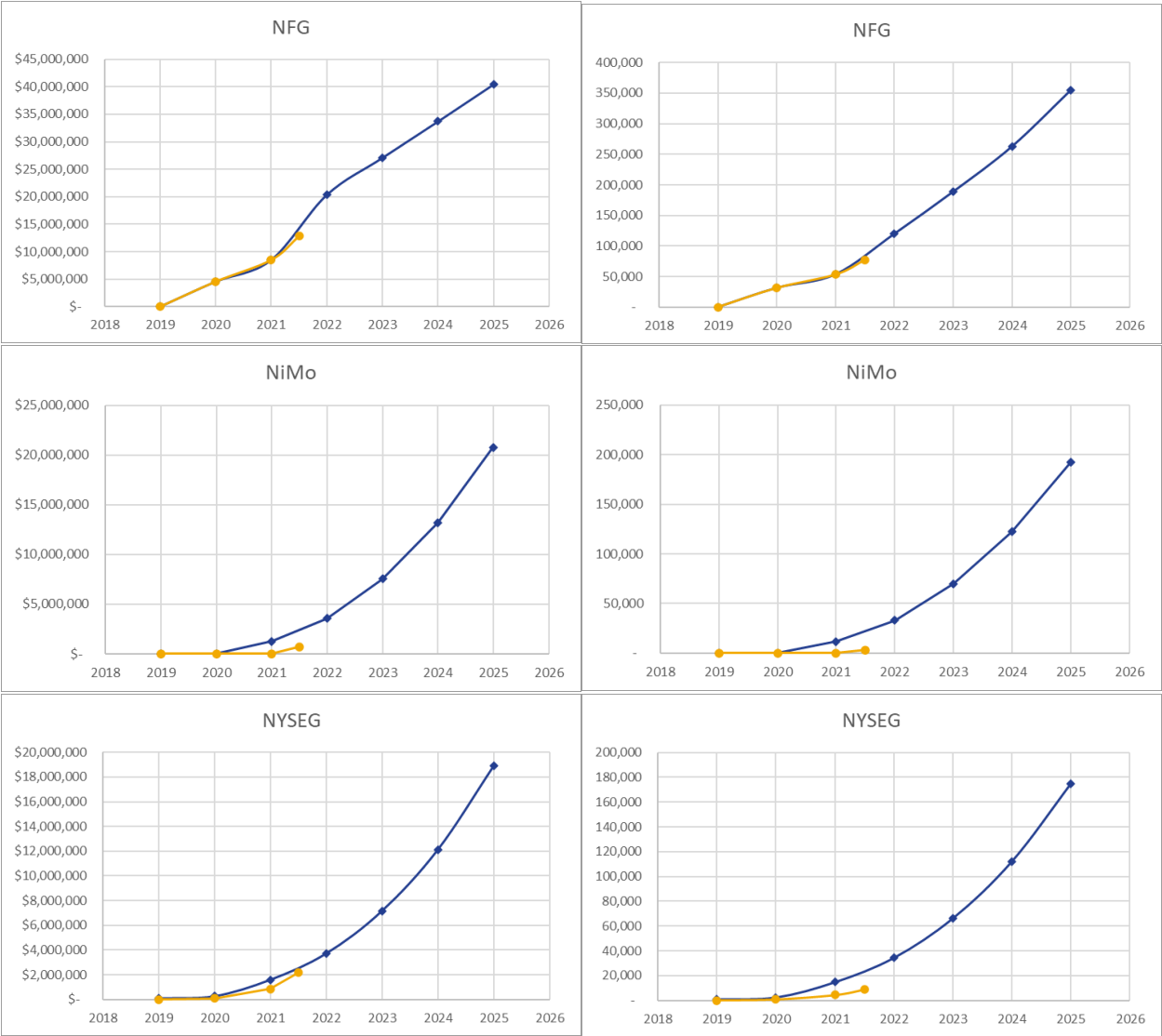
Individual IOU Contributions to Statewide Gas LMI Portfolio



— Cumulative Budget — Cumulative Expenditures

— Cumulative Target — Cumulative Acquired Savings

Individual IOU Contributions to Statewide Gas LMI Portfolio



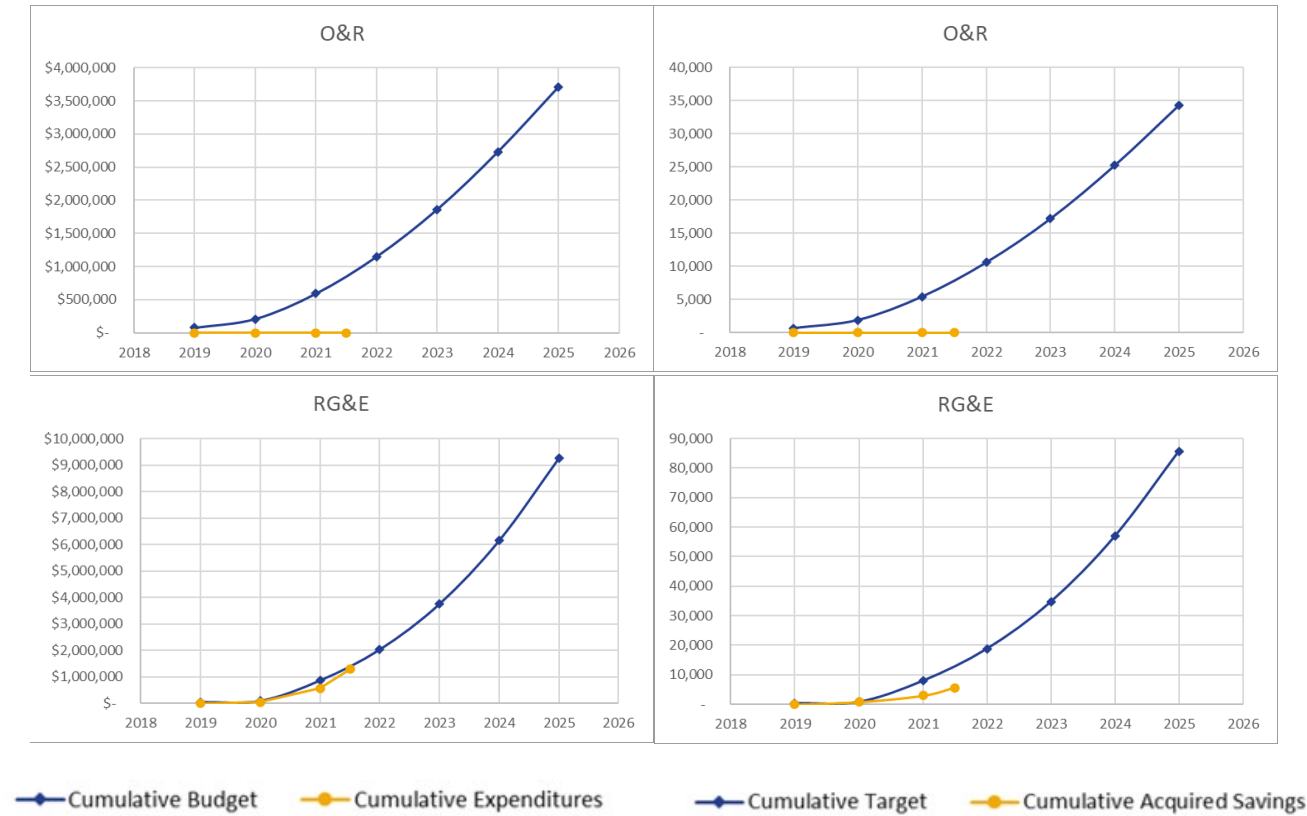
Cumulative Budget

Cumulative Expenditures

Cumulative Target

Cumulative Acquired Savings

IOU Contributions to Statewide Gas LMI Portfolio - *Years on charts represent end of year



Appendix 7 – SAG Recommendations

SAG Electric Energy Efficiency Program Evolution Recommendations July 2022

Energy Efficiency & Building Electrification Strategic Advisory Group (SAG) Membership

John Ciovacco	Aztech Geothermal LLC/ NY-GEO		Elizabeth Kelly	New York City Mayor's Office of Climate & Environmental Justice
Kelly Dougherty	First Service Energy		Catherine Luthin	Energy Efficiency Expert
Daniel Egan	Blackstone		Maggie Molina	Energy Efficiency Policy Expert
Andrew Frank	Sealed Inc.		Jeffrey Perlman	Bright Power, Inc.
David Hepinstall	Association for Energy Affordability, Inc.		Daniel Schrecongost	C.J. Brown Energy & Engineering, P.C.
Lloyd Kass	Franklin Energy		Marc Zuluaga	Cadence OneFive

In the Performance Management and Improvement Process 2020 Forum Summary Report, dated March 26, 2021, the Department of Public Service Staff (Staff) identified the strategic evolution of gas energy efficiency programs as a priority area to be elevated for action in 2021. As a component of the workplan developed to undertake this task, Staff charged its Energy Efficiency and Buildings Electrification Strategic Advisory Group (SAG) with developing proposed criteria and timelines for the evolution of gas energy efficiency programs, including identifying implications of such (e.g., anticipated impact on cost per unit of energy savings). In response, the SAG produced a set of [Gas Energy Efficiency Program Recommendations](#) filed on March 30, 2022 in Matter 20-01201 and presented at a public SAG meeting on March 31, 2022.

Given this work was solely focused on the gas energy efficiency programs, it did not address the electric energy efficiency programs supported by New York ratepayers. Subsequently, Staff asked the SAG for its thoughts on recommendations/concepts for evolution of the electric energy efficiency programs that should be considered as the Department/Commission commences the interim review of the New Efficiency: New York and Clean Energy Fund portfolios.

In conducting this work, the SAG sought input from Staff as to what would generally be considered “Strategic” measures or programs. For purposes of this exercise, Staff provided the following guidance:

“Strategic” EE measures or programs are considered those that incent actions, to:

- Permanently reduce or eliminate electricity usage on an annual basis, which would not occur absent the program’s intervention.
 - Permanently reduce or eliminate electricity usage on peak which would not occur absent the program’s intervention. (Currently New York’s electric system is summer-peaking, however as the state electrifies its building stock, considerations should be given for measures/programs that can mitigate winter-peaks)
 - Improve the building envelope resulting in near-term reduction in electric usage in instances of cooling and position the building for possible electrification by way of proper sizing of equipment and mitigating future winter-peaks.
- Or:
- Permanently reduce or eliminate on-site combustion of fossil fuels through the installation of efficient heating or hot water electrification

These SAG recommendations are not meant to serve as detailed program designs or exhaustive measure lists. Rather, they represent general recommendations on strategic directions, some of which include measure examples. Many programs and measures that are not specifically mentioned here could align with these strategic approaches and recommendations. Further analysis will be necessary to identify/quantify implications of specific recommendations including the impact on cost per unit of energy saved.

Cross-Sectoral Electricity EE Program Evolution Recommendations:

- Prioritize funding for strategic measures and programs that reduce peak demand, such as high-efficiency heat pumps, building shell improvements, demand management, and demand flexible appliances.
- Generally, create opportunities to help customers and their market partners to more easily stack Demand Response (DR), Non-Wire Alternatives and EE incentives (e.g., EE programs that offer demand kickers and automatic (or opt-in) enrollment in DR programs).
- Provide funding for “electrification-ready” projects including in-unit panel upgrades and base building electrical infrastructure.
- Cross cutting needs such as workforce training and development will be critical.

Small Residential Electricity EE Program Evolution Recommendations:

- Phase out funding for all market rate lighting measures but maintain lighting measures for low to moderate-income (LMI) households and disadvantaged communities (DACs) to reduce the energy burden and ensure equitable access to the technology.
- Phase out funding for non-strategic electric measures that lock in existing fossil fuel (gas or oil) heating equipment, such as central AC-only space cooling incentives when a heat pump/AC unit is feasible.

Multifamily Electric EE Program Evolution Recommendations:

- Only offer incentives for market rate lighting measures if they are tied to a deeper scope of work (similar to the Assisted Multifamily EE Program Comprehensive Pathway), but maintain lighting measures for affordable housing (including LMI and DACs) to reduce the energy burden and ensure equitable access to the technology.
- Phase out funding for non-strategic electric measures that lock in existing fossil fuel (gas & oil) heating equipment, such as AC-only space cooling incentives, with the following conditions:
 - Incentives for fans, pumps, and motors etc. for distribution should be retained
 - AC- only space cooling incentives could be retained to maintain affordability for LMI/DAC where a viable electrification approach is not available.
- Provide funding for individual building electrification roadmap studies to provide building owners useful information for longer term decarbonization capital planning.
- Provide funding for submetering of individual residential units where submetering is allowed, to provide feedback to tenants about their usage for behavior change and also allow for more innovative approaches to electricity procurement when considering building electrification.

Commercial/Industrial/Institutional Electric EE Program Evolution Recommendations:

- Modify programs to promote uptake of advanced controls, energy management, continuous commissioning (CCx), demand control ventilation, and grid-interactive efficient buildings (GEBs).
- Continue to offer lighting incentives in conjunction with non-lighting measures and/or lighting controls, daylight harvesting, lighting redesign, de-lamping, etc.
- Maintain modest standalone lighting incentives for small commercial customers (may want to reconsider definition, which is now defined by average peak demand) particularly those in underserved communities such as DACs; recognize that smaller commercial customers – particularly tenants – will be the last segment to make longer term investments

Strategic Advisory Group - Gas Energy Efficiency Program Evolution Recommendations March 2022

Energy Efficiency & Building Electrification Strategic Advisory Group (SAG) Membership – March 2022

John Ciovacco	Aztech Geothermal LLC/ NY-GEO	Elizabeth Kelly	New York City Mayor's Office of Climate & Environmental Justice
Kelly Dougherty	First Service Energy	Catherine Luthin	Luthin Associates
Daniel Egan	Blackstone	Maggie Molina	Energy Efficiency Policy Expert
Andrew Frank	Sealed Inc.	Jeffrey Perlman	Bright Power, Inc.
David Hepinstall	Association for Energy Affordability, Inc.	Daniel Schrecongost	C.J. Brown Energy & Engineering, P.C.
Lloyd Kass	Franklin Energy	Marc Zuluaga	Cadence OneFive

INTRODUCTION

In the Performance Management and Improvement Process 2020 Forum Summary Report, dated March 26, 2021, the Department of Public Service Staff (Staff) identified the strategic evolution of gas energy efficiency programs as a priority area to be elevated for action in 2021. As a component of the workplan developed to undertake this task, Staff charged its Energy Efficiency and Buildings Electrification Strategic Advisory Group (SAG) with developing proposed criteria and timelines for the evolution of gas energy efficiency programs, including identifying implications of such (e.g., anticipated impact on cost per unit of energy savings).

In response, the SAG provides the following recommendations for evolving New York's ratepayer funded gas energy efficiency programs to align with the state's strategic climate and equity goals. The recommendations are categorized by sector (commercial, institutional and industrial; large multifamily; and small residential), and by type of recommendation (strategic, non-strategic, or neutral), with these types of recommendations as follows:

- Funding and incentives for strategic measure programs should be prioritized and leverage mid-stream incentives wherever possible to achieve market transformation goals.
- Funding and incentives for non-strategic measures should be eliminated as part of the New Efficiency: NY Interim Review unless program administrators demonstrate they cannot meet NY's energy savings goals through strategic and neutral measures.
- Funding and incentives for neutral measures that are cost-effective on a lifetime savings basis can be maintained but should not be prioritized over strategic measures.

Cross-cutting needs such as workforce training and development will be critical but are not explicitly called out in the tables below. Further analysis would be necessary to identify/quantify implications of these recommendations including the impact on cost per unit of energy saved.

COMMERCIAL, INSTITUTIONAL & INDUSTRIAL (C, I & I)***C, I & I Gas EE Program Evolution Recommendations - High Level Summary***

- End incentives for **most** small and large C, I & I natural gas-fired boiler and furnace replacements
- Foster broad uptake of heat/energy recovery ventilation, envelope/building shell measures and high-performance windows
- Allow incentives for boiler/furnace repairs, burner repairs, distribution system upgrades, and traps/valves and controls upgrades in natural gas heating buildings
- Offer a flexible, custom, large- C, I & I program to address the needs of hard to electrify customers.
- Emphasize actual completion of retro/continuous commissioning, Real Time Energy Management (RTEM), Strategic Energy Management (SEM), building operators training, and other operation and maintenance efforts aimed at improving the efficiency of existing gas equipment and systems.
- Integrate streamlined non-pipe/gas-demand-response kickers into C, I & I programs.

C, I & I Gas EE Program Evolution Recommendations - Measures/programs to be expanded (strategic)

<i>Measure/ program</i>	<i>Recommended change/ Timing of change</i>	<i>Rationale for recommendation</i>
Heat or energy recovery ventilation	Emphasize providing incentives – and technical assistance -- for HRV/ERV	Critical for any retrofit, with or without electrification. Even if capital gas system upgrade is not incentivized, ventilation should always be a focus.
Building envelope	Expand and simplify incentives for building shell, envelope, high performance windows etc.	Critical for any retrofit, with or without electrification. Even if capital gas system upgrade is not incentivized, building envelope improvements should always be a focus.
Boiler/burner repairs, distribution/ traps/valves upgrades, smart t-stats, lower-cost sensors and controls	Place more emphasis on the repair options. Education and technical assistance support recommended. Market partner options, marketing and outreach needed to bolster participation.	As electrification options emerge for large C, I & I heating loads, modest repairs improve gas-fired system efficiency while other changes discourage comprehensive gas fired equipment replacements.

Gas and electric custom C, I & I programs	Develop a flexible, offering that accounts for facility type/use and sector (allowing for renewable fuels, hybrid systems, etc.). Engineering/consulting support and technical assistance for customer's needs to be incentivized (e.g., NYSERDA FlexTech) and utilities should have flexible application review criteria to support the most realistic, lower-carbon projects.	Electrification not an option (yet) for several facility types, many of which are very large users and/or critical facilities. Resilience and adaptation policy comes into play in these cases. These customers need planning support that will optimize efficiency under unique circumstances and support possible readiness for electrification in the future.
Non-pipe alternatives and gas demand management.	These offerings will vary year to year and by time of day and location, but they need to be better understood by market partners working with the largest customers.	Improve integration and access to time/location-based incentives to support deferral of gas system upgrades and targeted support for large users.

C, I & I Gas EE Program Evolution Recommendations - Measures/programs to be discontinued/scaled back (non-strategic)

<i>Measure/ program</i>	<i>Recommended change/ Timing of change</i>	<i>Rationale for recommendation</i>
New gas boilers, DHW, and other major pieces of HVAC equipment	Eliminate oil to gas conversion incentives as quickly as possible	Current incentives for these major equipment replacement projects are not lucrative enough to significantly impact decision making, so they can be phased out with little adverse impact in the market. This action will also induce decisionmakers to either electrify equipment or extend the life of existing equipment versus full replacements until such time electrification may be possible.
Gas kitchen equipment	Eliminate ASAP and replace for electric induction equipment.	Current incentives for these major equipment replacement projects are not lucrative enough to significantly impact decision making, so these incentives can be phased out with little adverse impact in the market. In addition, viable electric options are available. This action would improve environmental health/indoor air quality issue relative to gas equipment.

C, I & I Gas EE Program Evolution Recommendations - Measures/programs to be continued (neutral)

Measure/ program	Recommended change	Rationale for recommendation
CHP	Perhaps revisit evaluation process and criteria. Electric system value should be focus.	In some cases, a cogeneration project may warrant incentivization particularly if it provides demand flexibility, other grid services, resilience, etc. Cases may include central plants at hospitals and universities.
Advanced controls	Can continue to be incentivized, particularly with boiler/burner repairs and distribution system upgrades.	Major control package investments may be less cost effective than other existing system repairs, upgrades, etc.

LARGE MULTIFAMILY RESIDENTIAL***Large Multifamily Residential Gas EE Program Evolution Recommendations -High Level Summary***

- End incentives for natural gas-fired boiler and furnace replacements for market rate multifamily as soon as possible
- End incentives for natural gas-fired boiler and furnace replacements for affordable housing and/or disadvantaged communities (DACs)¹ by 2025
- All multifamily projects should remain eligible for boiler/furnace repairs, burner repairs, controls, and distribution upgrades
- Enable streamlined and/or coordinated access to incentives from multiple programs for envelope/building shell work, where applicable
- Incorporate more hybrid heat pump DHW and HVAC

Large Multifamily Residential Gas EE Program Evolution Recommendations - Measures/programs to be expanded (strategic)

Measure/ program	Recommended change	Rationale for recommendation
Demand Flexible Electric Appliances	Create new programs to incentivize efficient electric appliances like heat pump clothes dryers and induction stoves, with additional incentives for demand flexibility	There are currently no incentives for heat pump clothes dryers and induction stoves for multifamily, which is a major barrier to full electrification. Programs should be considered that add bonuses for demand flexibility.
Building Envelope	Expand and simplify incentives for building envelope, high performance windows etc.	Improved building shell will be essential to promote efficient electrification. However, unlike heat pump incentives, envelope measures cannot leverage incentives from multiple programs at the same time.
HVAC and DHW- Heat pump electric (full and hybrid/partial load)	Expand incentives for both full electrification and hybrid/partial load HVAC and DHW. And lower the threshold for hybrid/partial load electrification to expand the number of eligible systems. Incentivize electrical upgrades at the room, apartment. line and building level to address this set of issues as early as possible in the building upgrade process.	Current HVAC heat pump incentives for multifamily only covers ~40% of the project cost, which needs to increase significantly. In addition, most DHW hybrids are ineligible, and many HVAC hybrids are also ineligible if they don't meet 90% of the heating load.
Ongoing energy monitoring	Expand the RTEM Program and similar offerings	Ongoing monitoring is a key stepping-stone to the grid mitigation strategies of the future.

¹ Disadvantaged Communities refers to communities as defined by the Climate Justice Working Group as directed by the Climate Leadership and Communities Protection Act (CLCPA).

Large MF Residential Gas EE Program Evolution Recommendations - Measures/programs to be discontinued/scaled back (non-strategic)

Measure/ program	Recommended change/ Timing of change	Rationale for recommendation
New gas boilers and furnaces for market rate multifamily	Eliminate incentives as quickly as possible	Current incentives for market rate multifamily boiler replacements are not lucrative enough to significantly impact decision making, so these incentives can be phased out with little adverse impact to the market
New gas boilers and furnaces for affordable housing and DACs	Keep these incentives until 2025, though eliminate incentives for steam boilers as quickly as possible. Recognize that LL97 penalties might pose unique issues for affordable housing that should be considered on policy.	To enable affordable housing to electrify, it is critical that we establish incentives for electrical upgrades, rate design that supports electrification, and procedures that avoid passing heating costs to tenants. We recommend establishing a timeline and milestones to enable electrification in affordable housing and phase out any incentives for new fossil fuel equipment for affordable housing by 2025. There is no meaningful efficiency benefit to replacing an existing steam boiler with a new steam boiler; this is business as usual capital work and should not receive efficiency incentives

Large Multifamily Residential Gas EE Program Evolution Recommendations - Measures/programs to be continued (neutral)

Measure/ program	Recommended change	Rationale for recommendation
Boiler / Burner Repair	Continue incentives for natural gas-fired boiler/burner repair, comprehensive steam system optimization including radiator steam traps and valve replacements, pipe insulation and HVAC/DHW controls. Incentives for the implementation of only portions of the comprehensive scope (i.e., just steam traps or steam traps + pipe insulation) should be eliminated as soon as possible.	These measures have excellent paybacks and would not lock in owners to their gas service like a boiler or furnace replacement. These measures are also much more popular amongst existing incentive programs for multifamily, and we should continue to build on that momentum.
Radiator Traps & Valves		
HVAC and DHW Controls		

SMALL RESIDENTIAL***Small Residential Gas EE Program Evolution Recommendations - High Level Summary***

- Prioritize funding for strategic measures such as heating and DHW electrification, building shell improvements and demand flexible electric appliances.
- Eliminate funding for non-strategic measures such as fossil-fuel fired HVAC and DHW.
- Allow for programs that support neutral measures such as behavioral, controls and hybrid system if they provide value from a lifetime savings basis and do not jeopardize investments in strategic measures.

Small Residential Gas EE Program Evolution Recommendations - Measures/programs to be expanded (strategic)

Measure/ program	Recommended change/ Timing of change	Rationale for recommendation
HVAC and DHW- Heat pump electric	Expand budgets for full heating load electrification HVAC measures. Electrification budgets should be long-term. Funding and incentives for HPWHs should be maintained.	Annual electrification budgets should be increased to ensure annual market demand can be met and HVAC electrification incentives should be at a level that encourages full heating load electrification and decommissioning. Long term funding and market certainty have been identified as key elements of successful long-term thermal decarbonization efforts.
Building Shell	Expand and simplify incentives for building envelope and weatherization measures with a focus on whole-home and performance-based incentives.	All utilities should have a building shell improvement program. Improved building shell's lower peak demand are essential to efficient electrification. Whole-home and performance-based incentives overcome program cost-effectiveness concerns, bring private capital to the market, and help ensure quality installations.
Demand Flexible Electric Appliances	Provide kicker incentives for HVAC and DHW appliances equipped with demand flexibility capabilities.	Demand flexible appliances enable the cheapest and quickest deployment of clean energy today while also equipping New York with the tools to address future grid reliability concerns (i.e., peak winter demand).

Small Residential Gas EE Program Evolution Recommendations Measures/programs to be discontinued/scaled back (non-strategic)

Measure/ program	Recommended change/ Timing of change	Rationale for recommendation
New fossil fuel HVAC measures (boilers, furnaces, water heaters, etc.)	Eliminate funding and incentives as quickly as possible.	Incentives that encourage the adoption of new fossil fuel powered heating equipment are misaligned with New York's decarbonization goals. For example, the Climate Action Council draft recommendations include the development of appliance standards prohibiting new fossil fuel equipment installs. High-efficiency, fossil-fuel equipment already has market share in New York and no longer needs to be incentivized. Boilers and furnaces with >95% efficiency already account for ~60% of the market.

Small Residential Gas EE Program Evolution Recommendations Measures/programs to be continued (neutral)

Measure/ program	Recommended change/ Timing of change	Rationale for recommendation
Behavior/Home Energy Reports HVAC/DHW Controls HVAC/DHW Hybrid system Ensure that these reports also include education and information designed to increase awareness of the pressing need for de-carbonization strategies to be implemented ASAP.	Funding levels for behavioral, controls, and hybrid measures for gas or fuel savings can be maintained if they are proven to be cost-effective on a lifetime program savings basis.	These measures provide meaningful short term energy reductions while not locking in a new fossil fuel appliance. Neutral measure funding should not be prioritized over strategic measure funding.